Mass media and attitudes to inequality

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Abstract. We aim to investigate which is the potential of various mass media to influence individual attitudes to inequality. A theoretical model is proposed to formalize how preferences towards redistribution are formed. It is then tested empirically by using the data from the European Social Survey (2010) offering information on the time people spend watching TV, listening to the radio, reading newspapers and using internet. Mass media are assumed to affect at first place the value people attach to equality, and in particular equality of opportunity, which is reflected in their attitudes towards redistribution of incomes. This process is modeled by using the bivariate ordered probit technique and the conditional mixed process estimator. Moreover, by estimating the dose-response function we highlight that the relation between exposure to mass media and attitudes to inequality is non-linear. We also test the impact of various media market and personal characteristics and point out some cross-country differences is the way attitudes to inequality are formed.

Keywords: mass media, attitudes to inequality

JEL Classification: L82, D63, D31, D72, D83

Introduction

News, political and entertainment programs provide information and influence individuals' values and behavior. Through these channels, mass media affect public opinion on key political issues. Characteristics of the media market, such as concentration, ownership and pluralism, contribute to the possibility of information manipulation by interested parties.

In this paper, we consider media influence on individual attitudes to (in)equality. We first propose a theoretical model, which is meant to formalize our vision on how preferences towards inequality are being formed, with information transmitted through mass media playing the key role. Empirical estimates are then performed 1) to understand which is the potential of various mass media to influence attitudes to inequality; and 2) to figure out which personal/media market and country characteristics may amplify/reduce the impact of mass media on attitudes to inequality. In that, we rely on the European Social Survey data (2010). The key explanatory variables are the time people spend watching TV, listening to the radio, reading newspapers and using internet, in a set of 27 countries the majority being EU Member States. In addition, we take into account a wide range of country, media market and personal characteristics which are meant to form people's attitudes to inequality.

We hypothesize that mass media could affect the value people attach to equality, and in particular equality of opportunity, which then translates in their attitudes to redistribution of incomes. The process is modeled by using the bivariate ordered probit technique and the conditional mixed process estimator. The dose-response function is also used to emphasize the non-linear relation between exposure to mass media and attitudes to inequality.

In what follows, we first provide a brief survey of existing studies that address such issues as redistribution and the power of media to influence political outcomes. Section two puts forward a theoretical model in which rich individuals have an incentive to manipulate mass media in order to influence individuals' values and thus their preferences for redistribution. Section three is devoted to empirical analysis, it first describes the data and methodology used and then presents the main findings. Some concluding remarks follow.

1. Literature review

Our study was inspired by Petrova (2008), who was among the first to reconstruct the link between media capture and inequality. She puts forward a theoretical model, further proved by empirical estimates, showing that higher inequality is associated with lower media freedom, at country level.[3] The novelty of our study is to get down to the individual level in order to identify how exposure to different types of media may affect attitudes towards inequality.

The paper thus builds on two strands of literature: the literature on the politics of income redistribution and the literature on media bias.

1.1. The politics of income redistribution

Preferences for redistribution policies are influenced by self-interest, as emphasized by the political economy literature originated from the seminal paper by Meltzer and Richards (1981). Under majority voting, the outcome is the policy preferred by the median voter.[4] Accordingly, the greater the distance between median and mean income, the more redistributive should be the policy implemented. The prediction is therefore a positive association between inequality and redistribution. Cross-country data, however, do not seem to support such prediction.[5] A variety of reasons has been offered to explain the so-called "limited redistribution puzzle". [6] These include the "prospect of upward mobility", according to which voters whose income is below the mean hope that they or their children will someday be richer than the average and thus be hurt by redistribution; the evidence on poor individuals voting turn-out, which is proportionally lower than rich individuals'; lobbying and other asymmetries in political influence. Another explanation for the limited redistribution puzzle, complementary to the ones mentioned above, is that an important role is played by social beliefs, culture and values, which "bias" preferences purely based on

[3] Bandyopadhyay (2014) performs similar analysis for a wider set of countries and provides further evidence on associations of ICTs and mass media with inequality and poverty.

[4] A serious drawback of the median voter approach is that the equilibrium is guaranteed under the assumption of single-peaked preferences in a one-dimensional issue space. If preferences are not single-peaked or if the issue space is multidimensional, the median voter theorem cannot be applied. Thus, in multidimensional settings policy outcomes might strongly differ from those predicted by the majority voting approach.

[5] Perotti (1996), Rodriguez (1998), see also studies reviewed in Benabou (1996), Clark and D'Ambrosio (2015). Olivera (2015) nevertheless finds that changes in income inequality positively affect changes in preferences for redistribution in a set of 34 European countries.

[6] See Harms and Zink (2003) as well as Alesina and Giuliano (2010).

the economic motive (see Tabellini, 2007; Benabou and Tirole, 2006). If an individual value system is supportive of equality (of opportunities) then he would be more in favour of redistribution than an individual with the same income but a value-system less pro-equal. Alesina and Glaeser (2004) compare value-systems in the EU and the US at the macro level and, supported by empirical evidence, argue that the US see laziness as the main cause of poverty/low income while Europeans believe poor individuals to be unlucky. Accordingly, US citizens are, *ceteris paribus*, less supportive of redistribution policies than EU citizens.

Along the same lines, Alesina et al. (2012) suggest that different beliefs about fairness and redistribution are able to keep otherwise identical countries on different development paths for a long time. The comparison between the East and West Germany, in particular, results in an estimate of one to two generations needed for the attitudes towards redistribution to converge in the two parts of the country (Alesina and Fuchs-Schundeln 2007).

Cornero and Gruner (2002) investigate the relationship between income and individuals' preferences for redistribution using survey micro-data. They focus on the role of income and values in shaping individuals' preferences for redistribution and conclude that the economic motive is not the only determinant of preferences for redistribution policy and that the individual's value system and in particular his attitude towards equality of opportunity are also relevant in shaping preferences for redistribution. "An individual who thinks that family background is the major determinant of individual's income is expected to favour redistribution. On the other hand, an individual who believes that individual effort is important for economic success is expected to oppose redistribution."

Here we focus on the role of mass media in shaping individuals' attitude towards equality of opportunity (EO) and equality of incomes (EI). EO requires eliminating the effect of circumstances (i.e. those aspects that are beyond one's control) on outcomes while allowing for differences in outcomes due to effort (which is assumed to be a choice variable for the individual).[7]

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[7] The idea is that an individual is held responsible for effort and choice but should be compensated for the effects of birth, luck etc. For example, the outcome might be the adult wage, circumstances could include several aspects of childhood and family environment, and effort could be years of schooling. EO allows differences in wage due to own education, but not to parents' education (see Roemer 1998, as well as Roemer and Trannoy 2015).

1.2. Media influence

In recent years, the economic and social impact of exposure to the media have been widely analysed.[8] The political economy literature has stressed that if voters' preferences are influenced by media, then government, companies and interest groups have an incentive to manipulate the media and induce them to report biased information.[9]

Media outlets might report biased information because of the ideological position of the owners (Baron, 2006) or because of a sort of confirmation bias by consumers who like to hear news that confirm their prior beliefs (Mullainathan and Shleifer, 2005). Gentzkow and Shapiro (2010) try to estimate what determines the ideological position of US newspapers and conclude that the bias mainly depends on the ideological leanings of the audience. Another reason why media might report biased information is due to media capture. In Besley and Prat (2006) *n* media outlets report news relevant to voters. The incumbent politician might offer each media outlet a monetary contribution to suppress relevant information. An outlet's objective is to maximize the sum of audience related revenues, which depend on the quality of information, and bribes from politicians. They show that pluralism makes media capture harder.

The characteristics of the media market, such as ownership and concentration, appear to be very important in the extent of media bias and media capture. Djankov et al. (2003) ponder on the role of media ownership, and sustain that higher government shares have been associated with less free press, fewer political rights for citizens, inferior governance, less developed capital markets, and inferior health outcomes. In Corneo (2006) a monopolist media outlet can collude with various interest groups. He shows that media capture is more likely if ownership concentration is high.

Noam (2013) provides the most recent estimates of media concentration worldwide and puts forward alternative measures of media power, which are subject to debates in the literature. Prat (2014) provides a survey of existing measures, attained mainly by aggregating market shares across platforms, and offers yet another possibility. The new measure performs cross-platform aggregation at the level of individual voters based on their attention shares. While it is out of the scope of the paper to judge the appropriateness of

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[8] See Della Vigna and La Ferrara (2015) for a survey.
[9] See Prat and Stromberg (2011) and literature therein cited.

different measures of media power, the shift towards individual gives more cogency to our study.

In the following section, we present a model in which individuals' preferences for redistribution depend on income and values. Values, in turn, are influenced by, possibly biased, media.

2. Theoretical model

2.1. The basic set up

Consider an economy with a continuum of citizens of measure one. Income is distributed in $[0, \overline{y}]$ according to a distribution function with mean y and such that median income is lower than the mean: $y^i \sim F(\cdot)$, $E(y^i) = y$, $F(y^m) = \frac{1}{2}$, and $y^m < y$. We also assume that the richest individual has income more than twice the average: i.e. $\overline{y} > 2y$.

Individuals' utility function is assumed to be linear in private consumption c^i and concave in the public good g with $H(0)=0$: [10]

$$u^i = c^i + H(g)$$

The public good is financed by a proportional income tax τ and the government's budget is balanced, i.e. $\tau y = g$.

There is only one period, so individuals consume all of their net income, i.e. $c^i = (1-\tau)y^i$.

Income-based preferences for the public good are obtained by maximising the indirect utility function, which, using the government budget constraint, we write as a function of the income tax:

$$W^i(\tau) = \hat{c}^i + H(g) = (1-\tau)y^i + H(\tau y)$$

Therefore, the income tax rate preferred by an individual with income y^i is [11]

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[10] Quasi-linear preferences imply that consumption absorbs all income effects.

[11] Alternatively, one could write the indirect utility function as a function of the public good:
$W^i(g) = \hat{c}^i + H(g) = (1-\tau)y^i + H(g) = (y-g)\frac{y^i}{y} + H(g)$. It follows that the level of the public good

preferred by an individual with income y^i is $g(y^i) = \arg\max W^i(g) = H_g^{-1}\left(\frac{y^i}{y}\right) \equiv G\left(\frac{y^i}{y}\right)$.

$$\tau^*\left(y^i\right) = \arg\max W^i(\tau) = \frac{1}{y}H_\tau^{-1}\left(\frac{y^i}{y}\right)$$

In what follows, we assume that τ can take only two values: $\tau \in \{0,1\}$ and that individuals with average income are indifferent between the two:

Assumption 1: *If $y^i = y$ then $W^i(\tau = 0) = W^i(\tau = 1) \leftrightarrow y = H(y)$.*[12]

It follows that poor individuals – i.e. individuals with income below average – prefer $\tau = 1$ while rich individuals – i.e. individuals with income above average – prefer $\tau = 0$:[13]

$$W^i(\tau = 0) = y^i > W^i(\tau = 1) = H(y) \quad if \ \ y^i > y$$
$$W^i(\tau = 0) = y^i < W^i(\tau = 1) = H(y) \quad if \ \ y^i < y$$

Thus, we have the following

Result 1: If the tax rate is decided by majority voting, then $\tau = 1$.[14]

Result follows from having assumed $y^m < y$

2.2. The role of Individual values

Let us now consider a "value bias" in individuals' income-based preferences. Values are ideological opinions about an issue, in our case equality of opportunity, which "bias" individuals' economic preferences. Thus, an individual with income y^i might prefer a tax rate higher (lower) than $\tau^*\left(y^i\right)$ if he has a pro-equal (anti-equal) attitude.

Let $x^i = \dfrac{y^i}{V^i}$ be the "value-adjusted income". The income tax rate preferred by an individual with income y^i and values V^i is $\tau^{**}\left(y^i, V^i\right) = \tau^*\left(\dfrac{y^i}{V^i}\right) = \tau^*\left(x^i\right)$.

Note that if $V^i = 1$ income is the only determinant of preferences for redistribution, as in the standard MR framework. On the other hand, if $V^i < 1$ ($V^i > 1$) the individual prefers a tax rate lower (higher) than the value implied by his income-based preferences. [15]

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[12] Recall that *H(0)=0.*

[13] Alternatively, we could have assumed τ to take values in the closed interval [0,1] and consider two groups of individuals – low and high income- with extreme preferences, so that low (and median) income individuals would prefer $\tau = 1$ while high-income individuals would prefer $\tau = 0$, that is:

$$\frac{\partial W^L}{\partial \tau}(\tau = 1) = -y^L + yH'(y) > 0 \text{ and } \frac{\partial W^H}{\partial \tau}(\tau = 0) = -y^H + yH'(0) < 0$$

[14] This is the standard results as in Meltzer and Richards (1981).

[15] Formally, this is equivalent to assuming uncertainty about the benefit from the public good or about the cost of a public project (as in Petrova, 2008). If $V^i > 1$ ($V^i < 1$) then the perceived benefit from the public good is higher (lower) than the true value.

Result 2: If the tax rate is decided by majority voting, the winning policy is the tax rate preferred by the individual with median value-adjusted income.[16]

As documented in our empirical analysis below, individual's opinions depend on socio-demographic and economic characteristics - such as age, gender, religion, culture, etc.- and on media influence.

Let Ω_i indicate the component of the "value bias" due to the individual's characteristics, which we assume to be independent of income and symmetrically distributed in $(1-\Omega, 1+\Omega)$ with $\Omega < 1$ and let I_i be a measure of media influence. Following our previous discussion, we can write individual i's "value bias" as $V^i = V(\Omega_i, I_i)$.

Assumption 2: *under media neutrality (i.e. $I_i = 1$), the individual with median value-adjusted income prefers $\tau = 1$.*

The above assumption ensures that individuals' characteristics do not bias values "too much" so that, absent media influence, "redistribution" would be again the winning policy under majority voting.

