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TRÊS ENSAIOS EM DESENVOLVIMENTO E MEIO AMBIENTE: DEMOCRACIA, VALORES HUMANOS E FELICIDADE NO CONTEXTO AMBIENTAL CONTEMPORÂNEO

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Tese apresentada como requisito parcial para a obtenção do grau de Doutor em Economia, pelo Programa de Pós-Graduação em Economia da Escola de Negócios da Pontifícia Universidade Católica do Rio Grande do Sul.

Orientador: Prof. Dr. Ely José de Mattos

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Prof. Dr. Leonardo Beroldt

RESUMO

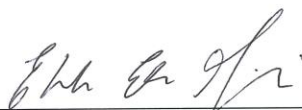A tese centra-se em três temas diferentes que permeiam o debate sobre sociedade e ambiente. A hipótese central construída é de que fatores e contextos socioeconômicos, culturais e políticos condicionam comportamentos em diferentes níveis de engajamento, de modo que moldam diferentes percepções sobre a sustentabilidade. A hipótese nasce do argumento de que existem diferentes relações sociedade-natureza que se manifestam à nível macro e micro escalar, de tal maneira que se torna equivocado estruturar o debate ambiental a partir de uma única relação linear. Para verificar a sustentação da hipótese, a tese é estrutura em 3 ensaios. O ensaio 1 aborda a relação entre desigualdade de renda, democracia e desempenho ambiental em diferentes países. A partir de um modelo econométrico em painel com efeitos fixos, encontrou-se três evidências principais: i) a democracia como regime político não induz maior comprometimento com o meio ambiente, ii) reduzir a desigualdade de renda não garante melhores relações socioambientais, iii) países mais livres tendem a ter um melhor desempenho ambiental. O ensaio 2 argumenta que existem boas evidências para indicar que os contextos pessoais informam e afetam muitas decisões que os indivíduos precisam tomar, incluindo aquelas associadas ao meio ambiente. Os resultados indicam que uma pessoa pode manter um conjunto de valores pró-ambientais, mas ainda assim não se envolver em práticas sustentáveis. Da mesma maneira, uma pessoa pode ser caracterizada como tendo um perfil não pró-ambiental, mas possuir fatores contextuais em sua vida que a incentiva se envolver com o meio ambiente. O ensaio 3, por sua vez, examina a relação entre desempenho ambiental e felicidade em nível global. A análise mostra que o desempenho ambiental exerce um papel significativo como preditor de felicidade. Enquanto observamos que os países mais livres demonstraram vínculos significativos e positivos entre o WHI e o EPI, os países parcialmente livres estavam relacionados a uma associação inversa, embora insignificante estatisticamente. Os países não livres, por sua vez, não apresentaram efeito significativo do desempenho ambiental no nível de felicidade.

Palavras-chaves: Democracia; valores; felicidade; meio ambiente.

ABSTRACT

The thesis focuses on three different themes that constitute the debate on society and environment. The thesis' central hypothesis is that socioeconomic, cultural and political factors and contexts condition behaviours at different levels of engagement, shaping different perceptions of sustainability. The hypothesis arises from the argument that there are different societal relations that manifest themselves at the macro and micro-scalar levels, so that it becomes equivocated structuring the environmental debate from a single linear relationship. In order of verifying if the hypothesis can be support, the thesis is structured in 3 essay. Essay 1 addresses the relationship between income inequality, democracy and environmental performance in different countries. From a panel econometric model with fixed effects, three main evidences were found: i) democracy as a political regime does not induce greater commitment to the environment, necessarily, ii) reducing income inequality does not guarantee better social and environmental relations, necessarily and iii) freer countries tend to have better environmental performance. Essay 2 argues that there is good evidence to indicate that personal contexts inform and affect many decisions that individuals need to make, including those associated with the environment arena. The results indicate that a person can maintain a set of pro-environmental values but still not engage in sustainable practices. Similarly, a person may be characterized as having a non-environmental profile, but having contextual factors in his or her life that encourages them to be involved with sustainability. Essay 3 examines the relationship between environmental performance and global happiness. The analysis shows that environmental performance plays a significant role as a predictor of happiness. While we observed that freer countries exhibited significant and positive links between environment and happiness, partially free countries show the opposite with some statistically insignificant associations. Non-free countries, in turn, exhibited no significant impact of environmental performance on the level of happiness.

Keywords: Democracy; values; happiness; environment.

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1. INTRODUÇÃO

O processo histórico do desenvolvimento mundial é caracterizado por momentos de crises e outros de prosperidade. Esse caráter cíclico também é identificado na relação sociedade-natureza, uma vez que as pressões exercidas atualmente diferem daquelas dos séculos precedentes, colocando em cheque a sustentabilidade a longo prazo (BERTHE e ELIE, 2015; JACKSON e SENKER,2009). Em um mundo composto por 7,6 bilhões de pessoas que aceleram a degradação da natureza, questiona-se: para onde vamos e o que buscamos?

Atualmente, a questão ambiental não ocupa apenas um espaço político e de amarras macro decisórias. A busca por um equilíbrio entre as esferas social, econômica e ambiental também perpassa o dia-a-dia dos indivíduos influenciando suas atitudes e seus comportamentos. Isso sugere que o desafio para se alcançar relações sociedade-ambiente mais harmoniosas está também em compreender o contexto local e individual.

A tese visa problematizar a multifatoriedade que estabelece o debate ambiental. Dentro desse contexto, e considerando a multidisciplinariedade desta discussão, questiona-se: o que os regimes políticos, os valores humanos e os níveis de felicidade dos países sugerem sobre as diferentes percepções, conduções e ideias referentes a sustentabilidade? De forma específica, a tese busca trazer evidências sobre o papel da democracia e dos valores humanos na condução de desempenhos e engajamentos mais sustentáveis interpaís e inter indivíduo, além de verificar o impacto da qualidade ambiental na felicidade das diferentes nações.

Diante do exposto, a hipótese central construída é: Fatores e contextos socioeconômicos, culturais e políticos condicionam comportamentos em diferentes níveis de engajamento, de modo que moldam diferentes percepções sobre a sustentabilidade. A hipótese nasce do argumento de que existem diferentes relações sociedade-natureza que se manifestam à nível macro e micro escalar, de tal maneira que se torna equivocado estruturar o debate ambiental a partir de uma única relação linear. Portanto, é importante que à complexa e paradoxal discussão sejam incorporados tanto aspectos genéricos inerentes à uma sociedade, como regime político, desigualdade, desenvolvimento econômico, quanto características culturais e elementos periféricos do cotidiano, como valores, engajamentos, percepções de qualidade de vida, bem-estar e felicidade.

Para verificar a sustentação da hipótese abordada, a tese constrói-se a partir de três ensaios. O primeiro deles demonstra a dinâmica relação entre concentração econômica, regime político, liberdade e desempenho ambiental ao longo do tempo. A principal contribuição do

ensaio é evidenciar que como existem diferentes relações sociedade-ambiente dadas as multiplicidades de perfis de países, é necessário estabelecer parcimônia na discussão.

O segundo ensaio, elaborado no período de doutorado sanduíche na Universidade de Brighton sob orientação do professor Neil Ravenscroft, discute o papel dos valores humanos (transcendentais e contextuais) no comportamento individual. A principal contribuição deste ensaio é a elaboração de uma exposição teórica, cuja robustez é verificada empiricamente, onde se sustenta o argumento de que os contextos pessoais são os principais condutores de comportamentos, sejam eles pró-ambientais ou não. A principal discussão é que enquanto alguns engajamentos são diretamente (in)formados por situações socioeconômicas, políticas e demográficas específicas, como reduzir o uso do carro e economizar energia, outros sugerem ser influenciados por um conjunto de valores. Nesse sentido, ressalta-se que o comportamento e o contexto individual são chaves importantes para compreender como a sustentabilidade é deliberada.

O terceiro ensaio, por fim, versa sobre os efeitos da qualidade ambiental na felicidade nacional. A principal contribuição deste artigo é evidenciar que embora a qualidade do meio ambiente, por si só, esteja relacionada com o nível de felicidade em diferentes países, aspectos políticos (como status de liberdade e de democracia efetiva) também se estabelecem como condicionantes dessa relação. Essa diversidade de relações ressalta, pois, que a performance do governo, seja ambiental ou política, afeta de maneiras diferentes o bem-estar subjetivo das pessoas.

Os ensaios estão apresentados nas seções subsequentes. Nelas expõe-se as motivações para a execução das pesquisas, os questionamentos centrais propostos, os objetivos norteadores e os métodos utilizados. As seções de resultados e discussões têm como objetivo trazer evidências e pistas sobre a resposta do problema de pesquisa proposto. A tese finda no capítulo de conclusões, onde verifica-se a sustentação da hipótese colocada.

2. PRIMEIRO ENSAIO: Nações equânimes, livres e democráticas são mais sustentáveis?

Resumo: Este artigo examina a relação entre o tipo de regime político, o grau de liberdade política e direitos civis e o nível de concentração de renda com diferentes desempenhos ambientais. Com uma amostra de 161 países para o período de 2007 a 2016, utiliza-se um modelo de efeitos fixos em painel. Os resultados evidenciam uma relação negativa entre regime político democrático, desigualdade econômica e melhores scores de performance ambiental. Isto sugere que a democracia enquanto regime político não necessariamente induz um maior comprometimento para com questões de cunho ambiental, assim como a redução da desigualdade de renda não garante que as relações sociedade-meio ambiente sejam mais harmoniosas. Verificou-se, porém, uma associação positiva entre a democracia, enquanto expansão de direitos e liberdades, e o índice ambiental analisado, o Environmental Performance Index (EPI). Tais resultados sugerem que países mais livres tendem a ter melhores desempenhos ambientais. No entanto, o artigo adverte cuidados com interpretações generalizadas e salienta a importância de considerar a diversidade de perfis de países, os quais caracterizam as distintas e particulares relações com o meio ambiente.

Palavras-chave: desigualdade, democracia, meio ambiente.

2.1 INTRODUÇÃO

Há décadas as Ciências Sociais e Ciências Sociais Aplicadas vêm trazendo perspectivas distintas sobre os efeitos das ações antrópicas e dos fatores condicionantes da degradação ambiental. Além dos aspectos econômicos amplamente investigados, como renda nacional, atividade econômica (Grossman e Krueger, 1991; 1995a; Shafik e Bandyopadhyay, 1998; Panayotou, 1993; 2016) e desigualdade (Borguesi, 2006; Jorgueson, et al., 2016), a influência dos diferentes arranjos políticos domésticos e entre as nações revelam engajamentos distintos com a proteção do meio ambiente (Dryzek, 1987; Congleton, 1992; Downey e Strife, 2010).

Os problemas ambientais possuem, geralmente, baixa visibilidade governamental, requerem soluções plurais e multifacetadas e possuem um retorno de resposta mais lento em comparação à ações em outras dimensões (Povitkina, 2018a; 2018b). Dada a sua complexidade para os tomadores de decisão, vem crescendo o interesse em analisar o papel da democracia e das instituições políticas para a manutenção e sustentação dos bens públicos associados aos diferentes ambientes naturais (Midlarsky, 1997; 1998; Li e Reuveny, 2006; Buitenzorgy e Mol, 2011).

Este trabalho examina a relação empírica entre desigualdade de renda, elementos políticos relacionado a democracia e a performance ambiental em escala global. Avalia-se,

portanto, os efeitos do tipo de regime político, do nível de concentração de renda e do grau de liberdade política e direitos civis sobre o desempenho das políticas ambientais estabelecidas mundialmente. Com base nesses propósitos, questiona-se: é razoável afirmar que sociedades democráticas, livres e desiguais são mais sustentáveis?

Com esse propósito, a pesquisa contribui especialmente em três aspectos. Do ponto de vista metodológico, inova ao incorporar um índice multidimensional de indicadores ambientais que agrega elementos relacionadas tanto a saúde humana quanto a vitalidade dos ecossistemas. Do ponto de vista teórico, avança ao analisar conjuntamente o papel da desigualdade de renda e da democracia no contexto da qualidade ambiental. Ainda, do ponto de vista metodológico e teórico, inova ao propor debater a democracia a partir de duas perspectivas – enquanto regime político institucionalizado e enquanto níveis de liberdades e direitos –, incorporando dois diferentes índices.

A seção seguinte apresenta os argumentos teóricos e as evidências empíricas encontrados na literatura que discute a relação desigualdade-democracia-meio ambiente. Na seção subsequente é descrita a abordagem metodológica utilizada, expondo-se o método estatístico e as bases de dados. A seção consecutiva discute os resultados encontrados, dialogando com a literatura já existente. Por fim, a seção final apresenta as principais conclusões sobre a relação proposta, assim como as limitações do estudo e proposições futuras.

2.2 DESIGUALDADE, DEMOCRACIA E MEIO AMBIENTE

A partir da década de 1990, a literatura interessada em compreender os encadeamentos entre desenvolvimento e meio ambiente ganha maior volume. A investigação a respeito da relação existente entre renda e degradação ambiental representa uma das diversas vertentes do debate. Das contribuições mais importantes, destacam-se os estudos preliminares de Grossman e Krueger (1991; 1995a; 1995b; 1996) que, com respaldo na pesquisa de Kuznets (1955) sobre a relação entre crescimento econômico e distribuição de renda (conhecida como Curva de Kuznets), expandiram a proposta inicial para questões ambientais. Com isso, buscaram compreender se o crescimento econômico é prejudicial ao meio ambiente ou se o aumento da riqueza e da renda resulta eventualmente em uma melhoria aos problemas ambientais.

Tais autores, assim como Panayotou (1993), e de maneira mais recente, Andreaoni e Levinson (2001), Dinda (2004), Carson (2010) e Panayotou (2016), verificaram que a relação entre alguns poluentes e o crescimento da renda nacional era representada por uma curva no formato de "U" invertido, conhecida como Curva Ambiental de Kuznetz (CAK). Conforme os

argumentos apresentados nessas pesquisas, o formato da CAK exibe tal definição porque a (inevitável) pressão ambiental cresce acentuadamente nos estágios primários de desenvolvimento em que a atividade econômica é mais intensa, desacelera e, então, encontra um ponto de inflexão. A partir deste estágio, com o crescimento da renda per capita encontram-se incentivos para reduzir os impactos no meio ambiente. Essa tendência ocorre porque a relação entre renda e degradação está vinculada a uma demanda mais expressiva por políticas e padrões ambientais mais rigorosos, de forma que maiores níveis de renda se associam positivamente à melhores *outcomes* ambientais.

A hipótese da CAK sugere, principalmente, que o crescimento econômico em seu curso natural induz melhorias ambientais e, por esta razão, pode ser considerado como uma solução à degradação ambiental. No entanto, conforme apontaram Grossman e Kruguer (1995), a relação proposta não pode ser compreendida como automática, mesmo que algumas evidências sugiram que sim.

Com intuito similar de investigar os fatores socioeconômicos da degradação, Boyce (1994) questionou se uma maior vigilância para com questões ambientais estaria associada diretamente ao nível da renda, como sugere a hipótese da CAK, ou se também haveria uma relação com o processo político. Suas contribuições são fundamentais para esse debate sobretudo porque sugerem, com base na teoria microeconômica, que a decisão social ótima entre demanda e qualidade ambiental é ponderada pelo poder de determinados grupos sociais, o que ele denomina de "Regra de Decisão Social Ponderada pelo Poder" (*Power-Weighted Social Decision Rule*).

Para Boyce (1994), a desigualdade de poder e de renda existente entre diferentes grupos da sociedade é o elemento chave para compreender essa relação. De acordo com o modelo teórico proposto por ele, o ótimo social seria dado a partir do nível de degradação que maximizaria o benefício social líquido. Isto é, o custo marginal social da atividade econômica degradante seria igual ao benefício marginal social desta. No entanto, quando é considerada a existência de desigualdade, ou seja, quando a maximização dos benefícios é ponderada pelos indivíduos mais poderosos (em termos de riqueza e poder político) esse equilíbrio tende a beneficiar os "ganhadores". Estes, o autor destaca, são indivíduos que obtêm benefícios líquidos dos problemas ambientais externalizados pelas atividades econômicas ambientalmente degradantes em razão de não arcarem com os custos da degradação (se produtores) ou por acessarem bens e serviços com preço mais reduzido (se consumidores) (Boyce, 1994; Torras e Boyce 1998).

Nesse sentido, quando o grupo beneficiário possui mais poder que os demais que sofrem os custos ambientais, o ótimo social é ineficiente do ponto de vista de redução da degradação. Isso ocorre porque considera-se uma correlação positiva entre benefício e poder, sugerindo uma menor vigilância dos "ganhadores" a favor de uma redução dos danos ambientais, dado o maior benefício absorvidos por eles. Por consequência, maior desigualdade associa-se com maior degradação (Boyce, 1994; 2003; 2007; Boyce, *et al*., 1999).

Essas hipóteses foram empiricamente testadas no trabalho de Torras e Boyce (1998) que, com um modelo econométrico *cross-country*, investigou a relação entre mudanças na distribuição de renda e alterações nos níveis de poluição em diversos países nos anos iniciais da década de 1990. Para os autores, a distribuição de poder entre grupos sociais foi central para entender essa associação. Os resultados encontrados sugeriram que uma distribuição de poder menos igualitária, representada por uma maior concentração de renda, menores níveis de educação, de liberdade políticas e direitos civis, tenderia a elevar o dano ambiental gerado pelas atividades econômicas. Isso ocorreria porque os indivíduos considerados "ganhadores" teriam maior acesso ao excedente que seria gerado ao não incorporar ao preço final dos bens e serviços o custo da degradação ambiental. Portanto, níveis maiores de desigualdade seriam prejudiciais à uma melhor qualidade ambiental.

Baek e Gweisah (2013), Jorgenson, *et al*. (2016; 2017), Kasuga (2017), Knight, *et al*. (2017) e Kashwan (2017), embora tenham utilizados métodos estatísticos distintos, encontraram resultados semelhantes. Ravallion, *et al*. (2000), Borghesi (2006) e Grunewald, *et al*. (2016), por outro lado, encontraram evidências múltiplas, ora confirmando as hipóteses de Boyce, ora refutando-as. De maneira geral, esses últimos autores destacaram que a relação entre desigualdade e qualidade ambiental dependeria tanto das variáveis analisadas como da escala de análise.

Scrugss (1998) também investigou a relação entre sustentabilidade e desigualdade. Todavia, o autor apontou alguns problemas nas premissas apresentadas nos estudos de Boyce e seus colegas, se colocando do lado oposto do debate. Segundo Scrugss (1998), a hipótese da equidade proposta por Boyce falha em dois aspectos: em considerar que renda per capita está linearmente relacionado com degradação ambiental e em considerar que a tomada de decisão social feita coletiva e democraticamente proporciona necessariamente as melhores soluções para os problemas ambientais.

Para Scrugss (1998), indivíduos mais ricos e poderosos não necessariamente prefeririam maior degradação, de forma que assumir correlação positiva entre renda e degradação seria equivocado. Segundo os resultados encontrados por ele, o impacto da

desigualdade de renda variou conforme o indicador ambiental utilizado, não confirmando a hipótese da equidade de forma generalizada. Além disso, argumentou que as escolhas sociais feitas por nações mais igualitárias não garantiriam, necessariamente, uma maior proteção ambiental frente às nações mais desiguais. De forma geral, os resultados de sua pesquisa indicaram que a performance ambiental global estava mais associada com o nível de renda, indo em direção às abordagens econômicas clássicas, do que com os efeitos da desigualdade defendidos por Boyce.

Holts-Eakin e Selden (1995) e Heerink, *et al.* (2001) também corroboraram os argumentos de Scrugss. Os primeiros, por exemplo, apresentaram evidências de que a degradação variava conforme o nível de renda e que, inclusive, poderia diminuir com níveis mais elevados desta, quando indivíduos mais ricos destinassem menores parte de sua renda para o consumo. Já Heerink, *et al.* (2001) argumentaram que, em curto e médio prazo, a redistribuição de renda poderia contribuir para uma redução da proteção ambiental porque a propensão ao consumo de bens e serviços intensivos em degradação tenderia a elevar-se, induzindo um também aumento da propensão a degradar.

O controverso debate sobre desigualdade de poder e de renda abriu espaço para novas discussões que incluíam questões relacionadas ao sistema institucional e político das sociedades. Com isso, surgiu o interesse em avaliar como a tomada de decisões referentes as questões ambientais poderiam estar relacionadas com o tipo de regime político. Em outras palavras, buscou-se compreender se a democracia era benéfica ou prejudicial ao meio ambiente e em que contextos essa associação se verificava, como similarmente feito em Farzin e Bond (2006), Scrugss (2009), Downey (2015), e Povitkina (2015; 2018a; 2018b;)

Nas concepções da teoria clássica de Schumpeter (1962) entende-se democracia como um método em que se utiliza um arranjo institucional *"for arriving at political decisions in which individuals acquire the power to decide by means of a competitive struggle for the people´s vote"* (Schumpeter, 1962 [2010], p. 269). Assim, a democracia enquanto regime político é compreendida como um método para selecionar políticos ou, como Mill (1861) sugere, como uma forma de governo cujas regras e tomada de decisões sociais são manuseadas por um representante autorizado à tal, segundo o princípio da "democracia representativa". Ademais, passou a estar associada ao nível do poder político distribuído em uma determinada sociedade, ou seja, "*the ability of individuals and groups to influence the decision of the society*" (Bollen e Paxton, 1997, p.15).

Com o passar dos séculos, ao significado de democracia foram sendo associados ideias e princípios, como direitos civis e liberdades políticos e sociais. Estes são alguns dos princípios

básicos atribuídos a democracia liberal. No entanto, conforme salienta Cunningham (2009), a Ciência Política apresenta diferentes teorias democrático-liberal que são orientadas por diferentes concepções sobre o valor da democracia, sobre como sociedades democráticas devem funcionar e até mesmo sobre a semântica do significado de palavra propriamente dita. Por isso, a compreensão da democracia enquanto regime político e o que ela representa enquanto ideia é cada vez mais rígida e complexa.

De acordo com Midlarsky (1997; 1998), apesar das complexidades existentes nos conceitos de desigualdade e democracia, diferentes campos da ciência investigaram a relação entre esses dois aspectos. Na esfera ambiental, o nível de participação das instituições políticas e a performance dos governos passaram a ser pontos de debate associados à alguns *outcomes* ambientais já observados, alimentando a discussão sobre políticas necessárias voltadas ao meio ambiente.

De acordo com Congleton (1992), as instituições políticas influenciam a degradação (positiva ou negativamente) na medida em que direcionam as políticas ambientais e de crescimento econômico. Logo, a performance do de regime político apresenta uma relação direta com a performance ambiental.

Pesquisas como as de Smith (2003), Bättig e Bernauer (2009), Bernauer e Koubi (2009), Buitenzorgy e Mol (2011), Povitkina, *et al*. (2015) destacaram a existência de uma associação positiva entre regime político (como proxy de "poder") e meio ambiente baseada estritamente no conceito de democracia. Conforme argumentado por Povitkina (2015; 2018a; 2018b) e Congleton (1992), essa associação tenderia a ocorrer principalmente porque um sistema democrático, onde elege-se políticos a partir de eleições livres e competitivas, buscaria aproximar-se ao máximo das preferências agregadas e interesses do cidadão mediano. Nesse sentido, as políticas se inclinariam a atender a demanda da maioria, diferentemente da tomada de decisão ocorrida no regime autocrático, onde o voto de um grupo não eleito representativamente é priorizado.

Segundo Olson (1993) e McGuire e Olson (1996), sociedades não democráticas são governadas por uma pequena parcela da população denominada "elite". Esta visa primordialmente aumentar sua riqueza pessoal e atender seus interesses individuais. Por isso, em regimes autocráticos encontra-se pouco interesse no investimento de bens públicos que beneficie outras parcelas da população, como a qualidade ambiental. Portanto, se o custo de oportunidade associado à provisão do bem público estiver sob controle da "elite", a qualidade ambiental tende a ser pouco provida.

