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# A Theory of the Allocation of Political Time

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## Abstract

In this paper I will introduce a microfounded model of political activities. The aim is twofold: first of all, filling an existing gap with the actual literature which still lacks of a theoretical explanation about how voters choose their leisure activities in particular those related with Politics; secondly, explaining why the old may have an interest to spend a greater amount of their leisure in political activities than the young. Empirical evidence taken by the British Election Survey, confirm the hypothesis: political activism is related to age (although other individual characteristics, such as gender and education contribute to increase the explanatory power of regressions) and the old follow different activities in order to lobby politicians. Finally the paper represents an empirical proof for the Single Mindedness Theory of Social Security Systems, which states that since the old have a natural preference for leisure, they have to find a financial coverage for the reduction in labour income due to their decision to early retire or to reduce their labour supply.

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# 1 Introduction

Which fraction of leisure time is devoted by individuals to political activities? And to which extent are they prone to substitute their leisure devoted to political activities with leisure devoted to other kind of activities. To the best of my knowledge, a microeconomic analysis which is able to answer to these two questions have not found any place in the economic literature yet. Nevertheless, over the last years the literature about how individuals spend their leisure time has been increased.

Of course, the pioneer in the microeconomic analysis of the allocation of time is Gary Becker. In his *A Theory of the Allocation of Time* [2] he assumed that households produce commodities by combining inputs of goods and time in order to minimize a cost function. He called "full income" the sum of money income and income lost by the use of time. Then, Becker's great intuition was to assign time with an economic value in terms of cost-opportunity. To the best of my knowledge the microeconomic foundation of political activities has never find place in the classic literature. For political activities I will mean all of those kind of activities which individuals undertake in order to contact politicians and lobby them as to gain an economical-political advantage. The set of this activities encompasses lobbying, telephone calls, e-mails, letters and so on. Furthermore, I will introduce a fundamental assumption: I will argue that the old spend more time in political activities than what the young do and this is due to two factors: the first one is that since the old are retired or have reduced their labour supply, they have more leisure time in absolute terms; secondly there is a sort of substitution effect, since they prefer to substitute other types of leisure activities with political activities because they have a necessity to lobbying politicians in order to find a finacne to their reduced labour income. For insance, if we asssume that wages are paid in the labour market according to the production level and we assume that the old are less productive than the young, we may also expect that the old are less paid than the young; this situation, exacerbated by the fact that the old have a natural (biological) preference for leisure, forces them to work less; but working less means less labour income; they found into the necessity to find a financial coverage to the reduced amount of money they earned when they were employeed. Nevertheless, even though the political acitivity has never find a place within the classic microeconomic analysis, we have examples of econometric evidence which show that the level of enrollment in these activities differs with respect to the variable age.

Goerres [5] analysed surveys and interviews in the U.K. explaining why older people should be any different from younger people in protests. Although he tried to introduce a theoretical framework in which the absence of participation is motivated by three lacks (motivation, resources and opportunities) a real microeconomic model was not provided. Nevertheless,

the empirical evidence is interesting. Regressions' results state that age is statistically significant and assumes a curvilinear specification.

In this paper I will introduce a microfounded model of political activities. The aim is twofold: first of all, filling an existing gap with the actual literature which still lacks of a theoretical explanation about how voters choose their leisure activities in particular those related with Politics; secondly, explaining why the old may have an interest to spend a greater amount of their leisure in political activities than the young. Empirical evidence taken by the British Election Survey, confirm the hypothesis: political activism is related to age (although other individual characteristics, such as gender and education contribute to increase the explanatory power of regressions) and the old follow different activities in order to lobby politicians. Finally the paper represents an empirical proof for the Single Mindedness Theory of Social Security Systems, which states that since the old have a natural preference for leisure, they have to find a financial coverage for the reduction in labour income due to their decision to early retire or to reduce their labour supply.

The paper is organized as follows: Section 2 presents the microfoundation of the theory, section three presets the duality characterization of the model, section four suggests possible way to measure welfare changes, section five shows empirical evidence and section six concludes.

## 2 The model

### 2.1 The old and the young have the same amount of leisure

Suppose that the individual satisfaction derives from the availability of time. I will divide the total leisure time in time devoted to political activities, say  $t_p$ , and time devoted to all of the other activities, say  $t_{-p}$ . The first summarizes all of those activities which an individual undertake and deal with Politics: amongst them are lobbying, participation in political parties' congresses, conferences, meetings and many others. The residual activities encompass all of the other activities are possible to imagine. Individual preferences are captured by a utility function which may be written as:

$$U^i = U(t_p^i, t_{-p}^i) \quad (1)$$

I assume that this utility function satisfies some axioms, such as: *continuity*, *twice continuously*, *differentiability* and *strong non-satiation* which entails that  $U_{l_p} > 0$  and  $U_{l_{-p}} > 0$ . A map of indifferent curves may be written as:

$$U[t_p^i(t_{-p}^i), t_{-p}^i] = S_k \quad (2)$$

where  $S_k$  represents a possible utility level. Figure 1 show the map.

[FIGURE 1 HERE]

Differentiating (2) with respect to  $t_{-p}$  we may obtain the slope of the indifferent curve, which is:

$$t_p^{i'}(t_{-p}^i) = -\frac{U_{h_{-p}}[t_p^i(t_{-p}^i), t_{-p}^i]}{U_{h_p}[t_p^i(t_{-p}^i), t_{-p}^i]} \quad (3)$$

always negative.