To simplify the analysis and since our purpose in this paper is to investigate media influence on individuals' values, in the model we do not consider the effect of individuals' heterogeneity on values.[17] Thus, we posit the following

Assumption 3: *absent media influence, income would be the only determinant of preferences for redistribution.* Formally: $V^i = I_i$

2.3. Media demand and media influence

We consider two media. All individuals have free access to the first media (M1). Access to the second media (M2) is costly, so only a fraction of the population consumes M2. Media report "opinions", which can be pro-equal or anti-equal. M2, the costly media, is pluralist i.e. it reports all opinions.[18] The free media (M1) can be bribed to omit some

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[16] Note that we are ranking individuals according to x^i therefore the winning policy is the policy preferred by the individual with median value of the parameter (see discussion of single-crossing property in Persson and Tabellini, 2000). The median could be a poor or a pro-equal rich. To find the median value of x^i, one would have to consider the properties of the joint distribution $\Phi(y^i, V^i)$, but this is outside the scope of the present paper.

[17] Alternatively, we should have considered the effect of media influence on income adjusted for personal characteristics, i.e. $y'_i = \dfrac{y_i}{\Omega_i}$, knowing that, by assumption, the individual with median y'_i prefers $\tau = 1$.

[18] M1 can be thought of as free television while M2 as Internet, where an infinite variety of opinions is (potentially) available.

opinions. Of course, if the cost of accessing M2 is zero, so that the entire population has access to pluralist information, then there is no incentive to bribe M1.[19] In this case, individuals' opinions would not be influenced by media and, absent any effect of individuals' characteristics on values, preferences for redistribution would only be determined by income (see assumption 3). Thus, a necessary condition for media influence is that access cost to pluralist information is sufficiently high. In this case, there is an incentive to bribe M1 so as to influence voters' opinions and preferences.

As discussed and documented by the relevant literature, individuals hold beliefs that they like to be confirmed and therefore tend to consume media with ideological position similar to their own, which reinforce their ex-ante opinions.[20]

To formalise individual's demand of media consumption, let Ω_M be the average opinion reported by media M, which we interpret as the media's (ideological/editorial) "position" on $[1-\Omega, 1+\Omega]$. A pluralist media is by definition unbiased, that is: $\Omega_M = E(\Omega_i) = 1$ and we define media M's bias as $|\Omega_M - E(\Omega_i)| = |1 - \Omega_M|$

In line with our previous discussion, we posit the following:[21]

Assumption 4: *Individual i "consumes" media M if its "position" is sufficiently close to his opinion.*[22] *Formally:* $w_i^M = \begin{cases} 1 & if |\Omega_i - \Omega_M| < \Omega \\ 0 & if |\Omega_i - \Omega_M| > \Omega \end{cases}$

Note that we are assuming that if $\Omega_M = E(\Omega_i) = 1$ then $w_i^M = 1 \; \forall i$.[23]

We are now in a position to define media M's audience loss as depending on its bias:

$$L(|1 - \Omega_M|) = a[1 - au(\Omega_M)]$$

where *a* is advertising revenue per media-consumer and $0 \le au(\Omega_M) \le 1$ is audience share when the media position is Ω_M.

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[19] Internet is recognized as an important tool for increasing transparency, access to information and facilitate the active participation of citizens. For this reason, the Directive 2002/22/EC on universal service and users' rights recognises individuals' access as a right. In several countries, the right to access the Internet is guaranteed by specific laws as a citizen's right (as in Estonia and France) or as Universal Service Obligation (as in Spain and Finland). For a review of national legislations, see OSCE (2010)

[20] Mullainathan and Shleifer, 2005; Gentzkow and Shapiro (2006); Chan and Suen (2008); Iyengar and Hahn (2009).

[21] Note that we are assuming that individual's characteristics do not influence his values directly but indirectly through his decision on whether to consume media M.

[22] $w_i^M = 1$ ($w_i^M = 0$) means that individual *i* consumes (does not consume) media M.

[23] That is, all individuals consume a pluralist media.

Note that, since income and opinions are independently distributed, audience share is the same for each income level.

Assumption 5: Audience loss is zero in case of a pluralist media and it is an increasing and concave function of the bias $|1-\Omega_M|$, that is $L(0)=0, \ L'(|1-\Omega_M|)>0 \ and \ L''(|1-\Omega_M|)<0$ [24]

To define media influence on individual i, let $a_i=\{0,1\}$ indicate whether the individual has access to M2 ($a_i=1$) or not ($a_i=0$) and let $b=\{0,1\}$ indicate whether M1 is biased ($b=1$) or not ($b=0$). Recalling that w_i indicates whether the individual consumes M1, we can summarise media influence on values in the following way:

$$V^i = I(a_i, b, w_i) = \begin{cases} 1 & if \ a_i=1 \ or \ bw_i=0 \\ \Omega_M & if \ a_i=0 \ and \ bw_i=1 \end{cases}$$

That is, if i has access to M2, media do not influence his opinion and absent any effect of individuals' characteristics, income is the only determinant of preferences for redistribution. On the other hand if i does not have access to M2 and he consumes M1 his opinion is aligned with M1's position. [25]

Assumption 6 : *Access cost to M2 is sufficiently high so that the individual with median income does not have access, i.e. $a_m=0$*

Lemma 1 *If $a_m=0, \ bw_m=1$ and $\Omega_M \leq \dfrac{y^m}{\bar{y}}$ then the median, even though his income is below the mean, prefers $\tau=0$.*

Proof. If $a_m=0, \ bw_m=1$ the median does not have access to M2 and it consumes M1, which is biased. Therefore, $V^m = \Omega_M$.

To be effective in changing the electoral outcome, media bias must be such that at least half of the population prefers $\tau=0$. This share is composed of rich individuals (no matter whether they consume M1 or not) and poor M1 consumers who, due to media influence, have a value-adjusted income higher or equal to average income. Formally, media bias (Ω_M) must be such that

$$[1-F(\bar{y})] + au(\Omega_M)\left[F(\bar{y})-F\left(\frac{y_m}{\Omega_M}\right)\right] \geq \frac{1}{2}$$

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[24] The maximum loss is equal to the average advertising revenue (a) and it is sustained when $|1-\Omega_M|=\Omega$ which implies $au(\Omega_M)=0$.

[25] For simplicity, we are assuming that media influence is either zero or the same for all individuals. In the empirical model, we consider the time individuals spend on each media, thus allowing for asymmetric influence.

If $\Omega_M \le \dfrac{y^m}{y}$ then the median values-adjusted income is greater or equal to average income ($x^m = \dfrac{y^m}{\Omega_M} \ge y$). It follows that the median's preferred tax rate is $\tau = 0$.

Note that M1's position must be sufficiently close to the median's opinion, so that he consumes M1, but also such as to induce enough "distortion" in his values to change his preferences.

Lemma 1 suggests that high-income individuals have an incentive to bribe the media outlet in order for it to partially report opinions and induce the median-income individual to prefer $\tau = 0$. To evaluate how much they are prepared to pay, let's compute the gain they would receive moving from $\tau = 1$ to $\tau = 0$:

$$W^i(0) - W^i(1) = [y^i + H(0)] - [0 + H(y)] = y^i - H(y) = y^i - y.$$ Collectively, they are ready to pay $\int_y^{\bar{y}} [y^i - y] dF$.

Similarly, low-income individuals have an incentive to bribe the media outlet in order for it to be pluralist, or at least not "too biased". Collectively, they are ready to pay $\int_0^y [y - y^i] dF$. Thus, in our framework there are two potential lobbies: the rich pushing for $\Omega_M \le \dfrac{y^m}{y}$ and the poor for $\Omega_M > \dfrac{y^m}{y}$.

2.4. Media bias

To describe media bias, we rely on Bernheim and Winston (1986) common agency approach in which several bidders (principals) first announce a "menu" of offers for various actions that an "auctioneer" (agent) can implement and then pay the relevant bid. Knowing the contribution functions offered by the principals, the agent chooses an action to maximise his objective function, which include the contributions paid by the principals. These monetary contributions can be interpreted as "bribes" offered by interested parties in the attempt to influence the agents' decision.

Applied to our framework, individuals are the principals and M1 is the agent. Each principal would like the media outlet to report opinions such that the tax rate preferred by the median voter would be the same as its own. For this reason, it offers monetary

contribution to M1.[26] We assume that M1's objective is to maximise the sum of audience-related revenues and bribes.[27] Thus, we posit:

$$\pi(\Omega_M) = \int C_i(\Omega_M)dF - L(|1 - \Omega_M|)$$

The timing of the game is as follows:

1. Individuals offer a bribe to M1, conditional on its choice of Ω_M

2. Knowing the contribution functions, M1 decides what opinions to report, i.e. it chooses Ω_M

The (subgame perfect Nash) equilibrium is found by backward induction.[28]

As suggested by BW (1986), we restrict attention to *truthful contribution functions* in which bribes offered reflect individuals' true 'willingness to pay'. [29]

Result 3: *If all interested individuals offer truthful contributions then information is neutral.*

Proof: Note that since $\int_y^{\bar{y}}[y^i - y]dF = \int_0^y[y - y^i]dF$, if all individuals offer truthful contribution functions, rich and poor would collectively offer the same amount. Therefore, given that the media outlet bears a loss in audience if $\Omega_M \neq 1$, it will choose to be pluralist and report all opinions.[30]

However, lobbying is a costly activity. [31] Lobbying costs may be so high that only rich individuals can afford to organise a lobby.[32] Moreover, the effectiveness of the bribing

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[26] These can be thought as bribes or as individuals buying a page on a newspaper or a slot on a commercial TV to express their opinion.

[27] We are assuming free media, i.e. p=0 and only fixed cost of production, here normalised to zero.

[28] See BW for necessary and sufficient conditions that characterise the subgame perfect Nash equilibrium.

[29] BW showed that, since the best-response correspondence always contains a truthful strategy, players incur no cost by following these strategies. For this reason, they argue the set of truthful Nash equilibria is focal. Furthermore, Nash equilibria based on truthful strategies not only exist but always result in an efficient choice of action. For situations in which non-binding communication is possible, these equilibria have a strong stability property, namely they are coalition-proof Nash. In other words, truthful Nash equilibria are stable even if coalitions of players can communicate to devise a mutually preferable strategy.

[30] This would also be true if there were no audience loss. In this case, pressure from the two lobbies would balance and the media would get all the surplus (RVD)

[31] It costs time and money (see Grossman and Helpman, 2001 and also Mitra, 1999).

[32] If the individual's cost of lobby participation is $LC > y$ then only very rich individuals, i.e. those with $y_i > 2y$, are willing to pay a cost LC for a benefit $|y_i - y|$. Di Gioacchino et al (1999) consider a fix cost of lobbying and investigate the resulting equilibrium in a common agency approach with endogenous lobbying. Alternatively, as in Di Gioacchino and Profeta (2014), one could argue that richer individuals, who are "closer" to the media, have lower lobbying cost and will, *ceteris paribus*, more likely organize a lobby.

process might be higher for richer individuals if they are "closer" to the media outlet.[33] Therefore, we posit the following

Assumption 7: *Only (very) rich individuals, i.e. those with $y_i > 2y$, offer monetary contributions to influence M1.*

If only very rich individuals try to influence M1, then we can restrict attention to $\Omega_M < 1$. Moreover, since the minimum value of the bias such that the median would prefer $\tau = 0$ is $\Omega_M = 1 - \dfrac{y^m}{y}$, we need only consider $\overline{L} = L\left(1 - \dfrac{y^m}{y}\right)$.[34]

We are now in a position to prove our main result:

Proposition 1: Under assumptions 1 to 7 and if $\int_{2y}^{\overline{y}} [y^i - y]dF > \overline{L}$ then M1 will be bribed and will choose its "ideological position" to influence the median's preferences and induce him to prefer $\tau = 0$ [35]

Proof:

If the lobby offers truthful contribution functions, the media outlet profit when $\Omega_M = \dfrac{y^m}{y}$ is

$$\pi\left(\Omega_M = \frac{y^m}{y}\right) = \int_{2y}^{\overline{y}} [y^i - y]dF - L$$

which is greater than zero, which is the (maximum) profit it can get by not accepting the bribe. It follows that the rich lobby offer the bribe and M1 will choose $\Omega_M = \dfrac{y^m}{y}$. By Lemma 1 this will induce the median to prefer $\tau = 0$.

Proposition 1 suggests that the likelihood of M1 having an anti-equal bias is the result of two conflicting forces related to the income distribution. On the one hand the higher is the distance between median and mean income, the higher has to be the bias to induce $\tau = 0$ (inequality reduces the likelihood of information bias). On the other hand, the higher is the distance between the richest and the median and the higher is the share of income of very rich individuals, the lower need to be the bias to induce $\tau = 0$ (inequality increases the likelihood of information bias).

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[33] BW (1986) consider the case in which the agent maximises a weighted sum of contributions offered. Applied to our framework, this would imply that the weight increases with income (maybe because the rich are "closer" to M1).

[34] Note that L is increasing with income inequality as measured by the distance between mean and median income.

[35] Note that while the exact amount of the bribe paid depends crucially on the timing of the bribing process and on having assumed truthful contributions, the main result in proposition 1 is more general. For example, it could easily be shown that if the lobby and the media outlet were engaged in a (Nash) bargaining process, the amount paid as bribe would depend on their relative bargaining power.

Following Besley and Prat (2006), two natural extensions, which we do not formalise, would be to consider transaction costs in the bribing process (*t*) [36] and *n* (identical) agents (M1 outlets). In this case, for information to be biased, all agents would have to be bribed and the condition in proposition 1 would become $\dfrac{\int_{\underline{y}}^{\overline{y}}\left[y^i - y\right]dF}{nt} > \overline{L}$

Proposition 1 has a number of testable implications, which we will consider in section 3. In particular, media influence increases with inequality, private ownership of media (low transaction costs), media concentration, internet access costs.

3. Empirical analysis

3.1. Data

The empirical part of the paper is based on the European Social Survey, round 5, year 2010.[37] The survey is implemented on a biannual basis and information is available for 27 countries, most of them make part of the EU.[38] Table A.1 in the Appendix provides the definition of the variables used. The dependent variable, which we call *inequality aversion*, has been coded in such a way that the higher values are associated to more pro-equal behavior. We first look at the attitudes to the *equality of opportunity (EO)* which is assumed to be echoed in people's attitudes to the *equality of incomes (EI)*. [39]

Among the explanatory variables we include the time people spend watching TV, listening to the radio and reading newspapers.[40] All of them are originally categorical variables coded in 7 options, starting from 'no time at all' up to 'more than 3 hours' with an

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[36] A transfer *T* by the lobby, would yield *T/t* to the media outlet. In practice *t* might depend on media ownership. So for example, if media is owned by a rich then t would be low because the owner is "closer" to the lobby.