Ainda, em regimes autocráticos os fluxos de informação são menores, visto o maior controle exercido sobre a mídia. Deste modo, as tomadas de decisão são menos participativas e mais autônomas (Li e Reuveny, 2006). De maneira oposta, sociedades democráticas melhor respeitam a liberdade de expressão e encorajam a disseminação de informação, aumentando a conscientização a respeito dos problemas ambientais e incentivando uma legislação ambiental mais rígida (Schultz e Crocket, 1990; Payne, 1995).

Porém, Midlarsky (1998) salienta que a maior parte dos argumentos supracitados se sustentam sob uma idealização da democracia. Ou seja, ignoram que a tomada de decisão pode ser conduzida sob um cenário de competição entre diferentes grupos da sociedade que lutam entre si nas instâncias legislativas e executivas do poder governamental. Um exemplo disto são os antagonismos apresentados entre as corporações e os grupos ambientalistas. Considerando este contexto, o regime democrático pode estar longe do ideal quanto ao seu papel na condução de políticas públicas pró-ambientais, uma vez que os problemas ambientais afetam diferentes grupos sociais de distintas maneiras. Assim, a democracia pode não ser eficiente para fins de um direcionamento para a sustentabilidade e proteção ambiental.

Argumento semelhante ampara-se na perspectiva trazida na "Tragédia dos comuns". Hardin (1968) enfatizou que o excesso de liberdade e de individualismo comum nas sociedades democráticas traria como consequência uma maior degradação. Segundo ele, apenas o esforço coletivo conduziria a uma melhora na qualidade do meio ambiente. Assim, argumenta que em regimes não democráticos o poder coercitivo poderia induzir uma redução da degradação via diminuição das liberdades individuais e do controle ao acesso aos bens públicos.

Pesquisas como as de Dryzek (1987) e Midlarsky (1998) convergem com esses argumentos ao sugerirem que democracias capitalistas tenderiam a priorizar a economia de mercado e a atuação das corporações cujos interesses econômicos prevalecem, tornando menor o espaço de ações voltadas para questões ambientais. Isto ocorre porque o interesse desses grupos pauta-se majoritariamente na maximização do lucro e de seus benefícios individuais. Atualmente, podemos corroborar esses argumentos analisando a atuação de diversos governos. No Brasil, por exemplo, alguns governantes com vieses mais liberais estão ligados aos interesses da chamada "bancada ruralista", cujos benefícios se pautam, sobretudo, em ações e políticas específicas à um setor produtivo, priorizando a base econômica do tripé da sustentabilidade, em detrimento da base ambiental. No entanto, o argumento de Dryzek (1987) e Midlarsky (1998) enfraquece diante da análise do contexto chinês, onde o sistema político é baseado em um regime não estritamente democrático que também exacerbara os interesses econômicos e intensifica a degradação ambiental dado o padrão de produção e consumo.

Apesar da heterogeneidade de estudos e evidências expostas aqui, a ideia central do debate apresentado pauta-se na discussão sobre a influência do poder e da renda na melhoria da qualidade ambiental, ponto que também é abordado nesta pesquisa. Este estudo avança, no entanto, ao buscar compreender a dinâmica temporal dessa relação considerando duas visões sobre a democracia e um quadro mais amplo de indicadores ambientais. A seção seguinte apresenta a estratégia metodológica utilizada.

2.3 MÉTODO E DADOS

O propósito deste trabalho é investigar como o tipo de regime político, o grau de liberdades e direitos dentro de uma sociedade e o nível de desigualdade de renda estão associados com o desempenho ambiental. Para isto, selecionou-se informações de 161 países para um recorte temporal de 10 anos (2007-2016), dada a limitação da variável dependente (*performance* ambiental). Ao fim, a base de dados foi composta por 1.930 observações e incluiu 8 variáveis – três explanatórias e 6 de controle. Ressalta-se que foram excluídos da base países que não apresentaram nenhuma informação para as principais variáveis. Foram eles: Iugoslávia, Coréia do Norte, Micronésia e Checoslováquia.

Como variável de desempenho ambiental, selecionou-se o *Environmental Performance Index* (EPI) elaborado pelas universidades de Yale e Columbia. Essa mesma variável foi usada em estudos semelhantes a este, como em Nekooei e Zeinalzadeh (2015) e Telle (2015). A escolha pelo EPI deu-se pelo interesse em analisar o desempenho ambiental dos países a partir de um conjunto de indicadores ambientais ao invés de direcionar a análise para os *outcomes* propriamente ditos, como já amplamente abordado na literatura. Com isso, é possível executar uma análise multidimensional sobre diferentes aspectos associados a qualidade do meio ambiente.

O EPI classifica o desempenho das nações em questões ambientais referentes a proteção da saúde humana e a proteção dos ecossistemas. Estruturalmente é constituído por dois objetivos, saúde ambiental e vitalidade do ecossistema, que são compostos por mais de 20 indicadores[1]. As informações referentes à saúde ambiental mensuram a proteção da saúde humana contra a dano ambiental, enquanto que os dados referentes à vitalidade do ecossistema medem a proteção do ecossistema e o gerenciamento dos recursos naturais. Os resultados vão de 0 a 100, em que quanto mais próximo de 100, melhor é a performance dos países em relação

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[1] Anexo 1.

às metas de cada indicador (Yale University, 2017; Hsu, *et al.*, 2017). Para o modelo econométrico proposto, foi utilizado o *score* final do EPI como variável dependente.

Para a variável representativa da desigualdade, elencou-se o Índice de Gini extraído da base de dados denominada "*Standardized World Income Inequality Database* (SWIID - http://fsolt.org/swiid/)", elaborado por Solt (2009) e amplamente utilizado na literatura. A base utilizada referiu-se à última atualização de Solt (2017). Foi utilizado o Gini calculado com base na renda disponível, isto é, pós pagamento de impostos e/ou transferências. O índice varia de 0 a 100, com 0 representando uma total igualdade, isto é, a renda de todos os indivíduos é igualmente distribuída, e com 100 representando uma desigualdade total, ou seja, a renda é concentrada em apenas um indivíduo. O índice também foi utilizado nas pesquisas de Knight, *et al.* (2017) e Grunewald, *et al.* (2017).

Com vistas a incorporar a democracia na relação sociedade-ambiente, selecionou-se duas variáveis distintas: o índice *Polity IV* e o *Freedom House Index*. Fazendo isto, a proposta foi avaliar o papel da democracia no contexto ambiental a partir de duas perspectivas: i) considerando a democracia enquanto regime político institucionalizado e ii) considerando a democracia enquanto nível de liberdade e direitos políticos e civis dentro de uma sociedade.

A principal motivação para isto pauta-se no entendimento de que o conceito de "democracia" é amplo e complexo e, por esta razão, quando compreendida de diferentes maneiras pode gerar compreensões dessemelhantes sobre seu papel na promoção da qualidade ambiental. Ademais, acredita-se que cada país possui um perfil diferente no que diz respeito as características do seu regime político, de modo que enquanto uns podem ser democráticos e apresentar níveis maiores de liberdade, outros podem exprimir um padrão diferente. Hipotetiza-se, pois, que essas diferenças refletem, como consequência, distintas performances ambientais.

O *Polity IV*, formulado por Robert Gurr, visa capturar informações sobre a qualidade das instituições governamentais. Ele considera a existência de um "espectro governamental" que inclui desde regimes democráticos plenamente institucionalizados, até regimes mistos ou anocráticos[2] e autocracias plenamente institucionalizados.

O resultado final dá-se em forma de *score*, cuja categorização abrange uma escala de 20 pontos, variando de -10 (para casos em que se verifica monarquia hereditária) a +10 (para casos em que se verifica democracia consolidada). O *score* do *Polity IV* também pode ser

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[2] Regime político democrático que possui características de ditaduras ou quando há intensa instabilidade política que torna o regime nem democrático e nem autocrático (Vreeland, 2008).

analisado a partir de "categorias de regime": autocracias (de -10 a -6), "anocracias" (de -5 a +5) e "democracias" (de +6 a +10) (, 2002, p. 1-16).

O *Polity IV* é composto por diversas variáveis que se associam tanto aos regimes autocráticos quanto democráticos (Quadro 1). Isto é, considera-se que cada nação pode apresentar características dos dois regimes. As variáveis, de maneira agregada, compõem um indicador de democracia e outro de autocracia (que somam no máximo 10 pontos cada um, conforme o *score* associado a cada resposta). O *score* final do *Polity IV* é obtido subtraindo a pontuação desse último com o primeiro (Marshall; Jaggers, 2002, p. 1-16). Para o modelo econométrico proposto, transformou-se a escala de resultados em 0 a 20, de modo que quanto maior o *score*, maior o grau de democracia institucionalizada.

Quadro 1. Indicadores, variáveis e seus respectivos pesos – *Polity IV*

Indicador "democracia"		Indicador "autocracia"	
Variável	Pontuação	Variável	Pontuação
Competitividade em relação ao recrutamento do poder executivo		**Competitividade em relação ao recrutamento do poder executivo**	
Dual/Transacional	2	Seleção	2
Eleição	1		
Abertura do processo de recrutamento do poder executivo		**Abertura do processo de recrutamento do poder executivo**	
Dual (Eleição-executivo)	1	Dual/designação	1
Aberto	1	Fechada	1
Restrições do poder do executivo		**Regulação da participação política**	
Paridade Executiva ou Subordinação	4	Restrita	2
Categoria intermediária 1	3	Secretariada	1
Limitações Substanciais	2		
Categoria intermediária 2	1		
Competitividade da participação política		**Competitividade da participação política**	
Competitiva	3	Reprimida	2
Transacional	2	Suprimida	1
Faccional	1		

Fonte: Elaboração própria, com base em Marshall e Jaggers (2002).

O *Freedom House Index* (FHI), por sua vez, difere-se do *Polity IV* ao propor avaliar as liberdades políticas e os direitos civis dos indivíduos de cada nação. Então, enquanto o *Polity IV* caracteriza o país conforme o tipo de regime político, o FHI indica o grau agregado de liberdades e direitos dentro deste.

Estruturalmente, o índice expõe os resultados de três formas: *scores*, classificação e *status*. Os *scores* são convertidos em classificação e, estas, em *status*. No total, o índice contempla 25 indicadores, 10 correspondentes a categoria "direitos políticos" e 15 correspondem às "liberdades civis", listadas no Anexo 2. Para a obtenção do *score*, o país pontua no máximo 40 pontos na primeira categoria e no máximo 60 pontos na segunda. Ao final pode-se obter uma pontuação agregada de até 100 pontos. Quanto mais próximo de 100 o *score* do país se encontrar, maior o grau de liberdade e direitos (Freedom House, 2018).

Posteriormente, os *scores* são transformados em classificações. Estas vão de 1 (maiores condições de liberdade e direitos) a 7 (menores condições de liberdade e direitos). Os países recebem uma classificação para "direitos políticos" e outra para "liberdades civis". Com base na média das classificações, os *status* são determinados. Assim, para cada categoria tem-se três *status*: de 1 a 2,5 denomina-se "Livre", entre 3,0 e 5,0 denomina-se "Parcialmente Livre" e entre 5,5 a 7,0 denomina-se "Não livre". O quadro 2 ilustra o processo até o *status* final (Freedom House, 2018).

Quadro 2. Chave para a o cálculo dos scores e das classificações das categorias do Freedom House

Score total	Classificação para Direitos Políticos (DP)	Score total	Classificação para Liberdades Civis (LC)	Classificação da liberdade	Status da Liberdade
36–40	1	53–60	1	1.0 to 2.5	Free
30–35	2	44–52	2	3.0 to 5.0	Partly Free
24–29	3	35–43	3	5.5 to 7.0	Not Free
18–23	4	26–34	4		
12–17	5	17–25	5		
6–11	6	8–16	6		
0–5	7	0–7	7		

Fonte: Elaboração própria, com base em Freedom House (2018).

Além das duas variáveis explicativas elencadas, foram incluídas algumas variáveis de controle comumente utilizadas em estudos semelhantes. Variáveis demográficas, como i) percentual da população rural e ii) densidade demográfica (em km²), foram inseridas porque são consideradas fatores importantes para a degradação ambiental. Fatores econômicos, como iii) PIB per capita baseado na paridade do poder de compra e iv) valor agregado da indústria (em % do PIB), foram introduzidos dada a forte associação entre crescimento econômico, industrialização e meio ambiente, amplamente debatida na literatura. O iv) Índice de Desenvolvimento Humano (IDH) foi adicionado posto que engloba variáveis relacionadas ao padrão de vida, longevidade e educação. Por fim, introduziu-se v) a receita fiscal (em % do

PIB) como *proxy* do tamanho do estado, para capturar o efeito da capacidade do estado nas questões ambientais. Scrugs (2009), Grunewald, *et al.* (2016), Jorgenson, *et al.* (2017) e Povitkina (2018) também fizeram utilizaram tais variáveis por considerarem a multidimensionalidade como um forte fator na relação entre desigualdade, democracia e meio ambiente.

As variáveis de controle i, iii e iv foram coletadas diretamente do *World Bank Open Data* (2018a; 2018b). A variável ii foi calculada com base no número total de habitantes em cada país em relação à sua área (em km²), variáveis também coletadas do *World Bank* (2018c; 2018d). Por fim, as variáveis v e vi foram, respectivamente, extraídas do banco de informações do *United Nations Development Programme* (UNDP, 2016) e do *International Monetary Fund* (IMF, 2018).

2.3.1 MODELO ECONOMÉTRICO

Para analisar a relação proposta em 161 nações é estruturado um modelo econométrico com dados em painel com efeitos fixos que considera a heterogeneidade entre os países. Anteriormente à aplicação do modelo foi realizado um teste Hausman com o intuito de apurar se o modelo de efeitos fixos era o mais adequado para o desígnio desta pesquisa. A rejeição da hipótese nula indicou sua adequabilidade.

Como cada país tem características individuais invariantes no tempo, é necessário remover esse efeito, o que os modelos em painel conseguem fazer. De acordo com Hill, Griffiths e Judge (1999), os modelos de efeito fixo visam controlar os efeitos associados às variáveis omitidas variantes entre indivíduos, mas invariantes no tempo. Assim, é suposto que o intercepto seja variante de acordo com o indivíduo, mas constante temporalmente. Já os coeficientes das variáveis explicativas são constantes em âmbito indivíduo e tempo.

Por isso, o modelo de efeitos fixos estimado é representado na Equação 1.

$$Y_{it} = \alpha_i + \beta_1\gamma_{1it} + \beta_2\delta_{2it} + \beta_2\sigma_{it} + \beta_3 Z'_{3it} + \varphi_2 T_2 + \cdots + \varphi_t T_t + e_{it} \qquad (1)$$

Onde $i = 1 \ldots n$ países e t = ano. A variável dependente Y é o EPI e as variáveis independentes γ, δ e σ são, respectivamente, o Índice de Gini, *Freedom House Index* e *Polity IV*. Tem-se, também, o conjunto de variáveis de controle, denominada de *Z'*. O termo e_{it} é o

termo de erro de cada país em cada ponto do tempo e o termo α_i é o efeito fixo da unidade de corte transversal (país)

Também foi considerado o efeito do tempo, uma vez que se acredita que a relação proposta muda conforme o passar dos anos. Para isso, foram introduzidas variáveis *dummies* de tempo para cada ano do período de 2008 a 2016. O ano 2007 foi considerado como categoria de referência. No modelo (1), φ_t é o coeficiente da variável binária de tempo e T_t é o ano como variável binária. Ressalta-se que foi considerado *t-1* período.

2.4 RESULTADOS

Para melhor compreender a relação entre desigualdade, democracia e desempenho ambiental elaboraram-se, primeiramente, dois modelos parciais. O modelo (1) incluiu apenas o Índice de Gini, enquanto o modelo (2) abrangeu, também, as variáveis de controle e o efeito do tempo. Os resultados constam na Tabela 1. Enquanto o primeiro modelo expôs uma associação negativa entre concentração de renda e performance ambiental (-0,150), o segundo apresentou o inverso (0,268).

Segundo Torres-Reyna (2007), o uso de modelos de efeitos fixos assume que características invariantes no tempo podem criar um viés na variável preditoras e, por esta razão, há a necessidade de controlar esses efeitos. Portanto, ao incorporar ao modelo (2) o efeito do tempo e as variáveis socioeconômicas e demográficas obteve-se o efeito supostamente líquido do Índice de Gini sobre a variável de resultado (EPI). A inversão do sinal do coeficiente da variável de desigualdade de um modelo para o outro ocorreu devido a inclusão das variáveis de controle, mais especificamente após a inserção das variáveis "percentual da população rural", "IDH" e as *dummies* de tempo.

Tabela 1. Resultados preliminares - EPI

Variáveis	Modelo (1)	Modelo (2)
Intercepto	74,555*** (1,939)	53,865*** (4,870)
Gini	-0,150*** (0,051)	0,268*** (0,041)
PIB per capita (ppc)		-0,000** (0,000)
População total		$-1,68e^{-08}$ † $(8,66e^{-09})$
População rural		-0,032 (0,038)
Densidade demográfica		-0,004*** (0,000)
Indústria (% PIB)		0,013 (0,015)
IDH		16,2454** (5,354)
Impostos (% PIB)		-0,022 † (0,012)
2008		0,032 (0,113)
2009		0,047 (0,124)
2010		1,005*** (0,140)
2011		1,147*** (0,158)
2012		1,449*** (0,179)
2013		1,073*** (0,206)
2014		1,952*** (0,228)
2015		2,135*** (0,249)
Observações	1.187	804
Número de países	162	105
R² dentro	0,008	0,539
R² entre	0,098	0,118
R² total	0,123	0,077

Erros-padrão robustos em parênteses, *** $p < 0,001$, ** $p < 0,01$, * $p < 0,05$, † $p < 0,1$. Variável dependente:

Environmental Performance Index (EPI).

Fonte: Elaboração própria.

As evidências realçadas pelo modelo (2) refutaram em parte a hipótese da equidade proposta por Boyce, uma vez que indicaram uma relação inversa entre desigualdade de renda

e qualidade ambiental. Contrariamente aos argumentos propostos no trabalho de Torras e Boyce (1998), os resultados sugeriram que uma melhor redistribuição de renda dos indivíduos ricos para os mais pobres piora a performance dos indicadores ambientais. Em outras palavras, uma mudança na desigualdade não gera um efeito líquido nas políticas de vitalidade do ecossistema e saúde humana. Neste sentido, os resultados se aproximaram daqueles constatados por Scrugss (1998).

Ao alisarmos a variável de controle "PIB per capita", como amplamente investigado na literatura clássica, observou-se uma relação negativa com os *scores* do EPI. Ou seja, tanto mais afluente o país é, pior é o seu desempenho ambiental. Aqui, o efeito da afluência trouxe evidências que refutam a hipótese levantada por alguns autores, dentre eles Scrugss, de que níveis elevados de renda tendem a induzir uma demanda por maior qualidade ambiental.

Os resultados debatidos até aqui reforçaram que quando a desigualdade é analisada no contexto ambiental, as evidências convergiram para as contribuições de Scrugss (1998). Porém, quando observados apenas os efeitos da renda per capita, como abordado pela literatura da CAK, os resultados se aproximaram dos trabalhos de Boyce (1994) e Torras e Boyce (1998). Isto é, por mais que a redistribuição de renda não tenha apresentado uma associação positiva com altos scores do índice de desempenho ambiental, sugerindo que sociedades igualitárias não necessariamente são mais sustentáveis, níveis elevados de renda estavam relacionados à uma piora da performance das ações voltadas ao meio ambiente, sugerindo que a riqueza é um *driver* da degradação.

Ao considerar o efeito do tempo no modelo (2) assumimos que a performance ambiental altera com o passar dos anos devido a fatores diversos, à exemplo das mudanças tecnológicas, alterações no padrão de consumo, modificações nas políticas ambientais e econômicas, as quais podem ser ou não pró-ambientais. Como os resultados indicaram coeficientes significativos a 99% de confiança para as variáveis de tempo a partir de 2010, o efeito do tempo foi confirmado.

Pela associação positiva encontrada, inferiu-se que ao longo do período de 2010 a 2015 a relação sociedade-natureza foi paulatinamente melhorando em escala global. Os dois anos que não apresentaram significância estatística (2008 e 2009) representam um período de crise e pós-crise na economia mundial, quando houve uma alteração das prioridades nas agendas políticas em diversos países. Neste período, é possível que as questões ambientais tenham sido negligenciadas dadas as adversidades econômicas correntes.

Os efeitos do tempo são reforçados quando se observa, na Figura 1, a evolução dos *scores* médios do EPI e de seus dois objetivos. Em conformidade com o *EPI Report* (2016), as nações vêm apresentando progressões em algumas dimensões, com destaque para a qualidade

da água e saneamento básico. Apesar de também exibirem declínios em alguns indicadores, principalmente em relação à qualidade do ar, estoques marinhos e emissão de CO_2, o que torna o progresso mais lento, o *score* global da performance ambiental vem expressando melhoras desde 2007.

Figura 1. Score médio do EPI e de seus objetivos, 2007-2016
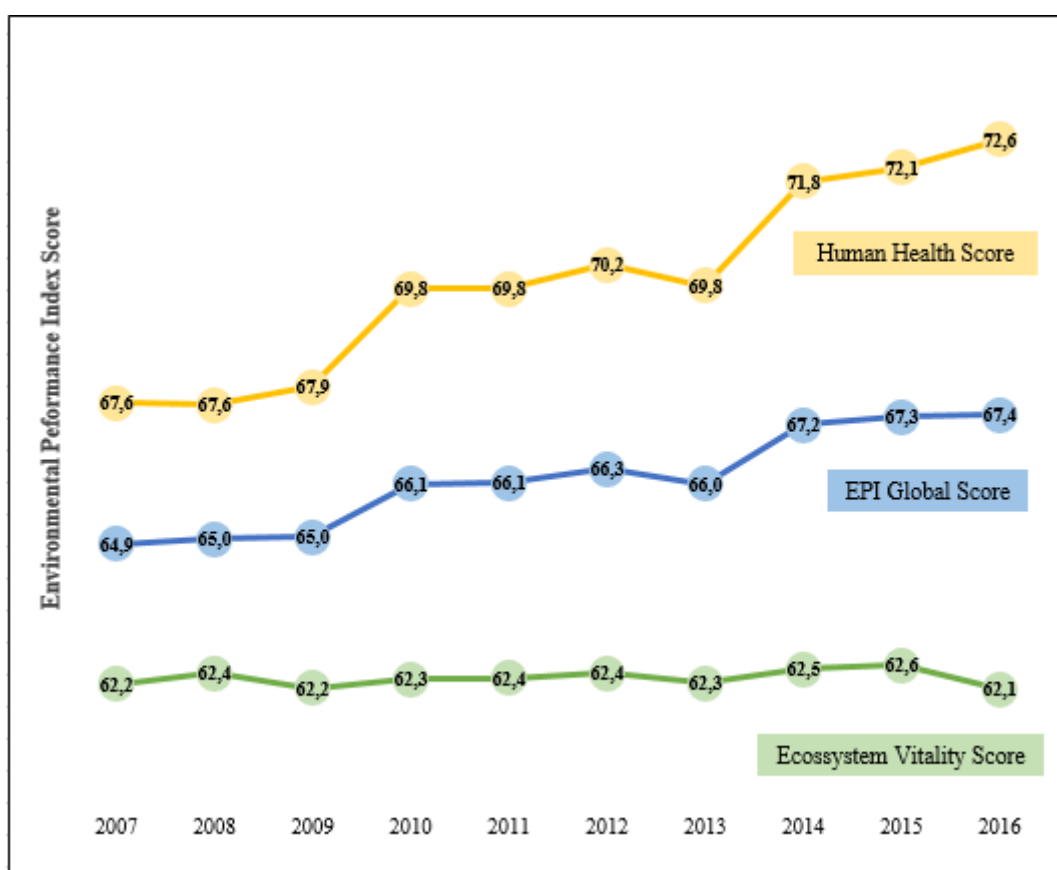
Fonte: Elaboração própria, com base em Yale University (2018).