Furthermore, indifference curves are convex; a necessary and sufficient condition which assure the convexity is:

$$\begin{vmatrix} 0 & U_{t_p} & U_{t_{-p}} \\ U_{t_p} & U_{t_p t_p} & U_{t_p t_{-p}} \\ U_{t_{-p}} & U_{t_p t_{-p}} & U_{t_{-p} t_{-p}} \end{vmatrix} > 0 \quad (4)$$

Obviously an individual cannot use an infinite amount of time. Thus, I will denote  $T$  the total amount of leisure time which may be used either to undertake political activities or to undertake other activities. As a consequence, the time budget constraint may be written as:

$$CT = c_p t_p^i + c_{-p} t_{-p}^i \quad (5)$$

where  $CT$  is the total economic value of time spent in leisure activities and  $c_p$  is the cost an individual suffers to undertake those activities. This cost encompasses the cost of travelling to follow political events, the cost of phone calls, mails, to advertise and promote candidates and so on. I will also take  $t_{-p}$  as the *numeraire* and thus  $c_{-p}$  will be normalized to unity and so will  $C$ . Initially, I will suppose that both the old and the young are endowed with the same amount of leisure time. The maximization problem may be written as follow:

$$\max U^i = U(t_p^i, t_{-p}^i)$$

subject to:

$$T \leq c_p t_p^i + t_{-p}^i$$

Nevertheless, by the meaning of the non-satiation axiom it is easy to argue that a solution where  $T < c_p t_p^i + t_{-p}^i$  is not achievable and thus the the constraint must bind. To solve the problem I write the Lagrangian function:

$$\mathcal{L} = U(t_p^i, t_{-p}^i) + \lambda(T - c_p t_p^i - t_{-p}^i) \quad (6)$$

where  $\lambda$  represents the Lagrangian multiplier. I write the first order condition:

$$\mathcal{L}_{t_p^i} = U_{t_p}(\widehat{t}_p^i, \widehat{t}_{-p}^i) - c_p \widehat{\lambda} = 0 \quad (7)$$

$$\mathcal{L}_{t_{-p}^i} = U_{t_{-p}}(\widehat{t}_p^i, \widehat{t}_{-p}^i) - \widehat{\lambda} = 0 \quad (8)$$

$$\mathcal{L}_\lambda = T = c_p \widehat{t}_p^i + \widehat{t}_{-p}^i \quad (9)$$

where  $(\widehat{t}_p^i, \widehat{t}_{-p}^i)$  represent the couple of *Marshallian demand function* for leisure activities which maximize the individuals' utility. From (7) and (8) we obtain:

$$\widehat{\lambda} = \frac{U_{t_p^i}(\widehat{t}_p^i, \widehat{t}_{-p}^i)}{c_p} = U_{t_{-p}^i}(\widehat{t}_p^i, \widehat{t}_{-p}^i) \quad (10)$$

and finally:

$$c_p = \frac{U_{t_{-p}^i}(\widehat{t}_p^i, \widehat{t}_{-p}^i)}{U_{t_p^i}(\widehat{t}_p^i, \widehat{t}_{-p}^i)} \quad (11)$$

where the RHS of the expression represents the marginal rate of substitution of time spend in political activities,  $t_p^i$ , for time spent in all the other activities,  $t_{-p}^i$ . The main assumption of the Single Mindedness Theory states that, within an economy divided in young and old workers, the old spend more time in political activities (see Canegrati). As a possible example, I assume that time-preferences of individuals are represented by a Cobb-Douglas function, which for a representative old may be written as:

$$U^o = t_p^{\alpha\psi^o} t_{-p}^{1-\psi^o} \quad (12)$$

with  $\psi^o > \frac{1}{2}$  indicating the preferences of the old for political activities. I write the budget constraint:

$$c_p t_p^o + t_{-p}^o = T \quad (13)$$

and maximizing (12) under (13) we obtain the Marshallian demand function for time spent in political activities:

$$\widehat{t}_p^o = \frac{\psi^o T}{c_1} \quad (14)$$

and for time spent in other activities:

$$\widehat{t}_{-p}^o = (1 - \psi^o)T \quad (15)$$

and the Indirect Utility Function

$$\widehat{U}^o = \left( \frac{\psi^o T}{c_1} \right)^{\psi^o} ((1 - \psi^o)T)^{1-\psi^o} \quad (16)$$

It can be easily seen that this expression is an increasing function of both the individual's preferences for time spend in political activities and the total cost of time and it is a decreasing function of the marginal cost necessary to undertake these activities. I do the same for the young worker, writing the utility function:

$$U^y = t_p^y \psi^y t_{-p}^{y1-\psi^y} \quad (17)$$

this time with  $\psi^y < \frac{1}{2}$ , and the budget constraint

$$c_p t_p^y + t_{-p}^y = T \quad (18)$$

the Marshallian demand function for time spent in political activities:

$$\widehat{t}_p^y = \frac{\psi^y T}{c_1} \quad (19)$$

the Marshallian demand function for time spent in other activities:

$$\widehat{t}_{-p}^y = \psi^y T \quad (20)$$

and the Indirect Utility Function:

$$\widehat{U}^y = \left( \frac{\psi^y T}{c_1} \right)^{\psi^y} ((1 - \psi^y) T)^{1-\psi^y} \quad (21)$$

Comparing (14) with (19) it is possible to see that, *ceteris paribus*,  $t_p^{y*} > t_p^{o*}$ .

## 2.2 The old have a greater amount of leisure

Until now, I have assumed that the old and the young were endowed with the same amount of leisure. This assumption is quite at odds with the real world, where the old have usually a greater amount of leisure than the young, due to the fact that they are retired, or their labour supply has been reduced. Under this assumption I can write a new budget constraint:

$$c_p t_p^i + t_{-p}^i = T^i \quad (22)$$

where  $T^i$  indicates the total amount of leisure time for the group, where  $T^o > T^y$ . Solving the new maximization problem, we obtain the new Marshallian demand functions, which are:

$$\widehat{t}_p^o = \frac{\psi^o T^o}{c_1} \quad (23)$$

$$\widehat{t_{-p}^o} = (1 - \psi^o)T^o \quad (24)$$

for the old, and

$$\widehat{t_p^y} = \frac{\psi^y T^y}{c_1} \quad (25)$$

$$\widehat{t_{-p}^y} = (1 - \psi^y)T^y \quad (26)$$

for the young. Again, comparing (23) with (25) we can see that all the more so the level of time spent in political activities is greater for the old than for the young.

