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Moonlighting Politicians: Motivation Matters!

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ABSTRACT

Moonlighting Politicians: Motivation Matters!*

In this paper we study optimal choices of self-selection into politics and commitment once in office on the part of citizens with heterogeneous abilities and heterogeneous motivations. Politicians can moonlight, *i.e.*, they can work in the market sector while appointed in parliament. Our theoretical framework shows that high-ability citizens may enter politics. Yet while high-ability non-motivated (*market-fit*) politicians are likely to shirk, high-ability motivated (*public-fit*) ones are more committed to parliamentary activity. We test our predictions by using a unique database of Italian parliamentarians for the period 1996-2006. We find evidence of advantageous selection of the market-fit and the public-fit politicians in that they both display a pre-election income greater than that of the Italian population. We also show that the commitment of the market-fit parliamentarians in terms of voting attendance is negatively affected by income opportunities, whilst this is not the case for the public-fit ones.

JEL Classification: P16, J45, J24, J32

Keywords: moonlighting politicians, motivation

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1 Introduction

The two main determinants of individual performance in the workplace are ability, *i.e.*, the capacity to do a job, and motivation, *i.e.*, the desire to perform and the satisfaction of performing a job. The importance of ability is practically axiomatic. On the other hand, it is only recently that the role of motivation has been acknowledged by the economists. For instance, Handy and Katz (1998) analyze the selection of motivated managers in the non-profit sector, whilst Heyes (2005) investigates the nursing labor market. Besley and Ghatak (2005), Delfgaauw and Dur (2007), and Stowe (2009) study the design of optimal incentives when agents are motivated.

The current paper focuses on a particular category of workers, namely politicians, and investigates their optimal choices of self-selection into politics and commitment once in office. In the literature on political selection (Caselli and Morelli, 2004; Messner and Polborn, 2004; Besley, 2004) the quality of the political class is generally measured only by ability. Nevertheless, the motivation of politicians, or more generally of public servants, is one of the oldest topics discussed by public administration scholars, and one that has received their closest attention (see, *e.g.*, Rainey and Steinbauer, 1999). Public service motivation is defined as "an individual's predisposition to respond to motives grounded primarily or uniquely in public institutions and organizations" (Perry and Wise, 1990). This notion has also been brought into economic thinking. Besley (2005), *e.g.*, argues that the motivation of politicians "can be thought of as hard-wired into preferences rather being dependent on external reinforcement". The early literature on political selection assumes, in addition, that politics and the market sector are mutually exclusive. Since wages are fixed in parliament whilst markets reward ability, the common prediction is (adverse) selection of bad politicians. Only low-ability individuals will embrace a life of public service (Caselli and Morelli, 2004).

A recent stream of literature relaxes the hypothesis of mutually exclusive sectors, explicitly considering the option for members of parliament to keep on working in the market sector while in office, for instance as lawyers, entrepreneurs or consultants. This practice is referred to as moonlighting and it occurs in a number of countries. Outside employment is registered, among other seats of government, in the British House of Commons, in the German Bundestag, in the Italian Parlamento, and in the European Parliament. Interestingly, Gagliarducci *et al.* (2010), GNN henceforth, show that advantageous rather than adverse selection of politicians may occur when sideline jobs are taken into account. More exactly, they demonstrate that high-ability individuals are likely to run for office thanks to the possibility of moonlighting. Yet, for the same reason, they exert lower effort once in office.

In the current paper we relax also the hypothesis that ability is the sole characteristic of individuals that matters. In particular, we introduce citizens with both heterogeneous abilities and heterogeneous motivations. We also allow for moonlighting in that each individual may serve as a politician in the public sector and, at the same time, work in the market sector. To the best of our knowledge, we are the first to associate the notions of motivation and moonlighting in the political economy literature.

Motivated, or *public-fit*, individuals are defined as fitting closely with the public sector environment in terms of value congruence. There are many examples of people whose main work values and goals are not particularly market-oriented. Such goals may be either "positive", *e.g.*, serving the interests of a community, or "negative", *e.g.*, pursuing power and re-election through

corruption and a policy of electoral patronage. These types of individuals are well fitted with the public sector because it is the environment where they are most likely to achieve their work goals.¹ On the contrary, non-motivated, or *market-fit*, individuals have a good fit with the market sector since their main work values are market-oriented, *e.g.*, they feel comfortable with the market meritocracy and/or they engage in the pursuit of high monetary incomes. Accordingly, it is assumed that public-fit individuals get higher motivational rewards from doing politics than the market-fit. By the same token, market-fit citizens obtain higher motivational benefits than public-fit when working in the market sector.

Theories of person-environment fit, broadly defined as the compatibility between an individual and a work environment, have been popular in management literature since Parsons (1909). The idea that the person-environment fit can be a crucial determinant of work motivation is not new in economics literature. Besley and Ghatak (2005), *e.g.*, argue that motivation of workers is positively affected by the extent to which they agree with the mission pursued by an organization.

We develop a theoretical framework and find that high-ability citizens may be attracted to politics. It is the moonlighting option that seduces high-ability market-fit individuals. In fact, they shirk once in office due to relatively low motivational rewards from doing politics, on one hand, and relatively high opportunity costs of being committed, *i.e.*, of giving up the sideline job, on the other hand. This result is in line with GNN. The novelty of our analysis lies in the incentive effects of public service motivation. We show that public-fit individuals may enter politics and refrain from shirking once in office, even if they have high ability, thanks to the significant motivational rewards they obtain when doing politics.