Disto, discorre-se que a melhora ambiental global está sendo conduzida pelos incrementos anuais do objetivo relativos à saúde humana que, de acordo com Yale University (2018), está positivamente correlacionada com renda e prosperidade. Por outro lado, a vitalidade do ecossistema, negativamente associada com industrialização e urbanização, apresenta maior estabilidade e menor avanço. Estes resultados refletem que os melhores desempenhos são verificados em indicadores que afetam diretamente a saúde dos seres humanos (qualidade da água, saneamento, água potável), ao passo que os piores avanços são verificados nos indicadores de maior impacto nos ecossistemas (recursos hídricos, florestamento, emissão de GEE). Nota-se, assim, o caráter antropocêntrico da relação sociedade-meio ambiente.

Quando foram inseridas as variáveis relativas à institucionalização do regime político e ao nível de liberdade e direitos individuais, a relação entre o EPI e a concentração de renda foi negativa para o primeiro (-0,140), como ilustrado no modelo (3) da Tabela 2. No entanto, quando as variáveis de controle e de tempo são incluídas nos modelos (4) e (5), a relação passa a ser positiva e a magnitude dos coeficientes ficam comparativamente maior (0,286 e 0,284, respectivamente). Isto reforçou a ideia de que uma redução da desigualdade não induziu uma melhoria no desempenho ambiental nem quando aspectos socioeconômicos, políticos e temporais passaram a ser considerados conjuntamente. Isto é, sociedade menos desiguais não necessariamente apresentam boa relação sociedade-natureza, como também sugerido nos trabalhos de Jorgenson, *et a*l. (2016; 2017), Kasuga (2017) e Knight, *et al.* (2017), os quais apontam o padrão de consumo corrente e potencial como o principal fator de degradação ambiental.

Tabela 2. Resultados complementares - EPI

Variáveis	Modelo (3)	Modelo (4)	Modelo (5)
Intercepto	74,346*** (2,038)	54,558*** (4,947)	55,893*** (4,876)
Gini	-0,140** (0,052)	0,286*** (0,040)	0,284*** (0,040)
Polity IV	-0,017 (0,038)	-0,094*** (0,029)	-0,095*** (0,029)
FHI – "Parcialmente livre" "Não livre"	0,952† (0,353) 0,070 (0,510)	0,452 (0,292) -0,817† (0,427)	
FHI – Categoria "Não livre"			-1,275*** (0,309)
PIB per capita (ppc)		-0,000*** (0,000)	-0,000*** (0,000)
População total		$-1,52e^{-08}$ † $(8,53e^{-09})$	$-1,47e^{-08}$ † $(8,53e^{-09})$
População rural		-0,034 0,038	-0,043 (0,038)
Densidade demográfica		-0,004*** (0,000)	-0,004*** (0,000)
Indústria (% PIB)		0,028 † (0,015)	0,026† (0,015)
IDH		15,578** (5,433)	14,628** (5,404)
Impostos (% PIB)		-0,0243† (0,129)	-0,0235† (0,129)
2008		0,058 (0,113)	0,060 (0,113)
2009		0,108 (0,125)	0,117 (0,125)
2010		1,086 *** (0,141)	1,096*** (0,141)
2011		1,243*** (0,160)	1,251*** (0,160)
2012		1,564*** (0,181)	1,576*** (0,181)
2013		1,199*** (0,208)	1,218*** (0,208)
2014		2,060*** (0,230)	2,086*** (0,230)
2015		2,254*** (0,251)	2,281*** (0,250)
Observações	1.097	779	779
Número de países	145	103	103
R² dentro	0,021	0,562	0,560
R² entre	0,018	0,070	0,089
R² total	0,025	0,037	0,051

Analisando unicamente a associação da variável de institucionalização do regime político (*Polity IV*) com o EPI, observou-se pelo sinal negativo dos coeficientes nos três modelos estimados que maiores níveis de democracia se relacionaram com menores *scores* de desempenho ambiental, em média. Ou seja, evidenciou-se uma associação negativa entre regime político democrático e performance ambiental.

De acordo com Congleton (1992), o horizonte de longo-prazo das políticas ambientais é um dos fatores que justificam a associação negativa verificada nos modelos econométricos. Na esfera política, o horizonte temporal influencia diretamente o comportamento dos líderes políticos, assim como seus planejamentos e propostas. Desta maneira, políticos com visões de curto prazo tendem a priorizar ações cujos resultados são percebidos rapidamente, ao passo que governantes com perspectivas de longo prazo tendem a priorizar políticas que geram resultados mais tardios.

Segundo Povitkina (2018a; 2018b), dado o curto tempo dos ciclos eleitorais no regime democrático, os líderes tendem a priorizar políticas de curto prazo para que possam apresentar resultados mais rápidos dentro de seu mandato, favorecendo sua permanência no poder. Assim, as políticas pró-ambientais, que requerem um horizonte maior de tempo em termos de planejamento, ação e resultado, são constantemente negligenciadas.

Embora não sendo possível avaliar pelos resultados do modelo, é importante considerar os argumentos levantados por Huntington (1991, p. 9-10):

> Governments produced by elections may be: inefficient, corrupt, shortsighted, irresponsible, dominated by special interests, and incapable of adopting policies demanded by the public good. These make such governments undesirable but they do not make them undemocratic.

Isto é, a eficácia e a eficiência da democracia enquanto regime político também são elementos importantes nesse debate. Apesar do regime de democracia-liberal expressar uma característica plural ao permitir a participação de diversos grupos sociais na dimensão governamental (Povitkina, 2018a), o grau de sua eficácia difere entre as sociedades. Um governo democrático, porém, corrupto ou dominado por um determinado grupo social, pode não garantir bons desempenhos ambientais. Se corporações com maior poder de influência conduzirem o processo de tomada de decisão, os interesses individuais ou de menor escala

podem ser antepostos ao interesse sociais de maior proteção e qualidade ambiental (Dryzek, 1992; Povitkina; 2018b).

Ainda, conforme Mildaesky (1998), se os grupos mais importantes do governo não estão interessados na legislação ambiental e na garantia do direito à uma proteção dos ambientes naturais, a democracia enquanto regime político é falha para esse fim. Ehrhard-Martinez, *et al.* (2002), por exemplo, evidenciaram que países com regime democrático apenas apresentavam melhorias nos indicadores ambientais quando mostravam o que os autores chamaram de "forte capacidade do estado". Ou seja, quando possuíam boa qualidade de articulação governamental com os diversos entes da sociedade.

Os argumentos expostos dialogam com os resultados obtidos nos três últimos modelos, enfatizando que a democracia enquanto regime político não necessariamente está associada com melhores performances ambientais. Isso ocorre possivelmente devido à fragilidade da democracia – enquanto ideal e enquanto regime político. Por mais que um país apresente um regime democrático em razão da sua forma eleitoral, muitos movimentos autoritários ou que priorizam os interesses particulares de um grupo específico do poder e movimentam-se em direção à corrupção são camuflados pelos líderes eleitos democraticamente, "enfraquecendo os buffers da democracia" (Levitsky e Ziblatt, 2018, p. 2). Um exemplo é o governo de Hugo Chávez na Venezuela.

O indicador *Polity IV* indica o grau de democracia institucionalizada no país a partir de uma avaliação do sistema político do Estado em termos de competitividade e abertura das eleições, da natureza da participação política e do controle sobre a autoridade executiva. Isto é, qualifica o regime político com base no "jogo político". Ao incluir o indicador de liberdade individual (*FHI)* é possível compreender como alguns dos princípios liberais e das práticas democráticas, como direitos políticos e liberdades civis (Cunningham, 2009), também estão relacionadas com o desempenho ambiental.

Os modelos (3) e (4) na Tabela 2 incorporaram o *Freedom House Index* com seus três *status* de respostas, sendo "livre" a categoria de referência. No entanto, quando foram inseridas as variáveis de controle, o coeficiente do *status* "parcialmente livre" não foi estatisticamente significativo. Por isso, optou-se por considerar "livres" e "parcialmente livres" como uma única categoria, sendo esta a categoria de referência frente ao *status* "não livre" no modelo (5).

Os resultados indicaram que, quando desconsiderados outros fatores de influência (modelo 3), ser menos livre induziu uma melhor performance ambiental. Porém, quando as variáveis socioeconômicas e o efeito do tempo foram introduzidos, a associação tornou-se oposta, ou seja, países com maiores níveis de liberdades e direitos associaram-se positivamente

com melhores performances nas questões de proteção humana e dos ecossistemas como um todo.

Esses resultados podem ser corroborados pelo trabalho de Povitkina (2018a) que sugere que a liberdade está multidimensionalmente relacionada com qualidade ambiental. O argumento base é que maior liberdade de expressão e de imprensa favorece um maior acesso a informações referentes aos problemas ambientais vigentes e potenciais, assim como a respeito das falhas e ineficiências dos governos quanto às soluções destes. Ainda, maior liberdade permite que debates sejam feitos, tornando favorável a elaboração de um *feedback* entre a sociedade e as organizações, corporações e partidos sobre as necessárias tomada de decisões.

Da mesma forma, a liberdade de associação permite que grupos de interesse voltados às questões ambientais se organizem. Maior liberdade de expressão e de associação, juntas, dão respaldo para que grupos pró-ambientalistas protestem e se articulem a favor de uma redução das externalidades negativas, tanto a nível local quanto a nível global (Povitkina, 2015; 2018a; 2018b).

Com informações mais intensamente disseminadas, as decisões individuais pró-ambientais podem refletir mudanças não só no dia-a-dia, como no padrão de consumo, mas, também, no âmbito do voto partidário, ao induzir preferências por partidos políticos "verdes" ou que proponham ações com propósito ambiental. Atualmente, verifica-se que o número de partidos ligados à questão ambiental em diversos países cresceu, assim como sua influência no âmbito do voto eleitoral da população. Um dos condicionantes desta situação é o expansivo movimento ambiental dos últimos anos que, com a livre circulação de informações, alterou o comportamento das pessoas.

Ao analisar as evidências encontradas no modelo (5), no entanto, percebe-se algumas contradições interessantes. A democracia enquanto "regime político institucionalizado" e a democracia enquanto "liberdades e direitos políticos e civis" apresentam relações inversas com o desempenho ambiental. Enquanto maiores níveis de democracia institucionalizada não necessariamente sugerem uma maior qualidade ambiental, maiores níveis de liberdade sim. Esse paradoxo pode ter sido gerado pelo indicador *Polity IV*, que apenas classifica o regime com base no jogo político eleitoral, não revelando se a democracia é subvertida pelos líderes eleitos.

A conclusão a que se chega é que, como cada nação tem suas particularidades socioeconômicas e culturais, consequentemente, essas diferenças também são expressas no desempenho do sistema político como um todo. Dada a complexidade e as particularidades

associadas a cada governo, não é realista sugerir a existência de uma única relação entre democracia e desempenho ambiental global.

O mapa da árvore na Figura 2 revela a diversidade de perfis políticos encontrados na amostra para 2016. Sessenta países (maior caixa azul), incluindo Canadá, Argentina e Brasil, foram classificados como democráticos e livres. Apenas 19 foram classificados como autocráticos e não livres, como China, Cuba e Irã. O número de países anocráticos, por sua vez, totalizou 46, indicando muitos casos de regimes mistos. Desse total, 24 foram categorizados como não livres, como a Venezuela, 21 como parcialmente livres, como Marrocos, e apenas o Suriname foi classificado como livre.

Figura 2. Combinação de regime político (Polity IV) e nível de liberdade (FHI) - número de países
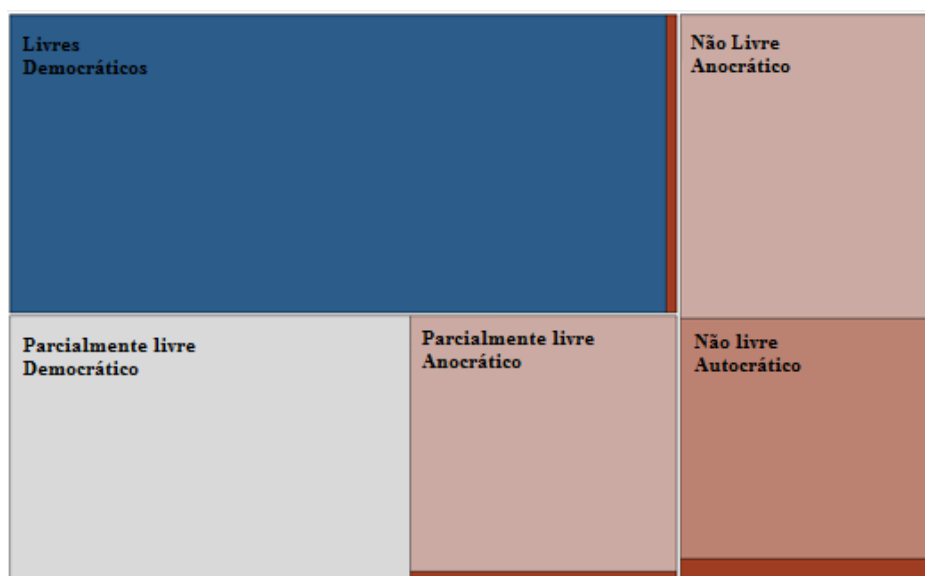
Ao dividir os países em "livres e democráticos" e "não livres e autocráticos" observou-se perfis distintos no que diz respeito à performance ambiental. Em 2016, encontraram-se, no primeiro grupo, 52 países com EPI de *score* alto (de 70 a 100), como a Finlândia, ao passo que 6 países exibiram EPI com *score* médio (de 50-69), como a Índia, e apenas 2 expuseram EPI com *score* abaixo de 50, Benin e *Salomon Islands*. No grupo de países autocrático e não livres, 6 apresentaram *score* alto, como Cuba, 12 exibiram *score* médio, como China, e apenas um país apresentou *score* abaixo de 50, como o caso de Eiriteia. Os resultados sugeriram, portanto, que países democráticos e livres, assim como autocráticos e não livres, podem apresentar tanto performances ambientais altas quanto baixas. Nesta análise, 32 países não foram analisados por insuficiência de informações.

A análise subsequente combinou-se dados referente à democracia e performance ambiental com o nível de concentração de renda. Como havia expressiva falta de cobertura para o ano de 2016, fez-se uma análise sobre o GINI a partir da série histórica 2007-2016. A partir disso, observou-se que a maioria das nações "livres e democráticas" possuíam alto EPI e níveis baixos de desigualdade[3], como a Alemanha. Porém, Brasil e México são exemplos de países democráticos e livres com elevada performance ambiental, mas, com alta concentração de renda. Diferentemente, a maioria das nações "não livres e autocráticas" apresentaram *scores* médios para o EPI, assim como a maioria dos países deste grupo expressam níveis de desigualdade baixos. Exemplos disto são Azerbaijão (EPI alto e desigualdade baixa) e Vietnam (EPI médio e desigualdade baixa).

Essa análise exploratória ilustra, portanto, o paradoxo revelado pelos modelos estimados: níveis mais altos de democracia não se relacionam necessariamente a um melhor desempenho ambiental e a uma distribuição de renda mais igualitária. Isso pode ocorrer devido à presença de características mais conservadoras e até autocráticas mascaradas na democracia - conclusão que é reforçada pelo fato de que apenas as iterações entre as variáveis Gini e FHI ou Polity IV nos modelos não foram estatisticamente significativas. Da mesma forma, nas sociedades autocráticas, pode não haver necessariamente uma relação desarmônica entre indivíduos e o meio ambiente, como exemplificado pelos esforços de Cuba nos últimos anos.

Dada a diversidade de perfis de países, os quais detém características distintas no que concerne ao grau de liberdade, ao tipo de regime político e ao nível de desigualdade, o desempenho ambiental apresenta um comportamento variável. Isto posto, argumenta-se que a performance dos indicadores pode estar mais relacionada à estruturação e articulação entre as diversas instituições dentro de cada nação – o que muito reflete as prioridades das agendas políticas e variam conforme o perfil socioeconômico, político e cultural e os interesses individuais de cada cidadão – do que com o tipo de regime político, *per se*.

2.5 CONCLUSÕES

Com vistas a associar fatores econômicos e políticos no contexto ambiental, esta pesquisa investigou a influência do regime político, do nível de liberdades políticas e direitos civis e do grau de concentração de renda na indução de diferentes performances ambientais em escala global. Os resultados evidenciaram uma relação negativa entre democracia e

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[3] Considerou-se GINI abaixo de 40,0 como baixo.

desigualdade econômica com melhores *scores* de desempenho ambiental. Assim, sugeriram que a democracia enquanto regime político não necessariamente induz um maior comprometimento das nações para com questões de cunho ambiental. Da mesma forma, a redução da desigualdade de renda não garante que as relações sociedades-natureza sejam mais harmoniosas.

Contrariamente, o FHI exibiu associação positiva com EPI: maiores níveis de liberdade política e direitos civis vincularam-se, em média, com melhores *performances* ambientais. Isto sugeriu, portanto, que países mais livres tendem a ter melhores compromissos com a natureza.

Todavia, interpretações generalizadas sobre as relações investigadas no estudo podem ser equivocadas. Isto é, não se pode afirmar que regimes autocráticos/democráticos são melhores/piores para a questão ambiental. Quando as características políticas de cada nação da amostra foram combinadas com os níveis de desigualdade de renda e com os *scores* finais do EPI, constatou-se uma diversidade de perfis de países com distintas e particulares relações com o meio ambiente. Assim, verificou-se, por exemplo, que uma determinada nação pode constituir-se de um regime de voto democrático, mas, possuir características sociais e culturais internas que tornam a democracia – enquanto base de garantia de liberdades e direitos – falha e ineficiente, gerando resultados ineficazes sobre a proteção ambiental. Um exemplo disto é o Brasil que socializa as externalidades negativas da exploração e degradação ambiental ao mesmo tempo em que privatiza os ganhos econômicos advindos destes processos. Ademais, um país pode ser democrático e livre, segundo as classificações dos índices *Polity IV* e *Freedom House*, apresentar nível de desigualdade baixo, conforme o Gini, possuir um EPI elevado e hábitos culturalmente sustentáveis, como a Dinamarca, porém, ainda assim pode apresentar uma trajetória histórica de desenvolvimento baseada em uma degradação ambiental expressiva não mensurada pelos índices ambientais atuais, como a Noruega.

Destarte, argumenta-se que as heterogêneas relações indivíduo-natureza estão fundamentadas para além dos limites do regime político e de questões puramente macroeconômicas. Ou seja, é necessário direcionar o olhar para dentro da sociedade e, portanto, para suas tradições, seus hábitos, seu padrão de consumo, suas prioridades. Afinal, uma sociedade é formada por um conjunto de diferentes pessoas imersas em suas particulares realidades, as quais refletem, moldam e influenciam as tomadas de decisões de pequena e grande escala.

Pesquisas futuras encontrarão desafios teóricos e metodológicos para modificar o *status quo* que fundamenta esse debate. Será necessário considerar questionamentos ainda não respondidos e que constituem algumas lacunas na discussão concebida até aqui. É importante,

por exemplo, saber em que extensão maior liberdade indica, de fato, melhores resultados ambientais. E o que ocorre quando a liberdade de expressão se estabelece em uma sociedade cuja mídia é ou controlada por ou a favor de um grupo específico da sociedade. E, também, o que ocorre se esse grupo não for pró-meio ambiente.

Ainda, quantas lacunas estão sendo criadas neste debate ao avaliar-se apenas o papel da democracia sob os parâmetros da democracia liberal? Os *outcomes* e desempenhos ambientais seriam diferentes em uma democracia participativa? E se considerarmos outros conceitos de liberdade, como aqueles trazidos na literatura de Amartya Sen?

É igualmente importante refletir em que extensão elementos macroeconômicos e macrossociais/culturais estão diretamente relacionados com questões ambientais se considerarmos que a performance da democracia e dos resultados ambientais pode estar mais associados à contextos em microescala e individual. Esses questionamentos trazem a ressalva de que a continuidade da discussão gerada neste trabalho é necessária para que as lacunas existentes sejam preenchidas.

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3. SEGUNDO ENSAIO: The role of transcendental values in the formation of ecological behaviours[4]

Abstract: Recent claims have been made that transcendental values (TVs) are likely to play a major role in influencing individual and group behaviours directly or indirectly, including those relating to the environment. However, we do not know a great deal, about how our behaviour is related to these TVs and the extent to which they inform our behaviours in specific contexts. This paper argues that there is good evidence to indicate that personal contexts inform many decisions that individuals need to make, in the cultural and political environments in which these decisions are located. The paper also argues that in other cases individuals use their TVs as a guide to forming contextual values, in a way that TVs only influence daily behaviours indirectly. In order to review the potential utility of such arguments, we offer a secondary analysis of the International Social Survey Programme as a means of corroboration. The results of this paper indicate that a person can maintain a set of pro-environmental contextual values but still not necessarily engage in sustainable practices. Equally, this suggests that a person can be characterized as having a non-environmental profile, but have contextual factors in their life that encourage them to take care of nature. The analysis thus highlights the significant role played by contexts and (contextual) values in influencing behaviours related to nature, such as recycling and energy saving. While recognizing the limitations of this study, we conclude by arguing that the paper contributes to a growing literature about the operationalisation of values within environmental debates.

Keywords: contextual values; transcendental values; environment behaviour;

3.1 INTRODUCTION

As environment–society relationships embrace more complexity, moving beyond the boundaries of economics as a discipline (see Georgescu-Roegen, 1993; 2012 and Daly, 1997 for a wide discussion), a new multidisciplinary discussion has emerged that seeks to examine the construction and understandings of values. As a result, values have been referenced from a range of perspectives that can relate to both individual and social/collective groups (Ives and Kendal, 2014; Kenter, et al, 2016a, 2016b; Peltola and Arpin, 2017). Additionally, contemporary debate has dialogued with ethical, philosophical and non-utilitarian perspectives (Gruen and Jamieson, 1994; Bazerman, et al., 1997; Sarkar, 2012) where preference *per se* is not necessarily the main motivator of decision-making.

A recent literature review conducted by Jasper Kenter and his colleagues (2014, 2015; 2016a; 2016b; 2016c) has established an open concept of one type of value – transcendental values (TVs) – from a compilation of ideas, concepts, and notions highlighted in the literature

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[4] Ensaio elaborado no período de doutorado sanduíche na Universidade de Brighton (UK) sob orientação do professor Neil Ravenscroft.

of anthropology, sociology, psychology and philosophy. As those authors have argued, TVs are understood as "(a) concept or beliefs (b) about desirable state ends or behaviours" (Schwartz and Bilsky, 1987, p. 551) which guide "principles that transcend specific situations" (Kenter, et al., 2015, p.89). In other words, transcendental values are values that can express more than ethical and moral principles, by moving into the realm of "proto" desires, such as living in harmony with the environment, justice and equity (Raymond and Kenter, 2016).

One of the most relevant arguments about the role of TVs in the relationship between individuals and the environment comes from Raymond and Kenter (2016). According to them, TVs are important in the valuation of nature because they affect human behaviours directly and indirectly, including those related to conservation and protection (see e.g. Stern and Dietz, 1994, Schultz, et al., 2005, De Groot and Steg, 2008 for a discussion about environmental behaviour). Consequently, TVs also might influence the knowledge that everyone has about the environment and their day-by-day practices, as well as the social representations of nature (see e.g. Grunert and Juhl, 1995; Poortinga and Steg, 2004 for cases studies). Due to this, Raymond and Kenter (2016) suggest that transcendental values are likely to influence the degree to which individuals or communities engage in sustainability issues and practices. Hence, TVs may be the key to understand how individuals relate themselves to environmental issues.

