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TOWARDS RECYCLING DOMESTIC WASTE**

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ABSTRACT

There has been, in recent years, substantial debate over environmental issues in the media and in schools, and one can by now assume the existence of at least minimal awareness on the part of the general public. One important aspect of the debate concerns the recycling of domestic waste, and European countries are expected to comply with European directives on this matter. However, there remains everywhere a mismatch between assumed public awareness and actual practice. This is certainly the case in Portugal where indicators show that levels of public participation in locally sponsored recycling initiatives are low.

Given their higher levels of education, one might assume that university students show more awareness of environmental problems and are accordingly more active in contributing to solving them. In order to study the attitudes of Portuguese students towards recycling a questionnaire survey was conducted with a sample of 600 students in Portuguese universities.

Data thus gathered so far seems to indicate that the majority of students are generally aware of the public importance of recycling and practice this in their private lives. Results are analysed in the light of the concept of social capital, and the paper theorises a connection between the levels of public participation in recycling and the prevalence (or not) of social capital in Portuguese society. It concludes by suggesting the most cost efficient allocation of resources to increase participation rates.

¹ In the Proceedings of *Environmental 2010: Situation and Perspectives for the European Union, Public awareness*, Faculdade de Engenharia da Universidade do Porto, May 2003.

INTRODUCTION

Environmental problems require public participation, which in turn depends on several factors disaggregated between the economic, the social and the cultural. Although there is some controversy over the issue of environmental degradation, the fact is that there is substantial debate in the media and in schools, and one can assume the existence of at least minimal awareness on the part of the general public. One important aspect of the debate concerns the recycling of domestic waste, and European countries are by 2005 expected to comply with European directives on this matter. However, there remains everywhere a mismatch between assumed public awareness and actual practice. This is certainly the case of Portugal where indicators show that levels of public participation in locally sponsored recycling initiatives are low.

Three reasons for low participation rates might be hypothesised for this performance gap:

- a) There is in fact insufficient public awareness. People have not been sufficiently educated in the social costs/benefits of environmental issues by the responsible agents.
- b) There is sufficient public awareness and even consensus about such concerns, but insufficient motivation to carry them out. In this scenario, people may subscribe in principle to the perceived desirability of social norms, but as social actors fail to implement them in their daily lives. Moreover, previous surveys tended to show a marked 'social desirability effect', suggesting that respondents claim to do what they know they ought, whilst their actual practice follows far short of this ideal.
- c) If the second factor is true, a further hypothesis is needed to explain what is, in effect, a failure to respond to a perceived public duty on the level of private conduct. A concept that purports to explain such failure is social capital- the glue that makes viable the common attainment of public goals.

According to this scenario, Portugal may be low in certain measurable indices of social capital, from which, in turn might be inferred the low valuation attached to concepts of public duty such as recycling. In this sense, 'uncosted' environmental assets such as fresh air, clean

streets, rivers, beaches are subject to the so-called ‘tragedy of the commons’: what everybody owns is seldom a matter of individual responsibility.

Given their higher levels of education, a questionnaire survey was conducted amongst university students, a sub-section of the population assumed, by virtue of their education, to be high on social environment awareness but also likely to score significantly higher than the average in the possession of social capital where this exists. Previous studies (McMahon, 1998; Hall, 1999) have confirmed repeatedly that levels of education are closely correlated with social connectivity, i.e., a propensity to engage in associational life in the pursuit of common goals. A questionnaire was thus designed at one level to validate the findings of previous surveys concerning levels of public awareness and claimed rates of compliance-which indeed it did. Students evidently both know about recycling initiatives and claim to act upon what they know. However, given the distortions inherent in what we have identified as ‘claims inflation’ and ‘the social desirability effect’, the empty bins on the street require that students’ responses be treated with scepticism, no less than those of the public at large. Hence the paper, in theorising a connection between performance gap and social capital, was also designed to yield information on this latter aspect. It was found that, though there is evidently some correlation between certain kinds of social connectivity and claimed participation in rubbish recycling, social capital among Portuguese students tends to be low-though not lower, we may infer, than the population at large.

ENVIRONMENTAL AWARENESS

Politicians everywhere gather for talks on high profile environmental issues, business comes increasingly under pressure to embrace environmental concerns and governments impose restrictions and tougher regulations. However important, collaboration between government and the private sector is not sufficient to achieve results without public participation. Ultimately, the question is how to induce people to participate in the implementation of environmental decisions

Portugal follows the general trend of environmental protection and legislation has been drafted in order to oblige companies to comply with the European directives. Local governments have likewise been active in creating organisations to collect waste. Thus *Centro de Triagem Lipor* (hereafter, *Lipor*), the entity in charge of collecting and treating the solid waste of eight municipalities (about 1 million inhabitants) in the north of the country, was created in 1982.