[37] Source: http://www.europeansocialsurvey.org

2010 is the latest year when information was collected on the four principle means of media: TV, radio, newspapers and internet. Starting from 2012 the survey included information only on TV watching.

[38] The countries considered include: Belgium, Bulgaria, Switzerland, Cyprus, the Czech Republic, Germany, Denmark, Estonia, Spain, Finland, France, the United Kingdom, Greece, Croatia, Hungary, Ireland, Israel, Lithuania, the Netherlands, Norway, Poland, Portugal, Russia, Sweden, Slovenia, Slovakia and Ukraine.

[39] The two questions read, respectively: 1) 'She/he thinks it is important that every person in the world should be treated equally. She/he believes everyone should have equal opportunities in life' [EO]; 2) 'Government should reduce differences in income levels' [EI].

[40] Most of available studies concentrate on news media, which is supposed to produce the major effect on voting behavior. For the purpose of this study we take into account the exposure to all kinds of information, since we believe that entertainment programs and advertisement, as well as social media can all produce side effects on pro-equal behavior, in line with DellaVigna and La Ferrara (2015).

interval of 30 minutes. For Internet use the answers are less precise, ranging from 'no access at home or work' up to 'every day' (see Table A.1).[41] We use dummies for each of the possible options taking the lowest as baseline. The categories containing few observations have been merged, like in the case of printed media at high levels of consumption (see Fig. A.3). We also distinguish between the time people spend watching TV, listening to the radio and reading newspapers in general and the time spent on political TV and radio programs or reading political news by reporting two sets of estimates. This distinction is not possible for web content.

Note, the continuous transformation[42] of time variables has been used when constructing the dose-response function for which the continuous treatment is only allowed.

In order to catch up country-specific effects, we use income Gini coefficient, the GDP per capita (in logarithmic form) and social protection expenditure in percentage of GDP[43]. In addition we include a range of media market characteristics expressed by the risks to media pluralism corresponding to Basic protection, Market plurality, Political independence and Social inclusiveness domains[44] (for more details see Table A.1).

The personal characteristics considered include education, age, gender, family income, employment status (self-employed, employed with a state enterprise), positioning within the left-right political spectrum, citizenship, and religiosity.

Before getting down to the methodology and findings, we provide a descriptive analysis of the key variables. This allows to identify some cross-country differences which should be bared in mind when interpreting the results.

Country contexts

As can be seen from Figure A.1.i in the Appendix, more than 60% of the Europeans watch TV for at least 1.5 hours per day, the percentage being particularly high in Bulgaria, Cyprus, the Czech Republic and Greece (around 80%), but also in the United Kingdom,

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[41] Measuring the use of internet is more complicated due to an evolving nature of Internet (see e.g. Lehr 2012, OECD 2012). The navigation time measure is bound to criticism, since the outcome depends on the speed of connection, the skills to orient in the bulk of information available etc.

[42] For that purpose we used the random uniform sampling along the respective range of time 0-30', 30'-60', 60'-90', 90'-120', 120-150', 150'-180, 180'-210'.

[43] OECD, Eurostat (BG, CY, LT, HR), World Bank (RU), ILO (UA).

[44] In that we rely on the methodology proposed in the Media Pluralism Monitor report (2015).

Russia, and Slovakia (more than 70%). The age differences in terms of the time spent watching TV are minor (see Figures A.1.ii and A.1.iii), they rather manifest in the type of programs followed on TV. [45]

Countries with far reaching radio broadcasting include Ireland and Slovakia, where about 50% of the population spend more than 1.5 hours per day listening to the radio (Figure A.2). High exposure is also achieved in Belgium, the Czech Republic, Estonia, the Netherlands, Poland, and Slovenia.

Newspapers are losing audience (Figure A.3). The absolute majority of Europeans (around 90%) spend less than 1 hour per day reading newspapers, and about one third have no time at all for that. Ireland and Norway are the two countries where the tradition of reading newspapers is still alive, with about 10% of the population doing that for more than 1.5 hours per day.[46]

The audience is shifting towards internet (Figure A.4). More than 60% of the young population (under 35) and about 40% of those aged 35-60 use internet on an every-day basis.[47] Bulgaria, Cyprus, Greece, Portugal, but also Russia and Ukraine, are lagging behind with on average one third of the population using internet every day.

The characteristics of media markets have been assembled in Table A.3 of the Appendix.[48] The share of private-owned TV-stations (out of the top five) ranges from as low as 4% in Russia to 92% in Greece. Printed media instead is more open to private owners with the shares of the private-owned newspapers (out of the top-five) ranging from 33 in Croatia up to 100% in 19 out of the 26 countries for which the data is available. The media freedom is the highest in Scandinavian countries, and the lowest in Eastern Europe. Broadband price/coverage are used as a proxy for the ease to access internet. In 2010 the lowest coverage rates were observed in Ukraine (around 6%) and Russia (a bit more than 10%), and the highest in the Netherlands and Denmark (38%). Given a lot of heterogeneity

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[45] Another issue that has been raised in the literature is that younger generations often lack critical skills to assess the information received (e.g. limiting to viewing rather than reading). Thus exposure to the same media content might not produce the expected outcome (forming opinion on certain issues) for different age groups.

[46] In addition, a non-negligible percentage of population continues spending more than 3 hours per day reading newspapers in the UK.

[47] The percentages are particularly high in Scandinavian countries (DK, NO, SE), reaching an almost 90% for those under 35 and 75% for those aged 35-60.

[48] The risks to media pluralism have been estimated for a set of 19 countries.

in media market characteristics, the potential of mass media to influence public opinion is also very different across countries.

As for the observed levels of inequality aversion, Figure A.5 suggests that more than 90% of the representative population in Cyprus, Spain and Slovenia think that every person should be treated equally and have equal opportunities in life, versus less than 60% agreeing on that in Ukraine, Portugal and Lithuania[49]. For the remaining countries the percentage ranges between the two benchmarks. France, Greece and Spain nevertheless show up as being more pro-equal with every second respondent being 'very much' in favour of equality of opportunity. Countries with the highest share of people opposing equality of opportunity include Ukraine, Lithuania and Estonia[50], ironically the three post-communist economies. When it comes to income inequality, several countries swap the positioning in the graph (from panel A to panel B). Portugal, Ukraine and Lithuania, the three countries least favoring equality of opportunity are apparently the most supportive to the redistribution of incomes. And the opposite way around, the Netherlands where the idea of equality of opportunity finds support among people, is among the three countries least favoring the redistribution of incomes (alongside to Norway and Denmark), probably because it has been exercised on a large scale. Importantly, the two measures considered (attitudes to EO and EI) are not identical, and are not strongly correlated.[51] By bringing both in the picture we expect to shed more light on people attitudes to inequality.

Higher income inequality observed does not seem to generate strong moods in favour of equal opportunity for all (Figure A.6, panel A), whereas the association is stronger between income inequality and support for the redistribution of incomes (as in panel B). Figure A.7 is completing the picture by providing two sets of graphs. In panel A we plot the data on the use of mass media (averaged by country) against the mean measure of attitudes to EO, whereas in panel B it is combined with the mean measure of attitudes to EI. The graphs suggest that overall the type of association between exposure to mass media and attitudes to inequality is not clear-cut. Nevertheless, there are groups of countries where mass media produce similar effects which warrants further investigation.

In what follows we present our empirical strategy.

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[49] These percentages include 'like me' and 'very much like me' answers to the question if 'She/he thinks it is important that every person is treated equally'. For more details see Table A.1 in the Appendix.

[50] Judging by the percentage of answers 'Not like me' and 'Not like me at all'.

[51] The polychoric correlation coefficient stands at 0.17.

3.2. Methodology

3.2.1. In line with the theoretical model proposed, we first estimate a bivariate ordered probit model assuming a joint determination of the key variables of interest, attitudes to the equality of opportunity and to the equality of incomes. The two latent variables behind are respectively the perceived utility of the EO and that of the EI, with the two error terms correlated to each other:

$$y_1{}^*_i = x_{1i}\beta_1 + \varepsilon_{1i} \qquad \varepsilon_{1i} \,|\, x_{1i} \sim^{iid} N(0,1) \tag{1}$$
$$y_2{}^*_i = x_{2i}\beta_2 + \varepsilon_{2i} \qquad \varepsilon_{2i} \,|\, x_{2i} \sim^{iid} N(0,1)$$

The bivariate (two-equation) ordered probit assumes there is an ordered structure of the following type in both of the equations considered:[52]

$$y_i = \begin{cases} 1, \text{ if } y_i{}^* \leq \alpha_1 \\ 2, \text{ if } \alpha_1 < y_i{}^* \leq \alpha_2 \\ 3, \text{ if } \alpha_2 < y_i{}^* \leq \alpha_3 \\ 4, \text{ if } \alpha_3 < y_i{}^* \leq \alpha_4 \\ 5, \text{ if } \alpha_4 > y_i{}^* \end{cases} \tag{1}$$

where y_i is the dependent variable measuring the attitudes to inequality. In our case, the higher it is the more person *i* cares about equality of opportunity/equality of incomes (for more details on variables definition see Tab. A.1 in the Appendix); x_i is a vector of personal/country/media market characteristics, β is a vector of estimated coefficients. The negative estimated coefficients are interpreted as if the factor behind is reducing inequality aversion, and the other way around.

The results are compared with those obtained using a conditional mixed process estimator (CMP) (Roodman 2009). In the latter case we assume that the attitudes to the EO are being formed at first place and then entrenched in people's attitudes to EI. Attitudes to the EO are meant to be a proxy for the more general value system typical of a person.

3.2.2 At the last stage we tackle the time spent 'watching TV'/'listening to the radio'/'reading newspapers'/'navigating through internet' as a form of treatment (having in mind that mass media can be used to influence public opinion). The estimates of the average treatment effects require adjustment for differences in pre-treatment variables,

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[52] At the preliminary stage we also tested the impact of mass media on attitudes to the EO/EI by treating them independently.

and to this end we use the generalized propensity score (GPS).[53] GPS enters the equation used to construct the dose-response function which associates inequality aversion to a certain level of treatment T (Imbens 2000).[54] The dose-response function serves to understand how exposure to mass media translates in the changing attitudes to inequality, at each level of treatment. The graphical presentation allows identifying the type of relation between the two as well as the levels of treatment when the maximum effect is achieved.

3.3.　　Main findings

The ordered probit model have been initially applied to each single measure, attitudes to the EO and to the EI. The results reported in Table A.4 suggest that television might work both ways, but the effect turns significant only for political programs which seem to be increasing inequality aversion, in terms of both the EO and the EI. Printed media, radio and internet instead tend to reduce inequality aversion.[55]

As already emphasized, country contexts count a lot, and to shed more light on this we repeat the estimates by groups of countries divided on the basis of the observed income Gini coefficients and the GDP per capita (see Figure 1).

Figure 1. Clustering of countries alongside two dimensions: income Gini and GDP per capita
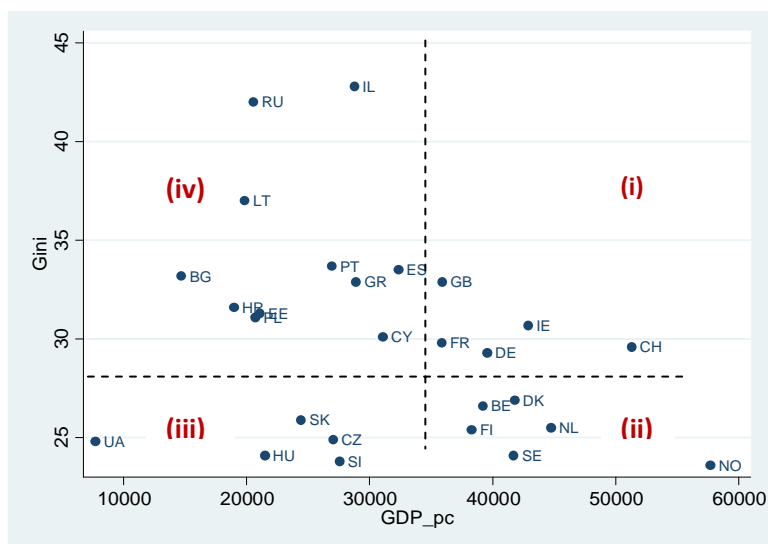
Source: Author's elaborations.

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[53] GPS has the meaning of conditional probability of receiving certain level of treatment given pre-treatment variables. Once we have the estimate of GPS, instead of having to adjust for all pre-treatment variables, it is sufficient to adjust for GPS.

[54] The regression model behind is the following: $Equal_i = T_i + T_i^2 + T_i^3 + GPS_i + GPS_i^2 + GPS_i^3 + T_i*GPS_i$. The estimates of this model do not have direct interpretation and thus are not reported in the paper.

[55] The estimated coefficients are indicative of the direction of change, but cannot be used to judge about the magnitude of the effects.

The first group of countries (GB, FR, DE, IE and CH) is characterized by relatively high Gini and GDP per capita; the second group (FI, SE, NO BE, DK and NL) - similar GDP per capita and lower Gini; the third group (CZ, SI, SK, UA, HU) - relatively low Gini and GDP per capita; and the fourth largest group (BG, CY, EE, ES GR, HR, LT, PL, PT, RU, IL) - high Gini coupled with low GDP per capita.

As can be seen from Table A.5 in the Appendix, mass media produce different impact across groups of countries. The pro-equal effect of TV watching is the highest in the low-income and low-inequality contexts (group III) for TV in general, which is though counterbalanced by the negative effect of radio therein. In rich countries with high income inequality (group I) the pro-equal effect of TV manifests through political programs only whereas other programs tend to reduce inequality aversion. Printed media there also works in the direction of reducing inequality aversion. Internet appears to be most influential with respect to group IV (low income and high inequality countries), where it tends to reduce inequality aversion. The prediction of theoretical model is largely confirmed in that mass media are most influential in countries with high income inequality (groups I and IV) , where it works in the direction of reducing inequality aversion. The estimates also suggest that women, older and religious people, tend to be more pro-equal. Higher educated people favour more equality of opportunity. At the same time they oppose the redistribution of incomes, which is also true for people coming from well-off families. People with right-wing political orientation are less pro-equal, both in terms of EO and EI. Self-employed workers feature as less pro-equal only in countries with low-incomes and low inequality, whereas workers employed by state enterprises are generally more supportive to redistribution. Finally, in countries with higher GDP per capita and income inequality, the idea of income redistribution and more opportunities for all finds less support, although groups III and IV (with relatively lower GDP per capita) do not always follow this pattern. This could mean that lower living standards generate solidarity between people. As long as the living conditions improve people care less about equality.