### 3 A dual approach

In order to analyse more in depth the microeconomic approach to the use of leisure time by households we want to microfound the effect of a change in relative prices of various leisure activities and a change in the total amount of leisure time. For this purpose I will introduce the *Hicksian (compensated) leisure demand function*. Suppose now that an individual is willing to minimize his total cost of leisure time necessary to enable him to attain an utility level  $\bar{U}$ . We can write this new problem in the following manner:

$$\min T^i \quad (27)$$

subject to

$$U(t_p^i, t_{-p}^i) \geq \bar{U} \quad (28)$$

Of course in equilibrium (28) must be binding and the Lagrangian function may be written as:

$$\mathcal{L} = c_p t_p^i + t_{-p}^i - \mu(U(t_p^i, t_{-p}^i) - \bar{U}) \quad (29)$$

which gives us the following first order conditions

$$\mathcal{L}_{t_p^i} = c_p - U_{t_p}(t_p^i, t_{-p}^i)\tilde{\mu} = 0 \quad (30)$$

$$\mathcal{L}_{t_{-p}^i} = 1 - U_{t_{-p}}(t_p^i, t_{-p}^i)\tilde{\mu} = 0 \quad (31)$$

$$\mathcal{L}_{\mu} = U(t_p^i, t_{-p}^i) - \bar{U} = 0 \quad (32)$$



where  $(\widetilde{t}_p^i, \widetilde{t}_{-p}^i)$  represent the couple of Hicksian (compensated) demand function for leisure activities which minimize the individuals' total cost for leisure activities. From (30) and (31) we obtain:

$$\mu = \frac{U_{t_p^i}(\widetilde{t}_p^i, \widetilde{t}_{-p}^i)}{c_p} = U_{t_{-p}^i}(\widetilde{t}_p^i, \widetilde{t}_{-p}^i) \quad (33)$$

and finally:

$$c_p = \frac{U_{t_{-p}^i}(\widetilde{t}_p^i, \widetilde{t}_{-p}^i)}{U_{t_p^i}(\widetilde{t}_p^i, \widetilde{t}_{-p}^i)} \quad (34)$$

As an illustrative example we assume again the existence of a Cobb-Douglas Utility Function such that the minimization problem may be written as:

$$\min c_p t_p^i + t_{-p}^i \quad (35)$$

subject to:

$$t_p^{i\psi^i} t_{-p}^{i1-\psi^i} \geq \bar{U} \quad (36)$$

and solving the problem we obtain the Hicksian demand functions for political activities

$$\widetilde{t}_p^i = \left( \frac{\alpha}{c_p(1-\alpha)} \right)^{1-\alpha} \bar{U} \quad (37)$$

and for all the other leisure activities

$$\widetilde{t}_{-p}^i = \left( \frac{\alpha}{c_p(1-\alpha)} \right)^{-\alpha} \bar{U} \quad (38)$$

so that the Expenditure Function may be written as:

$$\widetilde{T}^i = c_p \widetilde{t}_p^i + \widetilde{t}_{-p}^i = c_p \left( \frac{\alpha}{c_p(1-\alpha)} \right)^{1-\alpha} \bar{U} + \left( \frac{\alpha}{c_p(1-\alpha)} \right)^{-\alpha} \bar{U} \quad (39)$$

From the microeconomic theory we know that if  $u(\cdot)$  is a continuous function which satisfies the properties of non-satiation and convexity of preferences  $\succsim$  on the consumption set  $X = \mathbb{R}_+^2$  we are able to write the *Slutsky equation* in matrix notation:

$$D_c \tilde{t}(c, U) = \overset{\text{substitution effect}}{D_c \hat{t}(c, T)} + \overset{\text{time effect}}{D_T \hat{t}(c, T) \hat{t}(c, T)^\top} \quad (40)$$

Furthermore we can also write the *Slutsky substitution matrix*:

$$D_c \tilde{t}(c, U) = M(c, T) = \begin{bmatrix} s_{c_p c_p}(c, T) & s_{c_p c_{-p}}(c, T) \\ s_{c_{-p} c_p}(c, T) & s_{c_{-p} c_{-p}}(c, T) \end{bmatrix} \quad (41)$$

where  $s_{c_k c_z}(c, T) = \partial \hat{t}_k^i(c, T) / \partial c_z$

Inspecting (40) We can observe two component: the first is a pure *substitution effect*, which measures how an individual is prone to substitute the political activity with other leisure activities, whilst the second is a *time effect* which measure the effect on the demands once the individual is endowed with a different stock of leisure time.

Figure 2 shows the Walrasian ( $t_p$ ) and Hicksian ( $t_{ph}$ ) demand functions for leisure time spent in political activities.

[FIGURE 2 HERE]

The two functions are equal at the point  $c_p = c_p^*$ . Of course the Hicksian demand function is steeper than the Walrasian function as long as leisure time spent in political activities is a *normal good*.

## 4 Welfare changes

We focus now on the effects that a change in the vector of prices or the endowment of leisure has on the individual's welfare. I indicate with  $c^0$  the vector of prices before the change and with  $c^1$  the vector of prices after the change. Furthermore I will denote with  $\widehat{U}^i = \widehat{U}^i(c^0, T)$  the Indirect Utility Function of the individual before the change and with  $\widehat{U}^i = \widehat{U}^i(c^1, T)$  the Indirect Utility Function of the individual after the change. Finally i will denote  $\widetilde{U}^i = (\bar{c}, \widehat{U}^i(c^0, T))$  the expenditure function before the change and with  $\widetilde{U}^i = (\bar{c}, \widehat{U}^i(c^1, T))$  the expenditure function before the change.