Lipor collects the waste of the city of Porto through a system involving *Ecopontos* with three bins (blue for paper, yellow for plastic and cans, and green for glass) and *Ecocentros* for garbage of large dimensions and selective collection of waste. The organisation has a 24h service for companies and the public in general. It also promotes environmental education in schools and other institutions and public places, teaching garbage disposal and the benefits of recycling. With the same goal it also organizes exhibitions and workshops in the Porto area in cooperation with City Halls.

Schools have also been active in promoting environmental education and distribute leaflets with information on recycling for pupils and teachers. Local governments organize campaigns and distribute leaflets showing how to dispose of the garbage. However, public participation is far from high and according to *Lipor*, at current levels it will be impossible for Portugal to comply with European norms, particularly in the case of plastics.

Surveys (e.g., Domp, 2000 and 2002) suggest that the majority population tend to say they recycle their rubbish. However, figures from *Lipor* suggest that the amount of recyclable material collected falls well bellow European norms. That is, there is a gap between what people say and what they actually do.

WHAT IS SOCIAL CAPITAL?

Literature on civil society suggests that high levels of social capital tend to facilitate activities for the common good and the importance of social capital to achieve economic and social objectives has increasingly been recognised within the spheres of academia and social policy.

As a concept it has attracted resources from institutions such as the World Bank and the EU, who are committed to making up social capital deficits in the hope of substantial socioeconomic returns. Nevertheless, this is not without controversy. For example, research carried out by Grafton and Knowles (2002) has showed that levels of social capital and related variables are not necessarily associated with better levels of environmental performance.

There are various definitions of social capital, but they tend to concentrate around the themes originally outlined by Bourdieu, Coleman and Putnam. There are two main broad areas of study: a structural area that emphasizes the role of networks through which information and norms are conveyed and a cognitive area that focuses on shared norms, values, trust, attitudes and beliefs (Evans, 2003). The former is influenced by Coleman's writings and the latter by Putnam's. The common denominators to all definitions are the concepts of trust, networks and shared norms.

Little work has been published on social capital in Portugal. Loek Hallman (2003) has a chapter on the subject which cites the country as having the lowest level of social capital in Europe. According to this author, levels of interpersonal trust are extremely low in Portugal when compared with other European countries, and have decreased during the nineties. In the same vein, Ana Delicado (2003) finds that the Portuguese are oriented more towards family and rates of affiliation in associations and charity organizations are very low (though they tend to be low elsewhere in Southern Europe).

The present study adopts a definition of social capital, based on Putman and used by the EU (Evans, 2001), as those features of social organisation, such as trust, norms and networks, that facilitate co-ordination and co-operation for mutual benefits.

Much of the work on social capital is concerned with its measurement, about which little consensus has so far emerged. The choice of indicators and methodology used tends at present to reflect different sets of assumptions. However, it seems there is broad agreement

on the main point: levels of trust, civic engagement, and social networks have been found to be related to collective civic actions in pursuit of common benefits.

RESEARCH METHODOLOGY

The aim of the research was to test the comparative validity of the three hypotheses referred to above in respect to the students' recycling habits. To that purpose a questionnaire was conceived. The questionnaire was divided into two parts with closed and open questions. The first part was a continuation of a previous study¹ and concerned attitudes towards recycling, perceived importance, public awareness, materials separated, reasons for non compliance, suggestions to encourage recycling attitudes on the part of the Portuguese population.

The second part focuses on social capital. In line with the major work so far completed, the variables employed to measure social capital were trust, connectedness, participation in associations, community involvement, volunteering, and civic duties. Questions were drawn from the World Values Survey in 1997² and the Social Capital Community Benchmark Survey.³

The questionnaire was administered on the basis of non-random convenience sampling to 600 students of different subjects in universities in Porto, drawn from different areas of the north of the country. The sample comprised 48.3% female and 51.7% male respondents, 90.6% of them aged from 17 to 25 years old.⁴

EMPIRICAL RESULTS

The data was analysed using SPSS. Of all respondents, 94.5 % claim a knowledge of what can be done with recycled waste. It should be noted that 35.8 % of the respondents state that there is no *Ecoponto* near their houses. As can be seen in table 1, 52.5 % claim regularly to separate their household rubbish: 18.3% on a daily basis and 23.2% of them twice or three times a week. Glass and paper represent the largest proportion of materials standing, respectively, at 28.4% and 25.6% of the total amounts declared. However the majority

(66.0%) considers that the Portuguese population are insufficiently informed about separating and recycling the rubbish. Analysis for variation by independent variables (e.g. gender, age and course) revealed that there was no difference.