Attitudes to equality of opportunity and equality of incomes have been so far assessed by separate models. In line with the theoretical model proposed, the two can be related to each other. They can be either affected by the same factors (observed or unobserved) or one can predetermine the other. In order to allow for this possibility we modeled them jointly by means of the Bivariate Ordered Probit (BOP) and the Conditional Mixed Process

estimator (CMP). The results for all the countries are reported respectively in Tables 1 and 2. The estimates are broadly consistent with previous findings and suggest that TV, printed media and radio work against equality.[56] At the same time, more frequent use of internet is now appears to form favorable attitudes towards both the EO and the EI. This is consistent with predictions of the theoretical model which allows for pluralistic media to be less biased. The data does not allow to distinguish between different types of information consumed via internet (like political news versus social media), but there are reasons to believe that different points of view are easily accessible via internet once access is granted.

A range of media market characteristics have also been included. In that we rely on indicators proposed by the Media Pluralism Monitor.[57] In particular we use the measures, at country level, of risks to media pluralism due to the lack of basic protection (b), market plurality (o), political independence (p) and social inclusiveness (s). They range between 0 and 100% with the higher levels corresponding to the highest risks to media pluralism.

The last two columns in Tables 1 and 2 report the estimates including these indicators. As expected, lower market plurality (which can be due to higher concentration or lower transparency of media ownership) as well as lower social inclusiveness (due to differential access and availability of media platforms for different social groups, or limited media literacy) tend to generate moods against equality in a statistically significant way. At the same time higher risks to media pluralism due to the lack of basic protection (associated to limited freedom of expression, violations of right to information) or due to the lack of political independence (associated to political bias in the media, political control over media outlets, state advertising etc.) are supportive to more pro-equal behavior.

We also tested the impact of single characteristics of media market originating from different sources and referring to different years. The unreported estimates suggest that media freedom is supportive to pro-equal behavior, whereas the impact of private ownership is not straightforward. The effects of the higher speed of internet, as well as the higher broadband coverage are also not very stable, probably due to a lot of heterogeneity in this respect among the countries considered.

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[56] The positive effect found previously for group III disappears. This can be explained by the fact that it was the least numerous group, so when it gets merged with other countries the negative effect overtakes.
[57] Made available for 19 European countries in the latest MPM 2015 report.

Table 1. Bivariate ordered probit estimates

VARIABLES	Total EO	Total EI	Political EO	Political EI	Total EO	Total EI	Political EO	Political EI
tv1/pol	0.000		-0.017		0.103		0.033	
tv2/pol	0.014		-0.025		0.107*		0.071*	
tv3/pol	-0.012		-0.004		0.024		0.037	
tv4/pol	-0.011		0.012		0.017		-0.011	
tv5/pol	-0.054*		0.039		0.092		0.075	
tv6/pol	-0.035		-0.034		0.046		-0.024	
tv7/pol	-0.053*		0.023		0.080		0.099	
nwsp1/pol	0.003		0.004		-0.035		-0.019	
nwsp2/pol	-0.013		-0.014		-0.008		0.051	
nwsp3/pol	-0.025		-0.008		-0.021		-0.114*	
nwsp4/pol	0.005		0.046		0.003		0.042	
nwsp5_/pol	0.053		-0.044		-0.113		0.001	
rd1/pol	0.023		-0.000		-0.041		-0.042*	
rd2/pol	0.019		-0.026*		-0.023		-0.019	
rd3/pol	-0.004		-0.036		-0.114***		-0.069	
rd4/pol	0.011		-0.003		-0.064		-0.036	
rd5/pol	-0.062**		-0.002		-0.057		0.053	
rd6/pol	0.019		-0.004		-0.028		-0.185*	
rd7/pol	-0.010		0.052		-0.026		0.013	
net2	0.062		0.062		-0.018		-0.017	
net3	0.096**		0.099**		0.029		0.025	
net4	0.068**		0.073**		0.071		0.064	
net5	0.024		0.029		0.034		0.034	
net6	0.005		0.007		-0.017		-0.024	
net7	0.069***		0.074***		-0.015		-0.019	
eduyrs	0.010***		0.011***		-0.004		-0.004	
agea	-0.000		-0.000		0.002***		0.002**	
women	0.008		0.007		0.111***		0.113***	
sempl	0.049**		0.052***		-0.066*		-0.065*	
st_empl	-0.035***		-0.035***		0.038		0.037	
right	0.051***		0.053***		-0.272***		-0.274***	
foreigner	0.063***		0.064***		-0.015		-0.009	
religion	0.031***		0.035***		-0.069***		-0.069***	
lgdp_pc	0.330***		0.331***		0.348***		0.343***	
gini	-0.005***		-0.006***		0.036***		0.036***	
b					0.014***		0.014***	
o					-0.002***		-0.002***	
p					0.002		0.002	
s					-0.003***		-0.003***	
ipeqopt2		-0.617***		-0.617***		0.567***		0.571***
ipeqopt3		-1.142***		-1.140***		1.065***		1.063***
ipeqopt4		-1.854***		-1.848***		1.880***		1.875***
ipeqopt5		-2.736***		-2.728***		3.018***		3.010***
hinctnta		-0.025***		-0.026***		-0.052***		-0.052***
soc_exp		0.005***		0.005***		-0.015***		-0.016***
athrho		1.655***		1.635***		-1.013***		-1.005***
cut11		1.468***		1.475***		2.723***		2.646***
cut12		2.014***		2.020***		3.178***		3.101***
cut13		2.697***		2.703***		3.827***		3.750***
cut14		3.736***		3.742***		5.084***		5.007***
cut21		-2.571***		-2.589***		0.621***		0.604***
cut22		-2.322***		-2.337***		0.981***		0.965***
cut23		-1.779***		-1.789***		1.892***		1.879***
Observations	38,226	38,226	38,226	38,226	17,974	17,974	17,974	17,974

Note: *** p<0.01, ** p<0.05, * p<0.1

Source: Own calculations, based on ESS 2010.

Variables	Total		Political		Total		Political	
	EO	EI	EO	EI	EO	EI	EO	EI
tv1/pol	0.008		-0.019		0.038		0.028	
tv2/pol	0.022		-0.012		0.027		0.066*	
tv3/pol	-0.015		0.017		0.006		0.091*	
tv4/pol	-0.008		0.038		-0.041		-0.021	
tv5/pol	-0.056*		0.066		-0.018		0.180**	
tv6/pol	-0.031		-0.024		-0.085		0.049	
tv7/pol	-0.045		0.052		-0.028		0.017	
nwsp1/pol	-0.002		0.002		-0.032		-0.034	
nwsp2/pol	-0.014		-0.012		-0.013		0.046	
nwsp3/pol	-0.023		-0.028		-0.012		-0.089	
nwsp4/pol	0.005		0.053		0.021		0.078	
nwsp5_/pol	0.032		-0.087		-0.031		-0.162	
rd1/pol	0.014		-0.009		-0.046		-0.045*	
rd2/pol	0.000		-0.037**		-0.038		-0.024	
rd3/pol	-0.014		-0.036		-0.125***		-0.065	
rd4/pol	0.015		-0.010		-0.022		-0.060	
rd5/pol	-0.069**		0.012		-0.018		-0.015	
rd6/pol	0.006		0.028		-0.051		-0.104	
rd7/pol	-0.017		0.056		-0.016		0.013	
net2	0.047		0.043		0.018		0.022	
net3	0.119**		0.123**		0.227**		0.230**	
net4	0.061*		0.063*		0.171**		0.170**	
net5	0.034		0.039		0.101*		0.106*	
net6	0.002		0.002		0.013		0.012	
net7	0.067***		0.070***		0.054		0.056*	
eduyrs	0.013***		0.014***		0.013***		0.013***	
agea	0.000		-0.000		0.001*		0.001	
women	0.022*		0.024*		0.155***		0.157***	
sempl	0.054***		0.058***		0.008		0.014	
st_empl	-0.033**		-0.031**		0.018		0.018	
right	0.034**		0.033**		-0.212***		-0.212***	
foreigner	0.082***		0.085***		0.107**		0.107**	
religion	0.040***		0.045***		-0.030		-0.024	
lgdp_pc	0.380***		0.382***		0.519***		0.496***	
gini	-0.005***		-0.005***		0.042***		0.042***	
b					0.021***		0.021***	
o					-0.002***		-0.002***	
p					0.003*		0.003*	
s					-0.010***		-0.010***	
ipeqopt2		-0.422***		-0.412***		-0.048		-0.047
ipeqopt3		-0.894***		-0.877***		0.032		0.032
ipeqopt4		-1.555***		-1.531***		0.088*		0.089*
ipeqopt5		-2.372***		-2.336***		0.384***		0.385***
hinctnta		-0.033***		-0.034***		-0.073***		-0.073***
soc_exp		0.002		0.002		-0.029***		-0.029***
atanhrho_12		1.368***		1.329***		0.001		-0.001
cut_1_1		2.090***		2.117***		4.871***		4.670***
cut_1_2		2.609***		2.636***		5.344***		5.142***
cut_1_3		3.289***		3.317***		6.032***		5.831***
cut_1_4		4.334***		4.362***		7.264		7.063
cut_2_1		-2.460***		-2.476***		-2.142***		-2.142***
cut_2_2		-2.161***		-2.170***		-1.619***		-1.618***
cut_2_3		-1.523***		-1.518***		-0.532***		-0.531***
Observations	51,694	51,694	51,694	51,694	46,839	46,839	46,839	46,839

Note: *** p<0.01, ** p<0.05, * p<0.1

Source: Own calculations, based on ESS 2010.

Finally, the estimates of the dose-response function (Figure A.8 in the Appendix) outline the non-linear relationship between the time spent 'watching TV'/'listening to the radio'/'reading newspapers'/'navigating through the internet' and the attitudes to the EO. The average values of exposure to different mass media (reported in Table A.2 of the Appendix) are close to the local minimum in the case of TV and radio (when total time is considered). For newspapers and the internet, on the contrary, the majority of the population would be positioned closer to the local maximum of the dose-response function.

The difference between the two patterns reported in panel A and B, respectively for the total time and the time dedicated to political content, is catching the eye. The potential of politically oriented mass media in terms of enhancing inequality aversion is notably higher (with lower required dose) given that, on average, individuals would be positioned in the lower left side of the graph, as marked by the star symbol in Figure A.8. The dose-response function in panel B is increasing practically throughout the whole of the observed range of exposure, although the size of enhancing effect might vary as highlighted by the treatment-effect function.

Conclusions *(to be completed)*

References

Adena, M., Enikolopov, R., Petrova, M., Santarosa, V. and Zhuravskaya, E. (2014) Radio and the Rise of the Nazis in Prewar Germany, mimeo.

Alesina, A. and G.-M. Angeletos (2005) 'Fairness and redistribution', The American Economic Review 95: 960–980.

Alesina, A. and N. Fuchs-Schundeln (2007) 'Good-bye Lenin (or not)? The effect of communism on people's preferences', *American Economic Review* 97: 1507–1528.

Alesina, A. and Giuliano, P. (2010). 'Preferences for redistribution', in J. Benhabib and A. Bisin (eds), Handbook of Social Economics, Amsterdam: North Holland: pp. 93–131.

Alesina, A. and Glaeser, E. (2008) Fighting Poverty in the US and Europe: A World of Difference, Oxford.

Alesina,A., Cozzi, G. and Mantovan, N. (2012) 'The Evolution of Ideology, Fairness and Redistribution', The Economic Journal, 122(565): pp. 1244–1261.

Akerlof, G.A. and Kranton, R.E. (2000) 'Economics and identity', The Quarterly Journal of Economics, 115: 715–753.

Bandyopadhyay, S. (2014) 'Are Mass Media and ICTs associated with Inequality and Poverty?', forthcoming Research in Economic Inequality.

Baron, D.P. (2006) 'Persistent media bias', *Journal of Public Economics*, 90 (1): pp.1-36.

Bénabou, R. (1996) 'Inequality and Growth', in B. Bernanke and J. Rotemberg (eds) *NBER Macroeconomics Annual*, vol. 11: pp. 11-92.

Bowles, S. (2012) The New Economics of Inequality and Redistribution / S. Bowles in collaboration with Ch. Fong, H. Gintis, A. Jayadev, and U. Pagano.

Chong, A. and La Ferrara, E. (2009) 'Television and Divorce: Evidence from Brazilian Novelas, Journal of the European Economic Association 7, 2009: pp. 458—468.

Clark, A.E and D'Ambrosio, C. (2015) 'Attitudes to income inequality: experimental and survey evidence', in F. Bourguignon and A. Atkinson, Handbook of Income Distribution, 2A, Elsevier: pp. 1148-1208.

Colorito, E. and Fratini, D. (2011) 'Il pluralismo nel settore dei media: un confronto internazionale', in *Diritto ed economia dei mezzi di comunicazione: periodico quadrimestrale di attualità e notizie dal mondo della comunicazione*, no. 3: 9-34.

Corneo, G. and Gruner, H.P. (2002) Journal of Public Economics, 83(1): pp. 83-107.

Costa-Font, J. and Cowell, F. (2014) 'Social Identity and Redistributive Preferences: a Survey', *Journal of Economic Surveys, v*ol. 29, no. 2: pp. 357-374.

Della Vigna, S. and Kaplan, E. (2007) THE FOX NEWS EFFECT: MEDIA BIAS AND VOTING, *The Quarterly Journal of Economics*, August 2007: pp.1187-1234.

Della Vigna, S. and La Ferrara, E. (2015) 'Economic and Social Impacts of the Media', NBER Working Paper No. 21360.

Djankov, S., Mcluesh, C., Nenova, T. and Shleifer, A. (2003) 'Who owns the media?' Journal of Law and Economics, vol.XLVI: pp.341-381.

Drago F., Nannicini, T. and Sobbrio, F. (2013) 'Meet the Press: How Voters and Politicians Respond to Newspaper Entry and Exit', IZA DP no. 7169.