We know that two useful measures of welfare change may be written. The first is the Equivalent Variation (EV) whose expression is:

$$EV(c^0, c^1, T) = \widetilde{U}^i(c^0, U^1) - \widetilde{U}^i(c^0, U^0) = \widetilde{U}^i(c^0, U^1) - T \quad (42)$$

or, in another fashion:

$$EV(c^0, c^1, T) = \int_{c_p^1}^{c_p^0} \widetilde{t}_p^i(c_p, c_{-p}, U^1) dc_p \quad (43)$$

The second is the Compensating Variation (CV), whose expression is:

$$CV(c^0, c^1, T) = \widetilde{U}^i(c^1, U^1) - \widetilde{U}^i(c^1, U^0) = T - \widetilde{U}^i(c^1, U^0) \quad (44)$$

or:

$$EV(c^0, c^1, T) = \int_{c_p^1}^{c_p^0} \widetilde{t}_p^i(c_p, c_{-p}, U^0) dc_p \quad (45)$$

## 5 Empirical Evidence

Our main goal is to evaluate whether the old spend more time in political activities as suggested by the previous model and whether beliefs about how politics affects personal situation is different amongst cohorts. To do this, first of all we have to identify a set of political activities which individual may undertake and which are time-intensive, that is they require a certain amount of time and resources. I have identified 7 political activities and 1 belief:

- *Attempt to persuade other people*: this activity refers to all of those actions which an individual undertakes in order to persuade other individuals to vote for a certain candidate. These activities require time spent in talking to other people or advertising ideas of the candidate.
- *Support activities*: this class of activities encompasses all of those activities such as attending a political meeting, putting up campaign signs and so on.
- *Voting*: this is of course the most important political activity, since by this a voter expresses his/her preferences for a certain candidate in order to elect him/her in the Parliament. In our case we will be interested only in assessing whether the voter voted in previous elections (May 5th 2005). Obviously, this activity entails some costs such as time spent in moving towards the polling station, the cost of fuel or transport and so on.
- *Time of decision*: the activity of take a decision about which candidate to vote is itself costly, since it takes time away from other "mental" activities a person may undertake. Notice that in this case this activity may derive from other activities which help to take the decision, such as collecting information from the television, radio, newspapers and so on and the activity of thinking.

- *Contacting politicians*: contacting a politician is of course a costly activity for two reasons: first of all an individual must spend time and resources to know a politician and make friends with him and, secondly he/she has to spend further time and resources to contact and lobbying him/her (i.e. writing, telephoning and so on).
- *Taking part in protests*: this is another example of activity which entails time to move towards the protest' site and money to organize protests, such as prompters, placards and so on.
- *Working with others who share same concerns*: in this case I am referring to all of those *intra-group* activities which take place in labour unions, associations, lobbies where people discuss about strategies, actions to be undertaken and so on.
- *Beliefs about relations between Politics and personal finances*: these creeds refer to how people think government's policies (i.e. taxation, public goods supply) may affect their financial situations.

In Appendix I reported questions and the possible answers which allowed me to run regressions

## 5.1 Data from British Election Survey

The 2005 BES conducted two parallel panel surveys. The core study was a two-wave face-to-face national probability panel survey, with the first wave conducted in February-March 2005 and the second wave conducted in May-July 2005, starting right after the May 5th general election. The face-to-face study was complemented by a three-wave internet panel survey. The first internet wave was conducted in March 2005; the second wave was implemented during the official campaign in April 2005, and the third went into the field in May 2005, immediately after the election. The pre-election wave questionnaires in both the face and internet surveys were identical, insofar as this was possible given that different modes were involved. The internet post-election survey was quite short, reflecting the fact that the internet respondents had already been interviewed a second time during the campaign. However, it did include a number of key questions – about turnout and party choice – that were asked in the more extensive post-election face survey.

*In-Person Surveys*: As noted above, the 2005 BES in-person pre-election baseline survey was conducted before the election campaign officially began. The survey was designed to yield a representative sample of 'non-institutionalized' adults aged 18 and older living in Great Britain (people living in Northern Ireland and Scots living north of the Caledonian canal were excluded). A clustered multi-stage design was employed. First, 128 constituencies were sampled (77 in England, 29 in Scotland and 22 in Wales). Constituencies were sampled using three stratification criteria: (i) electoral

marginality in the 2001 general election, (ii) region in England/Scotland and percent Welsh speakers in Wales, and (iii) population density. Within each constituency selected, two wards were randomly chosen, and within each ward household addresses were selected with equal probability from the national postcode address file. For households with multiple occupants, one person (the potential respondent) was selected at random using a modified Kish grid.

The N for the pre-election campaign survey was, 3589, with a response rate of 60.5%. Beginning immediately after the election, all of the pre-election respondents were asked to do a second in-person interview. The resulting pre-post panel N was 2959 (panel retention rate = 82.4%). To provide a representative national post-election sample, the panel was supplemented by a 'top-up' sample (N = 1202) chosen using the methods described above. All of the post-election top-up respondents were interviewed in-person. The unweighted post-election sample N thus was 4161 and, altogether, 4791 respondents participated in one or both of the in-person interviews.

The in-person survey data were weighted using a combination of factors designed to correct for unequal selection probabilities arising from deliberate oversampling in Scotland and Wales, deliberate oversampling of marginal constituencies, variation in the number of households at selected addresses, and variation in the number of people living in selected households.<sup>7</sup> In addition, a set of post-stratification or 'calibration' weights for age and gender were employed.

*Internet Surveys:* Similar to the in-person pre-election survey, the first wave of the internet survey was conducted just before the election campaign formally began. Potential internet respondents were selected from YouGov's master panel which included 89,000 people at the time the study was conducted.<sup>8</sup> People join the YouGov master panel in one of three ways: (i) by visiting the YouGov website ([www.YouGov.com](http://www.YouGov.com)) and registering; (ii) by being recruited by one of several professional third-party recruiters (e.g., Win4Now) employed by YouGov; (iii) through ad-hoc alliances between YouGov and partners such as media outlets interested in conducting specific survey research projects. Respondents in such surveys can be invited to join the YouGov master panel.

Potential respondents for the BES pre-election baseline internet survey were randomly selected from subsections of the master panel defined in terms of demographics (age, gender), media consumption (newspaper readership) and a political criterion (reported vote in the preceding (2001) general election). The total (unweighted) N for the YouGov pre-campaign survey was 7793. During the election campaign 6068 of these respondents participated in a rolling campaign panel survey designed to track the dynamics of public opinion as the campaign unfolded. Immediately after the election, 5910 of the pre-campaign respondents participated in a post-election survey. The response rate for the initial pre-campaign survey was 52.0%, and panel reten-

tion rates were 77.9% (campaign survey), and 75.8% (post-election survey).