Even though the theoretical debates regarding TVs have become more established, there are few studies discussing their role in environmental decision making, both at an individual and a societal scale (Raymond and Kenter, 2016; Kenter et al, 2016a; Irvine, et al., 2016). More research is thus needed to better understand how TVs are formed, operationalized and articulated in different societies and communities. Additionally, we do not really comprehend the theoretical foundation upon which our understanding of TVs is based. For example, whether TVs are formed in the spiritual, political, geographical, or economic realms, and whether they actually exist before they are formed and expressed by the individuals (Raymond and Kenter, 2016; Kenter, et al., 2016a). In the same way, we do not know how TVs can influence other values; for example, it might be that transcendental values form the basis upon which other values (e.g. contextual values) are translated and articulated day-by-day. Consequently, we know little about what part these values play in guiding human decisions and behaviours (Raymond and Kenter, 2016; Everald, et al., 2016; Kenter, 2016a).

Such questions and knowledge gaps open up the possibility of discussing how some values can be mobilised and operationalized by people through attitudes and behaviours. By proposing to develop this debate, our starting point is to expand upon the arguments made by

Raymond and Kenter (2016) which emphasize TVs as the basis of human behaviour. Hence, we seek to argument that even though all types of values have their foundation in TVs, each individual may well activate a unique subset of values according to specific contexts. This contextual value subset will influence the value judgments that individuals make about the environment, which can be understood in terms of specific engagements (such as recycling and energy saving).

We thus suggest that the contexts that people are immersed in affect the values that they mobilize and the ways in which they operationalize them. For instance, a set of values held by a person can be the same for a community or a society but the means of valuing something or of operationalising those values are specific according to the context, both individually and collectively. Our central argument here is that the relationship between TVs and some ecological behaviours is, at most, indirect, because the mobilisation of TVs is context-specific. We recognise that this may well contradict part of the argument developed by Raymond and Kenter (2016).

In building on our arguments, we have developed the following research question: To what extent do individuals use a universal set of transcendental values as the basis upon which they form context-specific values that inform their behaviours (with respect to the environment)? In addressing this question, we have drawn on both theoretical and empirical sources, recognising at this stage that the empirical focus is inevitably about the role of contextual values *per se* and not (yet) about the direct links between TVs and behaviours. For us, the issues regarding how people mobilize and operationalize values are primordial to the discussion about ecological valuation. That is, we will only achieve new contributions to the valuation and management of natural resources when we find better understandings about how people activate their values and assign them to different contexts.

We commence our work by reviewing what is known about TVs and their significance for understanding how people attribute values to environmental goods and services. Building on the work by Kenter, et al. (2016b), we use this review to identify and address several key knowledge gaps regarding value formation, operationalization and mobilization. Thereafter, we develop our theoretical arguments about the links between values, contexts and behaviours. In order to review the potential utility of these arguments, we then use a secondary analysis of the International Social Survey Programme as a means of corroboration. Finally, we present our results and conclusions regarding the role of TVs and the contexts in the formation of environmental behaviours and the relevance of our findings to the nature valuation debate.

3.2 TRANSCENDENTAL AND CONTEXTUAL VALUES ON THE ENVIRONMENTAL DEBATE

Despite the great contributions of classical (philosophical) theory over the last two Millennia (see e.g. Hackforth, 1945, Gosling, 1982), the neoclassical economic perspective of value has been predominant over the last four centuries, including influence on environmental debates (Hodgson, 2002). Although the economic paradigm has offered an understanding of value and an associated method of valuation, a number of questions have emerged recently about the extent to which this approach remains defensible (Ravenscroft, 2019). This has led to the need for a new space of discussion guided by an interdisciplinary field of study, which has challenged the focus of environmental debate and the concept of value (see Daly, et al. 1994; Daly, 1991; 1997; Georgescu-Roegen, 1993; 2012). This has led to a question about how we can understand the multidimensionality of values and, consequently, how we can incorporate such ideas into policy decisions (Fish, et al., 2011; Kenter, et al, 2014; 2015; 2016a; 2016b; 2016c; Kenter, 2016b; Irvine, et al., 2016; Raymond and Kenter, 2016).

In terms of current environmental debates, the fragility of the contemporary approach to economics is not so much regarding utility itself, which is a neutral economic and philosophical concept, but how we have reduced it to a market phenomenon in nature valuation and decision-making (Ravenscroft, 2019). This raises some fundamental questions about whose utility we are considering, particularly if we are seeking to include other-than-human entities within debates about the value of nature. As a result, we must question how markets can be considered suitable for articulating values related to nature (Ravenscrosft, 2010, 2019; Kenter, 2016a, 2016b; Sagoff, 1986)

According to Ravenscroft (2010), the mainstream of economics theory has been insufficient and inconsistent in providing value applied to natural resources. This has come about through certain failures of the neoclassical approach related to the way that people are understood to obtain and process information and make their choices. For example, in neoclassical economic theory, individuals can engage in processes of exchange in order to improve their utility and stop trading when there are no better deals to be done. However, when the market does not operate (in the sense that people do not have information to make their best choices) or operates poorly (in the sense that people do not have enough information or do not know what is needed for requiring information), individuals do not – cannot – act out of market rationality. In such cases, as Kenter, et al. (2015) state, people's preferences and choices become uncertain, inconsistent and transient.

Moreover, while all goods are likely to have economic value, competitive market rules fail in many aspects when nature and public goods are valued (Ravenscroft, 2010; Foster, 2002; Jaffe, et al., 2005). As Sagoff (1988) and Keat (2002) have suggested, price formation only contemplates the value ascribed by people related to the *use* of the natural resource, which is narrowly associated with the satisfaction of individual's preferences and desires. In doing so, non-market values, non-use values and other-than-human values are not considered, so that the value concept is reduced to price – whether or not this is derived from market operation (Ravenscroft, 2010; Brown, 2013; Irvine, et al., 2016).

This discussion highlights the need to consider values that "come from outside any economic model" (Landsburg, 2017, p. 757). That is, in some dimensions of our life there are normative expectations about our personal and social lives that we do not wish to, or cannot, capture in terms of economic exchange as understood by reference to the market metaphor. Additionally, several situations are so complex that we accept that some values ought to be public, shared and even common, even if they are incompatible with our individual beliefs. Thus, we can care about nature both contextually, in a way that depends on a specific context, and normatively, in terms of its independence from our self-interest (Ravenscroft, 2019; Kenter, 2016a). Because of these factors, markets – and thus exchange-based utility – are simply inappropriate for determining the relative value of many environmental phenomena.

Because of this, a number of different conceptions of values have been added to the environmental debate with the intention of identify values beyond individual utility and market views (Kenter et al., 2015; Kenter, 2016a; 2016b; Irvine, et al., 2016). One of the principal value concepts[5], which Raymond and Kenter (2016) argue as being the foundation of all types of human values and a way of thinking about values beyond utility, are transcendental values (TVs).

The main literature suggests that TVs can be understood as beliefs about behaviours and desirable end states (such as family security and mature love) that guide principles and life goals and, therefore, transcend specific contexts. In addition, they are understood as criteria that people use in order to justify actions and evaluate events. In addition, TVs include ethics and normative beliefs (such as honesty and fairness) as well as moral concerns and spiritual values. Consequently, it is widely accepted that TVs are enduring and not always or necessarily explicit. Many authors suggest that beliefs and norms relating to environmental values may

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[5] See Kenter, et al. (2015; 2016b), Kenter (2016b) and Irvine, et al. (2016) for a complete understanding of value concept.

well fall into this category (Schwartz and Bilsky, 1987; Schwartz, 1992; 1994; Norton, 2000; Kearns and Keller, 2007; Kenter, et al., 2015; 2016b; Kenter, 2016b; Raymond and Kenter, 2016). This means that TVs are values that we probably carry with us since our childhood (even though we do not know where and how they are formed) and shape our life perspective, guiding, at a macrodimensional level, different spheres of life.

Kenter and his colleagues have thus argued that TVs differ from other types of context-specific values[6]. Specifically, contextual values are understood as "our opinions on the importance or worth of something specific" (Kenter, 2016b, p. 175) and depend on "an object of value and hence [are] contextual and attitudinal" (Kenter, et al., 2015, p. 89). Thus, for example, an individual might value equity (an example of TV) and, thereby, believe that it is important to expand green recreational areas for underprivileged people, instead of investing in agri-environmental schemes (two different examples of CVs) (Raymond and Kenter, 2016). Hence, contextual values depend on beliefs that individuals have about the current context of inequality, which can be, in some degree, influenced by transcendental values such as equality or **fairness** (Kenter, et al., 2015). Thus, while TVs transcend any specific context, contextual values are formed by or in respect of some explicit situation.

According to Rokeach (1973) and Steg (2016), as values are formed from beliefs that refer to a mode of conduct or a final state of existence, they guide individual conducts in various ways and are thus motivators of behaviour. Some of the most important contributions (e.g. De Young, 1986; Hopper and Nielsen, 1991; Stern and Dietz, 1994; Stern, et al., 1995; 1999) have identified moral values, feelings and norms as the basis for the values formed in the relationship between individuals and nature, for example.

In the environmental context, Raymond and Kenter (2016) argue that TVs influence, directly or indirectly, worldviews, concerns, and beliefs regarding nature and the environment. Consequently, these values might influence behaviours, which may also influence the way that people engage themselves in sustainable actions and practices.

A fundamental discussion thus emerges concerning the ways that people articulate different types of values, whether as contextual or transcendental values. As we know very little about TVs, we do not know much about what their role is in the foundation of ecological behaviours. That is, whether TVs condition our responses because they are preformed; whether

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[6] See Kenter, et al. (2015) for a wide explanation of types of value in the shared and social values framework elaborated by them.

we form our responses individually out of our own (or a more universal) TV repertoire; or whether we use the concept of TVs as a guide to forming contextual values and engagements.

These lacunas are directly related to our lack of knowledge about the formation and nature of values, as pointed out by Kenter, et al. (2016b)[7]. That is, we do not know whether we – individually – hold TVs (in any accepted sense), nor do we know how far we can articulate them and/or whether we form transcendental values as our needs arise (meaning that they are effectively contextual values). This means that we do not know yet whether we hold a single set of values, or two, or three or more and whether, if they exist in any accepted form, these value-sets are hierarchically-related or not. Indeed, as Kenter, et al (2015) have argued, we do not even know if we hold an a priori set of values at all.

As Kenter, et al. (2016b) highlight, very few studies have sought to discuss how TVs can influence CVs and thus environmental attitudes and behaviours. Additionally, there is a knowledge gap regarding to what extent values can be operationalized due to a specific context – which is the central point of our discussion. It raises the question of whether values (transcendental or contextual) influence environmental behaviours in any sense, or whether contexts (single or multifactor) directly affect behaviours that, in turn, also influence the underlying values individuals operationalise. We consider these questions in the next section.

3.3 TRANSCENDENTAL VALUES AND CONTEXTS IN THE ARTICULATION OF ECOLOGICAL BEHAVIOURS

Current understandings of the influence of values and their formation, in any aspect of life, are far from be established. In this section, we discuss to what extent transcendental values can be the foundation of some ecological behaviours, or, more specifically, whether TVs can be direct related to day-by-day practices related to sustainability and explicitly pro-environmental behaviours. The main objective here is to interrogate our key argument that contexts have a direct influence on such behaviours and that the contextual values that we deploy in any given situation are (in)formed by our transcendental values.

Our starting point is to argue that TVs can be understood, in neoclassical terms, as a public good. That is, transcendental values are essentially non-rival and non-exclusive goods. Consequently, the "use" or deployment of some transcendental values (or sets of values) by an

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[7] In that paper, the authors outline future direction for values studies, suggesting new investigations regards to value formation, operationalization and mobilization. The current work was inspired in some of the knowledge gaps highlighted by them.

individual does not reduce the quantity or quality of values available to other people, so that no one is excluded from accessing and deploying TVs.

By introducing this idea, we seek to suggest that the conception of TVs could be drawn from an image of a big (public) cloud, formed by several and distinct sets of beliefs, norms, concepts, moral and ethics conducts, following the values concept discussed in the previous section. Because of the character of the public goods that the big cloud represents, we may have to accept – initially at least – that the transcendental values available in the cloud should not vary among individuals, cultures and regions, i.e. that they are universal for everyone. Thus, every person can access the public cloud in order to mobilize (download) subsets of values in order to operationalize them through behaviours, attitudes, and engagements.

From this, it follows that the values stored in the cloud may allow us – individually – to form and hold a set of "proto" values on a transcendental scale, in a way that allows these values to be activated in forming other lower-order (contextual) values (Irvine, et al., 2016). On this base, we also suggest that it is possible that we are likely to have a repertoire of subsets of transcendental values from which we operationalise particular sets of values in response to specific situations or context (which we might then term contextual values). We thus argue that contextual values can be a translation of TVs within a specific context. In other words, CVs are TVs operationalized in response to specific situation and, following Irvine, et al. (2016, p. 185), are "formed and reformed as specific circumstance required".

Here, we expose our central argument: that the basis of the operationalization of the TVs is contextual. The different stimuli for behaving environmentally come from outside the big cloud of TVs; that is, from the specific context. As Irvine, et al. (2016) have argued, some values are formed with or by some purpose (environment, context), which means that they cannot be pre-formed, because they cannot always be comprehended beyond such specific situations. Thus, it is also possible to argue that values operationalization is context-specific. That is, different situations affect the values that people access and mobilize, influencing their behaviour.

Figure 3 illustrates the theoretical process of value operationalization and articulation. Although TVs can influence the (in)formation of CVs, as they are the basis of all values, contextual values are directly affected by contexts and, in some cases, by behaviours if we are considering a temporal dimension. For example, I might value protecting the environment in order to live in harmony with different ecosystems (a transcendental value related to nature) and thereby I might believe or consider that it is important to enhance efforts to recycle or to increase the consumption of organic food (two different contextual values). In other words, I

value environmental protection beyond any specific context (under a transcendental scale) and thereby I believe that it is right to value environmental practices that will help in environmental protection (under a contextual scale). In this sense, we highlight indirect links between transcendental and contextual values, which consist in "a chain of influence that starts with societal, cultural and individual transcendental values" that interacts with context-specific norms and beliefs, which form, in some cases, contextual values (Kenter, 2016b).

Figura 3. The context-specification of value operationalization
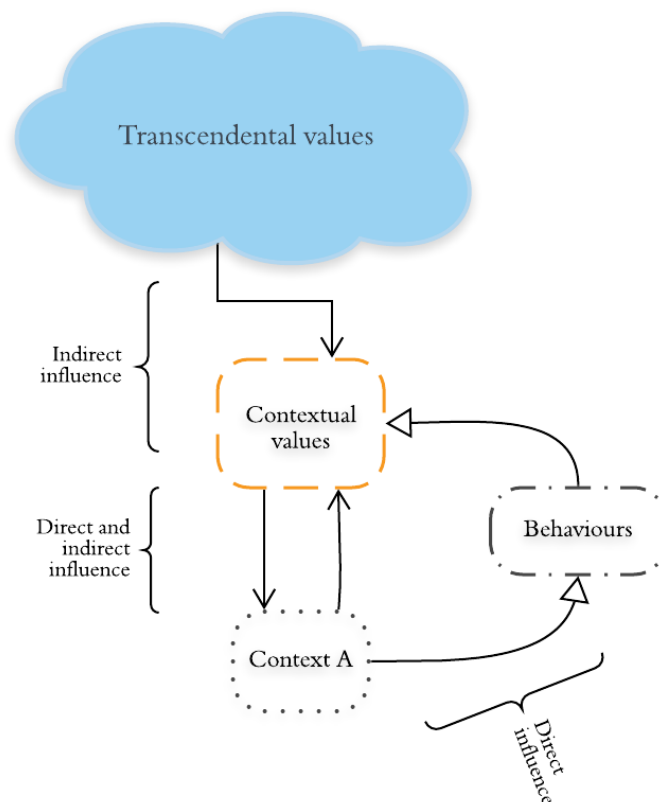
Source: Prepared by the authors.

While we hypothesize that TVs indirectly influence behaviours, we argue that the contexts condition some of them. As an example, Figure 4 illustrates how the actions involved in recycling depend directly on the context. If an individual is enabled to behave in a sustainable way (for instance by having access to a suitable recycling service and sufficient knowledge about the importance of recycling), the individual may well decide to recycle waste. In this case, the act of recycling can be considered the operationalization of a CV. However, if the

context, whether individual or collective, restricts this process, behaviours will tend to be limited even if individuals consider it important to protect the environment (CV) and desire (as a utopia) to live in harmony with nature (TV).

Figura 4. Example of CVs operationalization and behaviours articulation
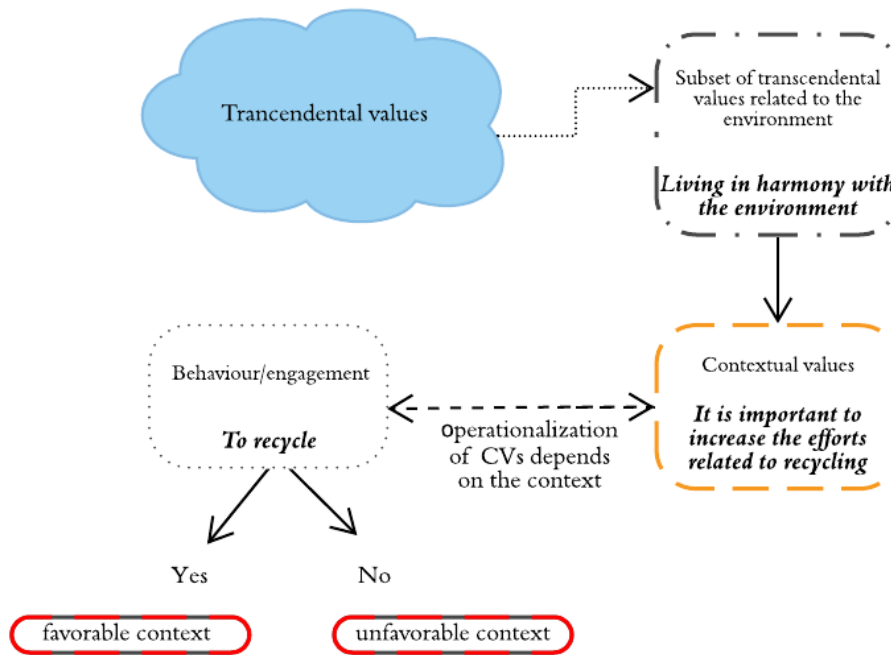
Source: Prepared by the authors.

Furthermore, behaviours also can affect CVs. Individuals or their communities may consider it important to recycle and therefore engage in such practices. Through social interactions, these behaviours can influence others, encouraging them to start recycling. That is, through a shared and social process and, then, from a process of rethinking value expression (Irvine, et al., 2016), other people's CVs can be affected by individual and group behaviours, which influences their future behaviours. Based on these arguments, we can reinforce the argument that TVs present an enduring character, as stated by Schwartz (1992; 1994) and Manfredo, et al. (2014), whereas CVs are changeable both by contexts and by behaviours.

From the development of these theoretical arguments, we can accept i) contexts potentially affect the operationalization of CVs and the articulation of some ecological behaviours, ii) so that TVs play an indirect role over them by influencing the way that people

perceive the environment and shape their worldviews, following the ideas of Raymond and Kenter (2016). In this sense, we are arguing that the foundation of at least daily ecological behaviour and engagements is contextual, based on the operationalisation of TVs as the basis of behaviour. We now seek to illustrate this by reference to secondary analysis of data from the International Social Survey Programme (ISSP) database.

3.4 DATA AND METHODS

The empirical part of this paper aims to examine the role of different contexts on ecological behaviours, where such behaviours are understood as "individual behaviours contributing to environmental sustainability (such as limiting energy consumption, avoiding waste, recycling, and environmental activism)" (Mesmer-Magnus et al., 2012, p. 160). The purpose of the analysis is to generate evidence that allows us to examine whether engagements are context-specific – indicating that there are contextual-level forces that potentially condition some ecological behaviours.

Using the latest version of the International Social Survey Programme (ISSP) database (2010), we built an index to categorize people according to specific sets of environmental contextual values. This tool helped us to compare ecological behaviours and contextual variables among different groups of values. The sample data used is composed by 45,199 observations relating to people in 32 countries. While the majority of the 32 countries are European and developed countries, which can bias the analysis, this database has the best data available to inform patterns of ecological behaviours around the world.

The first step of the methodological strategy was to select a set of survey questions that reflect how people perceive nature and its importance (Chart 3). We assumed that the more a person is concerned with environmental issues, the more likely she/he is to hold a set of pro-nature values. It follows that people with positive perceptions about nature probably maintain values in favour of it, both on a transcendental and a contextual scale. Because of it, we considered that answers closest to five (5) classify people as more environmentally aware, which in turn, are associated with a set of contextual values positively related to the environment.

Quadro 3. Questions and scale of answers - ISSP

Questions	Scale of answers
Generally speaking, how concerned are you about environmental issues?	1 to 5, where 1 represents "not at all concerned" and 5 represents "very concerned"
How much do you agree or disagree with: Many of the claims about environmental threats are exaggerated.	1 to 5, where 1 represents "agree strongly" and 5 represents "disagree strongly"
How much do you agree or disagree with: People worry too much about human progress harming the environment.	1 to 5, where 1 represents "agree strongly" and 5 represents "disagree strongly"*
How much do you agree or disagree with: the earth simply cannot continue to support population growth at its present rate.	1 to 5, where 1 represents "disagree strongly" and 5 represents "agree strongly"*
How willing would you be to accept cuts in your standard of living in order to protect the environment?	1 to 5, where 1 represents "very unwilling" and 5 represents "very willing"
How much do you agree or disagree with: there are more important things to do in life than protect the environment.	1 to 5, where 1 represents "agree strongly" and 5 represents "disagree strongly"

Source: ISSP (2010).
*Inverted scale.

In order to establish the link between perceptions about the environment and human values, we developed an index based on the answers to the questions listed. Our purpose was to classify individuals according to their sets of contextual values, categorized as "pro-environmental values", "neutral environmental values" or "non-pro-environmental values".

We considered that the first three questions represent major factors in defining an individual's ideological perspective with respect to the environment. Consequently, we established them as a primary filter of the algorithm. For the individual to be categorized as a holder of pro-environmental values, it is necessary to achieve a minimum score of 12 points from the first three questions, which represent, as illustrated in Figure 5, the level of ideological

perception regarding the environment. Any score below 12 represents a more "neutral" response (score of 3) or someone with few concerns about the environment (score of 1 or 2). If the individual reaches the minimum score 12 and gets, at least, the total score 21[8] for the six questions, it is classified as holding a set of pro-environmental contextual values. Based on this, we considered such person as that one which has positive ideological perceptions about the environment and solid beliefs about human responsibilities for environmental protection.

Figura 5. Algorithm for values categories
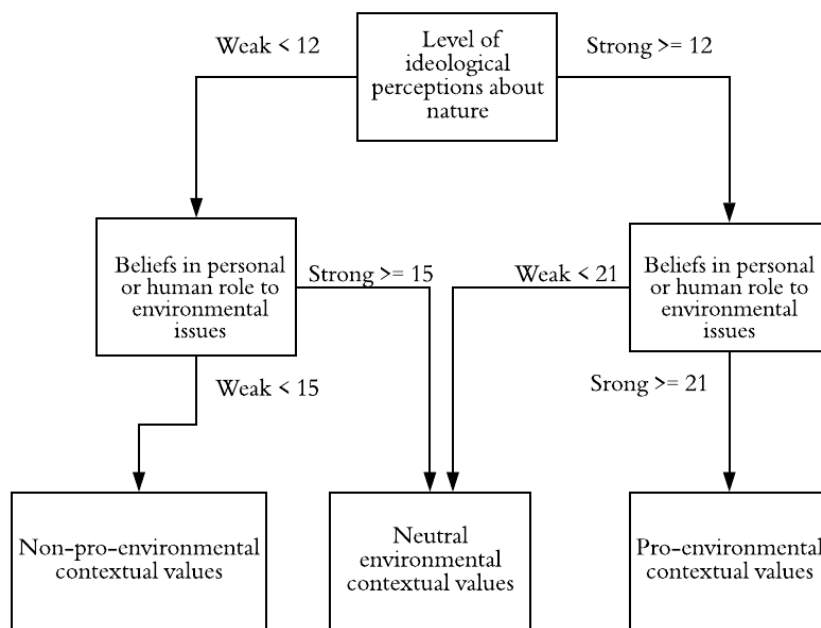
Source: Prepared by the authors.