Enikolopov, R., Petrova, M. and Zhuravskaya, E. (2011) Media and Political Persuasion: Evidence from Russia, *American Economic Review*, vol. 101(7): 3253-85.

European Commission, EC (2012) *Media Use in the European Union*, report.

Fehr, E. and K. M. Schmidt (1999) "A theory of fairness, competition, and cooperation", *Quarterly Journal of Economics*, no. 114: pp. 817-868.

Flores, C.A., Flores-Lagunes A., Gonzalez A., Neumann T.C. (2012) Estimating the Effects of Length of Exposure to Instruction in a Training Program: The Case of Job Corps. The Review of Economics and Statistics February 2012, Vol. 94, No. 1: pp. 153-171.

Gerber, A.S., Karlan, D., and Bergan, D. (2009) 'Does the Media Matter? A Field Experiment Measuring the Effect of Newspapers on Voting Behavior and Political Opinions', American Economic Journal: Applied Economics, 1(2): pp. 35–52.

Golde, S.D. and Nie, N.H. (2010) The Effects of Online News on Political Behavior, mimeo.

Harms, P and Zink, S. (2003) 'Limits to redistribution in a democracy: a survey', *European Journal of Political Economy* 19: pp. 651-668.

Imbens, G. (2000) 'The role of propensity score in estimating dose-response functions', Biometrica 87(3): pp.706-710.

Iyengar, S. and Hahn, K.S. (2009) 'Red Media, Blue Media: Evidence of Ideological Selectivity in Media Use', Journal of Communication 59: pp. 19–39.

Jung, H. M. (2009) 'Information Manipulation Through the Media', Journal of Media Economics, 22: 188–210.

Kearns, A., Bailey, N., Gannon, M., Livingston, M., and Leyland, A. (2014). 'All in it Together'? Social Cohesion in a Divided Society: Attitudes to Income Inequality and Redistribution in a Residential Context', Journal of Social Policy, 43: pp. 453-477 [doi:10.1017/S0047279414000063].

Kuziemko, I, M. Norton, E. Saez, and Stantcheva, S.. (2015). "How Elastic are Preferences for Redistribution? Evidence from Randomized Survey Experiments" *American Economic Review* 105(4): pp. 1478–1508.

La Ferrara, E., Chong, A., and Duryea, S. (2012) 'Soap Operas and Fertility: Evidence from Brazil', American Economic Journal: Applied Economics, 4(4): pp. 1-31.

Lehr, W. (2012) 'Measuring the Internet: The Data Challenge', OECD Digital Economy Papers, No. 194, OECD Publishing. http://dx.doi.org/10.1787/5k9bhk5fzvzx-en

Luttmer, E.F.P. (2001) 'Group loyalty and the taste for redistribution', Journal of Political Economy 199: 500–528.

Meltzer, and Richards, (1981) A rational theory of the size of government, Journal of Political Economy 89(5): 914-927.

MPM (2015) Media Pluralism Monitor 2015: Brogi, E., Ginsborg, L., Ostling, A., Parcu, P.L., Simunjak, M. Monitoring Media Pluralism in Europe – Testing and Implementation of the Media Pluralism Monitor 2015 – Policy Report, Robert Schuman Centre for Advanced Studies, San Domenico di Fiesole (FI): European University Institute, 2016. Available at: http://monitor.cmpf.eui.eu/ [accessed on 01.04.2016]

Mullainathan, S. and Shleifer, A. (2005) 'The Market for News', The America Economic Review, 95(4): pp.1031-1053.

Noam, E.M. (2013) 'Who Owns the World's Media?' Columbia Business School Research Paper No. 13-22.

OECD (2012) 'The Impact of Internet in OECD Countries', OECD Digital Economy Papers, No. 200, OECD Publishing. http://dx.doi.org/10.1787/5k962hhgpb5d-en.

OECD(2009) The Evolution of News and the Internet, OECD Headquarters, Paris, 10-11 March 2010. DSTI/ICCP/IE(2009)14/REV1

Olivera, J. (2015) 'Preferences for redistribution in Europe', *IZA Journal of European Labor Studies*, 4(14): pp. 1-18.

Perotti, R. (1996) 'Growth, income distribution and democracy: what the data say', Journal of Economic Growth 1: pp. 149–187.

Petrova, M. (2008) 'Inequality and media capture', *Journal of Public Economics* 92: 183-212.

Piketty, T. (2014) Capital in the Twenty-First Century.

Pollock, J. C. (2014) *Media and Social Inequality: Innovations in Community Structure Research*, Routledge.

Prat, A. (2014) Media Power, CEPR Discussion Paper no. 10094.

Prat, A. and Strömberg, D. (2011) The Political Economy of Mass media. CEPR Discussion Papers with number 8246

Robinson, P. (2001) 'Theorizing the Influence of Media on World Politics. Models of Media Influence on Foreign Policy', *European Journal of Communication*, Vol 16(4): 523–544.

Rodriguez, F.C. (2004) 'Inequality, redistribution and rent seeking', Economics and Politics, 16: pp. 287–320.

Roemer, J. (1998) *Equality of opportunity*, Harvard University Press.

Roemer, J. and Trannoy,A. (2015) *'Equality of opportunity'*, in F. Bourguignon and A.Atkinson, Handbook of Income Distribution, 2A 217-300, Elsevier

Roodman, D. (2009). Estimating fully observed recursive mixed-process models with cmp. CGDEV working paper no. 168.

Sabatini, F. (2012) 'Who trusts Berlusconi? An econometric analysis of the role of television in the political arena', KYKLOS, Vol. 65, No. 1: 111–131.

Sabatini, F., Yamamura, E. (2015) "The impact of the media on voters' attitude toward Junichiro Koizumi and his policy", *Japan and the World Economy,* vol.34-35: 24-32*.*

Sobbrio, F. (2011) 'Indirect Lobbying and Media Bias', Quarterly Journal of Political Science, 6:235–274.

Sobbrio, F. (2014) The Political Economy of News Media: Theory, Evidence and Open Issues in F. Forte, R. Mudambi and P. Navarra (eds) Handbook of Alternative Theories of Public Economics, Chelthenam, Edward Elgar Press.

Data sources

OECD Broadband statistics [http://oecd.org/internet/broadband/oecdbroadbandportal.htm]

ITU [http://www.itu.int/en/ITU-D/Statistics/Documents/statistics/2014/Fixed_broadband_2000-2013.xls]

World Bank [http://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD/countries?display=default]

Freedom House [http://www.freedomhouse.org]

Media Pluralism Monitor [http://monitor.cmpf.eui.eu/mpm2015/results]

Appendix of Tables and Figures

Table A.1 Variables definition

Variables	Description
Equality of opportunity [EO]	Ranges from 1 to 6 [based on the original variable IPEQOPT, in reverse order]. The values correspond to the following answers to question: 'She/he thinks it is important that every person in the world should be treated equally. She/he believes everyone should have equal opportunities in life. How much this person is or is not like you? 1. Not like me at all; 2. Not like me; 3. A little like me; 4. Somewhat like me; 5. Like me; 6. Very much like me. The person is considered to be more pro-equal at higher values.
Equality of income [EI]	Ranges from 1 to 5 [based on GINCDIF, in reverse order]. The values correspond to the following answers to question: 'Government should reduce differences in income levels'. 1. Disagree strongly; 2. Disagree; 3. Neither agree nor disagree; 4. Agree; 5. Agree strongly. The person is considered to be more pro-equal at higher values. [58]
Use of Media	
tv_i	TV watching, total time on average weekday [based on TVTOT]. Dummies correspond to different levels of consumption, respectively: [baseline - 0. No time at all]; tv_1. Less than 0,5 hour; tv_2. 0,5 hour to 1 hour; tv_3. More than 1 hour, up to 1,5 hours; tv_4. More than 1,5 hours, up to 2 hours; tv_5. More than 2 hours, up to 2,5 hours; tv_6. More than 2,5 hours, up to 3 hours; tv_7. More than 3 hours.
$tvpol_i$	TV watching, news/politics/current affairs on average weekday [based on TVPOL]. Similar to tv_i.
rd_i	Radio listening, total time on average weekday [based on RDTOT]. The same as tv_i.
$rdpol_i$	Radio listening, news/politics/current affairs on average weekday [based on RDPOL]. Similar to $tvpol_i$.
$nwsp_i$	Newspaper reading, total time on average weekday [based on NWSPTOT]. Similar to tv_i, just that the highest three categories have been merged into one so that $nwsp_5$ stands for 'More than 2 hours'.
$nwsppol_i$	Reading newspapers about politics and current affairs [based on NWSPPOL]. Similar to $nwsp_i$.
netuse	Personal use of internet/email/www. Dummies correspond to different levels of consumption, respectively: [baseline - 0. No access at home or work or 1.'Never use']; 2. Less than once a month; 3. Once a month; 4. Several times a month; 5. Once a week; 6. Several times a week; 7. Every day.
Personal characteristics	
educ	Years of full-time education completed.
fam_inc	Household's total net income from all sources, the estimated decile.
age	Age of respondent, calculated [at the time of the interview].
gender_f	Dummy variable: =1 if a person is female, 0 otherwise.
noncitizen	Dummy variable: =1 if a person is not a citizen of country of reference, 0 otherwise.
right-wing	Placement on left-right political scale, ranges from 0 (Left) to 10 (Right).
religious	Dummy variable: =1 if a person considers him/herself as belonging to any particular religion or denomination, 0 otherwise.
Country characteristics	
gini	Gini coefficient for income inequality.
gdp_pc	GDP per capita, PPP (current international $), in logarithmic format.
soc_exp	Social protection expenditure, % of GDP

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[58] We reduced the number of categories for dependent variable, both attitudes to EO(5) and EI(4), due to low shares of the population falling in the first subgroup, Strongly disagreeing with the statement proposed in the questionnaire (less than 1% in the case of EO and about 2% in the case of EI). It was merged with the second category of people, simply Disagreeing with the statement.

Risks to Media Pluralism (from 0% low to 100% high)	
Basic protection (b)	Based on information about: 1) Protection of freedom of expression; 2) Protection of right to information; 3) Journalistic profession, standards and protection; 4) Independence of national authorities.
Market plurality (o)	Based on information about: 1) Transparency of media ownership; 2) Concentration of media ownership; 3)Concentration of cross-media ownership.
Political independence (p)	Based on information about: 1) Political bias in the media; 2) Politicisation of control over media outlets; 3) Politicisation of control over media distribution networks; 4) State advertising; 5) Independence of PSM governance and funding; 6) Independence of news agencies.
Social inclusiveness (s)	Based on information about: 1) Access to media for different social and cultural groups, and local communities; 2) Availability of media platforms for community media; 3) Access to media for the physically challenged people; 4) Centralisation of the media system; 5) Universal coverage of the PSM and the Internet; 6) Media literacy

Table A.2 Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Equality of opportunity	51275	3.962	1.017	1	5
Equality of incomes	51591	3.006	0.968	1	4
TV_30-60	52458	0.049	0.216	0	1
TV_60-90	52458	0.127	0.333	0	1
TV_90-120	52458	0.128	0.334	0	1
TV_120-150	52458	0.162	0.369	0	1
TV_150-180	52458	0.124	0.329	0	1
TV>180	52458	0.125	0.331	0	1
TV_30-60	52458	0.240	0.427	0	1
Press<30	52458	0.290	0.454	0	1
Press_30-60	52458	0.239	0.427	0	1
Press_60-90	52458	0.068	0.251	0	1
Press_90-120	52458	0.030	0.172	0	1
Press>120	52458	0.021	0.143	0	1
Radio<30	52458	0.144	0.351	0	1
Radio_30-60	52458	0.151	0.358	0	1
Radio_60-90	52458	0.072	0.259	0	1
Radio_90-120	52458	0.064	0.244	0	1
Radio_120-150	52458	0.038	0.191	0	1
Radio_150-180	52458	0.037	0.188	0	1
Radio>180	52458	0.201	0.401	0	1
Net_no access	52458	0.251	0.433	0	1
Net_never use	52458	0.133	0.340	0	1
Net_less than once a month	52458	0.012	0.111	0	1
Net_once a month	52458	0.010	0.101	0	1
Net_several times a month	52458	0.026	0.158	0	1
Net_once a week	52458	0.033	0.179	0	1
Net_several times a week	52458	0.118	0.322	0	1
Net_every day	52458	0.415	0.493	0	1
Education	51829	12.295	4.053	0	55
Age	52305	48.505	18.789	14	102
Women	52458	0.546	0.498	0	1
Family income	39838	5.049	2.788	1	10
Self-employed	52458	0.078	0.268	0	1
State-employed	52458	0.227	0.419	0	1
Right-wing	52458	0.299	0.458	0	1
Foreigner	52458	0.094	0.292	0	1
Religious	52458	0.642	0.479	0	1
GDP_per capita	52458	10.259	0.417	8.949	10.964
Income gini	52458	30.404	5.234	23.6	42.8
Social expenditure	52458	22.709	4.231	15.7	31.7
Basic protection	26651	20.738	8.296293	6	33
Market plurality	26651	51.920	15.49262	25	75
Political independence	26651	34.516	12.06628	17	61
Social inclusiveness	26651	36.736	14.267	9	66

Source: Own calculations

Table A.3 Characteristics of media markets

Country	Private ownership [TV/press]	Freedom index †	Domain of risk to media pluralism			
			Basic protection	Market plurality	Political independence	Social inclusiveness
AT	na	na	25	38	41	31
BE	59/100	12	na	na	na	na
BG	25/100	35	na	na	na	na
HR	3/33	41	29	28	40	55
CY	77/89	22	14	30	50	66
CZ	66/100	19	23	62	34	37
DK	20/37	13	na	na	na	na
EE	71/100	18	na	na	na	na
FI	52/100	10	16	75	26	30
FR	57/100	23	na	na	na	na
DE	39/100	17	6	44	19	21
EL	92/68	30	na	na	na	na
IE	32/79	16	29	54	40	41
IL	64/100	29	na	na	na	na
LV	na	na	26	62	29	46
LT	77/100	22	28	68	52	38
LU	na	na	26	84	22	50
MT	na	na	17	18	41	51
NL	43/100	14	10	53	25	16
NO	53/100	11	na	na	na	na
PL	43/100	25	33	70	40	52
PT	62/100	17	16	54	23	54
RO	na	na	37	66	47	55
RU	4/85	81	na	na	na	na
SK	65/100	22	23	30	44	35
SI	45/100	25	29	25	61	43
ES	57/100	23	25	69	34	34
SE	49/100	11	16	49	17	9
CH	11/100	13	na	na	na	na
UA	86/77	56	na	na	na	na
UK	40/100	19	na	na	na	na

Note: 'na' - not available.

