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Are Taxes Beautiful? A Survey Experiment on Information, Tax Choice and Perceived Adequacy of the Tax Burden

Lorenzo Abbiati
University of Insubria

Armenak Antinyan
University of Erlangen-Nuremberg

Luca Corazzini
University of Padova

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Are Taxes Beautiful? A Survey Experiment on Information, Tax Choice and Perceived Adequacy of the Tax Burden

Lorenzo Abbiati[*], Armenak Antinyan[†], Luca Corazzini[‡]

Abstract

We report results from a survey experiment aimed at testing whether providing information on the national public expenditure to the taxpayers and whether involving them in the process of allocating tax revenues over public goods influence the level of the adequate tax rate - the fraction of income that individuals consider adequate to pay as taxes. We find that providing information on public expenditure does not influence the level of the adequate tax rate. On the contrary, the level of the adequate tax rate substantially increases when taxpayers can get to choose the public goods to finance through their taxation

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Keywords: Tax Choice, Adequate Tax Rate, Survey Experiment.

[*]Department of Economics, University of Insubria, via Monte Generoso, 71, Varese 21100, Italy. emailto: abbiati.lorenzo[at]gmail.com

[†]*Corresponding author.* Department of Economics, Chair of Economic Theory, Friedrich-Alexander Universität Erlangen Nürnberg, Lange Gasse 20, Nürnberg 90403, Germany and Department of Business Economics and Management, University of Venice, Ca' Foscari, San Giobbe, Cannaregio, 873, Venezia 30121, Italy. emailto: armenak.antinyan[at]fau.de

[‡]Department of Economics and Management, University of Padova, Via del Santo 33, Padova, 35123, Italy and ISLA, Bocconi University, Via Sarfatti 25, Milan, 20136, Italy. emailto: luca.corazzini[at]unipd.it

1 Introduction

In 2007, during a national TV program, the Italian finance minister, Tommaso Padoa-Schioppa (1940-2010) notoriously claimed that *"we should have the courage to say that taxes are a beautiful thing, a very civilized way for everyone to contribute in essential areas like education, safety, healthcare and the environment."*[1] Indeed, in line with Padoa-Schioppa's claim, citizens should perceive taxes as beneficial when used to finance fundamental public goods that advantage everyone in the community. Nevertheless, taxpayers often fail to recognize the positive aspects of taxes, exhibiting strong dissatisfaction with taxation. Reasons triggering such a negative mood can be at least twofold.

First, taxpayers may be unaware of how the government uses their taxes, what public goods it finances and in which proportions. The absence of such knowledge may induce taxpayers to perceive taxes as an exogenous deadweight loss. According to several recent studies, providing information about government spending may increase the public acceptability of the taxes (Kallbekken and Aasen, 2010, Beuermann and Santarius, 2006, Klok et al., 2006). Moreover, informing the taxpayers about the (social) benefits of tax payments can stimulate taxpayers' cooperative attitude towards the state and can significantly reduce tax evasion (Holler et al., 2008).

Second, even in cases in which information is not an issue, the existence of a mismatch between citizens' priorities and the choices of the government can make taxpayers perceive the tax burden as an inefficient and inadequately high sacrifice. An experimental study by Alm et al. (1993) illustrates that compliance with taxes is low when taxpayers do not value how the government uses fiscal revenues. When the public expenditure is exogenously imposed, tax evasion results to be higher than in a context in which the public expenditure is endogenously chosen by the taxpayers. By implementing a "real donation" experiment in which subjects can give money either to a government agency or to a private charity involved in the same social projects, Li et al. (2011) identify the elements that make private charities more attractive for charitable donations. The authors conclude that taxpayers' antipathy towards taxation may be due to lack of control over the use of resources or coercion.