After the three waves of the internet survey were completed, post-stratification weights for the data were developed using demographic criteria (gender, age within gender, region and social class), as well as newspaper readership and vote in the 2001 general election. Similar to the in-person surveys, information from the 2001 UK census was used to develop the demographic weighting factors for the internet surveys. Data from the National Readership Survey (an annual random probability in-person survey with 34,000 respondents) were used to construct the newspaper readership weighting factor, and the past vote weighting factor was developed based on the results of a large in-house analysis of false-memory effects.

## 5.2 Econometric Framework

Our main goal is to assess whether it is true that the old spend more time in political activities rather than the young. The BES contains a subset of variables which enables us to perform some LOGIT regressions. I will adopt two different specification of the model. The first is

$$political\ activity_j = \beta_{0j} + \beta_{1j}age + \beta_{2j}gender + \beta_{3j}educatio + \vartheta_j$$

where  $\{j\}_1^8$  represents the set of possible political activities. This specification says that the j-th political activity depends on age of the individual, his/her gender and his/her level of education. If our assumptions was true we should expect that  $\beta_{1j}$  is statistically significant. the sign of the parameter should change related to the scale which measure the political activity, but this relations should always brings us to the conclusion that the old spend more time in that activity than the young.

In the second specification of the model I try to assess whether there are some other variables which may influence results. In particular one may think that undertaking political activities may depend on the environment an individual lives in. This is way I will use the membership to some groups such as labour unions, Trade union, Business or employers' association, Farmers association or Professional association as a proxy to assess the role of the environment on political activities. The new specification of the model is:

$$political\ activity_j = \beta_{0j} + \beta_{1j}age + \beta_{2j}gender + \beta_{3j}educatio \\ + \beta_{4j}belong\_trade\_union + \beta_{5j}belong\_business\_employers \\ + \beta_{6j}belong\_farmers + \beta_{7j}belong\_professional\_association + \vartheta_j$$

According to Canegrati, we should expect that the membership to a labour unions play an important role in undertaking political actions and so we expect that  $\beta_{4j}$  is statistically significant.

I performed regressions using LOGIT models, with Robust Standard Errors (Results are reported in Table 1-8). The choice of LOGIT models naturally arises if we consider that the response variable is the left-right scale which is treated as ordinal, since a political scale has a natural ordering (left to right), even though the distances between adjacent levels are not quantifiable. In these models, an underlying score has been estimated as a linear function of the regressors and a set of "cut points". The probability of observing an outcome equal to  $o$  corresponds to the probability that the estimated linear function and an error term lies within an interval delimited by the estimated cut points. For instance, the probability that a responder  $i$  finds himself/herself at the fourth level of the left-right scale is equal to:

$$\Pr(\text{level}_i = o) = \Pr(h_{o-1} < \gamma_1 x_{1i} + \dots + \gamma_h x_{hi} + v_i \leq h_i)$$

where  $v_i$  is assumed to be distributed according to a LOGIT distribution

$$= \frac{1}{1=\exp(-h_o+\sum \gamma_h x_h)} - \frac{1}{1=\exp(-h_{o-1}+\sum \gamma_h x_h)}$$

Thus the estimation's outcomes consists both in a set of  $h$  coefficients and in a set of  $O - 1$  cut points, with  $O$  equal to the number of possible outcomes.

### 5.3 Main Findings

First of all, for every question I built a pie chart which reports the percentage of respondents for every possible answers (Pie charts 1-8 reported in the Appendix under the related questions). Table 1-8 report the regressions' results. I will describe results relative to different dependent variables, interpreting coefficients:

- *Attempt to persuade other people [table 1]:* Age, Gender and Education are all statistically significant at the 1 per cent of the C.I. in the first specification, whilst in the second specification Age, Gender, Education, Labour unions membership are significant at the 1 per cent of the C.I., business and professional associations membership at the 5 per cent of the C.I., whilst farmer association membership is not significant. A negative coefficient means that the expectation of never

having attempt to persuade other people to vote for a certain candidate decreases. Thus, it seems that elder people are more likely to undertake this persuasion activity, whilst this likelihood decrease if the individual is a female. Furthermore, members of unions, business and professional associations seem to increase the same likelihood, denoting that those groups have a particular enrolment in the political activity.

- *Support activities* [**table 2**]: Age, Gender and Education are all statistically significant at the 1 per cent of the C.I. in the first specification, whilst in the second specification Age, Gender, Education, Labour unions membership are significant at the 1 per cent of the C.I., business associations membership at the 5 per cent of the C.I., whilst farmer and professional association membership is not significant. Again, a negative coefficient means that the likelihood for this activity to be undertaken increases, and as consequence, we can say that an elder, male and member of labour union or business association is the representative prototype of individual which undertakes the activity.
- *Voting* [**table 3**]: Age, Gender and Education are all statistically significant at the 1 per cent of the C.I. in the first specification, whilst in the second specification Age, Gender, Education, Labour unions membership are significant at the 1 per cent of the C.I., farmer and professional association membership at the 5 per cent of the C.I., whilst business associations membership is not significant. A negative coefficient means that the likelihood to have voted in 2005 elections increases and thus, we can say that an elder, male, member of labour union, farmer or professional association is more likely to have voted.
- *Time of decision* [**table 4**]: Age and Gender are all statistically significant at the 1 per cent of the C.I. and Education is statistically significant at the 5 per cent of the C.I., in the first specification, whilst in the second specification Age and Gender are significant at the 1 per cent of the C.I., Education at the 5 per cent of the C.I., whilst Labour unions, business, farmer and professional associations membership are not significant. A negative parameter increases the likelihood that the decision of vote has been taken long time ago rather than during the campaign. Thus, this can be seen as a proxy for a "strong mindedness" of the vote. Results confirm that an elder, male individual is less prone to take his decision subjected to the political campaign, whilst he seems more prone to having decide before the electoral campaign took place.
- *Contacting politicians* [**table 5**]: Education and Age are significant



at the 1 per cent of the C.I. whilst Gender is not significant., in the first specification, whilst in the second specification Age, Education, Labour unions, business and professional associations membership are significant at the 1 per cent of the C.I., farmer association membership at the 5 per cent of the C.I., and Gender is not significant. A negative coefficient confirms that the individual has more likely contacted a politician and thus we can conclude that an elder member of whatever association is more likely to have undertaken this activity.