Table 1: 'Do you usually separate the rubbish to be recycled from the domestic rubbish ?' (%)

Yes	52.5
No	47.5
Total	100.0

Table2: Degree of perceived importance of recycling (%)

Extremely important	45,2
Very Important	38,0
Important	15.7
Not important	1.0
Not important at all	0.2
Total	100.0

Table 3: Main reasons for not recycling (%)

<i>Ecoponto</i> (lack, distance, etc.)	13.7
Motivation	12.8
Lack of time	8.7
Not in charge of the rubbish	4.3
Lack of room at home	3.0
Lack of habit	2.3

Lack of information	.5
Other	.50
No response, do not know	54.2
Total	100.0

The data was also analysed to generate social capital indicators. Out of 14 indices looking at social capital, half suggested low levels and a further analysis revealed significant differences for the following: knowledge of local government representatives ($p < 0.05$), signing petitions ($p < .001$), attending meetings ($p < 0.05$), think that local government representatives care about them ($p < 0.05$), think that what they do and say can make a difference ($p < 0.00$).

Of all respondents, 73.3 % do not belong to any association and the same percentage do not volunteer. As for trust, 58.1 % do not agree that one can trust the majority of people and 45.9% distrust the local police. However, on the question of fiscal obligations, 94.3 % agree that tax evasion is a crime as against 5.6 % who think that it is not.

As for suggestions as to methods of raising general levels of awareness and compliance, these included a system of fining defaulters and rewarding participants; better explanations about recycling, training refuse collectors, organising more public education campaigns, increasing the accessibility and number of *Ecopontos*; making their design more user friendly, providing plastic bags with different colours.

CONCLUSION

This paper is built on the premise that in Portugal garbage recycling is not widely implemented. Though there is at least minimal awareness, there remains a mismatch between knowledge and practice. Three reasons for low participation rates were hypothesised for this performance gap.

Findings suggest that, in regard respectively to each hypothesis:

- a) Public awareness of the environmental benefits of recycling is high and amongst students very high;
- b) There seems likely to be a performance gap deducible from figures supplied by *Lipor* concerning respondents claims and their acts. The 'social desirability effect' seems to play some role in inflating claims.
- c) Social capital as an explanatory factor requires further research. Although this is still ongoing, provisional findings indicate that there is a strong relation between some variables for social capital (mainly an active interest in forms of civic engagement) and positive recycling attitudes.

The research has a significant bearing on both academic and social policy fields- how best to modify public attitudes and behaviour towards the attainment of public goods; in this case a sustainably cleaner environment and, by extension, how best to apply resources to such ends? On the question of behavioural modification, the implications of the findings would be that the effect and penetration of the 'social marketing of common goods' will tend, at least in Portugal, to be undercut by deficits in the social capital required to motivate people to act co-operatively in the pursuit of such goods. Responsibility for common objects will tend to be deflected elsewhere, onto the government, for instance. Resources could be allocated towards developing stocks of social capital in the hope of future returns. However, should such measures be implemented they may well be diffuse in their effects and difficult to measure. Countries like Japan, where high levels of social capital generate high degrees of co-operative discipline (and where recycling norms are enforced through self and intra-group monitoring) may be inappropriate models for more individualistic societies. Attitude change on this scale would be neither feasible nor perhaps sensibly to be desired. Above all it may not be cost/effective.

The most cost efficient intervention is likely to be one which targets specific perceived imperfections in present recycling strategies- in particular the performance gap where action falls short of declared purposes. Here the data yields suggestions already noted; a significant drag on motivation centres upon 'transaction costs'. Defaulters thus tend to excuse themselves

most importantly on the grounds that *Ecopontos* are both inaccessible or inconveniently located. Such defaulters should, in the first place, be taken at their own word and be rendered inexcusable.

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¹The study was conducted in 2000 in Universidade Portucalense. Of 106 respondents, 61 claimed to separate the rubbish.

² Inglehart *et al*, 2000, World Value Survey and European Values Surveys, 1981-84, 1990-93, and 1995-97, Ann-Arbor, Michigan: Inter-University Consortium for Political and Social Research

³ The Social Capital Community Benchmark Survey is the largest survey conducted on the civic engagement of Americans with nearly 30,000 people. It was conducted by dozens of community foundations and the Saguaro Seminar of John F. Kennedy School of Government at Harvard University

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