If the individual gets the minimum score of 12 for the primary filter questions but fails to reach the overall minimum score of 21, they are classified as a holder of neutral environmental values, once the frequency of 1, 2 or 3 answers is higher than 4 or 5, indicating less pro-environmental concerns and more conservative views related to nature. In this sense, this individual represents, at most, a person who holds considerable pro-environmental ideological perceptions but weak beliefs in their personal or human agency with respect to environmental protection.

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[8] The score 21 represented the smallest total score a person should reach in order to hold a pro-environmental set of values, considering the first filter.

If the individual does not reach the minimum score of 12 for the primary filter questions and scores less than 15 overall, they are judged to hold a set of non-pro-environmental contextual values. The limit of 15 represents the total score achieved by an individual that does not reach the score minimum at the first three question and, at most, get a neutral score for the last three. Such an individual represents a person who has weak ideological perceptions about the environment but solid beliefs in human agency.

If the individual does not get the score of 12 for the primary filter questions but achieves a total score 15, they are deemed to hold a neutral environmental set of values. In this sense, this individual represents, at most, a person holding non-pro-environmental ideological perceptions but that believes strongly in human responsibility for environmental protection.

The frequency of individuals allocated to each category in the algorithm is summarized in Table 3. The highest number of respondents are in the set of neutral values – 27,216 individuals. In this group, people with non-pro-environmental ideological perceptions but with strong beliefs about the central role of humans in environmental protection formed the largest category.

Tabela 3. Frequency of individuals, by group

Frequencies	Set of values
8143	Non-pro-environmental contextual values
27,216	Neutral environmental contextual values
8,023	Pro-environmental contextual values

Source: Prepared by the authors.

With the index classification, we had three cluster of people, which varied according to the set of environmental contextual values they had. In order to verify the role of contexts (Chart 4) in environmental behaviours (Table 4) for each of them, we used Chi-Square and contingent coefficient.

Quadro 4. Contextual variables

Personal characteristics	Description
Age	12-20; 21-30; 31-40; 41-50; 51-60 and up to 61
Living in a country considered an advanced economy or not[9]	Developed / Developing
Left-right polity scale	Far left, left centre, centre liberal, right conservative, far right, other
Religion	None, Catholic, Protestant, Christian Orthodox, Other Christian, Jewish, Buddhist, Hindu, other Asian religion, other religion

Work information	Description
Employment status	Aggregated in three categories: it has work, is unemployed, it does not have work (permanently sick, retired, student, domestic work)
Partner's employment status	

Household information	Description
Rural or urban place of living	Big city, suburbs, small city, country village, farm
Number of people living in the house	From zero to five, and up to five

Educational information	Description
Highest level of education	No formal, lowest formal qualification, intermediate secondary completed, higher secondary completed, university degree incomplete, university degree completed
Level of technical knowledge related to the environment[10]	Low, intermediate, high

Source: ISSP (2010).

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[9] According to FMI classification of "advanced economy".
[10] We built this variable based on 10 questions related to environmental issues exposed in ISSP database. The categories of answers was composed by the total sum for those, which varies from 1 to 50. The questions are listed in Appendix 1.

Tabela 4. Variables of ecological behaviour

Environmental engagement	Scale of answers
To make a special effort to sort glass or tins or plastic or newspapers and so on for recycling	1 = always
To cut back on driving a car for environmental reasons	2 = often
To reduce the energy or fuel you use at home for environmental reasons	3 = sometimes
To save or re-use water for environmental reasons	4 = never
To avoid buying certain products for environmental reasons	

Source: ISSP (2010).

We used the Chi-Square test for verifying the associations between personal contexts and individual behaviours by values groups. We then tested two hypotheses: the null hypothesis (H0), which supported independency between the variables (or non-association), and the alternative hypothesis (H1), which supported the association between them. If the Chi-Square value (χ^2) was significant at 95% of confidence (p-value<0.05), we rejected the null hypothesis; thus, the dependency was confirmed. If not, the alternative hypothesis was accepted and non-association was established. For investigating the degree of association among the variables selected, we calculated the contingent coefficient. It varies from 0 to 1 in which the greater the degree of association between two variables, the greater the contingency coefficient. The next section highlights the main results.

3.5 EMPIRICAL ANALYSIS AND EVIDENCES

Table 5 reveals the frequency percentages for each ecological behaviour, considering the entire sample together without division by group of values. Recycling was exposed as the most common sustainability action, since 46.79 % of people answered that they always recycle. In contrast, reduced car usage for environmental reasons was the least common (5.54%). Many studies, such as Stern, et al. (1993), Tertoolen, et al. (1998) and Nordlund and Garvil (2003), have highlighted the social dilemma that embraces this sort of behaviour. To cut the use of a private car requires acting in harmony with the interest of society, in which people cooperate in making short-term sacrifices for long-term environmental benefits. The data indicated, however, that 39.42% of the sample made noncooperative choices, compared to the 5.54% who acted cooperatively.

Tabela 5. Highest frequency percentages and relative scales

Ecological behaviours	Always	Often	Sometimes	Never
Recycling	46.79%	22.29%	17.37%	13.55%
Cutting car usage	5.54%	18.07%	36.97%	39.42%
Energy saving	13.35%	29.38%	33.52%	23.75%
Water saving	19.90%	26.47%	31.67	27,96%
Avoiding products	8.63%	24.61%	38.79%	27.97%

Source: Prepared by the authors.

In comparing the two extreme groups of values (pro and non-pro environmental contextual values), a preliminary analysis found that people holding pro-environmental contextual values were more environmentally engaged. They presented the highest proportional participation in the category of "always" engaged in sustainable initiatives, as well as demonstrating the lowest proportional participation in the category of "never" engaging in environmental initiatives.

A test was used to compare the percentage of "always" and "never" answers between the two groups in order to verify if there were statistical difference of engagements in each ecological behaviour. The hypothesis test for the proportion test confirmed the rejection of the null hypothesis of equal proportions at 95% confidence, as set out in Table 6, once $|Z_{obs}| > Z_0 = 1.96$. The results indicated that there were significant differences in terms of ecological commitments between the groups. That is, people who had values in favour of the environment are indeed much more involved in ecological issues than those who have not.

Tabela 6. Proportion test between pro and non-pro-environmental groups – Z results

Behaviours	Z-values	
	Frequencies	
	Always	Never
Recycling	-35.1331	31.6414
Cutting car usage	-8.8003	34.5366
Energy saving	-13.8567	42.8176
Water saving	-8.3662	33.1389
Avoiding products	-17.1549	48.2384

Source: Prepared by the authors.

These results corroborate the arguments of Raymond and Kenter (2016) and Irvine, et al. (2016) about the role of contextual values on people's behaviours. The analysis indicates that individuals holding pro-environmental contextual values are associated with stronger engagement with sustainability.

We also observed the frequency of "always" and "never" of each ecological behaviour, in order to verify which of each group of values presented more and less environmental engagement. The data set out in Table 7 highlight that the act of recycling was the most common behaviour for pro-environmental, neutral and non-pro-environmental individuals. About 64%, 44% and 35% of individuals, respectively, claim always to recycle glasses, cans, plastics or newspapers.

Tabela 7. Proportional participation of each group of values by ecological behaviours

Values/Behaviours	Non-pro-environmental		Neutral		Pro-Environmental	
	Always	Never	Always	Never	Always	Never
Recycling	35.0%	25.0%	44.0%	12.0%	64.0%	6.20%
Cutting car	3.80%	58.0%	5.30%	39.20%	7.80%	26.0%
Reducing energy	10.80%	41.40%	12.60%	22.40%	18.70%	11.40%
Saving water	12.50%	42.10%	13.40%	26.90%	17.20%	18.0%
Avoiding products	5.80%	48.50%	7.90%	26.60%	14.0%	18.0%

Source: Prepared by the authors.

According to Chierrito-Arruda, et al. (2019), several studies have shown that environmental education, public campaigns, altruism, knowledge, self-identity and environmental perception are some of main factors that influence recycling behaviour. Due to this, it is one of the most popular ecological behaviours.

An interesting example is Sweden, which nowadays has one of the lowest recycling rates due to having highly effective waste management services. According to information from the Swedish government[11] (2019), following tax reform, substantial investment in research and an incentive towards the development of the circular economy helped to change people's behaviour, leading to a drastic reduction in waste and, consequently, a concomitant reduction in the recycling rate as well. A similar example can be found in Finland (Official Statistics of Finland, 2019) where, in 2017, only 1% of waste went to landfill sites because the population generated little non-biodegradable waste. In common with Sweden, this

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[11] See https://sweden.se/nature/the-swedish-recycling-revolution/.

corresponded with a low recycling rate. In these cases, the low recycling rates do not necessarily correspond with a non-pro-environmental context; on the contrary, the multiple factors inherent in Swedish and Finnish culture are important drivers of excellent ecological behaviours and performance. It highlights the importance of considering different realities in the analysis.

As highlighted in Table 7, the lowest frequency of engagement was associated with cutting car usage for ecological reasons. This behaviour was consistent across all individuals who answered "never" (58% of non-pro-environmental and 39.20% of neutral persons), and held even for pro-environmental individuals (26%). We also observed low engagement percentages with respect to of the practices of saving or re-use water and avoiding polluting products for environmental reasons. It suggests that people are less willing to change their material consumption patterns for environmental reasons, independently of the set of environmental contextual values that they hold. In this context, we point out that even the people most concerned about the environment have different levels of commitment to environmental issues – and we suggest thus that their engagement depends on the context that they are immersed in. That is, some people can hold altruistic environmental values but behave as a non-pro-environmental individual due to contextual reasons, and *vice-versa*.

In moving to consider our primary interest in verifying the role of different contexts on personal ecological behaviours, we evaluated the association between personal characteristics, work, household and education information with how often individuals engage in environmental practices. For that, we estimated a Chi-Square test for each pair of analysis (e.g. age *versus* recycling, age *versus* reduced car usage, age *versus* energy conservation, and so on) for the three sets of values, totalling 150 tests. The results for "recycling", "energy conservation" and "water conservation" rejected the null hypothesis (p-value<0.05) for all the context variables, which means that all of them were associated with identifiable ecological behaviours. In other words, dependency relationships were verified between the frequencies with which an individual puts efforts into pro-environmental actions and the personal context within which this action happens. These results indicate that that some ecological behaviours are context-specific.

We also verified by Chi-Square test that the null hypothesis was accepted for some pairs of analysis. For non-pro-environmental people, their country of origin and its relative state of development indicated an independency from acts associated with avoiding certain products for environmental reasons and conserving energy or fuel (p-value=0.077). The same non-association was verified between the number of people living in the household (p-value=0.067)

and use of private cars. For pro-environmental individuals we also found an independency between the employment status of partner (p-value=0.108) and the practice of avoiding the purchase of harmful products. In all of these cases, we could establish a dependency relationship.

Although the Chi-Square tests showed interrelationships among different contexts and ecological behaviours for almost all the cases analysed, the contingency coefficients presented in Tables 8, 9 and 10 revealed weak dependences in most cases. The results thus suggest that a specific context (e.g., age) was not strongly influenced by other contexts (such as knowledge, employment status, high schooling) regardless of the group of environmental values and behaviour.

Tabela 8. Contingency coefficients, for non-environmental group

Contextual variables/ Ecological behaviours	Non-pro-environmental contextual values				
	Recycle	Cut car	Reduce energy	Save water	Avoid products
Age	0.240	0.133	0.160	0.143	0.108
Development	0.238	0.083	0.025	0.039	0.030 °
Polity	0.321	0.150	0.205	0.178	0.166
Religion	0.334	0.158	0.223	0.237	0.170
Employment status	0.138	0.130	0.118	0.119	0.089
Employment status (partner)	0.119	0.098	0.102	0.106	0.071
Rural/urban	0.176	0.107	0.088	0.092	0.100
Number people	0.201	0.075°	0.123	0.119	0.124
High education	0.204	0.132	0.127	0.142	0.130
Knowledge	0.165	0.107	0.077	0.106	0.101

Source: Prepared by the authors.
° The coefficient is not statistically significant at 95% confidence.

Tabela 9. Contingency coefficients, for neutral group

Contextual variables/ Ecological behaviours	Neutral contextual values				
	Recycle	Cut car	Reduce energy	Save water	Avoid products
Age	0.233	0.112	0.133	0.116	0.111
Development	0.280	0.040	0.043	0.039	0.034
Polity	0.281	0.087	0.117	0.084	0.122
Religion	0.326	0.130	0.209	0.200	0.149
Employment status	0.112	0.095	0.070	0.063	0.064
Employment status (partner)	0.107	0.102	0.079	0.076	0.058
Rural/urban	0.191	0.074	0.079	0.084	0.066
Number people	0.171	0.078	0.980	0.089	0.090
High education	0.156	0.082	0.107	0.106	0.110
Knowledge	0.134	0.059	0.071	0.075	0.081

Source: Prepared by the authors.

Tabela 10. Contingency coefficients, for pro-environmental group

Contextual variables/ Ecological behaviours	Pro-environmental contextual values				
	Recycle	Cut car	Reduce energy	Save water	Avoid products
Age	0.202	0.138	0.093	0.101	0.125
Development	0.350	0.041	0.092	0.064	0.122
Polity	0.192	0.134	0.104	0.116	0.157
Religion	0.325	0.182	0.262	0.186	0.154
Employment status	0.066	0.105	0.068	0.081	0.057
Employment status (partner)	0.099	0.090	0.053	0.061	0.045 °
Rural/urban	0.183	0.097	0.093	0.106	0.066
Number people	0.170	0.127	0.123	0.087	0.131
High education	0.165	0.091	0.097	0.091	0.142
Knowledge	0.081	0.049	0.061	0.085	0.117

Source: Prepared by the authors.
° The coefficient is not statistically significant at 95% confidence.

In terms of contextual variables, employment status of the respondent's partner, home location (rural *versus* urban) and number of people in the household presented the lowest coefficients in the non-pro-environmental group. For neutral individuals, the lowest results were associated with the level of development of the country of origin (developed or developing); while for the pro-environmental individuals, the lowest coefficients were associated with technical environmental knowledge. These results indicate that such personal contexts are less interrelated with other contexts, regardless of the type of the ecological behaviour.

Curiously, the context corresponding to "knowledge" and the level of education were correlated with weak associations with the ecological behaviours evaluated for the pro-environmental group, whereas for non-pro-environmental individuals the coefficients were slightly higher. It suggests, perhaps, that some contexts are not very important for the articulation of some sustainable actions for those individuals who have pro-environment contextual values – an outcome that is consistent with the arguments of Raymond and Kenter (2016). This is indeed the case if we think about the relationship that indigenous groups have with nature, for example. Their values (cultural and transcendental values) are probably a strong driver of their education, behaviours and worldviews that are mostly based on beliefs in the power of the nature.

We also verified an intermediate association between the act of recycling and religion for neutral (0.326) and non-pro-environmental individuals (0.334), as shown in Tables 8 and 9. The literature has indicated the importance of religious affiliation in environmental engagements (Woodrim and Wolkomir, 1997; Wolkomir, et al., 1997; Hunter and Toney, 2005). Kanagy and Willits (1993), for instance, have shown a strong pro-environmental behaviour in religious people, whereas Guth, et al. (1995) have observed the opposite. Our data, however, revealed different levels of engagement among religions. The two most environmentally engaged religious groups in recycling were Protestants and Islamists, as well as those individuals without religion affiliation (agnostic, atheist). In the opposite way, we identified Christians, Jewish people and Buddhists as the least active groups.

It is not our purpose here to make a value judgment about the various relationships religions have with nature and the environment. Culturally, there is no right or wrong. Ethically, it depends on the context and the perspective. Our results indicate that religiosity influences the way people shape their actions towards sustainability, in terms of daily commitments like recycling. Therefore, we can support the argument, at least initially, that some of those who identify as religious affect the environment, but we cannot whether this is positively or negatively - even because it could not be done without minimally making cultural value judgments.

Another intermediated association was identified in the non-environmental group: individual political self-denomination *versus* recycling. The centre-left and conservative right individuals present the highest percentage of engagements in the "always" frequency – about 32% and 40% respectively – expressive commitments for those who are classified as non-pro-nature, by the way. On the other hand, the highest incidence of "never" was associated with right-wing individuals (53.8%). According to Neumeyer's work (2004), those with left-wing

tendencies are likely to be more pro-environmental than those with right-wing sensibilities. Our result is thus interesting in observing a considerable percentage of right-conservative people engaged with ecological issues. In contextualising this, a study made by Nawrotzki (2012) has pointed out that this context is more likely to occur in country where the quality of the environment and the "level" of development and capitalist accumulation is more solid (even as most of those in our sample).

The last intermediate association that we uncovered, as indicated in Table 9, is for the pro-environmental group and is between the country of origin and recycling. Our findings indicate that those who live in a developed country are eight times more likely to be associated with the highest frequency of engagement ("always"), while those living in a developing country were 1.6 times more related to the worst frequency in recycling ("never"). These results are in accordance with Kocasoy (2000) and Ezeah, et al. (2013), who pointed out the huge problems generated by improper management of waste in developing countries.

Although the contingency coefficients could offer us interesting associations among the variables selected, they did not highlight some important nuances. For example, we could not determine how people who live in developed or developing countries behave towards sustainability. Neither could we determine how engaged people with different levels of technical environmental knowledge, or different countries of origin, are with ecological issues. Nor could we determine how employment status can be related to different frequencies of engagements between the groups of values.

In attempting to address these deficiencies we conducted additional analysis using the macro context of living or not in a country considered to be developed, in order to identify if people who live in a developed country have better ecological behaviours or not. We identified that only in the case of recycling there is an association between country characteristics and better environmental engagement in all groups of values.

That is illustrated by the values highlighted in red in Table 11, where we observe that the average engagement frequency was closer to "always" and "often" for people living in developed countries. It follows that, regardless of being concerned about the environment or not, living in a developed country is mainly related to a stronger commitment to recycling. According to the values highlighted in blue, although the average frequency of reduced car-use is higher as we look from non-environmental to pro-environmental individuals, the response scale for developed countries is closer to "sometimes" and "never" than to "always" and "often". We also observed that, on average, the non-pro-environmental group engage in all

ecological behaviours less frequently than the others, independently of whether people live, or do not live, in a developed country.

Tabela 11. Average frequency of engagements by group of values and development feature

Behaviour	Non-pro-environmental		Neutral		Pro-environmental	
	Developing	Developed	Developing	Developed	Developing	Developed
To recycle	2.77	2.15	2.46	1.79	2.25	1.42
To cut car usage	3.29	3.43	3.05	3.13	2.88	2.84
To reduce energy	3.00	3.01	2.70	2.67	2.41	2.31
To save water	2.94	3.01	2.68	2.76	2.45	2.50
To avoid products	3.19	3.24	2.87	2.86	2.61	2.44

Source: Prepared by the authors.

When we analysed changes in engagements between people with different environmental values and different levels of technical environmental knowledge in developed and developing countries, we reinforced part of our theoretical arguments. We used a proportion test based on the highest category of technical knowledge. The test results rejected the null hypothesis at 95% confidence, confirming that more people living in developed economies and more individuals who have non-pro-environmental values have higher knowledge about environmental issues. The Z-value result for the comparison between developed and developing countries was -29.844 and for pro and non-pro-nature individuals was 5.316, both values greater than $Z_0 = 1.96$.

However, when we observed the average frequencies of engagements by ecological behaviour we found that the higher the knowledge level, the less was the engagement in cutting car usage for environmental reasons, both for pro-environmental and for non-pro-environmental people who live in developed countries. This indicates that regardless of whether a person is environmentally concerned, not even a high knowledge about environmental problems reflects a less frequent use of the car in advanced economies. These results emphasise the idea that other personal contexts can also influence people's behaviours with respect to personal transport – as the distance and the time of displacement between the

place of residence and the workplace, for instance –, now suggesting that the TVs can play a less significant role in daily transport behaviour.

This is a curious result, given that many developed countries have a range of viable alternatives to private cars, such as subways and bicycles, as well as incentives for their use. However, considering that the database refers to the situation in 2010, it is possible that the current behavioural trend is different, or is changing.

We confirmed, on the other hand, that the higher the level of knowledge, the higher the average frequency with which people recycle, as illustrated in Figure 6. Such an engagement pattern was verified independently of the set of contextual values that a person holds and the characteristics of the country in which they live, indicating that the level of knowledge was a potential conditioner of such behaviour. According to Ofstad, et al. (2017), the act of recycling is associated with a feeling of moral responsibility regarding the negative consequences of not acting. Therefore, the knowledge level of environmental problems can be indeed a potential conditioner of better engagements, as corroborated for our analysis.

Figura 6. Average frequency of recycling by levels of technical environmental knowledge in developed and developing countries and by values groups

Pro-environmental group

From always (1) to never (4)
■ Low ■ Medium ■ High

Neutral environmental group

From always (1) to never (4)
■ Low ■ Medium ■ High

Non-pro-environmental group

From always (1) to never (4)
■ Low ■ Medium ■ High
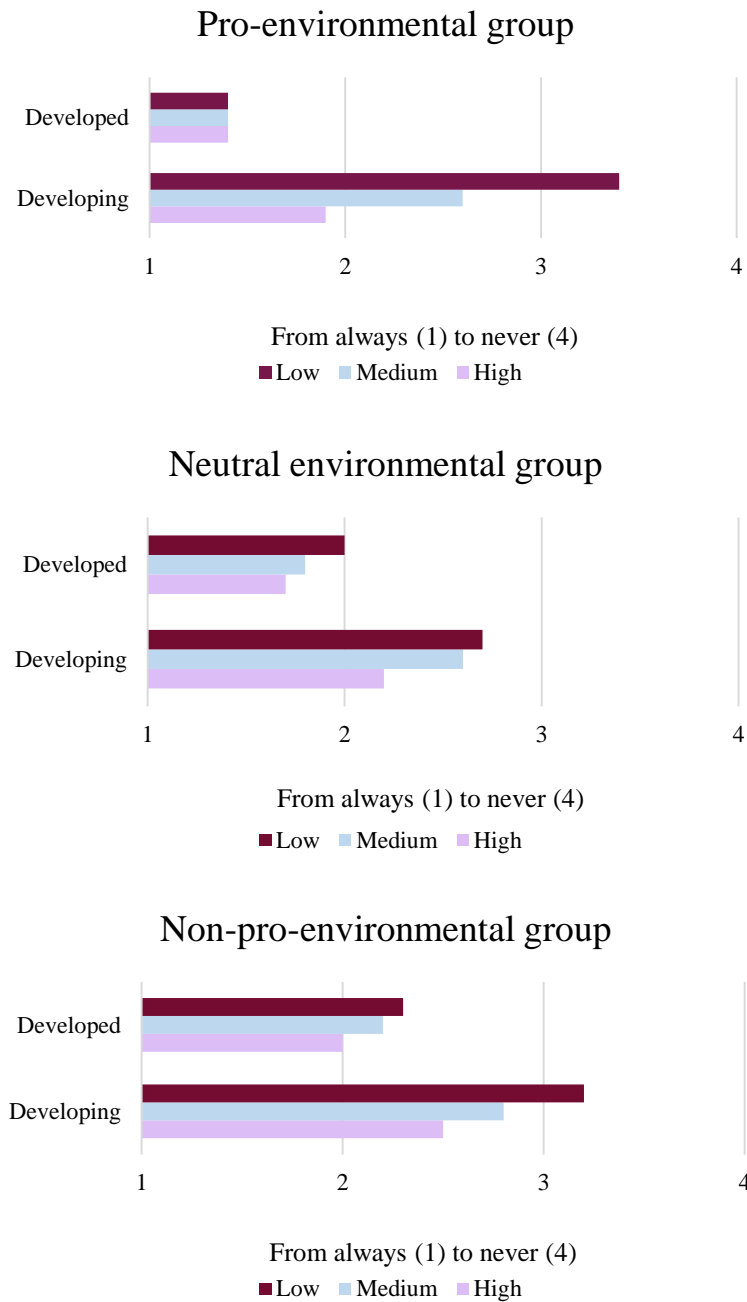
Source: Prepared by the authors.