- *Taking part in protests* [**table 6**]: Education is significant at the 1 per cent of the C.I. whilst Age is statistically significant at the 10 per cent and Gender is not significant., in the first specification, whilst in the second specification Age, Education, Labour unions, business and professional associations membership are significant at the 1 per cent of the C.I., and Gender and farmer association membership at the 5 per cent of the C.I. A negative coefficient confirms that the individual has more likely taken part in protests and thus we can conclude that an elder, male member of whatever association is more likely to have undertaken this activity.
- *Working with others who share same concerns* [**table 7**]: Age is significant at the 1 per cent of the C.I. whilst Gender is statistically significant at the 10 per cent and Education is not significant., in the first specification, whilst in the second specification Age is significant at the 1 per cent of the C.I., Education, business and professional association membership at the 5 per cent of the C.I, Gender at the 10 per cent and, finally, trade union and farmer association membership is not significant. A negative coefficient confirms that the individual has more likely taken part in this line of work and thus we can conclude that an elder, male member of professional association is more likely to have undertaken this activity.
- *Beliefs about relations between Politics and personal finances* [**table 8**]: Age is significant at the 1 per cent of the C.I. whilst Gender is statistically significant at the 10 per cent and Education is not significant., in the first specification, whilst in the second specification Age is significant at the 1 per cent of the C.I., Education, business and professional associations membership at the 5 per cent of the C.I., Gender at the 10 per cent whilst labour union farmer association membership are not significant.

Finally in tables pseudo R2 are reported together with the cut points.

From these results an unquestionable truth emerges: the old are the more active group in society. In fact, the variable Age appears as always statistically significant (in most of the cases at the 1 per cent of the C.I.) and

the sign of the parameter suggests that the older the respondent, the higher the likelihood he takes part into political activities. This is a confirmation of the Single Mindedness Theory's main assumptions stated in previous theoretical works. Since the old are more single-minded in order to have more leisure, they have to lobby politicians to substitute their labour income with transfers. For doing this they spend a fraction of their greater amount of leisure time in lobbying politicians. Furthermore, also the membership to particular association such as labour unions, business or professional communities and farmers associations play an important role in order to increase the likelihood of lobbying politician. This is not surprising, since we exactly expect that individual get together in order to increase their power to obtain what they require from government.

## 6 Conclusions

In this paper I tried to provide a possible explanation to the issue of allocation of time amongst different political activities. First of all, I provided a micro-foudation to the problem, suggesting that the total amount of leisure time may be divided amongst different type of activities and political activities belong to these ones. I focused on a dual approach and I considered the substitution and the "time" effects, whose magnitude drive the way individuals divide their activities amongst political activities and all of the other activities. Secondly, I demonstrated that the old have a special interest to substitute the total time spend in other activities with political activities, since they found into the need to find a financial coverage to their leisure time increased by the fact that they retire early or reduce their amount of labour supply due to many reasons, first of all a natural preference for enjoying leisure. Empirical evidence confirms the main assumption: analysing the U.K. reality it seems that activism is related to many factors: age, *in primis*, gender and education level. This positive results offers also an help to assess the validity of the Single Mindedness Theory. Of course, future researches will have more than one incentive to focus on the analysis of political activities: both the theory and the empirical evidence must find a confirmation; especially the second one needs to find a more robust support and it would be interesting to analyse the situation in other countries having similar characteristics to the U.K.

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## 7 Appendix

### 1. Talked to other people to persuade them to vote for a particular party of candidate?

- Frequently
- Occasionally
- Rarely
- Never
- Don't know

[PIE CHART 1 HERE]

### 2. Showed your support for a particular party or candidate by, for example, attending a meeting, putting up campaign signs, or in some other way?

- Frequently
- Occasionally
- Rarely
- Never
- Don't know

[PIE CHART 2 HERE]

### 3. Talking with people about the general election on May 5th, we have found that a lot of people didn't manage to vote. How about you, did you manage to vote in the general election?

- Yes, I voted
- No, I did not vote

[PIE CHART 3 HERE]

**4. Over the past five years or so, have you done any of the following things to express your views about something the government should or should not be doing? Contacted a politician or government official either in person or in writing, or some other way?**

- Yes
- No
- Don't know

[PIE CHART 4 HERE]

**5. Over the past five years or so, have you done any of the following things to express your views about something the government should or should not be doing? Taken part in a protest, march or demonstration?**

- Yes
- No
- Don't know

[PIE CHART 5 HERE]

**6. Over the past five years or so, have you done any of the following things to express your views about something the government should or should not be doing? Worked together with people who shared the same concern?**

- Yes
- No
- Don't know

[PIE CHART 6 HERE]

**7. How much do you think that the government's policies affect the financial situation of your household?**

- A great deal
- A fair amount
- Not very much
- Not at all
- Don't know

[PIE CHART 7 HERE]

**8. Are you a member of any of the following groups? Please indicate all groups that you are a member of:**

- Trade union
- Business or employers' association

Farmers association  
Professional association  
None of these

[PIE CHART 8 HERE]

Dependent variable:	LOGIT (1)	LOGIT (2)
<i>Attempt to persuade other people</i>		
age	-.009*** (0.000)	-.008*** (0.000)
gender	.664*** (0.000)	.630*** (0.000)
educatio	-.029*** (0.000)	-.023*** (0.001)
belong_trade union		-.248*** (0.006)
belong_business association		-.501** (0.031)
belong_farmer association		-.612 (0.306)
belong_professional association		-.224** (0.038)
Number of observations	3206	3206
Pseudo R2	0.018	0.021
/cut1	-2.565	-2.609
/cut2	-.895	-.930
/cut3	.015	-.013

TABLE 1

(Robust standard errors in parenthesis; (\*\*\*) significant at 1% of the C.I.; (\*\*) significant at 5% of the C.I.; (\*) significant at 10% of the C.I.)