We present results of a survey experiment aimed at studying whether providing information on the national public expenditure to the tax payers and involving them in the process of allocating tax revenues over public goods affect the adequate tax rate - the proportion of income that taxpayers consider adequate (acceptable) to pay as taxes. Although, surprisingly understudied by economists,[2] the potential benefits of involving taxpayers in the decision process of allocating tax revenues over public goods is getting increasing support in the popular press, as it is conjectured that tax choice will increase social acceptance of taxation.[3] We show, that when taxpayers are required to express

[1] The claim was made during the TV program "In mezz'ora" on the 7th of October, 2007. http://www.ft.com/cms/s/0/ae1b99fe-76cb-11dc-ad83-0000779fd2ac.html#axzz2l5tnJ3uJ

[2] Indeed, we are only aware of a recent working paper by Djawadi and Fahr (2013) on the effects of tax choice on tax compliance.

[3] *"...but if people were allowed to direct at least a portion of their taxes to what they care about most, wouldn't they be happier paying taxes? Wouldn't they be willing to pay more?"*

their preferences on how they would allocate tax revenues over the main functional items of the public expenditure, they report substantially higher adequate tax rates relative to a situation with no tax choice. On the contrary, providing solely information on public expenditure to the taxpayers does not influence the level of the adequate tax rate.

The rest of the paper is structured as follows. Section 2 discusses the design of the survey experiment. Section 3 depicts the results. Section 4 concludes the paper.

2 The Survey Experiment

2.1 The Design

We administer a survey experiment to assess whether providing information on the national public expenditure and eliciting preferences on how to allocate tax revenues across functional items of the government influence the proportion of income that taxpayers perceive as adequate to pay in the form of taxes. There are relevant methodological issues that justify our design choice. First, like laboratory studies, survey experiments allow researchers to identify causal relationships between the treatment stimulus and subjects' actual choice. Second, the possibility of both using a concrete, context-specific language and avoiding artificial environments (such as the lab) make the survey experiment an adequate instrument to investigate into our real-world research question.[4]

In details, our survey experiment consists of three treatments: $NI\&NTC$ (standing for "No Information & No Tax Choice") that represents our benchmark, $I\&NTC$ ("Information & No Tax Choice") and $I\&TC$ ("Information & Tax Choice"). In all treatments, subjects living in Italy are invited to take part in an online questionnaire that is composed of two parts. The first part, kept constant across treatments, includes questions about the demographic and socio-economic conditions of the respondents. The second part of the questionnaire focuses on subjects' perception of the tax burden and represents our treatment variable. In particular, subjects in $NI\&NTC$ are asked to state the income tax rate that they consider as adequate to pay in order to finance the Italian public expenditure. Subjects are required to give an answer that is included between 0 and 100 percent. The only difference between $NI\&NTC$ and $I\&NTC$ is that, before stating the tax rate, subjects in $I\&NTC$ are presented with the 10 first level $COFOG$ components of the Italian public expenditure ranked in descending order.[5] Apart from the labels, no other information on the 10 items (such as their relative size in terms of overall public expenditure) is provided. Thus, by comparing responses in $NI\&NTC$ with those in $I\&NTC$, we are able to assess the effects of information about the public expenditure on subjects' perception of the adequate tax rate. Finally, the questionnaire section dealing

(Boston Globe, 2013: http://www.bostonglobe.com/opinion/columns/2013/04/29/what-could-choose-where-our-taxes/HgUvdhYEIP1UNI3hknoe0N/story. html)

[4]See Noch and Guterbock (2010) for a discussion on the methodological advantages of survey experiments.

[5]This information is publicly available online. See the $COFOG$ (Classifications of the Functions of the Government) scale elaborated by the $OECD$. http://www.oecd.org/gov/48250728.pdf

with subjects' perception of the adequate tax rate in $I\&TC$ is split into two consecutive tasks. First, subjects are presented with the same list of functional items used in $I\&NTC$ and, for each item, are asked to state the income tax rate that they consider as adequate to finance that specific component. The stated percentages are required to be included between 0 and 100 percent and their sum not to exceed 100 percent. Once completed the first task, subjects are asked, as in the other two treatments, to report the adequate tax rate to finance the (overall) Italian public expenditure. Thus, by comparing responses in $I\&NTC$ with those in the second task of $I\&TC$, we are able to assess how tax choice influences the level of the adequate tax rate, net of the effects of information on the main functional items of the Italian public expenditure.