†lower values stand for higher media freedom.

Countries marked in grey are those covered by the MPM, additional countries in black are those covered by the ESS but not MPM. Bold font stands for the 14 countries which enter both ESS and MPM and thus remain in the estimates including all of the available media market characteristics.

Table A.4. Estimates of the ordered probit model

VARIABLES	Total		Political	
	EO	EI	EO	EI
TV_30-60 /pol	-0.003	-0.036	0.012	0.013
TV_60-90 /pol	0.057	-0.032	0.077**	0.085**
TV_90-120 /pol	0.007	-0.014	0.104**	0.074*
TV_120-150 /pol	-0.013	-0.039	0.106*	0.034
TV_150-180 /pol	-0.063	0.040	0.166**	0.038
TV>180 /pol	0.008	0.041	0.097	0.121
TV_30-60 /pol	-0.002	0.081	0.277***	0.190**
Press<30 /pol	-0.013	-0.011	-0.007	-0.017
Press_30-60 /pol	-0.037	-0.009	0.031	0.049
Press_60-90 /pol	-0.053	0.018	-0.090	-0.029
Press_90-120 /pol	0.024	0.025	0.102	0.057
Press>120 /pol	-0.124	-0.194***	-0.120	0.017
Radio<30 /pol	-0.047	-0.081**	-0.063***	-0.067***
Radio_30-60 /pol	-0.068**	-0.084***	-0.042	0.012
Radio_60-90 /pol	-0.112***	-0.086**	-0.115**	-0.002
Radio_90-120 /pol	-0.032	-0.082*	-0.040	-0.039
Radio_120-150 /pol	-0.122**	0.035	0.062	0.048
Radio_150-180 /pol	-0.036	-0.084	0.010	-0.007
Radio>180 /pol	-0.047	-0.032	0.128*	-0.014
Net_less than once a month	-0.203***	-0.276***	-0.208***	-0.280***
Net_once a month	0.063	-0.139	0.057	-0.150
Net_several times a month	0.037	-0.125*	0.029	-0.141**
Net_once a week	-0.028	-0.120**	-0.025	-0.129**
Net_several times a week	-0.069**	-0.083**	-0.075**	-0.092***
Net_every day	-0.020	-0.195***	-0.023	-0.208***
Education	0.016***	-0.015***	0.016***	-0.017***
Age	0.001**	0.002**	0.000	0.001*
Women	0.110***	0.076***	0.118***	0.084***
Family income	-0.010**	-0.045***	-0.009**	-0.047***
Self-employed	0.012	-0.084**	0.018	-0.088**
State-employed	0.026	0.096***	0.030	0.098***
Right-wing	-0.172***	-0.280***	-0.176***	-0.286***
Foreigner	0.119***	-0.045	0.120***	-0.046
Religious	0.067***	-0.025	0.071***	-0.028
GDP_per capita	0.333***	-0.509***	0.322***	-0.514***
Income gini	-0.003*	0.004**	-0.003*	0.006***
Constant cut1	1.598***	-6.867***	1.511***	-6.890***
Constant cut2	2.135***	-6.321***	2.047***	-6.345***
Constant cut3	2.815***	-5.189***	2.728***	-5.214***
Constant cut4	3.882***		3.795***	
Observations	38,666	38,973	38,666	38,973

Note: *** p<0.01, ** p<0.05, * p<0.1.
Both population and design weights have been applied.
Source: Own calculations, based on ESS 2010.

Table A.5. Estimates of the ordered probit model, by four groups of countries

VARIABLES	Total								Political							
	EO				EI				EO				EI			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
TV_30-60 /pol	-0.010	0.000	0.131	-0.050	-0.202*	-0.025	-0.073	0.108	0.022	0.049	-0.019	-0.002	-0.001	0.064	0.081	-0.016
TV_60-90 /pol	-0.078	0.004	0.394**	0.032	-0.086	-0.126*	0.003	0.038	0.051	0.033	0.076	0.107*	0.117**	0.061	0.070	0.066
TV_90-120 /pol	-0.116	-0.053	0.262	0.017	-0.123	-0.097	0.129	0.064	0.189***	0.036	-0.192	0.092	0.129*	0.125**	-0.087	0.047
TV_120-150 /pol	-0.197**	-0.092	0.417**	0.004	-0.132	-0.086	0.123	-0.000	0.085	-0.049	-0.036	0.207**	0.067	0.041	-0.197	0.051
TV_150-180 /pol	-0.166*	-0.099	0.263	-0.084	-0.065	-0.052	0.244	0.102	0.080	0.090	-0.155	0.349***	0.149	0.013	-0.093	-0.023
TV>180 /pol	-0.116	-0.074	0.324*	0.044	-0.035	-0.039	0.297*	0.099	-0.005	0.092	-0.079	0.134	0.118	0.329**	0.389*	0.051
TV_30-60 /pol	-0.118	-0.107	0.324**	0.051	-0.002	0.018	0.193	0.211**	0.443***	0.137	0.194	0.308*	0.330**	0.168	0.200	0.121
Press<30 /pol	-0.013	-0.054	-0.045	0.042	-0.062	-0.067*	-0.093	0.051	-0.015	-0.028	-0.035	0.067*	-0.062*	-0.014	-0.194***	0.061
Press_30-60 /pol	-0.062	-0.007	-0.023	0.077	-0.044	-0.029	-0.148*	0.089*	0.045	0.143***	0.022	0.061	-0.057	-0.002	0.078	0.186***
Press_60-90 /pol	0.056	0.087	-0.019	-0.078	-0.034	0.065	-0.200*	0.157	-0.078	0.100	0.083	-0.118	-0.058	0.020	-0.248	-0.003
Press_90-120 /pol	0.053	0.133*	0.101	0.094	-0.117	0.035	-0.012	0.273**	0.204	0.328***	0.314	-0.040	0.266	0.067	-0.170	-0.160
Press>120 /pol	0.022	0.124	-0.336	-0.111	-0.151	0.058	-0.288	-0.188	0.148	0.251**	-0.601	-0.188	-0.105	-0.065	0.684	0.034
Radio<30 /pol	0.031	-0.057	-0.093	-0.160***	-0.025	0.014	-0.105	-0.149**	-0.028	-0.124***	-0.102*	-0.058	-0.068*	-0.029	-0.075	-0.068
Radio_30-60 /pol	-0.070	-0.094**	-0.062	-0.094*	-0.009	-0.071	-0.099	-0.133**	-0.013	-0.077**	0.016	-0.103*	0.015	0.016	0.012	0.021
Radio_60-90 /pol	-0.092	-0.087	-0.293***	-0.092	0.023	-0.006	-0.362***	-0.104	-0.092	-0.066	-0.242*	-0.142	0.033	0.073	-0.159	-0.044
Radio_90-120 /pol	-0.088	-0.037	0.037	-0.046	0.003	0.003	-0.278**	-0.102	-0.110	-0.009	0.084	-0.021	0.047	0.049	-0.598**	-0.004
Radio_120-150 /pol	-0.005	-0.137**	-0.258*	-0.255***	0.142*	0.070	-0.067	-0.033	0.129	0.010	-0.203	0.078	0.221	0.075	-0.562	-0.034
Radio_150-180 /pol	-0.010	-0.155**	0.071	-0.033	-0.044	0.004	-0.141	-0.000	0.007	-0.085	0.349	-0.078	-0.066	0.163	-0.062	0.095
Radio>180 /pol	-0.026	-0.104**	0.002	-0.058	-0.014	0.056	-0.104	0.047	0.174	-0.113	0.118	0.113	-0.078	0.137	-0.187	0.086
Net<once a month	-0.063	-0.051	-0.097	-0.377***	-0.040	0.140	0.040	-0.645***	-0.074	-0.049	-0.112	-0.370***	-0.050	0.117	0.052	-0.654***
Net_once a month	0.049	0.013	-0.105	0.262	-0.063	0.209	-0.041	-0.158	0.049	0.005	-0.144	0.244	-0.083	0.194	-0.123	-0.150
Net_several times/month	0.001	-0.043	0.025	0.117	-0.176*	0.211**	0.110	-0.154	-0.004	-0.042	0.008	0.111	-0.191**	0.181*	0.148	-0.162
Net_once a week	0.047	0.014	-0.034	-0.012	0.049	-0.032	-0.113	-0.202*	0.037	0.020	-0.043	-0.008	0.038	-0.057	-0.123	-0.219**
Net_several times/week	0.028	-0.069	-0.085	-0.084	0.023	-0.030	-0.021	-0.088	0.010	-0.070	-0.114	-0.095	0.009	-0.047	-0.012	-0.096
Net_every day	0.042	0.009	0.041	-0.019	-0.012	-0.075	-0.128	-0.327***	0.028	0.012	0.018	-0.026	-0.028	-0.094**	-0.149*	-0.341***
Education	0.021***	0.015***	0.023***	0.012**	-0.022***	-0.012***	-0.009	-0.010*	0.023***	0.015***	0.023***	0.010*	-0.023***	-0.013***	-0.011	-0.014**
Age	0.001	0.002*	0.002	0.003**	0.002**	0.004***	0.004**	0.002	-0.000	0.001	0.002	0.002	0.001	0.004***	0.005***	0.001
Women	0.140***	0.198***	0.043	0.092***	0.092***	0.092***	0.084	0.047	0.148***	0.201***	0.046	0.108***	0.098***	0.094***	0.084	0.058
Family income	-0.015**	-0.011**	-0.006	0.001	-0.052***	-0.058***	-0.034***	-0.038***	-0.016**	-0.010*	-0.005	0.000	-0.054***	-0.062***	-0.035***	-0.039***

Self-employed	0.015	-0.040	0.043	-0.045	-0.056	-0.057	-0.247*	-0.079	0.025	-0.036	0.031	-0.041	-0.064	-0.065	-0.242*	-0.073
State-employed	0.008	0.082**	0.065	0.074*	0.044	0.180***	0.009	0.125***	0.014	0.078**	0.075	0.080*	0.047	0.174***	0.011	0.134***
Right-wing	-0.281***	-0.320***	-0.141**	-0.014	-0.371***	-0.530***	-0.199***	-0.131***	-0.284***	-0.322***	-0.124**	-0.020	-0.379***	-0.525***	-0.196***	-0.139***
Foreigner	0.225***	0.105**	-0.243**	0.121*	-0.013	-0.146***	0.059	-0.105*	0.229***	0.106**	-0.211**	0.115*	-0.016	-0.146***	0.074	-0.097
Religious	0.030	0.036	0.024	0.021	-0.112***	-0.024	0.109*	0.049	0.028	0.044*	0.019	0.022	-0.110***	-0.029	0.072	0.048
GDP_per capita	-0.717***	-0.609***	0.329***	1.053***	-1.713***	-2.311***	-0.337***	0.050	-0.609***	-0.669***	0.352***	1.022***	-1.605***	-2.281***	-0.332***	-0.019
Income gini	-0.069***	-0.040***	-0.075***	-0.024***	-0.145***	-0.185***	-0.260***	0.021***	-0.072***	-0.048***	-0.080***	-0.023***	-0.142***	-0.177***	-0.237***	0.023***
Const_cut1	-11.432***	-9.422***	0.182	7.946***	-24.241***	-30.843***	-11.407***	-0.471	-10.229***	-10.156***	0.016	7.672***	-22.942***	-30.240***	-10.814***	-1.179*
Const_cut2	-10.899***	-8.901***	0.773	8.492***	-23.762***	-30.246***	-10.789***	0.158	-9.696***	-9.633***	0.605	8.218***	-22.463***	-29.644***	-10.196***	-0.554
Const_cut3	-10.290***	-8.224***	1.472*	9.264***	-22.521***	-28.979***	-9.888***	1.272*	-9.087***	-8.955***	1.303*	8.990***	-21.219***	-28.379***	-9.295***	0.555
Const_cut4	-9.228***	-6.927***	2.367***	10.380***					-8.024***	-7.656***	2.195***	10.107***				
Observations	8,694	8,571	6,527	14,874	8,749	8,780	6,631	14,813	8,694	8,571	6,527	14,874	8,749	8,780	6,631	14,813

Note: *** p<0.01, ** p<0.05, * p<0.1
Both population and design weights have been applied.
Source: Own calculations, based on ESS 2010.