Dependent variable:	LOGIT (1)	LOGIT (2)
<i>Support activities</i>		
age	-.029*** (0.000)	-.029*** (0.000)
gender	.244*** (0.003)	.209** (0.012)
educatio	-.026*** (0.000)	-.022*** (0.006)
belong_trade union		-.344*** (0.001)
belong_business association		-.523** (0.027)
belong_farmer association		-.807 (0.369)
belong_professional association		-.101 (0.423)
Number of observations	3207	3207
Pseudo R2	0.023	0.027
/cut1	-4.180	-4.269
/cut2	-3.123	-3.209
/cut3	-2.413	-2.495

TABLE 2

(Robust standard errors in parenthesis; (\*\*\*) significant at 1% of the C.I.; (\*\*) significant at 5% of the C.I.; (\*) significant at 10% of the C.I.)

Dependent variable:	LOGIT (1)	LOGIT (2)
<i>Voting</i>		
Age	-.051*** (0.000)	-.050*** (0.000)
Gender	.506*** (0.000)	.478*** (0.000)
Education	-.059*** (0.000)	-.052*** (0.000)
belong_trade union		-.532*** (0.000)
belong_business association		-.047 (0.901)
belong_farmer association		1.669** (0.016)
belong_professional association		-.354** (0.049)
Number of observations	3234	3234
Pseudo R2	0.087	0.094
/cut1	-.541	-.559

TABLE 3

(Robust standard errors in parenthesis; (\*\*\*) significant at 1% of the C.I.; (\*\*) significant at 5% of the C.I.; (\*) significant at 10% of the C.I.)

Dependent variable:	LOGIT (1)	LOGIT (2)
<i>Time of decision</i>		
Age	-.011*** (0.000)	-.011*** (0.000)
Gender	.195*** (0.007)	.202*** (0.006)
Education	.016** (0.015)	.015** (0.025)
belong_trade union		.095 (0.309)
belong_business association		-.001 (0.995)
belong_farmer association		-1.554 (0.166)
belong_professional association		.047 (0.685)
Number of observations	2597	2597
Pseudo R2	0.006	0.007
/cut1	-.346	-.325
/cut2	.098	.119
/cut3	.648	.670

TABLE 4

(Robust standard errors in parenthesis; (\*\*\*) significant at 1% of the C.I.; (\*\*) significant at 5% of the C.I.; (\*) significant at 10% of the C.I.)

Dependent variable: <i>Contacting politicians</i>	LOGIT (1)	LOGIT (2)
Age	-.027*** (0.000)	-.026*** (0.000)
Gender	.093 (0.225)	.028 (0.712)
Education	-.057*** (0.000)	-.047*** (0.000)
belong_trade union		-.335*** (0.001)
belong_business association		-.749*** (0.003)
belong_farmer association		-2.738** (0.018)
belong_professional association		-.438*** (0.000)
Number of observations	3188	3188
Pseudo R2	0.036	0.049
/cut1	-2.441	-2.533

TABLE 5

(Robust standard errors in parenthesis; (\*\*\*) significant at 1% of the C.I.; (\*\*) significant at 5% of the C.I.; (\*) significant at 10% of the C.I.)

Dependent variable: <i>Taking part in protests</i>	LOGIT (1)	LOGIT (2)
Age	.007* (0.053)	-.009*** (0.001)
Gender	.086 (0.441)	.175** (0.04)
Education	-.066*** (0.000)	-.046*** (0.000)
belong_trade union		-.540*** (0.000)
belong_business association		-1.079*** (0.000)
belong_farmer association		-2.135** (0.033)
belong_professional association		-.415*** (0.001)
Number of observations	3188	3188
Pseudo R2	0.020	0.038
/cut1	-2.344	-2.157
/cut1		3.496

TABLE 6

(Robust standard errors in parenthesis; (\*\*\*) significant at 1% of the C.I.; (\*\*) significant at 5% of the C.I.; (\*) significant at 10% of the C.I.)



Dependent variable:	LOGIT (1)	LOGIT (2)
<i>Working with others who share same concerns</i>		
Age	-.017*** (0.000)	-.017*** (0.000)
Gender	.120* (0.083)	.116* (0.093)
Education	.010 (0.101)	.013** 0.049
belong_trade union		.109 (0.209)
belong_business association		.656** (0.028)
belong_farmer association		.536 (0.594)
belong_professional association		-.248** (0.019)
Number of observations	3096	3096
Pseudo R2	0.011	0.013
/cut1	-1.592	-1.557
/cut2	.911	.953
/cut3	3.895	3.941

TABLE 7

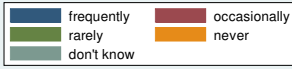
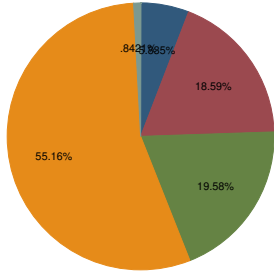
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Dependent variable:	LOGIT (1)	LOGIT (2)
<i>Beliefs about relations between Politics and personal finances</i>		
Age	-.017*** (0.000)	-.017*** (0.000)
Gender	.120* (0.083)	.116* (0.093)
Education	.010 (0.101)	.013** 0.049
belong_trade union		.109 (0.209)
belong_business association		.656** (0.028)
belong_farmer association		.536 (0.594)
belong_professional association		-.248** (0.019)
Number of observations	3096	3096
Pseudo R2	0.011	0.013
/cut1	-1.592	-1.557
/cut2	.911	.953
/cut3	3.895	3.941

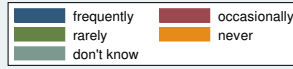
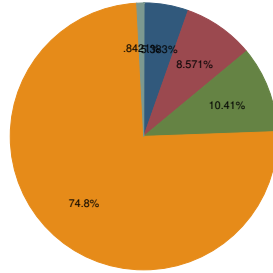
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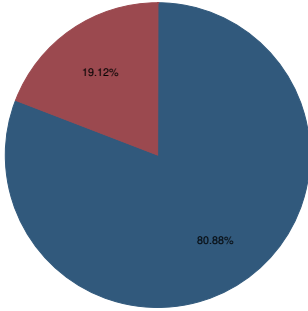
Pie Chart 1