After 15 days from the first phase of the survey experiment, participants in $NI\&NTC$ and $I\&NTC$ are unexpectedly invited to take part in the tax perception questionnaire used in $I\&TC$. This experimental feature provides within-subject evidence of the effects of choosing how to use taxes on the adequate tax rate.

2.2 Procedures

The survey experiment took place between May and July 2013 and was administered by using Qualtrics (http://www.qualtrics.com/). Subjects, mainly students of economics from three different universities in North Italy,[6] were recruited by email after advertizing the experiment through Facebook university groups. Once agreed to participate in the study, each subject was randomly and anonimously assigned to (only) one of the three different treatments. In order to guarantee anonimity and correctly match the responses across the two phases of $NI\&NTC$ and $I\&NTC$, subjects were required to provide the first 6 digits of their personal (16 alpha-numeric character) tax code.

3 Experimental Results

Overall, 282 subjects took part in the survey experiment: 105 participated in $NI\&NTC$, 102 in $I\&NTC$ and 75 in $I\&TC$. As explained above, subjects in $NI\&NTC$ and $I\&NTC$ were also invited to take part in the second phase of the experiment. In particular, we collected data concerning the second phase from 48 out of 105 subjects in $NI\&NTC$ and from 43 out of 102 subjects in $I\&NTC$. The following table shows some socio-demographic characteristics of participants in the three treatments:

[Table 1 about here]

As reported by the previous table, we detect differences in the distributions of gender ($\chi^2(2) = 16.482, p < 0.001$) and professional status ($\chi^2(6) = 20.339, p < 0.010$) across the three treatments. In order to properly account for these differences, we will present results of both non-parametric tests and parametric regressions that explicitly control for

[6] Bocconi University in Milan, University of Varese-Insubria, and University of Padova.

subjective characteristics of respondents. The following figure shows the frequency of the stated adequate tax rates in the first phase of the three treatments.

[Figure 1 about here]

Figure 1 suggests that the proportion of subjects reporting an adequate tax rate greater than 30% is 58% in $I\&TC$, 31% in $I\&NTC$ and 27% in $NI\&NTC$. According to a proportion test, both the difference between $I\&TC$ and $NI\&NTC$ and the difference between $I\&TC$ and $I\&NTC$ are significant (for the former comparison, $\chi^2(1) = 4.271$, $p = 0.039$; for the latter comparison, $\chi^2(1) = 2.721$, $p = 0.099$).

Table 2 reports the (mean) adequate tax rates in the three treatments and in the two phases of $NI\&NTC$ and $I\&NTC$.

[Table 2 about here]

In order to assess differences in the adequate tax rates across treatments and phases, Table 3 reports results of econometric models that control for the socio-demographic characteristics of the participants.

[Table 3 about here]

As a first step, we focus on the adequate tax rates stated by subjects in the first phase. We can reject the null hypothesis of equality of the adequate tax rates across treatments (according to a Kruskal-Wallis test, $\chi^2(2) = 7.368$, $p = 0.025$). In particular, as revealed by the positive and highly significant coefficient of the treatment dummy in the first regression in Table 3, subjects in $I\&TC$ report significantly higher adequate tax rates than in the other two treatments (for the difference between the coefficients of $I\&TC$ and $I\&NTC$, $F(1, 275) = 4.74$, $p = 0.030$). These results are also confirmed by non-parametric tests. According to a Mann-Whitney $U-$test, the mean adequate tax rate in $I\&TC$ is higher than those in $I\&NTC$ ($W = 3203$, $p = 0.061$) and $NI\&NTC$ ($W = 3009.5$, $p = 0.007$), while no significant difference is detected by comparing $I\&NTC$ and $NI\&NTC$ ($W = 5028$, $p = 0.443$).