Figure A.1 TV watching, by country and age (2010)
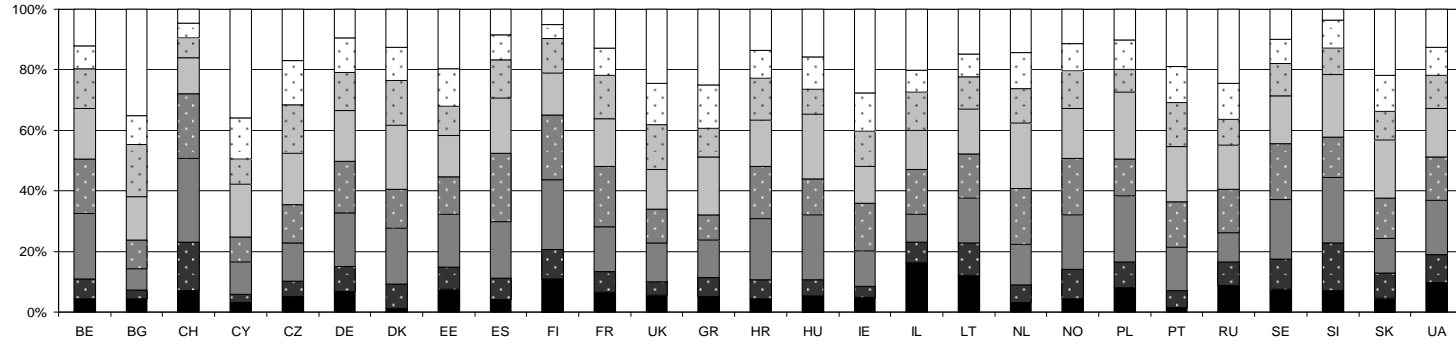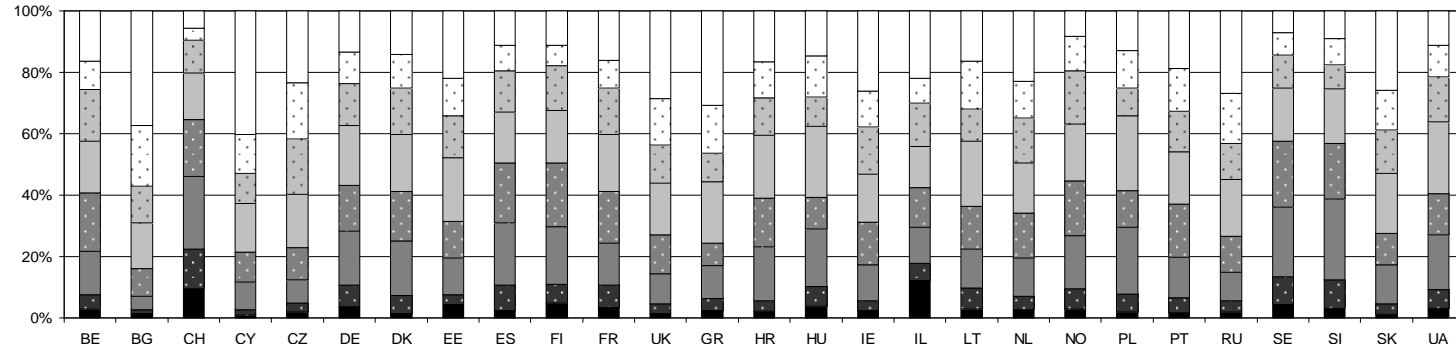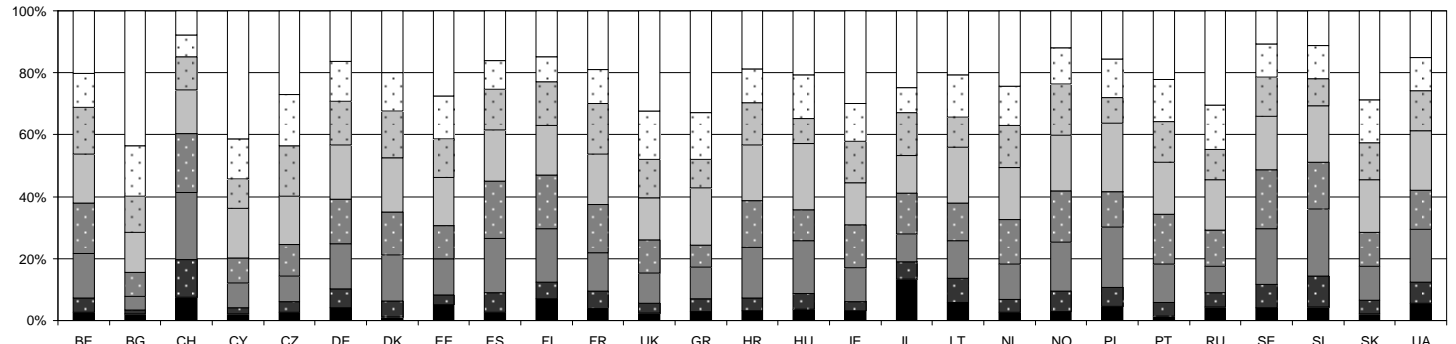
Source: Authors' elaborations, based on ESS 2010.

Figure A.2 Radio listening, by country (2010)
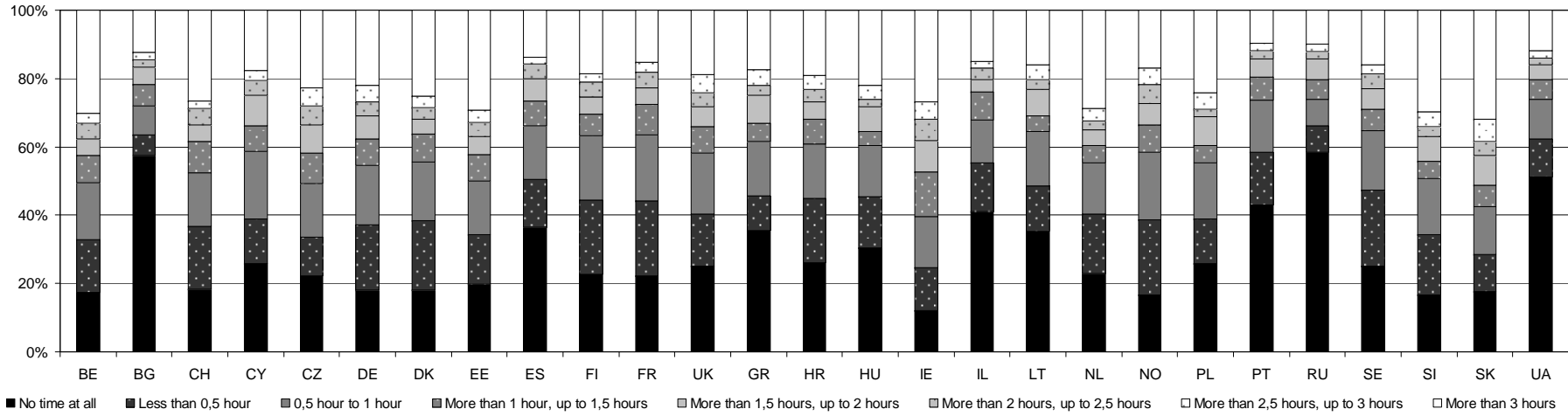
Source: Authors' elaborations, based on ESS 2010.

Figure A.3 Newspaper reading, by country (2010)
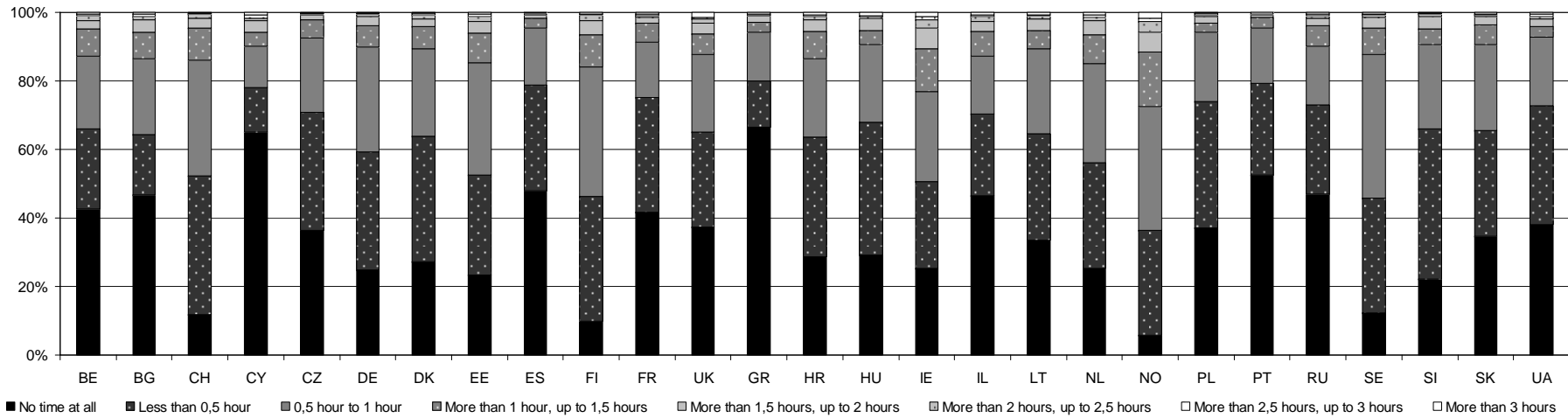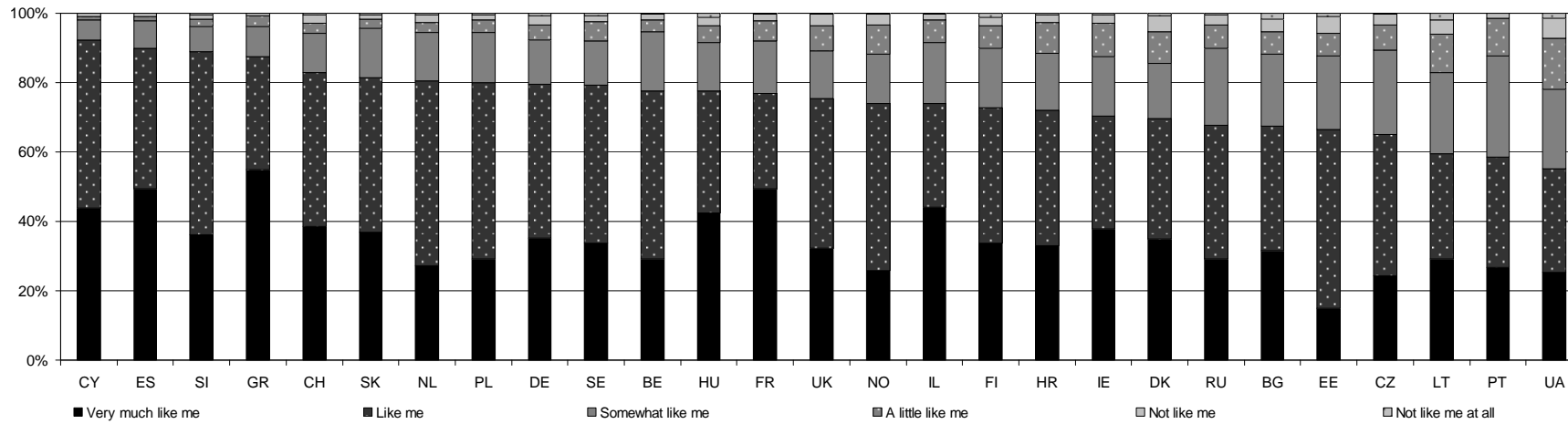

Source: Authors' elaborations, based on ESS 2010.

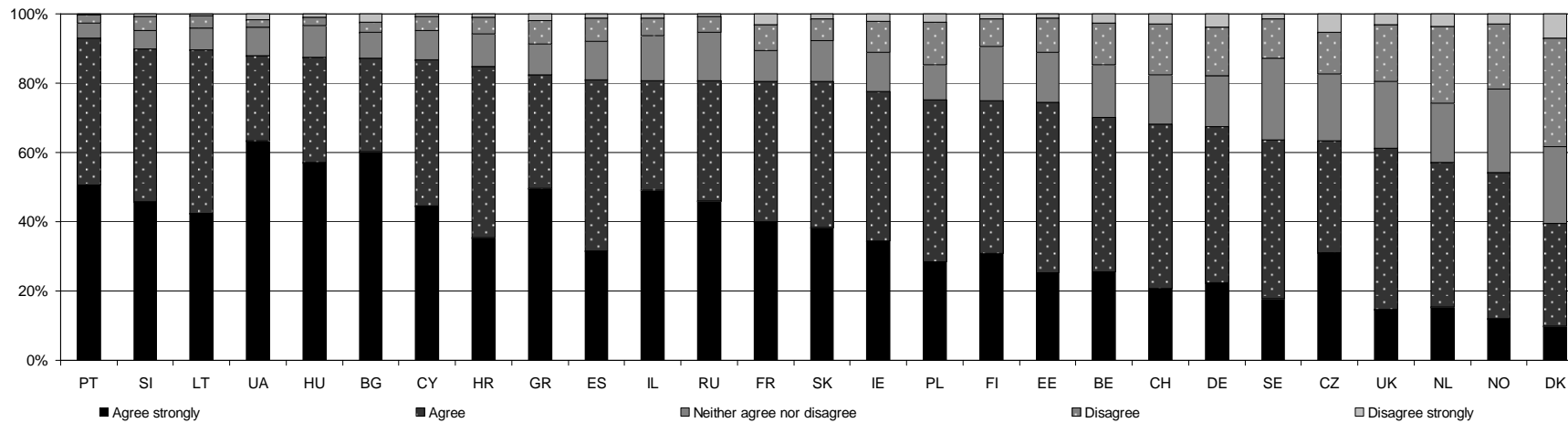**Figure A.4 The use of Internet, by country and age (2010)**

A.4.i Total

A.4.ii Age<35

A.4.iii Age 35-60

Legend: ■ No access at home or work ■ Never use ▤ Less than once a month ▦ Once a month ▨ Several times a month ▥ Once a week ▧ Several times a week ☐ Every day
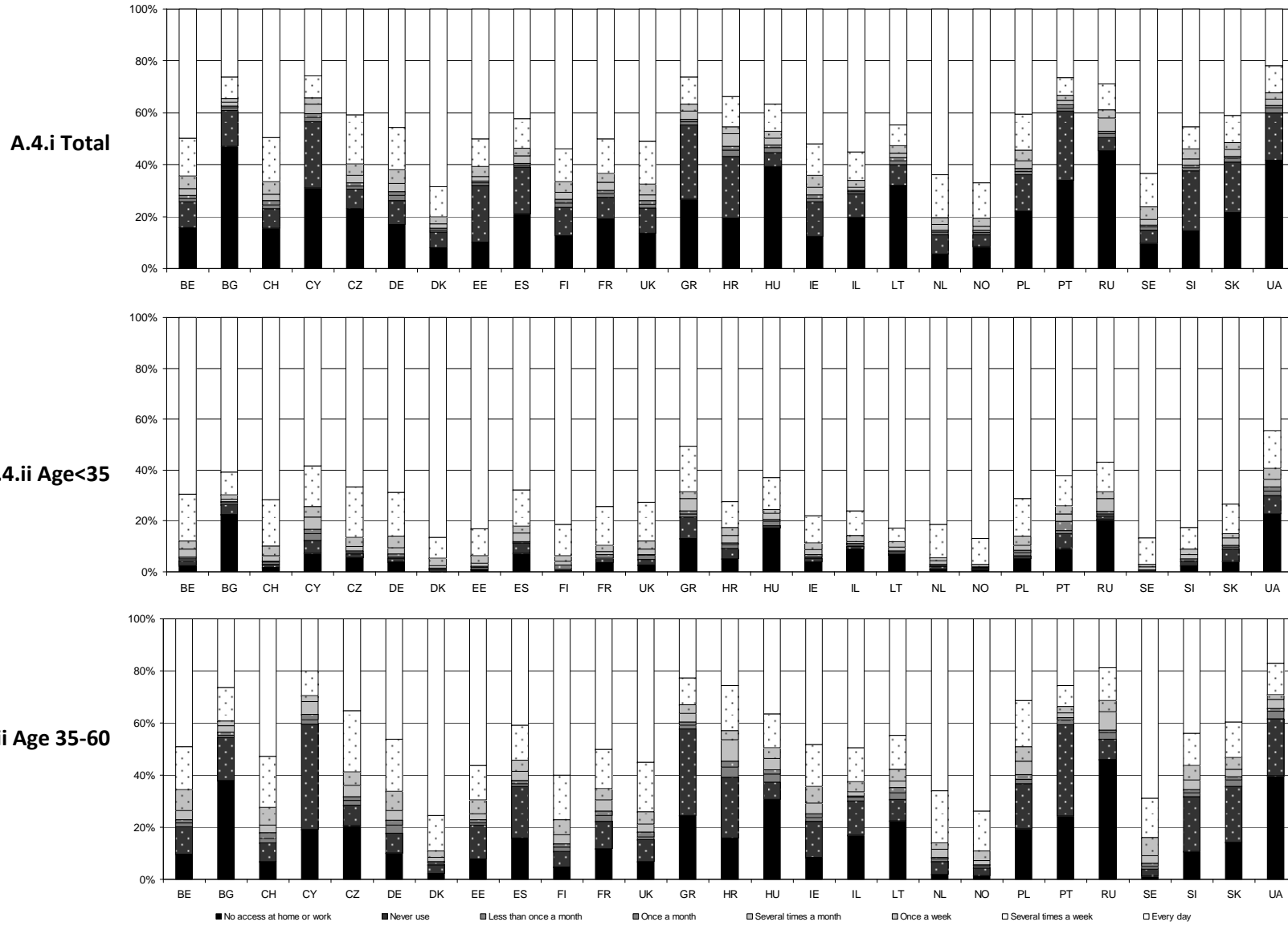
Source: Authors' elaborations, based on ESS 2010.