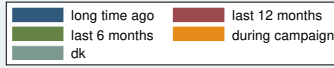
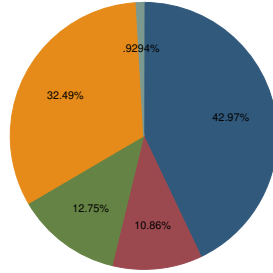
Pie Chart 2



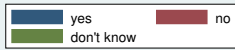
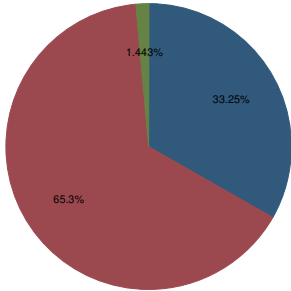
Pie Chart 3



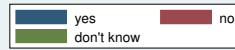
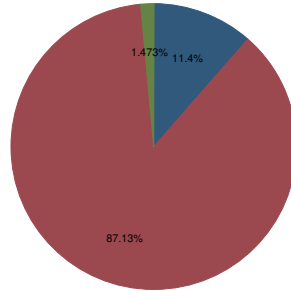
Pie Chart 4



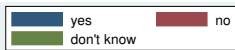
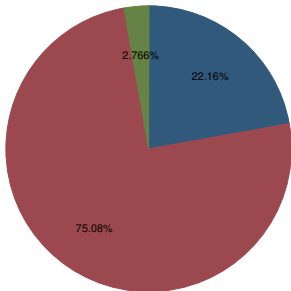
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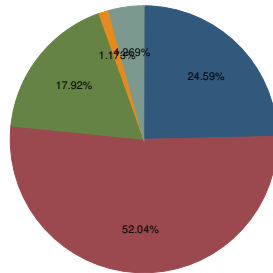
Pie Chart 6



Pie Chart 7



Pie Chart 8



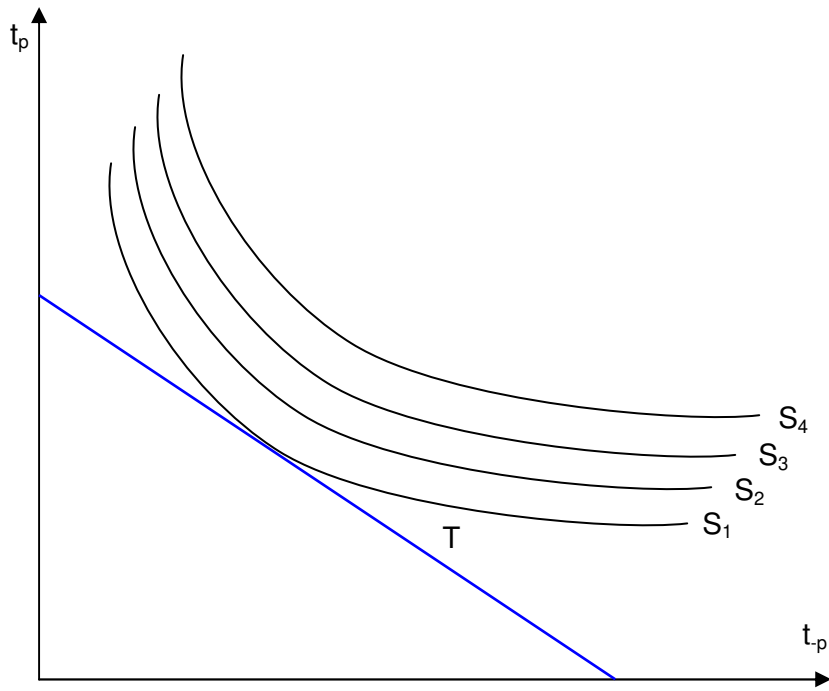


FIGURE 1

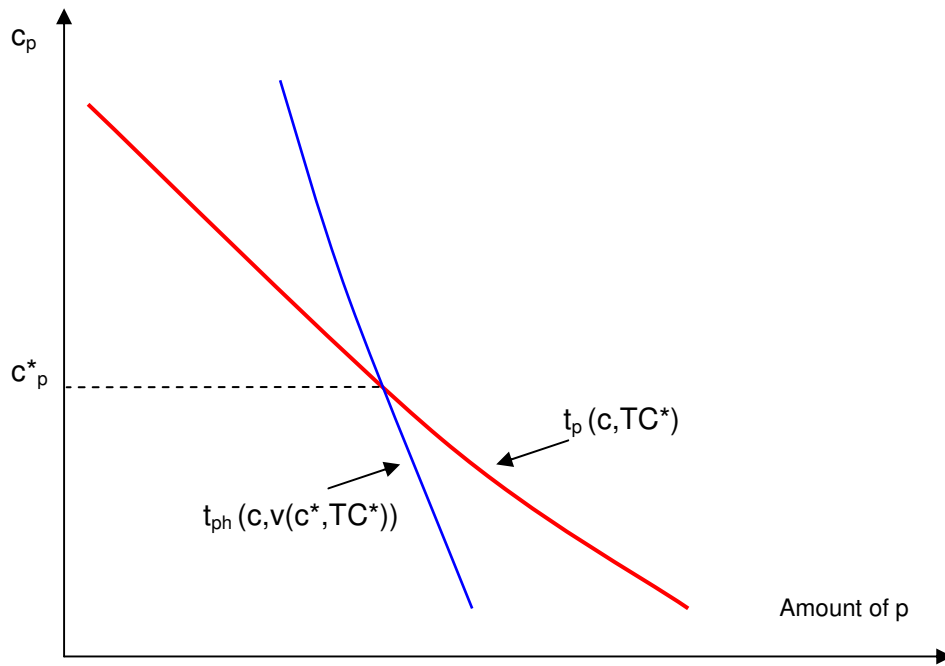


FIGURE 2