We also analysed employment status, as we believe that such a context potentially affects the degree of engagement by the decreases of the income and the opportunity cost of time, as suggested by Meyer (2016). Table 12 shows that being unemployed was related to a lower average frequency of recycling, reducing energy and avoiding the purchase of certain

products[12]. This relation was verified for all groups of values, suggesting that the personal context of being unemployed may be a priority, to the detriment of greater attention to other issues, such as those related to the environment. As Meyer (2016) hypothesises, ecological behaviour can change in an unemployment situation due to the decrease of opportunity cost of time.

Tabela 12. Average frequency of engagements by group of values and employment status

Group of values	Employment status	Ecological behaviour				
		To recycle	To cut car	To reduce energy	To save water	Avoid products
Non-pro-environmental	Works	2.35	3.47	3.06	3.10	3.25
	Unemployed	2.77	3.52	3.25	3.12	3.36
	Does not work	2.34	3.26	2.90	2.86	3.15
Neutral	Works	1.97	3.16	2.70	2.78	2.87
	Unemployed	2.35	3.14	2.79	2.75	2.96
	Does not work	1.93	3.00	2.61	2.67	2.83
Pro-environmental	Works	1.57	2.91	2.36	2.53	2.48
	Unemployed	1.79	2.89	2.85	2.40	2.55
	Does not work	1.56	2.72	2.62	2.41	2.46

Source: Prepared by the authors.

On the other hand, being in paid work was associated with worse engagements in terms of reducing car use in all groups: the results were close to "sometimes" for pro-environmental (2.91) and close to "never" for the other groups (3.16 and 3.47). This suggests a correlation between income and car usage, regardless of where people work and how they get to and from work. We also found that not having a job (which is different from being unemployed, as described in Table 3) was associated with a better environmental commitment. Similarly, in this case, we can suppose that as jobless individuals may have more time to devote to other dimensions of life, it may be easier to care for the environment[13].

In general, the findings have highlighted the importance of focusing on understanding what (potentially) affects behaviour (whether values, contexts or both) in order to provide contributions about how future interventions (on macro or micro scale) can encourage

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[12] Recalling that the closer to 4 the average is, the worse the engagement.
[13] We are not arguing here that if an individual has more time it will necessarily engage in environmental issues.

behavioural changes in environmental issues. The next section present out main conclusion about it.

3.6 CONCLUSIONS

This paper presents theoretical arguments and empirical analysis for answering to what extent individuals use a universal set of transcendental values as the basis upon which they form context-specific values that inform their behaviours with respect to the environment. A significant contribution of this paper is to address some gaps in the literature related to value formation. As an important part of the investigation, our work has explored the role of personal contexts in the formation day-by-day practices related to sustainability and explicitly pro-environmental behaviours, which in turn reflect how contextual values can be articulated. The main objective here is to interrogate our key argument that contexts have a direct influence on such behaviours and that the contextual values that we deploy in any given situation are (in)formed by our transcendental values. The paper is, to our knowledge, the first to conduct such an analysis using secondary data to contribute to the transcendental values debate.

Our results indicate clear associations between the frequencies of engagements with daily environmental actions and personal context related to knowledge, education, work, and household. For some of the cases, the contexts seem potentially to influence the level of engagements, regardless of the set of value an individual holds, which corroborates our theoretical arguments that different situations affect the values that people access and mobilize, influencing then their behaviour. It indicates that although some contextual values can be informed by transcendental values, these are not necessarily direct related to the formation of behaviours; in these cases, the context is an important behavioural conditioner. In other analyses, the contextual values holding by a person demonstrate to be an important factor for they achieve better ecological behaviours, which goes towards to the arguments specially made by Kenter and Raymond (2016) and Irvine, et al. (2016). These results indicate, therefore, that some behaviours (into some context) are direct affected by contexts values informed by the TVs.

The results of this paper have important implications for nature assessment because they show that a person can maintain a set of pro-environmental values but still not engage in sustainable. Or, that a person can be characterized as a non-environmental person, but have contextual factors in their life that encourage them to take care of nature – such as high levels of knowledge, education or time, for example. Evidence reinforces our theoretical arguments

that, at least for some behaviours with respect to the environment, engagements are potentially context-specific, both in individual and macroscale level.

Although the stage of this work is about the role of contextual values *per se* and not about the direct links between TVs and behaviours, we can offer some insights about this. We argue that while some environmental behaviours are likely to be informed from a set of preconceived contextual values - which may or may not be formed from universal values derived from the large cloud of TVs -, others are likely to be informed due to a specific context. Therefore, behaviours will perhaps not always be based, even indirectly, on transcendental values.

Our work has many limitations, mainly because our challenge was to expose a philosophical debate and test it with the operationalization of secondary data from statistical analysis commonly used in economics. The different scale of analysis (the individual and the nation) also surely increased the complexity of our work, even though it is not a limitation of the work itself but of the environmental debate. In addition, we did a macro analysis considering all countries together, rather than considering that there are different contexts and realities within each of them.

Thus, future work can investigate the validity of our research from a perspectivist view, considering that the discussion about values and behaviours needs a deep consideration of the diversity of realities we have in the world; that is, people have many different motivations, experiences, factors and contexts that justify (or not) their actions. Our goal here was to fill in some of the gaps associated with operationalization of values, but, as discussed in the opening sections, we have even more questions to be resolved than answers to propose. Therefore, we emphasize the importance of future work to allow the expansion of this discussion within the boundaries of the field of economics.

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Acknowledgments

4. TERCEIRO ENSAIO: Happier and greener? The relationship between subjective well-being and environmental performance

Abstract: This article examines the relationship between environmental performance and self-reported happiness degree at a global level. The analysis is based on a sample of 118 countries, for the 2018 year, and used a cross-section data model. The results show a positive and significate relationship between World Happiness Index (WHI) and Environmental Performance (EPI). Thus, we confirmed our argument that the environment performance plays a positive role as a predictor of happiness. With the purpose of investigating nuances, we specified the analysis according to the freedom national status, which we narrowly related to effective democracy. The freedom status was crucial in identifying which group of countries presented the government's environmental performance as a significant predictor of happiness. While we observed that the freer countries demonstrated significant and positive links between the WHI and the EPI, the partially free countries were related to an inverse association, although insignificant statistically. The non-free countries, in turn, did not presented a significantly effect of environmental performance on happiness level. We could infer that, at least at the macro-spatial level, the self-reported degree of happiness depends substantially on the political context that underlies and determines the focus of policy and decision-making in order to guarantee the sustainability.

Keywords: happiness; subjective well-being; environmental performance.

4.1 INTRODUCTION

Over the centuries, the interest in studying happiness has been mostly limited to the field of philosophy. In recent decades, however, there has been a growing interest in further discussions in different scientific areas, including in Economic Sciences (Frey and Stutzer, 2002a; Graham, 2012; McKerron and Mourato, 2013).

The body of economics literature has focused typically on macroeconomic aspects to explain the variation in individuals' happiness level (Easterlin, 1974; 1995; 2001; Clark and Oswald, 1994; Frey and Stutzer, 2000; 2002a; 2002b; Di Tella, et al., 2001). However, throughout the 1990s, the subjectivity of the concept was revisited from different perspectives of traditional economic approaches that commonly relate happiness to personal utility (Diener, et al., 2002; Diener and Suh, 2003; Frey and Stutzer 2002b). As a result, new studies have addressed a variety of questions, such as poverty, inequality, public policy, and even the environment, in order to explain what affected happiness (see, for example, Inglehart and Klingemann 2000; Rehdanz and Maddison, 2005; Di Tella and Macculloch, 2008; Alesina, et al., 2009; Frey and Stutzer, 2000; Lohmann, et al., 2019).

Although the interest in addressing essentially environmental aspects in the study of happiness is considerably modern, concerns about the potential effects of environmental adversity on quality of life and personal satisfaction has intensified due to the contemporary global environmental debate (Welsch, 2002, 2006; Brereton et al., 2008). In this context, the study of happiness has been a potential analytical tool for policymakers to rethink development, its effects on individuals, and the cost-effective ways of providing well-being (Helliwell, et al., 2019).

The debate about what makes us happy is not properly established. Although several elements – including the feeling of pleasures and pains, as well as spiritual satisfaction and mental distress (Ng, 2015) – are considered predictors of happiness, part of contemporary literature has discussed the effect of environment and nature on the people's subjective well-being[14]. Following MacKerron and Mourato (2013), there are at least three reasons to consider that environment as a whole affects happiness. They are: the positive effect on the nervous system by the contact with nature – e.g. stress reduction –, the effects in the health as a whole caused by air, sanitation and water conditions, and the encouragement of beneficial behaviours, such as outdoor sports and cultural activities.

Based on this consideration, we are interested in verifying what effect a nation's environmental performance has on the aggregate happiness of its society. Therefore, this paper aims to investigate the links between Environmental Performance Index (EPI) and self-reported happiness by countries in 2018. Additionally, it verify the influence of socioeconomics and politic elements, as GDP and freedom.

As the proposed debate is established at the frontier of the economy, this essay contributes by offering new insights regarding what really affects people's happiness in the current context of increased demand for more sustainable socioeconomic trajectory. In addition, the discussion opens the possibility of dialogue with other fields, proposing a broad research agenda.

The following section presents a review concerning what is known about happiness in the Economics arena and, then, how such a debate has been linked in the environmental field. The subsequent section describes the methodological approach adopted. After which, the next section discusses the main evidence found. By the end, we present our contributions regarding the effects of environmental quality on the aggregated happiness level.

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[14] Many studies use the words "happiness" and "well-being" interchangeably, although some of them, as Ng (2015), have argued that even the idea of "subjective well-being" is less precise than "happiness" itself. Here, we use them as synonym in order to make the text more fluid.

4.2 HAPPINESS, WELL-BEING AND THE ENVIRONMENT

The interest in studying happiness has arisen in different fields, such as psychology, sociology, political science, and economics. From Aristoteles's view of happiness to contemporary studies, much has changed, even though some specialists believe that we have made little progress in understanding what make us happy (Csikszentmihalyi, 2013). Regardless of the field of knowledge, the main challenge has been to deal with the relativity of the concept itself and with the abundant possibilities of making inference about it (Veenhoven, 1991; Norrish and Vella-Brodrick, 2008; Graham, 2012; Diener, et al., 2009).

Veenhoven (1991) summarized three postulates that highlight the subjective and relative character of happiness. The first one emphasizes that such "feeling" comes from comparison; that is, the evaluation of life and the degree of happiness depend on the "*perceptions of life-as-it-is*" and whether it meets *"the individual's standards of what-life-should-be"* (Veenhoven, 1991, p. 3). Thus, if life fits well, the individual feels happy.

The second postulate emphasizes that subjective well-being is adjusted according to the societies' and/or individuals' reality. In accordance with Norrish and Vella-Brodrick (2008), the individual has a tendency to adapt itself giving the circumstances. Hence, if the living conditions improve, the felling of happiness improves as well, since the standard of comparison also arises.

The last postulate highlights the arbitrary character of happiness. It suggests that a person can feel happy even though immersed into a bad situation or pursuing a bad thing for them. It occurs because "*standards of comparison are individual mental constructs which do not necessarily fit any real requirements for a good life*" (Veenhoven, 1991, p. 3).

In concordance with Veenhoven's postulates, Csikszentmihalyi (2013) argue that, from a psychological standpoint, the happiness feeling depends on the way in which an individual interpret it. Therefore, the self-reporting of happiness is related to normative valuation and to different views about what is "good" or "bad" (Ng, 2015).

According to Csikszentmihalyi (2013), we cannot reach happiness consciously by searching for one simple thing because most factors that make us happy is out of our own control. Many studies have attested that groups of rich people can even fell less happy than groups of considerably poor individuals despite of the better material conditions, health situations and education levels the former has. King and Napa (1998), for example, investigated that in United States happiness appeared as more important than money, moral goodness and

religious beliefs like going to heaven. That is, money, moral and religion (exogenous facts) are not happiness itself, but a mean or a part of it.

Due to the semantic and etymological difficulties surrounding the concept and idea of happiness, and by its multifaceted nature, researchers have sought to merge it with the notion of well-being, which, in turn, is understood from various technical terminologies (Ng, 2015). Consequently, many criticisms have arisen in parallel, mainly because of the impracticability of accurately measuring happiness (Haybron, 2000; Norrish and Vella-Brodrick, 2008; Diener, et al., 2009). Therefore, the challenges are not just about what happiness itself is, but also about how we – and whether we can – measure it to enable further researches.

In terms of measurement, the most common method employed in happiness studies is based on surveys applied to particular individuals or a sample of them (Ng, 1996; Veenhoven, 2000a; Argyle, 2013, Ng, 2015). Many works have used methodologies based on questions about how happy or satisfied with life a person is. Usually, the answers are structured on a scale (for example, from 1 to 10) or they compose an index (e.g. Oxford Happiness Inventory). In addition, the concept of happiness consider in the research can or cannot be explained to the interviewed (Abdel-Khalek, 2006; Graham, 2012; Ng, 2015).

Norrish and Vella-Brodrick (2008) argue that sort of survey involves that a person evaluates his/her present state or his/her current well-being status in relation to past or current experiences. Furthermore, the evaluation of happiness can be considered from the effects of the mood, emotions and circumstantial elements (Diener, et al., 2009; Ng, 2015).

In addition to asking what happiness is and how to measure it, researchers have demonstrated interest in investigating what contributes most to making people happy. Easterlin (1974) was the first economist to work with a revisited notion of happiness in Economics Science in the 1990s. He interpreted happiness as something beyond the personal utility commonly evaluated by economists. Using an expressed preferences approach rather than revealed choices for a sample of nineteen countries from 1946 to 1970, he evidenced that an increase in the income of individuals did not raise the happiness of all of them. The results indicated that, since it was possible to identify a positive association between happiness and income within countries, this relationship was not verified between them. In posterior works, he also argued that income could explain only part of the variation in happiness levels (Easterlin, 1995; 2001).

Oswald (1997) corroborated the pioneering analysis of Easterlin by investigating a North American sample from 1972 to 1990 and European sample from 1973 to 1990. The author verified that improvements in quality of people's lives upon an increment of income

was quite small, which did not suggest that economic progress have little impact on people's well-being. As an example of that, and also evidenced by Clark and Oswald (1994) previously, Oswald (1997) verified the unemployment caused by economic crisis as one of the main drivers of the individuals' unhappiness. That is, while income indicated a small effect on the happiness status of individuals, other socioeconomic variables were important drivers of it. Similar investigations later proceed by Layard (2005) and Gilbert (2006) corroborated such arguments.

Following Easterlin's contribution, the economic literature on happiness expanded and many non-economic variables were included in order to understand what affect the happiness level. Culture (Schyns, 1998; Inglehart and Klingemann, 2000; Ye, et al., 2015), demography (Easterlin, 2006; Frijters and Beatton, 2012; Michalos, 2017; Nikolaev, 2018), religion (Lelkes, 2006; Campante and Yanagizawa-Drott, 2015), health (Gerdtham and Johannesson, 2001; Graham, 2008), inequality (Alesina, et al., 2004; Graham and Felton, 2006) and democratic and institutional aspects (Frey and Stutzer, 2000; Graham and Pettinato, 2001; Layard, 2006; Easterlin, 2013) were the most popular variables analysed.

In recent times, the study of happiness was also associated with environmental issues. Empirical studies have investigated the causal relationship between happiness and air pollution (Welsch, 2002; Rehdanz and Maddison, 2008), climatic aspects (Rehdanz and Maddison 2005; Brereton, et al., 2008; Sekulova and Van den Bergh, 2013), greenhouse gases emissions (GHG) (Zidansek, 2007; Di Tella and Macculloch, 2008) and local environmental characteristics (Mackerron and Mourato, 2013). The majority of them have pointed out the negative effect of worse environmental conditions on the physical and mental individuals' well-being, reflecting a reduction of levels of happiness.

Ferrer-i-Carbonell and Gowdy (2007), for example, have verified a negative association between concerns about the ozone layer and life satisfaction in British individuals' lives (1991-1996). The authors have also remarked that not only the pollution effects are negatively related to well-being but also the concerns itself. That is, to be constantly concerned with pollution reduction (or any environmental problem) decrease the level of happiness principally due to the stress and the frustration involved in such evaluation process. Welsch (2006) and Luechinger (2010), using data at the individual level, draw similar conclusions for other European countries.

Ferrer-i-Carbonell and Gowdy (2007) also evidenced a positive biodiversity-happiness relationship. According to them, "*concern with biodiversity loss is a sign of caring about the living world*" in the sense that those one who care about biodiversity loss likely hold "*psychological connection with other living organisms*" (Ferrer-i-Carbonell and Gowdy, 2007,

p. 514). Thus, the concern with biodiversity affects positively the level of happiness. The two different results achieved by Ferrer-i-Carbonell and Gowdy (2007) are, at the same time, a contra-argument and a complementation of each other, once both positive and negative effects can be experienced by the same person in different moments of his/her life.

Cuñado and Gracia (2013), in turn, indicated a negative effect of climate (translated in their work as temperature levels) and air pollution on happiness in different regions of Spain. According to their findings, environmental variables explicated differences in happiness status better than usual macroeconomic variables, affecting in different ways the Spanish regions.

Using GPS response locations and spatial data, MacKerron and Mourato (2013) verifies the relationship between the environment, nature and individual happiness in UK. Differently of Cuñado and Gracia (2013), happiness was positively related to higher temperatures, sunny days and more moderate wind breezes. Engaging in outdoor activities (running, gardening, birdwatching) and being in a green space (mountain, wetlands), instead of in urban areas, proportioned higher levels of well-being and, by consequence, of happiness. Through the elaboration of an *app* called *Mappiness*, they mapped the perceptions of happiness associated with the local environmental variables observed, creating a tool for the government to make decisions based on individual well-being factors.

Although most studies have focused on the individual happiness scale, many have investigated at an aggregate level. Menz and Welsch (2010), for example, used the average level of individual happiness from World Database of Happiness for 25 OECD countries in order to investigate preferences for environmental quality focusing in different population ages. With age represented on the x-axis and happiness on the y-axis, they found a global U-shaped relationship between pollution and age. The results showed, for example, that young and old people had a greater preference for air quality (one of the indicators analysed) than middle-aged people in OECD countries.

Zidansek (2007) investigated the correlation between Environment Sustainable Index (ESI), Environment Performance Index (EPI) and its indicators with the average happiness score in different countries in 1990 and 2000. The author verified that there is a positive relationship between environmental performance and subjective well-being. According to him, the happiest countries are, on average, the most environmentally sustainable. Analogously, nations that have better environmental conditions contemplate happier individuals.

We are interested here in investigating the effects of environmental health and ecosystem vitality on average happiness level in different countries in 2018 by a macro-scalar

level. Specifically, we want to check if environmental variables are, in fact, important factors in predicting happiness or if such association establishes according to different context.

The next section details the methodological strategy used to achieve the essay's objectives.

4.3 DATA AND METHOD

With the purpose of investigating the relationship between environmental performance and level of happiness across the world, we firstly need to clarify that, here, the concept of happiness was gotten in the same way conceived by Veenhoven (1991, p.2): "*as the degree to which an individual judges the overall quality of his life favourably*". The interest, here, is adopting the perception of happiness from free self-reporting regardless of how people rate it. In this sense, it does not matter if was by a comparison to the other's lives, or to experiences, or by evaluating their own current mood, emotion, or psychological factors. The most important element is the self-perception about happiness in the moment that the question was given.

For that, we adopted the World Happiness Index (WHI) as a measure of happiness in the proposed estimates. The WHI is an index drawn from data from a large-scale survey of self-perception of happiness in different countries. It consists of information extracted from one of the most robust databases on happiness and subjective well-being, Gallup's global survey. The choice of countries analysed here was based on the availability of observations contained in the World Happiness database released in 2019, which covered responses for the year 2018.

The World Happiness Index uses the Cantril Scale developed by Cantril (1965). In a simple way, the indicator represents the national average of the individual answers to the following question: "*Please imagine a ladder with steps numbered from 0 (bottom) to 10 (top). The top of the ladder represents the best life for you and the bottom of the ladder represents the worst possible life. On which stair step would you say you are at this point in your life?*" (Helliwell, et al., 2019). This question lets people free to evaluate their lives according to the best element they consider in the moment of the answer.

The methodology strategy was driven by an econometric method with cross-sectional data for the year 2018, since we were interested in discussing the happiness-environment relationship in the contemporary context of environmental concerns. The sample totalled 118

observations and 9 variables. We emphasize that it was not possible to elaborate a data panel model due to the complete time-series data unavailability.

As the environmental variable, we selected the 2018 Environmental Performance Index (EPI) final score and the scores for its two objectives - Environmental Health (EH) and Ecosystem Vitality (EV) – Chart 5. Environmental health information measures the protection of human health against environmental damage, while ecosystem vitality data measures ecosystem protection and natural resource management. Results range from 0 to 100, where the closer to 100, the better the performance of countries against the targets of each indicator (Yale University, 2017; Wendling, et al., 2018).

Quadro 5. Environmental Performance Index's Objectives and Categories - 2018

Index	Objetives	Categories
Environmental Performance Index (EPI)	Environmental Health (EH)	Air Quality
		Water and Sanitation
		Heavy Metals
	Ecosystem Vitality (EV)	Biodiversity and Habitat
		Forests
		Fisheries
		Climate and Energy
		Air Pollution
		Agriculture

Source: Wendling, et al. (2018).

In total, EPI comprise 20 indicators and is released every two years by Yale and Columbia Universities to rank countries in terms of meeting global environmental goals. Since the index covers different environmental dimensions, it enables to analyse the effect of different aggregate elements on happiness level rather than just looking at an isolated variable, such as carbon dioxide emission level.

In addition to the explanatory variable, were used some control variables commonly applied in similar studies to minimize endogeneity issues, as GDP per capita and inequality index (see Mackerron and Mourato, 2013; Rehdanz and Maddison, 2005; Welsch, 2006). We also include variables available into WHI database that was supposed to also affect happiness,

like social support (Liping, 2011; Zhu, et al., 2013; Tan, et al., 2018), freedom to make life choices, perceptions of corruption and confidence in national government (Tavits, 2008; Rothstein, 2010).

Veenhoven (2000b), Grooper, et al. (2004) Inglehart, et al. (2008) and Rahman and Veenhoven (2018) have highlighted the importance of freedom in the societies' happiness. According to Rahman and Veenhoven (2018), the concept of freedom is strictly related to the possibility to choose or, as Sen (2014) also argue, to the capability of expanding the opportunities to choose in life. So, as pointed out by Rahman and Veenhoven (2018, p. 436), "*the common-sense theory behind this belief* [that freedom impacts happiness levels] *is that life will be more satisfying if we can live the way we want*"; that is, if we can live freely.