Overall, the abovementioned evidence suggests that providing information on the Italian public expenditure does not influence the tax rate that subjects consider as adequate to pay in order to finance the public expenditure. On the contrary, the reported adequate tax rate substantially increases when subjects express their preferences on how to allocate their taxes over the fiscal domains.[7]

[7]Sometimes *"the whole is less than the sum of its parts"* (Van Boven and Epley, 2003). This phenomenon is known as "unpacking effect" (Rottenstreich and Tversky, 1997) and has been observed in several domains, including voluntary contributions to public goods (Bernasconi et al. 2009). We detect a similar effect in our experiment. Indeed, by looking at the first phase of $I\&TC$, we find that the sum of the percentages stated in the first task is significantly higher than the adequate tax rate reported in the second task (Wilcoxon Sign-Rank test, $V = 220$, $p = 0.000$). We also observe similar results in the second phase of the other two treatments, albeit differences are statistically non-significant (Wilcoxon Sign-Rank test: $V = 306.5$, $p = 0.255$ in $NI\&NTC$; $V = 99$, $p = 0.148$ in $I\&NTC$).

In order to assess within-subject effects of tax choice on the adequate tax rates in $I\&NTC$ and $NI\&NTC$, the second and the third columns of Table 3 show results of panel regressions that use the two phases of the experiment as longitudinal dimensions. In line with the previous evidence, we find that subjects increase the reported adequate tax rates between the two phases, with the effect being marginally stronger in $I\&NTC$ (as highlighted by the coefficient of the interaction term $Ph.2. * I\&NTC$). Again, these findings are supported by non-parametric tests. A Wilcoxon Sign-Rank test confirms that subjects respond to the tax choice manipulation by significantly increasing the reported adequate tax rates in both $NI\&NTC$ ($V = 222, p = 0.004$) and $I\&NTC$ ($V = 68, p = 0.000$).[8]

Interestingly, when comparing the adequate tax rates in the first phase of $I\&TC$ with those in the second phase of the other two treatments, differences in responses disappear (according to a Kruskal-Wallis test, $\chi^2(2) = 1.314$, $p = 0.518$; according to a pairwise Mann-Whitney U-test between the first phase of $I\&TC$ and the second phase of $NI\&NTC$, $W = 1685$, $p = 0.550$, while between the first phase of $I\&TC$ and the second phase of $I\&NTC$, $W = 1405.5$, $p = 0.244$). Thus, rather than being determined by the presence of a second phase *per se*, results are driven by the tax choice manipulation of the questionnaire.

As discussed in the introduction, the mismatch between taxpayers' preferences and government priorities represents a reasonable explanation of the positive effects of the tax choice manipulation on the adequate tax rate. In order to shed light on this aspect, as final step, we turn to subjects' reported percentages for the 10 functional items of the Italian public expenditure. Figure 2 pools subjects' stated percentages in the first phase of $I\&TC$ and in the second phase of $NI\&NTC$ and $I\&NTC$[9] and compares them with the 2011 Italian public expenditure (according to the $COFOG$ scale).

[Figure 2 about here]

As shown by the figure, there are remarkable discrepancies between the ranking produced according to subjects' choices in our experiment and that built according to the (real) public expenditure of the government. While the major functional items of the 2011 Italian public expenditure were social protection and general public services (17.86% and 19.90%, respectively), subjects in the experiment attach the highest weights to education and the health system (41.02% and 17.27%, respectively). Moreover, as a Kendall rank coefficient test suggests, we cannot reject the null hypothesis of independence between the ranking implied by subjects' choices and that built according to the Italian public expenditure ($z = 1.257$, $p = 0.209$).

[8] The test only considers the responses of those who completed both phases of the experiment (48 in $NI\&NTC$ and 43 in $I\&NTC$).

[9] In order to compare responses with the $COFOG$ scale, we pull subjects' percentages for the 10 components in the first phase of $I\&TC$ and in the second phase of $NI\&NTC$ and $I\&NTC$ and report the corresponding means on a 100% scale.