Figure A.5 Pro-equal attitudes, by country (2010)

A. Equality of opportunity†

■ Very much like me　　■ Like me　　■ Somewhat like me　　■ A little like me　　□ Not like me　　□ Not like me at all

B. Equality of incomes‡

■ Agree strongly　　■ Agree　　■ Neither agree nor disagree　　□ Disagree　　□ Disagree strongly

Note: Obtained from the answers to questions † 'She/he thinks it is important that every person in the world should be treated equally. She/he believes everyone should have equal opportunities in life. How much this person is or is not like you?'; ‡ Government should reduce differences in income levels.

Source: Authors' elaborations, based on ESS 2010.

Figure A.6 Income Gini coefficient and the mean measures of attitudes to inequality, by country (2010)

A. Equality of opportunity
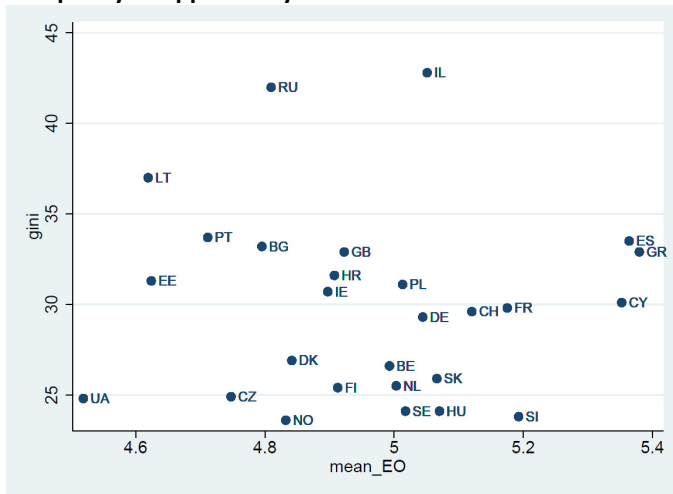
B. Equality of incomes
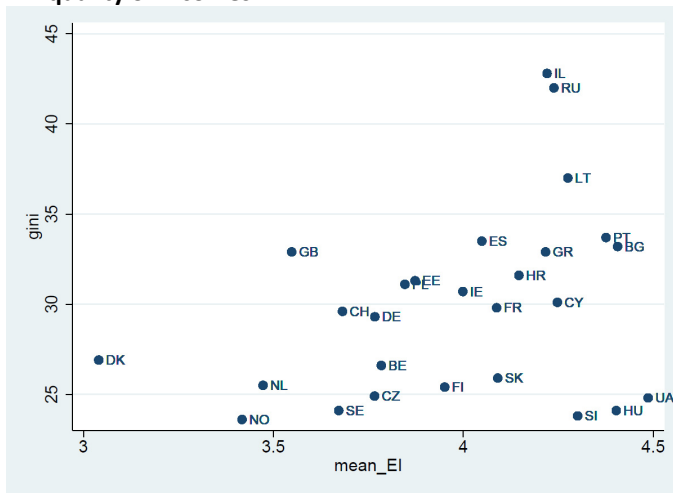
C. Equality of opportunity *vs* Equality of incomes
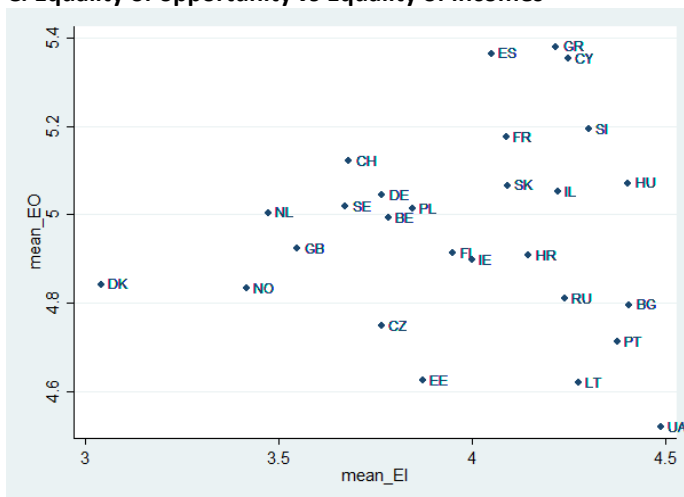
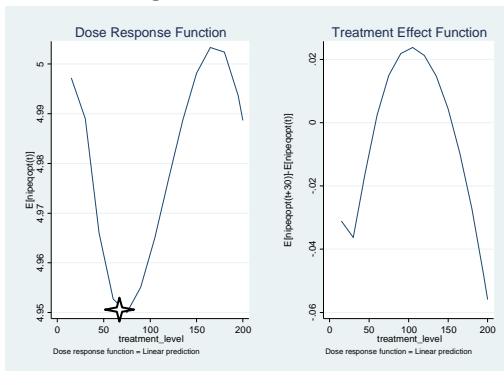Source: Authors' elaborations, based on ESS 2010 and Gini coefficient from the World Bank database.

Figure A.7. The use of mass media against the attitudes to inequality, by country (2010)
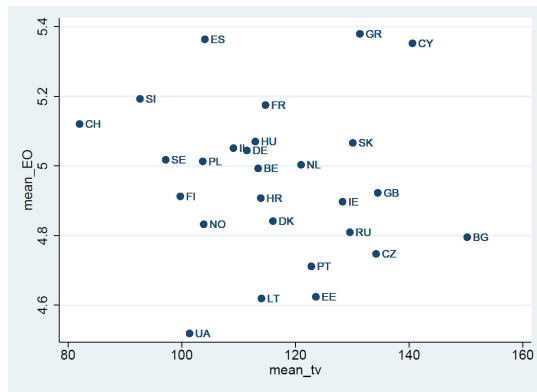
A. Equality of opportunity

B. Equality of incomes
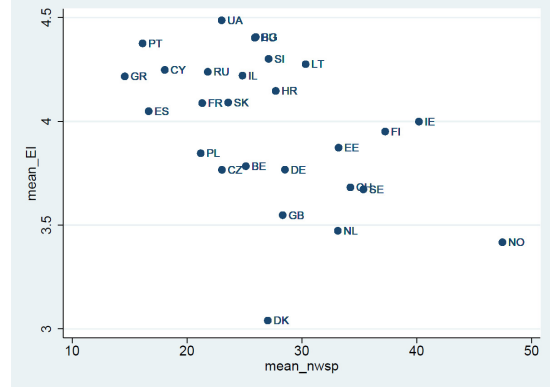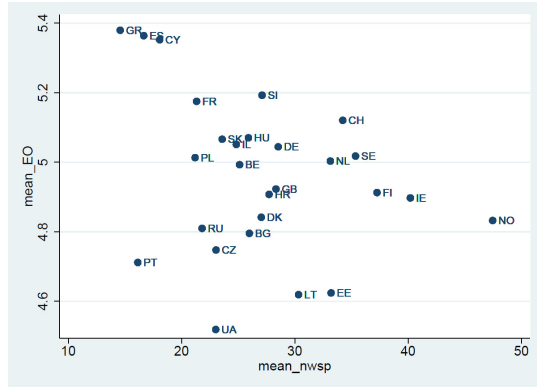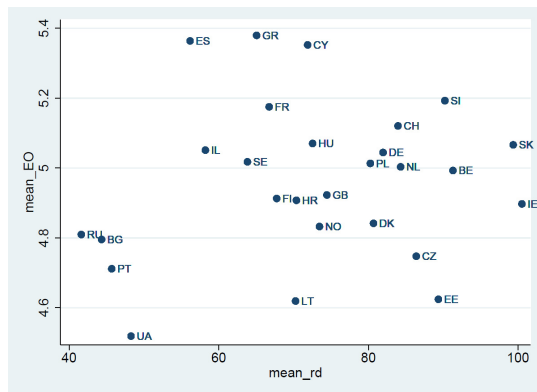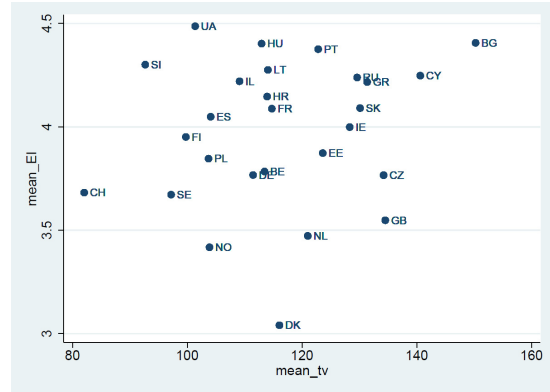
Source: Authors' elaborations, based on ESS 2010 and Gini coefficient from the World Bank database.

Figure A.8 The estimated dose-response function: mass media and attitudes to the equality of opportunity (EO)
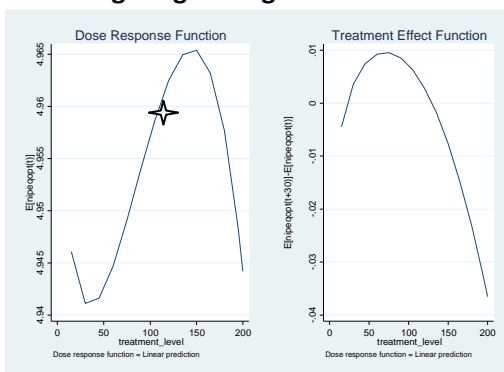
A. Total
A.1 Watching TV

B. Political
B.1 Watching TV

A.2. Listening to the radio
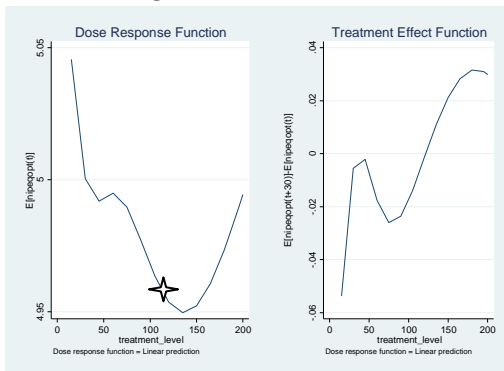
B.2. Listening to the radio

A.3. Reading newspapers

B.3. Reading newspapers

A.4. Navigating through the internet
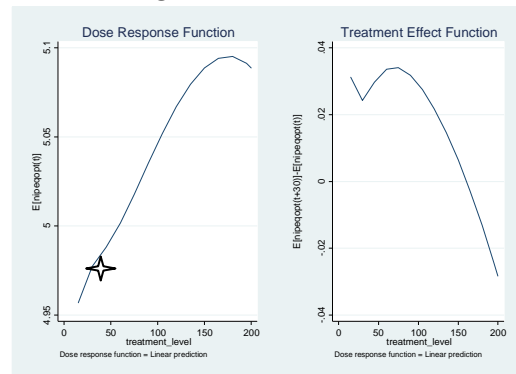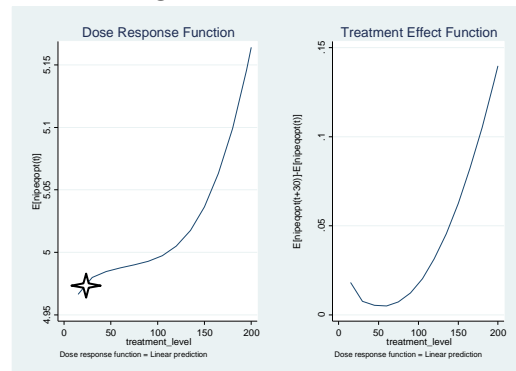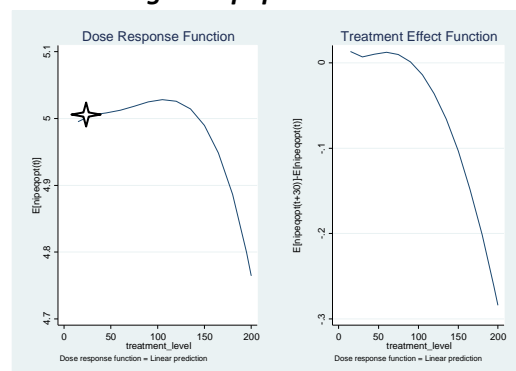
Note: ✧ is used to mark the average level of exposure.

Source: Authors' elaborations, based on ESS 2010.