Nowadays, more and more people are demanding and seeking more conditions of freedom – freedom of speech, freedom of law, freedom of vote, freedom of religion. Such context can also reflected in the society-environment relationship. Because of it, we was specifically interested in analysing the effect of country-level environmental performance on average happiness by considering different categories of freedom within societies.

Following Rahman and Veenhoven (2018, p. 437), we argued that if EPI is positively and significantly related to WHI in a perspective of total freedom, it imply that the gains from freedom exceed the costs of freedom in the context of the environmental issue. That is, freedom is contributing to a better society-environmental relationship, which, in turn, is affecting the societies' happiness. However, we argue that if the environmental performance is positive and significantly related to WHI in a context of not freedom, it will imply that the gains from not freedom exceed the costs of not freedom in such context. In this sense, the authority is contributing to a better society-environmental relationship, affecting the societies' happiness.

In order to measure the level of freedom, we use the Freedom House Index (FHI). FHI indicates the national status of freedoms and rights within the country from an aggregate perception of freedom and rights. Structurally, the index includes 25 indicators, 10 corresponding to the "political rights" category and 15 corresponding to "civil liberties". Country status is determined based on the aggregated scores: from 1 to 2.5 is "Free", from 3.0 to 5.0 is "Partially Free" and from 5.5 to 7.0 is "Not Free" (Freedom House, 2018).

Chart 6 contemplates the description of each variable and its source. It is important to highlight that despite some control variables were collected from the WHI database, they do not compose the happiness index (WHI).

Quadro 6. Variable descriptions - 2018

Variable	Description	Source
World Happiness Index	The self-reported perception of happiness. From 0 to 10 where the closer to 10, the happier.	World Happiness Database
Environmental Performance Index	From 0 to 100 where the closer to 100, the better the environmental performance.	Yale University
GDP per capita	GDP per capita in purchasing power parity (PPP) at constant 2018 international dollar prices.	World Bank
GINI Index	The distribution of income, from the Gallup World Poll, 2018. The closer to 1, the greater the inequality.	World Happiness Database
Social support	The national average of the binary responses (either 0 or 1) to the question "If you were in trouble, do you have relatives or friends you can count on to help you whenever you need them, or not?". The higher the value, the better.	World Happiness Database
Freedom House Index	Freedom categorization according to civil rights and polity freedom: "free", "partially free" and "not free".	Freedom House
Freedom to make life choices	The national average of responses to the question "Are you satisfied or dissatisfied with your freedom to choose what you do with your life?". The higher the value, the better.	World Happiness Database
Perceptions of corruption	The national average of the questions in the Gallup World Poll: "Is corruption widespread throughout the government or not" and "Is corruption widespread within businesses or not?" The overall perception is just the average of the two 0-or-1 responses. The higher the value, the worst.	World Happiness Database
Confidence in nation government	Confidence in national government from the GWP. The question is "Do you have confidence in each of the following, or not?	World Happiness Database

	How about the national government? (WP139)". The higher the value, the better.	

We estimated the effects of the environment performance in the subjective well-being with a log-log model presented in equation 1. The dependent variable, Y, is the World Happiness Index (WHI) and the independent variables, X and Z', are, respectively, Environmental Performance Index (EPI) and the control variables set. The element ε_i is the residual.

$$logY_i = \alpha + \beta_1 logX_i + \beta_2 logZ'_i + \varepsilon_i \tag{1}$$

The coefficients in such log-log model are interpreted as elasticities of WHI when EPI increases by certain percentage. The elasticity function is described in Equation 2.

$$\frac{\%E(Y|X)}{\%\Delta X} = \beta_1 \tag{2}$$

We used a sort of robust standard error technique in OLS estimation, called clustered standard error, in order to minimize the problem of heteroscedasticity that may violate Gauss Markov's assumptions and, consequently, to bias the estimators (Torres-Reyna, 2007). As the robust option "*relaxes the assumption that the errors are identically distributed*", then the coefficient estimated are trustworthy (Mehmetoglu and Jakobsen, p.254, 2016).

Since observations from a specific country are likely to be more similar to each other than between observations from different countries, we also clustered the error term by country. We were therefore considering that the error term is different by each unity of analysis (countries) once there are several factors that differ between them that, in turns, affect their level of happiness.

4.4 RESULTS AND DISCUSSION

The world average environmental performance index in 2018 was 56.77 out of 100. We verified that no country scored more than Switzerland[15], which the final EPI was 87.42. When

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[15] See Annex 3.

the environmental index was disaggregated by its objectives, we observed that the average global score for Environmental Health (61.30) was higher than the average Ecosystem Vitality score (53.74). The standards deviation in Table 13 suggests that the countries varied more significantly in their actions to combat threats to human health than in their decision-makings that threatens the natural environments and ecosystem services.

Regarding the subjective well-being indicator, the global self-reporting average of happiness was 5.5 out of 10.0, although the maximum observed score was 7.85 for Finland[16]. At the bottom of the ranking was Afghanistan, with a score of 2.69. Despite social, political, cultural and economic differences between countries, the standard deviation and the coefficient of variation indicated a small discrepancy in the level of happiness around the sample mean, which is an interesting result. Otherwise speaking, differences in happiness levels cross-country was small although the huge differences between them. This may have happened because the difference perception about what is to be happiness.

Tabela 13. Descriptive statistics - 2018

Variable	Mean	Standard deviation	Minimum	Maximum	Coefficient of variation (%)
World Happiness Index	5.504	1.133	2.694	7.858	20.585
EPI	56.770	13.871	27.43	87.42	24.433
Environmental Health	61.309	23.197	9.32	99.35	31.836
Ecosystem Vitality	53.74	11.153	26.08	83.32	20.753

Source: prepared by the authors.

In order to verify the existence of an association between happiness and environmental quality, we first proceeded to an exploratory analysis of the databases and the reports available. The World Happiness Report 2019 has pointed out that the countries that have had the largest declines in subjective well-being scores over the years, also have suffered from some political and socioeconomic weakening (Helliwell, et al., 2019). The same trend was perceived in terms of EPI scores, according to an analysis given by EPI Report (2018). In these sense, countries that have lost positions in EPI ranking have also revealed some degree of political and economic fragility.

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[16] Annex 3.

Based on those observations, we investigated the relationship between happiness and environmental performance in the face of political and socioeconomic factors such as freedom, income and inequality. As many works have argued, these elements have been considered thought-provoking predictors of happiness. Due to this, is establish that they need to be more central in the welfare debate, as they reflect long-term processes including those associated with the environment question (Inglehart, 2009; Oishi, et al., 2011, Oishi, et al., 2018).

Figure 7 illustrates the country-by-country WHI-EPI relationship, considering the national classification of freedom (F – "free", PF – "partially free" and NF – "not free"), the GINI index and the level of GDP per capita. The larger the symbol, the greater the value of per capita income; the bluer the symbol, the more economically unequal the country was in 2018.

Figura 7. Country dispersion by WHI-EPI association considering the Freedom House Index, GINI Index and GDP per capita, 2018
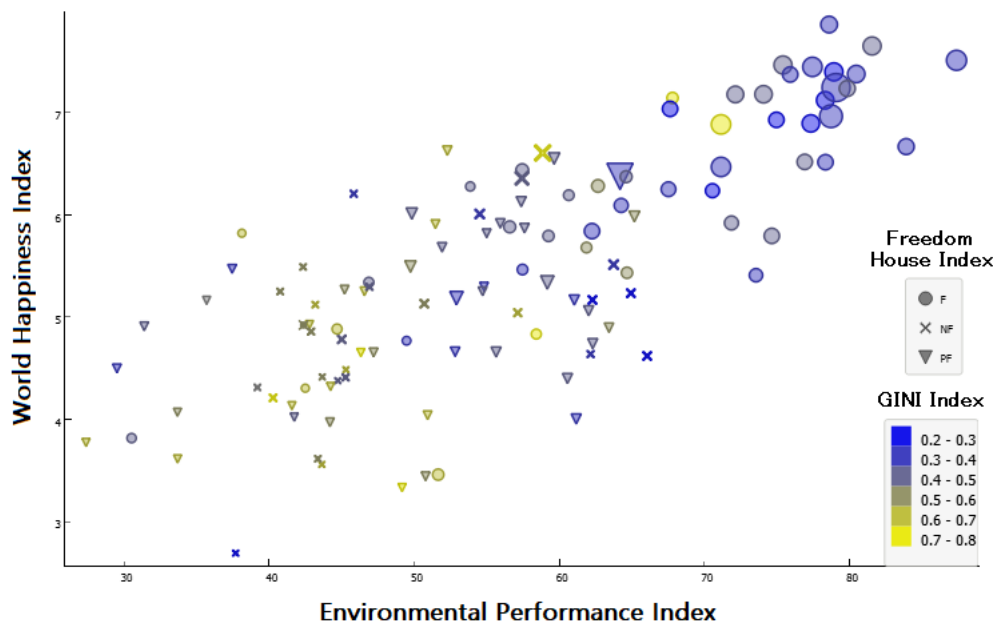
Source: prepared by the authors.

The dispersal trend indicates a positive relationship between income, freedom and inequality with WHI and EPI, thus suggesting that richer, freer and more egalitarian countries have stronger links between happiness and environment, like Sweeden. Opposite examples, like India, are identified in the lower left corner of Figure 7. It is also possible to observe some countries with contradictory relationships, such as Botswana (a free country with high EPI score but with low self-declared happiness level) and Uzbekistan (a non-free country, with a low EPI score, but a high self-declared happiness score).

We noted that at the top right of the chart, where are stablished the richest, freer and more egalitarian nations, we identified, by consequence, the developed countries. These one presented not only the highest level of happiness but also the best environmental performances, as the case of Finland and Switzerland. In the middle of the chart, we observed countries from different continents with intermediate associations. Weak relationships was observed mainly in African and Asian countries, such as India and Burundi. Therefore, we could relate, *a priori*, a high development degree and a good effective democracy with high environmental performance and happiness level.

Once we detected certain correlation between EPI and WHI in the exploratory analysis, we then investigated the effect of the environment quality in predicting the average national level of happiness. In Table 14 it was estimated two specifications: (1) without the control variables and (2) with control variables and clustered standard errors by country. While the first one included only the EPI as the predictor, the second model comprised socioeconomic and political elements in order to obtain an effect closer to what can be considered the net effect of the EPI on WHI.

The relationship between environmental performance and happiness was positive in both models. The greater the national environmental engagement in 2018, the better the country's human subjective well-being, on average. This result is narrowly related to a close link between performance governmental and happiness evidenced by the Word Happiness Report 2018, since the governments' actions affect directly the societies' happiness. Thus, the estimations given in Table 14 suggest that the environmental performance of governments has positive impacts on national happiness.

Tabela 14. Estimated results – WHI, 2018

VARIABLES	(1) OLS without control variables	(2) OLS with control variables
lnEPI	0.610***	0.190*
	(0.0541)	(0.103)
lnGDPPC_PPP		0.0515*
		(0.0267)
lnGINI		-0.0204
		(0.0568)
lnFreedomtomakelifechoices		0.361***
		(0.114)
lnSocial_support		0.257
		(0.232)
lnPerceptionsofcorruption		-0.0338
		(0.0460)
lnConfidenceinnationalgovernment		-0.0553
		(0.0389)
Constant	-0.760***	0.517
	(0.218)	(0.367)
Observations	118	103
R-squared	0.522	0.712
AIC test	-112.1952	-131.8757
VIF test	1.00	2.96

Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1
Source: prepared by the authors.

Only in the first model, the EPI coefficient was statistically significant at 95% confidence. However, if we consider a broader confidence level (at 10%, for example), which is justifiable since the object of analysis was certainly subjective and complex, we can indeed confirm a positive relationship also in the second model. This result is assured even after the inclusion of important happiness predictor variables that, statistically, should reduce the significance level of the coefficient of the main independent variable (EPI).

The results of the model (2) indicated a significant and positive effect of freedom to make choices and GDP per capita on average national happiness. Nevertheless, the elasticity imply a greater magnitude for the first one. Thus, while an increase in the perception of freedom of choice had a positive impact of 0.361% on the happiness level, an increase in the GPD level generated an increase of only 0.0515%. No other variable proved to be statistically significant.

With the purpose of investigating nuances that the prior models could not explicit, we specified the analysis according to the freedom national status, which we narrowly related to effective democracy. Both elements could be closely connected once effective democracy

"*means the extent to which formally institutionalized civil* [and political] *rights are effective in practice*" (Inglehart and Welzel 2005, p. 10). Thus, once the Freedom House Index comprise political freedom and civil rights scores, we could correlated them to the degree of effective democracy.

The literature on happiness have highlighted the role of the political process in the people's happiness self-perception (Inglehart and Klingemann, 2000; Graham and Peitinato, 2001). In the same way, a variety of works has indicated the importance of the democracy and the freedom for enhancing the environmental protection (Li and Reuveny, 2006, Povitkina, 2015; 2018). The ANOVA test in Table 15 confirms that there is a statistically significant difference between the three means of the freedom categories; that is, the country's levels of happiness and environmental performance differ according to its freedom status and thus to the level of effective democracy.

Tabela 15. One-way ANOVA tests – Free, Partially Free and Not Free status

	Analysis of variance					
	Source	SS	df	MS	F	Prob>F
WHI	Between categories	829.061.084	2	414.530.542	33.72	0.0000
	Within categories	14.015.579	114	122.943.675		
	Total	223.061.898	116	19.229.474		
EPI	Between categories	515.526.247	2	515.526.247	29.86	0.0000
	Within categories	98.410.869	114	0.863253237		
	Total	149.963.494	116	129.278.874		

Source: prepared by the authors.

We can hypothesize then that freer institutions can be positive correlated with strong environmental commitments and that people living under free countries are happier that the opposite (not free and authoritarian nations), as suggested in Figure 7. One way of testing this hypothesis is estimating different models considering the previous aspects.

The three estimations in Table 16 evidence a positive and statistically significant impact of environmental performance on the subjective well-being independently of the freedom category. The magnitude of the coefficients indicated, however, that the impact of EPI on WHI is stronger in free nations (0.642%) than in partially free (0.345%) and not free (0.559%). Nevertheless, given the multidimensional characteristic of happiness, the three models are likely to suffer from omitted variable bias. As corroborated by the low values of R-squared at least for partially free and non-free nations, environmental quality explains a small fraction of

average national happiness, which suggest the importance of include other variables in the model in order to have a more robust estimation.

Tabela 16. Estimated results for free, partially free and not free countries – WHI, without control variables, 2018

VARIABLES	(3) OLS for free countries	(4) OLS for partially free countries	(5) OLS for not free countries
lnEPI	0.642***	0.345***	0.559**
	(0.0906)	(0.0921)	(0.220)
Constant	-0.860**	0.251	-0.603
	(0.388)	(0.356)	(0.867)
Observations	48	43	26
R-squared	0.628	0.188	0.256
AIC test	-73.47514	-33.47512	-16.31716
VIF test	1.00	1.00	1.00

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: prepared by the authors.

Table 17[17] illustrate the estimations of the EPI impacts on WHI by freedom status in the presence of social, political and economic variables. The models from (6) to (8) are the same then those in Table 16 but with the addition of control variables. The EPI's coefficient was significant only in free and partially free groups. For not free nations, we could not infer any relationship about happiness and environmental quality.

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[17] Due to the low number of observations in each group, parsimony is required when interpreting the estimates.

Tabela 17. Estimated results for free, partially free and not free countries – WHI, with control variables, 2018

VARIABLES	(6) OLS for free countries	(7) OLS for partially free countries	(8) OLS for not free countries
lnEPI	0.515***	-0.215*	0.384
	(0.169)	(0.124)	(0.393)
lnGDPPC_PPP	-0.000790	0.0947***	0.0941
	(0.0362)	(0.0257)	(0.0857)
lnGINI	-0.0754	0.137	-0.0112
	(0.0750)	(0.0923)	(0.171)
lnFreedomtomakelifechoices	0.397**	0.403***	0.837***
	(0.154)	(0.103)	(0.269)
lnSocial_support	-0.327	0.501**	-0.444
	(0.339)	(0.187)	(0.665)
lnPerceptionsofcorruption	-0.113**	-0.0123	0.255**
	(0.0465)	(0.0351)	(0.106)
Confidenceinnationalgovernment	-0.253*	-0.281**	0.0135
	(0.131)	(0.127)	(0.259)
Constant	-0.288	2.107***	-0.568
	(0.529)	(0.455)	(1.975)
Observations	48	38	16
R-squared	0.743	0.684	0.743
AIC test	-79.2784	-52.2889	-10.44373
VIF test	3.31	2.38	4.14

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: prepared by the authors.

The model (6) indicates that the environmental performance affects positively the free countries' average happiness. According to the magnitude of the coefficient, an increase in the EPI score is related to an increase in 0.515% on happiness self-reporting level. An expansion in freedom to make life choices presented the same effect, which is supposed to be correlated with the degree of effective democracy in the society as a whole. The perception of corruption variable, however, signalled an opposite impact on WHI. This result indicated that the more fraudulent and dishonest the conduct of free-country institutions, the lower the level of happiness in their societies.

The previous results opened up the possibility to investigate the relationship between political predictors of happiness and environmental performance in order to identify any other relevant aspects. A negative correlation and, thereby, an inverse association between corruption and environmental quality was verified (-0.583). Such results is connected with the statement made previously about the link between governmental performance and happiness. With this,

we can ponder that if the perception of corruption is high and the trust in national government is weak, it is possible that corruption is embedded in the institutions to such an extent that it affect negatively not just the happiness level but also political commitment and actions, including in the environmental dimension.

The results support the argument about the role of effective democracy and freedom in the context of environmental quality as a predictor of happiness. The model (6), more specifically, indicated that political (freedom to make life choices, corruption, confidence with the government) and environmental factors (EPI) influence more happiness in free societies than socioeconomic elements such as income, inequality and social support. The statistical insignificances of the coefficients of these variables corroborate the statement.

Model (7) demonstrated very different results from those generated in the prior model. Although the relationship between happiness and environmental performance was statistically significant (at 90% of confidence), the effect verified was inverse. Otherwise speaking, an increase in EPI score generate a negative impact (0.215%) in happiness degree.

A plausible explanation for an inverse relationship between EPI and WHI in partially free countries can be based on the existence of the classic trade-off between economic growth and environmental protection. According to Welzel, et al. (2003), Welzel and Inglehart (2010), socioeconomic development implies in an enlargement of values that emphasise autonomy, rights, and freedoms, which, in turn, tend to contribute for the institutions improvements, reflecting the effective democracy in a country. Based on this, if we consider the freedom status as something close to effective democracy, and this one narrowly related to the degree of development, we can generally argue that partially free nations can be relatively less developed than free nations.

Therefore, in a context of less freedom and low development, decision-makers are more likely to have a strictly economic motivation in political planning, neglecting other important issues such as the environmental one. Consequently, it is possible that the context of development, democracy, and the status of freedom affect macro decisions, societal priorities, and thus the level of happiness. In a situation where economic issues are much more prioritized than the other, so that such choice bring happiness to most of society (direct or indirectly), any other dimension that has primacy can reduce the overall level of subjective well-being[18].

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[18] We are offering some possible explanation for the result verified in model (7), which does not imply that we consider that it is verified in all context of partially free countries.

Model (7) also specified three other important happiness predictors in non-totally free nations: GDP per capita, social support, and freedom to make life choices. Their coefficients suggested a positive impact, with social support's presenting the biggest magnitude (0.501%). We argue then the happiness in partially free countries is relatively more affected by socioeconomic factors, as income and social support, than political and environmental elements, exactly the opposite inferred for the free nations.

Model (8) indicated a positive EPI-WHI association in not free nations, but we could not infer a significant effect of the independent variable. For authoritarian countries, only the freedom to make life choices and the perceptions of corruption affected the happiness level. While the elasticity of the first one indicated a positive impact around 0.837% on happiness level, an increase in the perception of corruption also indicated a positive effect in that (0.255%).

Reflecting about the reasons why people could be happier in a context of more corruption is quite a challenge. However, we cannot disregard cultural and societal values, which may influence the worldview and what to be happy for someone means. Therefore, we can expect an increase in happiness in the face of corrupt institutions if a society agrees with the corrupt behaviour, and/or if the corruption is so rooted in the societal culture that corruption is almost a *sine qua non* condition or a fait accompli. Under these contexts, the corrupt behaviour is not seen as predatory but something to be maintained, legitimated and radiated among and by the individuals, not affecting negatively the national happiness level.

Based on the results of the model (8), we could argue that elements related to the political arena were more associated with the prediction of happiness in authoritarian nations than socioeconomic and environmental indicators. From a general analysis about the three models, we argue that depending on the level of freedom, the societies' happiness level can be more or less affected by environmental variables.

In order to verify the environmental-happiness relationship more deeply by free, partially free and not free countries, we estimated the effect of Environmental Health and Ecosystem Vitality on WHI. Table 18 illustrates that only the EH's coefficient indicated a positive and significant impact – model (10). The association denoted that the quality of water, air, heavy metals and sanitation indeed affects the national happiness level. However, such relationship was verified only in free countries; and again the political variables, as freedom to make life choices, perception of corruption and national government, was significantly related to happiness.

Tabela 18. Estimated results for free, partially free and not free countries – WHI, 2018

VARIABLES	(9) Total	(10) OLS for free countries	(11) OLS for partially free countries	(12) OLS for not free countries
lnEH	0.0895*	0.271***	-0.0577	0.0811
	(0.0536)	(0.0522)	(0.0502)	(0.261)
lnEV	-0.0385	0.0195	-0.119	0.185
	(0.0759)	(0.0983)	(0.127)	(0.350)
lnGDPPC_PPP	0.0566**	0.0224	0.0895***	0.0992
	(0.0239)	(0.0240)	(0.0254)	(0.0943)
lnGINI	-0.0509	-0.0955	0.137	-0.0461
	(0.0579)	(0.0728)	(0.102)	(0.197)
lnFreedomtomakelifechoices	0.475***	0.437***	0.411***	0.861***
	(0.119)	(0.144)	(0.137)	(0.288)
lnSocial_support	0.197	-0.408*	0.487**	-0.400
	(0.234)	(0.229)	(0.196)	(0.675)
lnPerceptionsofcorruption	-0.0499	-0.0992**	-0.0131	0.241*
	(0.0440)	(0.0399)	(0.0350)	(0.116)
Confidenceinnationalgovernment	-0.198**	-0.204**	-0.273**	-0.0292
	(0.0818)	(0.0981)	(0.131)	(0.393)
Constant	1.155***	0.355	1.992***	-0.145
	(0.376)	(0.438)	(0.499)	(2.213)
Observations	103	48	38	16
R-squared	0.733	0.806	0.681	0.729
AIC test	-137.5027	-90.68719	-49.8711	-7.626625
VIF test	2.71	2.77	2.41	4.21

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: prepared by the authors.

Interestingly, no significant effects were observed in predicting happiness in terms of quality of biodiversity, habitat, forests, fishing, climate, energy and water resources - dimensions directly related to the quality of the environment itself and representative of the Ecosystem Vitality objective. These results highlight the anthropogenic effect of environmental performance on happiness, since happiness is negatively affected if human health is being harmed by environmental problems.

The Figures 8 and 9 can complement those results. The first one indicates a clear positive relationship between happiness and environmental health for free and rich[19] countries, highlighted by the blue region. Finland and Denmark are still in the top right of the chart with strong relations. The green and red region, in turn, elucidate the disperse associations for

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[19] Represented by the size of the sign. The bigger it is, the bigger the income per capita level.

partially and not free countries, in a way that it is not possible to infer a single and more clear relationship between environmental health and happiness for them. While we find the authoritarian United Emirate Arab with 6.60 WHI level and 67.88 EH score, we also see Afghanistan with 2.69 of self-reported happiness degree and 36.76 EH score. Similarly, we can observe two different partially free countries: Singapore, with 6.37 WHI and 72.14 EH scores, and Bangladesh, with 4.49 self-reported happiness level and 11.96 EH score.