4 Conclusion

"When it comes tax time or when a person first signs on for a new job, the government should let them as an individual decide where they want the money deducted from their paychecks for taxes to go. [...] Let the individuals decide — and, once they decide, make sure that their money gets to the place that they have rightfully chosen" (Forbes, 2012).[10] The present paper provides supporting evidence in favor of the previous claim as it shows that involving taxpayers in the decision of allocating tax revenues over the main functional items of the public expenditure substantially increases the proportion of the income taxpayers perceive adequate (acceptable) to pay in the form of taxes.

Our results inform the literature on tax evasion that "non-classical" interventions aimed at sensibilizing and motivating taxpayers can be as important as standard interventions in the form of increased penalty rate and audit probability (e.g. Allingham and Sandmo, 1972). Indeed, the more taxation is perceived as acceptable and socially relevant, the more evading is likely to impose substantial psychological costs (in the form of guilt and shame; see Erard and Feinstein, 1994) on the taxpayer and the higher the incentive to comply with taxes will be (see Hashimzade et al. 2012, Andreoni et al. 1998 for excellent reviews on psychological costs of tax evasion). In a recent experimental study based on a standard tax evasion setting, Djawadi and Fahr (2013) find that tax choice enhances tax compliance. The authors explain their findings in terms of enhanced trust towards the government, though direct quantitative evidence on enhanced trust (and how it is measured) is missing from the analysis. We provide alternative explanation for the findings of Djawadi and Fahr (2013) as, stemming from our paper, we show that tax choice increases the perceived adequacy (acceptability) of the tax burden.

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Appendix

A Tables and Figures

Table 1. Respondents in the three treatments

	NI&NTC		I&NTC		I&TC	
Variable	*Mean*	*Std.dev.*	*Mean*	*Std.dev.*	*Mean*	*Std.dev.*
Age	24.590	4.064	23.333	2.288	26.413	8.264
Male	0.410	0.494	0.353	0.480	0.133	0.342
Professional Status						
Student	0.590	0.494	0.676	0.470	0.480	0.503
White Collar	0.276	0.449	0.157	0.365	0.213	0.412
Unemployed	0.038	0.192	0.098	0.299	0.067	0.251
Other	0.095	0.295	0.069	0.254	0.240	0.430
N	105		102		75	

Note. Socio-demographic characteristics of subjects in the three treatments of the survey experiment.

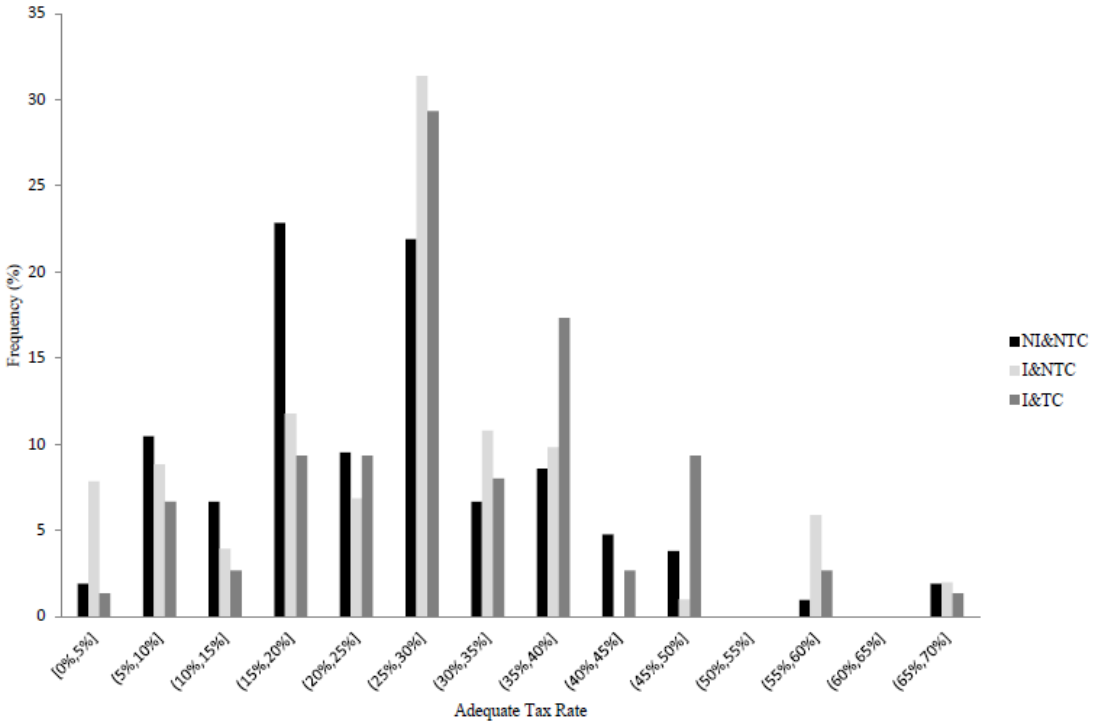


Figure 1. Distributions of the adequate tax rates in the three treatments

Table 2. Adequate tax rates in the three treatments

	NI&NTC	I&NTC	I&TC
Phase 1			
mean	0.273	0.284	0.319
Std.dev.	0.129	0.145	0.127
N	105	102	75
Phase 2			
mean	0.329	0.337	
Std.dev.	0.096	0.085	
N	48	43	

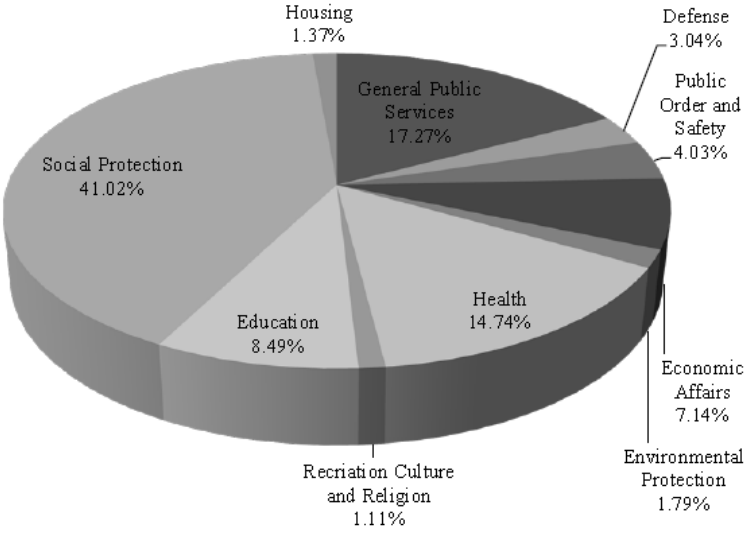
Notes. This table reports means and standard deviations of the adequate tax rates reported by subjects in (both phases of) the three treatments of the survey experiment.

Table 3. Parametric regressions

	OLS, ph. 1	Panel, ph. 1 & 2	Panel, ph. 1 & 2
Intercept	0.228***	0.320***	0.332***
	(0.026)	(0.042)	(0.045)
Male	0.026	0.023	0.022
	(0.019)	(0.022)	(0.022)
Student	0.027	−0.046	−0.045
	(0.025)	(0.044)	(0.044)
White Collar	0.059**	−0.052	−0.052
	(0.028)	(0.049)	(0.049)
Unemployed	0.042	−0.056	−0.054
	(0.036)	(0.053)	(0.053)
I&NTC	0.015		−0.026
	(0.019)		(0.025)
I&TC	0.059***		
	(0.020)		
Ph.2.		0.049***	0.032**
		(0.010)	(0.014)
Ph.2.*I&NTC			0.037*
			(0.020)
R^2	0.046	0.071	0.079
F (*or* χ^2)	2.91	30.22	36.23
$p > F$ (*or* χ^2)	0.009	0.000	0.000
Obs.	282	182	182