Figura 8. Country dispersion by WHI-EH association considering the Freedom House Index and GDP per capita, 2018
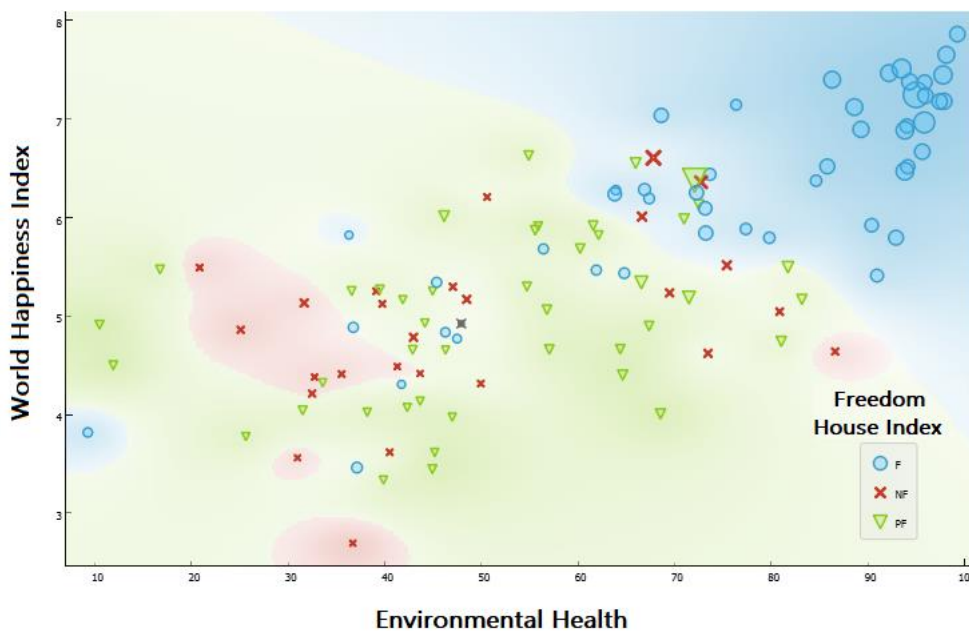
Source: prepared by the authors.

Although Figure 9 illustrates a positive relationship between happiness and environmental vitality, this association is not powerfully evident as that one in Figure 7. It is probably because the distribution of observations is concentrated in the middle of the graph. We can observe rich and free countries with high levels of self-reported happiness but with ecosystem vitality indexes around 50 to 70, such as the United States (56.40) and the United Kingdom (69.13). In the same way, we can observe partially free nation with quite different levels of happiness and EV scores, as Tanzania (54.71 EV, 3.44 WHI) and Libya (28.45 EV, 5.49 WHI). The same pattern we verify for non-free countries. Based on this analysis we argue that the lack of a clear relationship between happiness and elements related to environmental vitality has probably provided non-significant coefficients for the EV objective in the estimates of models from (9) to (12).
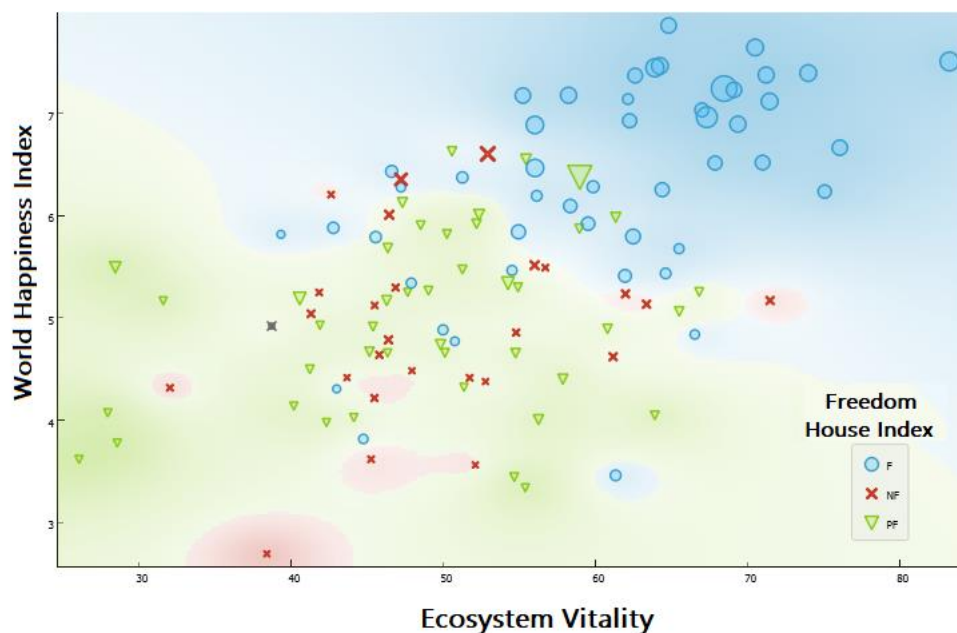
Figura 9. Country dispersion by WHI-EV association considering the Freedom House Index and GDP per capita, 2018

Source: prepared by the authors.

Although the coefficient's significance was not expressive for all groups of countries and freedom status, the evidence establish so far indicated that the environment performance plays an important role as a predictor of happiness. Thus, we confirmed our argument that there is an association between environmental performance and happiness. However, the investigation by freedom status was crucial for identifying which group of countries presented the government's environmental performance as a significant predictor of happiness.

4.5 CONCLUSIONS

Underlying some already attested predictors of happiness in literature, as income and inequality, we was interested in verify if environmental performance indicated a significant effect on self-reported subjective well-being. The evidences generated through the econometric estimations attested such relationship.

The links between happiness and environmental quality were explicitly positive in countries where institutional and political arrangements were better established. Put differently, the results suggested that would be important elements to be considered as possible drivers of happiness, such as the national political and economic performance.

The different environmental effects observed between the categories of freedom indicated that the performance of the political system (effective democracy) is correlated with the level of happiness and environmental quality. As it was observed that freer countries demonstrated significant and positive links between the WHI and the EPI, we could establish the argument that the gains of freedom exceeded their costs in the context of the environmental issue in 2018. In other words, freedom created more conditions of gains, at least for some countries, so that it induced positive impacts of environmental performance on happiness.

Therefore, we could infer that, at least at the macro-spatial level, the degree of happiness depends substantially on the socioeconomic and political context that underlies and determines the focus of policy and decision-making about sustainability. This is likely the reason why developed countries exhibited the best environmental performances and happiness levels whereas the developing countries presented different patterns.

What we do know is that there is significant connexion between subjective well-being and environmental elements and that other aspects not presented in the model, such as behaviour, culture, religion, demography, can affect it. Thus, it is required new studies about how sustainability relates with people's happiness in different contexts.

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5. CONCLUSÕES

A relação entre sociedade e meio ambiente é um dos principais temas de debate no campo da produção de conhecimento contemporâneo. A consciência acerca das consequências da evolução social está na base deste interesse, sobretudo porque a herança da transformação antrópica sobre os ambientes naturais (herança passada e a que deixaremos para as gerações futuras) é cada vez mais discutível.

Embora o caráter da discussão esteja mais generalista e estruturado sob um olhar mais global, as mobilizações sociais estão influenciando, cada vez mais, micro decisões. Mesmo que por um lado esse caráter acabe refletindo um sentimento de dever coletivo – no sentido de que se eu degrado aqui, minha atitude poderá afetar lá – é importante acrescentar aspectos contextuais na discussão. Nesse sentido, argumenta-se que tanto a tomada de decisão à nível de política pública quanto à nível de comportamento individual refletem as particularidades das distintas relações sociedade-meio ambiente.

A tese recorre da multidisciplinaridade e estende-se em temas marginais ao *mainstream* econômico para ressaltar o papel de diferentes fatores e contextos no debate ambiental. A hipótese da tese foi estruturada com base nisso. Por isso, considerou que "fatores e contextos socioeconômicos, culturais e políticos condicionam comportamentos em diferentes níveis de engajamento, de modo que moldam diferentes percepções e relações com a sustentabilidade". Assim, centrou-se na discussão sobre alguns elementos inerentes a essas diversas relações no contemporâneo debate ambiental: regimes políticos, desigualdade, valores humanos e felicidade.

Partindo-se de uma estratégia macroespacial, os ensaios 1 e 3 trouxeram contribuições empíricas que sugeriram que a hipótese central da tese se sustenta. Conclui-se, assim, que mesmo que as estimações principais tenham apresentado aspectos importantes da relação sociedade-ambiente à nível macroespacial, as nuances observadas pelas peculiaridades de cada grupo de país sustentaram a hipótese da existência de multifatores condicionantes da sustentabilidade. Esse argumento é confirmado, por exemplo, quando se constataram múltiplos perfis de países, no ensaio 1, e os distintos links que esses indicavam apresentar com a performance ambiental. Do mesmo modo, tal argumento é confirmado quando se observou, no ensaio 3, que a qualidade ambiental afetava diferentemente a felicidades das nações conforme o grau de liberdade e democracia efetiva das mesmas.

Metodologicamente diferentes dos demais, mas com intuito semelhante de investigar nuances micro escalares, o segundo ensaio focou no comportamento do menor nível social, o

indivíduo. A pesquisa evidenciou que alguns contextos, além dos valores humanos, condicionavam o comportamento diário individual relacionado a algumas ações sustentáveis. Concluiu-se que os valores, *per se*, embora não tenham sido muito investigados tamanha a subjetividade do conceito e a dificuldade de se encontrar variáveis adequadas para mensuração, foram sugeridos como condicionantes indiretos de alguns engajamentos. Assim, se concluiu que embora pessoas possam apresentar valores pró-ambientais, não necessariamente irão agir em direção à um comportamento equiparável, visto seus contextos particulares que conduzem muitas de duas atitudes.
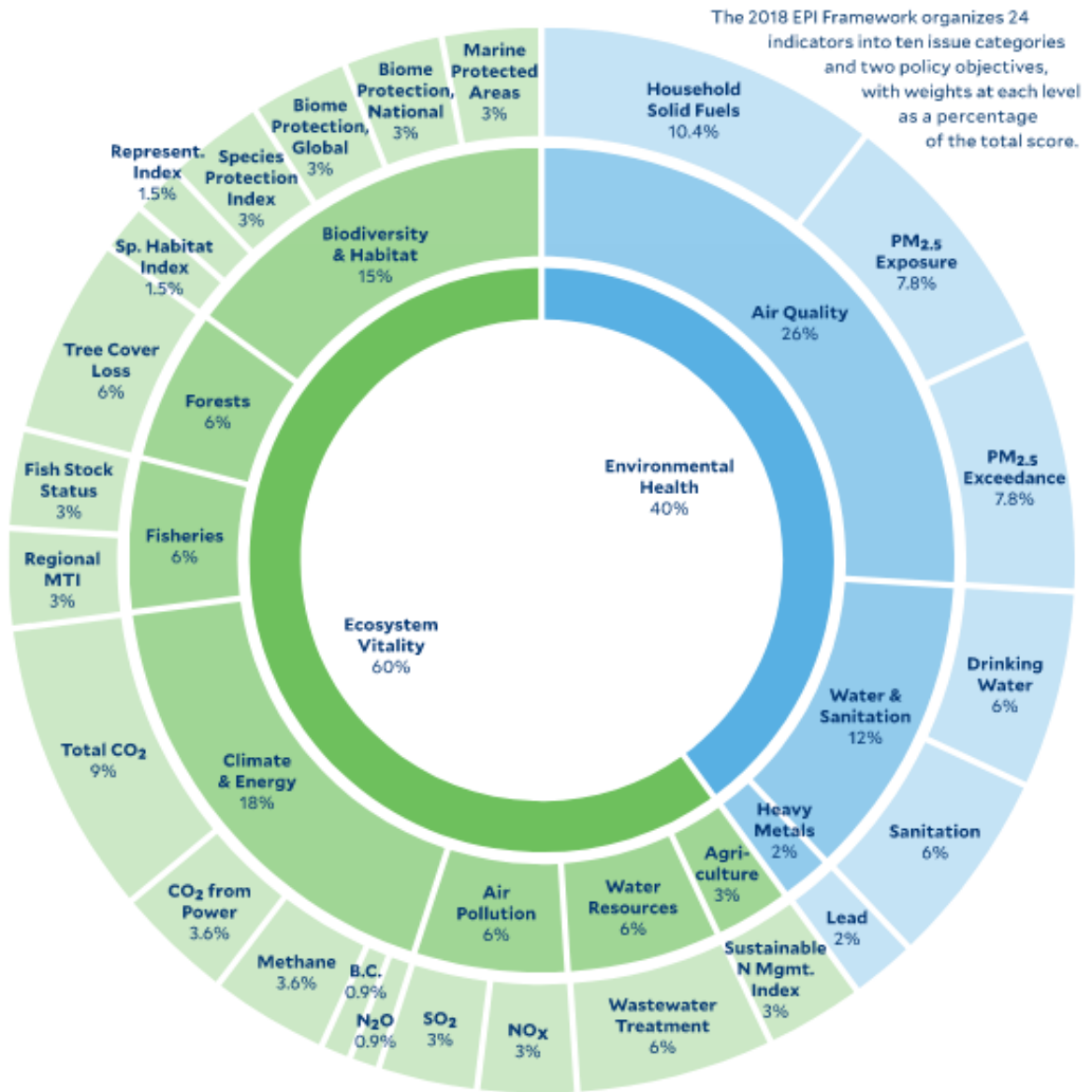
Apesar dos ensaios apresentarem escalas de análises distintas (países e indivíduos), as evidências empíricas contribuíram para a sustentação da hipótese da tese. Os fragmentos de análise obtidos em cada um permitiram evidenciar que, quando analisadas certas particularidades e certos contextos, a relação sociedade-ambiente mostrava-se distinta. Desta forma, reitera-se ao planejamento de políticas ambientais e de combate à degradação está inerente a multiplicidade de autores, cada qual com sua perceptiva sobre o problema e a solução, assim como sua participação e responsabilidade.

Embora a crescente expressão dos movimentos coletivos a favor da sustentabilidade, como o movimento "Greve Geral pelo Clima", esteja levando cada vez mais pessoas às ruas, as peculiaridades desses movimentos persistem em razão das diferenças entre as sociedades. Essa seja, talvez, uma das principais raízes dos porquês do referido movimento ter sido mais intenso na Europa e nos Estados Unidos do que na América Latina e Ásia, por exemplo.

Nesse sentido, enquanto os países mais pobres e em desenvolvimento parecem querer salvaguarda ambiental por questões majoritariamente relacionados a sobrevivências, como o caso das Quebradeiras de Coco e do Movimento dos Atingidos por Barragens no Brasil, os países mais desenvolvidos protestam por uma qualidade de vida melhor e, até mesmo, por uma justiça ambiental. As diferenças societárias decorrentes de aspectos culturais, sociais, econômicos e políticos se mostram, então, condicionantes de diferentes relações entre os indivíduos e o meio ambiente.

Embora a tese apresente limitações, sobretudo no que diz respeito às ferramentas estatísticas usadas, aos dados escolhidos e ao viés econômico prevalecente, a discussão proposta representa um esforço de reflexão válido dentro da temática da sustentabilidade. A partir dos temas abordados na tese, abre-se espaço para uma agenda de pesquisa vasta que permite discutir as amarras entre o comportamento humano, suas motivações e suas intencionalidade dentro do contemporâneo debate ambiental.

Anexo 1. Indicadores do *Environmental Performance Index* e seus respectivos pesos - 2018

The 2018 EPI Framework organizes 24 indicators into ten issue categories and two policy objectives, with weights at each level as a percentage of the total score.

Fonte: Yale University (2018).

Anexo 2. Indicadores do *Freedom House Index* - 2018

POLITICAL RIGHT
Electoral Process
Was the current head of government or other chief national authority elected through free and fair elections?
Were the current national legislative representatives elected through free and fair elections?
Are the electoral laws and framework fair, and are they implemented impartially by the relevant election management bodies?
Political Pluralism and Participation
Do the people have the right to organize in different political parties or other competitive political groupings of their choice, and is the system free of undue obstacles to the rise and fall of these competing parties or groupings?
Is there a realistic opportunity for the opposition to increase its support or gain power through elections?
Are the people's political choices free from domination by the military, foreign powers, religious hierarchies, economic oligarchies, or any other powerful group that is not democratically accountable?
Do various segments of the population (including ethnic, religious, gender, LGBT, and other relevant groups) have full political rights and electoral opportunities?
Functioning of Government
Do the freely elected head of government and national legislative representatives determine the policies of the government?
Are safeguards against official corruption strong and effective?
Does the government operate with openness and transparency?
CIVIL LIBERTIES
Feedom of Expression and Belief
Are there free and independent media?
Are individuals free to practice and express their religious faith or nonbelief in public and private?
Is there academic freedom, and is the educational system free from extensive political indoctrination
Are individuals free to express their personal views on political or other sensitive topics without fear of surveillance or retribution?
Associational and Organizational Rights
Is there freedom of assembly?
Is there freedom for nongovernmental organizations, particularly those that are engaged in human rights– and governance-related work?
Is there freedom for trade unions and similar professional or labor organizations?
Rule of Law
Is there an independent judiciary?
Does due process prevail in civil and criminal matters?
Is there protection from the illegitimate use of physical force and freedom from war and insurgencies?

Do laws, policies, and practices guarantee equal treatment of various segments of the population?
Personal Autonomy and Individual Rights
Do individuals enjoy freedom of movement, including the ability to change their place of residence, employment, or education?
Are individuals able to exercise the right to own property and establish private businesses without undue interference from state or nonstate actors?
Do individuals enjoy personal social freedoms, including choice of marriage partner and size of family, protection from domestic violence, and control over appearance?
Do individuals enjoy equality of opportunity and freedom from economic exploitation?

Fonte: Elaboração própria, com base em *Freedom House* (2018).

Anexo 3. Ranking - World Happiness Index 2019, ano base 2018

Ranking position	Country	Happiness score
1	Finland	7,769
2	Denmark	7,600
3	Norway	7,554
4	Iceland	7,494
5	Netherlands	7,488
6	Switzerland	7,480
7	Sweden	7,343
8	New Zealand	7,307
9	Canada	7,278
10	Austria	7,246
11	Australia	7,228
12	Costa Rica	7,167
13	Israel	7,139
14	Luxembourg	7,090
15	United Kingdom	7,054
16	Ireland	7,021
17	Germany	6,985
18	Belgium	6,923
19	United States	6,892
20	Czech Republic	6,852
21	United Arab Emirates	6,825
22	Malta	6,726
23	Mexico	6,595
24	France	6,592
25	Taiwan Province of China	6,446
26	Chile	6,444
27	Guatemala	6,436
28	Saudi Arabia	6,375
29	Qatar	6,374
30	Spain	6,354
31	Panama	6,321
32	Brazil	6,300
33	Uruguay	6,293
34	Singapore	6,262
35	El Salvador	6,253
36	Italy	6,223
37	Bahrain	6,199
38	Slovakia	6,198
39	Trinidad and Tobago	6,192
40	Poland	6,182
41	Uzbekistan	6,174
42	Lithuania	6,149
43	Colombia	6,125
44	Slovenia	6,118
45	Nicaragua	6,105

46	Kosovo	6,100
47	Argentina	6,086
48	Romania	6,070
49	Cyprus	6,046
50	Ecuador	6,028
51	Kuwait	6,021
52	Thailand	6,008
53	Latvia	5,940
54	South Korea	5,895
55	Estonia	5,893
56	Jamaica	5,890
57	Mauritius	5,888
58	Japan	5,886
59	Honduras	5,860
60	Kazakhstan	5,809
61	Bolivia	5,779
62	Hungary	5,758
63	Paraguay	5,743
64	North Cyprus	5,718
65	Peru	5,697
66	Portugal	5,693
67	Pakistan	5,653
68	Russia	5,648
69	Philippines	5,631
70	Serbia	5,603
71	Moldova	5,529
72	Libya	5,525
73	Montenegro	5,523
74	Tajikistan	5,467
75	Croatia	5,432
76	Hong Kong S.A.R. of China	5,430
77	Dominican Republic	5,425
78	Bosnia and Herzegovina	5,386
79	Turkey	5,373
80	Malaysia	5,339
81	Belarus	5,323
82	Greece	5,287
83	Mongolia	5,285
84	Macedonia	5,274
85	Nigeria	5,265
86	Kyrgyzstan	5,261
87	Turkmenistan	5,247
88	Algeria	5,211
89	Morocco	5,208
90	Azerbaijan	5,208
91	Lebanon	5,197
92	Indonesia	5,192
93	China	5,191

94	Vietnam	5,175
95	Bhutan	5,082
96	Cameroon	5,044
97	Bulgaria	5,011
98	Ghana	4,996
99	Ivory Coast	4,944
100	Nepal	4,913
101	Jordan	4,906
102	Benin	4,883
103	Congo (Brazzaville)	4,812
104	Gabon	4,799
105	Laos	4,796
106	South Africa	4,722
107	Albania	4,719
108	Venezuela	4,707
109	Cambodia	4,700
110	Palestinian Territories	4,696
111	Senegal	4,681
112	Somalia	4,668
113	Namibia	4,639
114	Niger	4,628
115	Burkina Faso	4,587
116	Armenia	4,559
117	Iran	4,548
118	Guinea	4,534
119	Georgia	4,519
120	Gambia	4,516
121	Kenya	4,509
122	Mauritania	4,490
123	Mozambique	4,466
124	Tunisia	4,461
125	Bangladesh	4,456
126	Iraq	4,437
127	Congo (Kinshasa)	4,418
128	Mali	4,390
129	Sierra Leone	4,374
130	Sri Lanka	4,366
131	Myanmar	4,360
132	Chad	4,350
133	Ukraine	4,332
134	Ethiopia	4,286
135	Swaziland	4,212
136	Uganda	4,189
137	Egypt	4,166
138	Zambia	4,107
139	Togo	4,085
140	India	4,015
141	Liberia	3,975
142	Comoros	3,973

143	Madagascar	3,933
144	Lesotho	3,802
145	Burundi	3,775
146	Zimbabwe	3,663
147	Haiti	3,597
148	Botswana	3,488
149	Syria	3,462
150	Malawi	3,410
151	Yemen	3,380
152	Rwanda	3,334
153	Tanzania	3,231
154	Afghanistan	3,203
155	Central African Republic	3,083
156	South Sudan	2,853

Apêndice 1. List of questions that compose the "Level of technical knowledge related to the environment" variable

Question	Scale
How much do you feel you know about the causes of these sorts of environmental problems?	From 1 (Know nothing at all) to 5 (Know a great deal)
How much do you feel you know about solutions to these sorts of environmental problems?	From 1 (Know nothing at all) to 5 (Know a great deal)
How much do you agree or disagree with: Almost everything we do in modern life harms the environment?	From 1 (Agree strongly) to 5 (Disagree strongly)
In general, do you think that air pollution caused by cars is…	From 1 (extremely dangerous for the environment) to 5 (dangerous at all for the environment)
In general, do you think that air pollution caused by industry is…	From 1 (extremely dangerous for the environment) to 5 (dangerous at all for the environment)
And do you think that pesticides and chemicals used in farming are…	From 1 (extremely dangerous for the environment) to 5 (dangerous at all for the environment)
And do you think that pollution of COUNTRY'S rivers, lakes and streams is…	From 1 (extremely dangerous for the environment) to 5 (dangerous at all for the environment)
In general, do you think that a rise in the world's temperature caused by climate change is…	From 1 (extremely dangerous for the environment) to 5 (dangerous at all for the environment)
And do you think that modifying the genes of certain crops is…	From 1 (extremely dangerous for the environment) to 5 (dangerous at all for the environment)
And do you think that nuclear power stations are…	From 1 (extremely dangerous for the environment) to 5 (dangerous at all for the environment)

Source: Prepared by the authors based on in ISSP (2010).