Notes. The first column includes results from a OLS model while the second and the third columns show results from GLS random-effects models (robust standard errors in parentheses). Dependent variable: adequate tax rates reported by subjects. Independent variables: Male, Student, White Collar, Unemployed - Dummies = 1 if the respondent is male, student, white collar and unemployed, respectively, = 0 o/w; I&NTC, I&TC - Treatment dummies = 1 in I&NTC and I&TC, respectively, = 0 o/w; Ph.2. - dummy = 1 in the second phase of the survey experiment, = 0 o/w; Ph.2.*I&NTC - interaction term. Significance levels. * $p < 10\%$, ** $p < 5\%$, *** $p < 1\%$.

Italian Public Expenditure in 2011



Percentages stated in the experiment

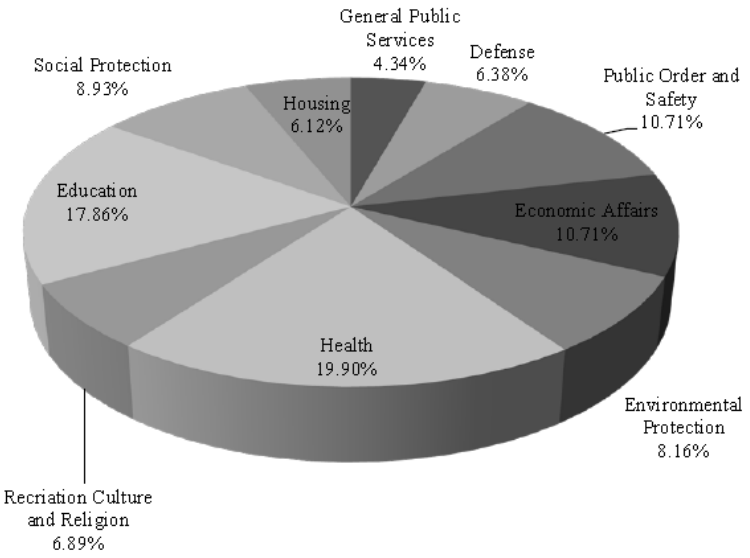


Figure 2. *COFOG* scale and subjects' tax choice

B Treatment manipulations in the survey experiment

As follows, we report the questions used in the three treatments to elicit the adequate tax rate. The questions were originally written in Italian.

NI&NTC (Phase 1)

Overall, what percentage of your income do you think is adequate to pay as taxes to finance the Italian Public Expenditure? (between 0 and 100%): ... %

I&NTC (Phase 1)

In Italy, taxes are used to finance the following components of the Public Expenditure (ranked in decreasing order in terms of incidence on the Public Budget):

1. Social Protection
2. General Public Services
3. Health
4. Education
5. Economic Affairs
6. Public Order and Safety
7. Defense
8. Environmental Protection
9. Housing
10. Recreation, Culture and Religion

Overall, what percentage of your income do you think is adequate to pay as taxes to finance the Italian Public Expenditure? (between 0 and 100%): ... %

I&TC (Phase 1), *NI&NTC* (Phase 2) and *I&NTC* (Phase 2)

Task 1

The following list contains the components of the Italian Public Expenditure that are financed through taxes. Given the list, what percentage of your income do you think is adequate to pay as taxes to finance the corresponding component?

a) The percentage of each component has to be included between 0 and 100%;

b) The sum of the percentages cannot exceed 100%.

1. Social Protection: ... %
2. General Public Services: ... %
3. Health: ... %
4. Education: ... %
5. Economic Affairs: ... %
6. Public Order and Safety: ... %
7. Defense: ... %
8. Environmental Protection: ... %
9. Housing: ... %
10. Recreation, Culture and Religion: ... %

Task 2

Overall, what percentage of your income do you think is adequate to pay as taxes to finance the Italian Public Expenditure? (between 0 and 100%): ... %

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