We test our predictions by relying on a unique dataset on members of the Italian Parliament (*Camera dei Deputati* and *Senato*) for the period 1996-2006. The dataset is the same as used by GNN. Among a wide set of covariates, it includes two measures for effort while in office, attendance in floor voting sessions and number of bills proposed, and detailed information on outside income and pre-election income. The pre-election income can be considered as a proxy for individual ability in a within occupation-age-education dimension. A crucial issue in the empirical analysis is the definition of public-fit and market-fit individuals. To derive it, we exploit the information on political experience contained in the database. A public-fit politician is referred to as an individual that, before entering the parliament, had at least one political experience, as a town councilor or a mayor, for example, or the president/councilor of a province/region, or has shown party affiliation at the local and/or national level. Market-fit politicians, on the other hand, are defined as individuals with no previous political experience.

Consistently with our theoretical predictions about commitment once in office, the descriptive statistics show that the average absenteeism rate is higher for market-fit politicians than for public-fit ones, 35% vs. 28%. Even greater is the difference at the median, 30% vs. 20%. We also observe that the drop in income after entering parliament is much larger for public-fit than for market-fit politicians. As for the relation between outside income and commitment, we find that the former has a (negative) effect only on the behavior of market-fit politicians. An increase in one standard deviation of outside income (136,000 euros) entails a 2.93 percentage point increase in the absenteeism rate. Interestingly, for public-fit politicians there is no statistical relation between effort and outside income. These findings are confirmed also when addressing

¹See Delfgaauw and Dur (2010) for an analogous definition of public service motivated individuals.

endogeneity problems, using an instrument variable approach. Further, since the definition of public-fit politicians is crucial to our analysis, we successfully apply a number of robustness checks by changing the baseline definition in various ways.

As for selection into parliament, we show that both groups, the public-fit and the market-fit politicians, display a pre-election income greater than that of the Italian population, estimated using the comparable population from the Bank of Italy's Survey on Household Income and Wealth (SHIW). This evidence confirms that adverse selection of politicians does not occur. In the case of market-fit politicians, this is mainly due to the possibility of moonlighting. More specifically, we show that high-ability market-fit politicians enter parliament because this can allow them to reveal their skills to a wider audience and, at the same time, to enhance their network of acquaintances. Put differently, they gain relatively more from being elected in terms of outside income. This is consistent with GNN. The novelty of this paper concerns public-fit politicians. We find that they do not exploit the political position to foster their outside incomes. In other words, high-ability public-fit politicians care less about moonlighting and enter politics because of their relatively strong motivation.²

The remainder of the paper is organized as follows. In Section 2, we survey the related literature. In Section 3, we lay out the theoretical framework. In Section 4, we describe the data. In Section 5, we present the estimation results on the link between the effort exerted in parliamentary activities and the ability. Section 6 provides empirical evidence on selection into parliament. Section 7 concludes.

2 Related literature

Our paper connects, in the first place, with the literature on work motivation. Analysis of work motivation determinants has found particular attention in the organizational psychology, personnel psychology and management literatures. As mentioned in the introduction, the key notion is that of person-environment fit, which can be defined in various manners. If the job or tasks performed at work are considered as the relevant environment, then the person-environment fit can be defined as the match between the needs/desires of a person and what is offered by a job (Edwards, 1991). In this context, a motivated politician may be thought of as an individual showing a good degree of fit with certain specific tasks required by parliamentary activity. By contrast, a politician could be poorly motivated because she fits with a particular job in the market sector. Alternatively, when the focus is on the entire organization, the person-environment fit can be seen as compatibility between workers and the organization they work for in terms of value congruence (Tom, 1971). In this case, a politician's motivation is positively affected by the degree of fit with the parliamentary institution as a whole and negatively by that with a private organization whose specific goals are different from those pursued in the public sector.

In the economics papers work motivation is modeled in many but substantially equivalent ways, the bottom line being that motivation impacts positively on the individual's productivity

²The politicians' degree of person-environment fit has no welfare effect in our framework, with the consequence that, for any given level of ability, public-fit citizens are not necessarily better politicians. Our agnostic approach is due to the fact that we are not able to disentangle empirically between public-fit politicians with either "positive" or "negative" goals. Nonetheless, what matters for our analysis is that the motivation of public-fit politicians, either "good" or "bad", differs from that of market-fit politicians because of a diverse type of fit as its main determinant.

and/or utility. Handy and Katz (1998), *e.g.*, assume that, for any given level of ability, the more motivated workers are able to produce higher output than their less motivated colleagues. Similarly, Delfgaauw and Dur (2007) and Stowe (2009) suppose that motivation reduces the workers' effort disutility. Finally, some authors (see, *e.g.*, Heyes, 2005; and Delfgaauw and Dur, 2010) assume that workers receive a non-pecuniary benefit which increases with their level of motivation. In the current framework we opt for the last of these approaches.

Our framework is similar to that of Dal Bó *et al.* (2013) and Delfgaauw and Dur (2010). Both these studies address individuals with different market abilities and different public service motivations. Dal Bó *et al.* (2013) study the role of financial remuneration in attracting applicants for public sector positions. Similarly, Delfgaauw and Dur (2010) study self-selection into public management. Since their focus is on public sector employees rather than politics, in both papers the public and market sectors are mutually exclusive.

Narrowing down the focus to political economy literature, a few papers have considered behavioral aspects, in addition to ability, as an explicit feature of agents. Beniers and Dur (2007) investigate politicians who differ in competence and in how much they care about the public interest, yet their attention is concentrated on the electoral competition between new candidates and incumbent politicians, rather than the effects of motivation on self-selection into politics and on parliamentary activity, which are at the core of our contribution.

Caselli and Morelli (2001) bring in the element of honesty and assume that it is the competent and honest citizens who need the greatest inducement to enter politics. Adverse selection thus arises in that they might shun politics due to flat rewards for office. Our results stand in contrast, for we provide evidence that politicians display a pre-election income greater than that of the Italian population.

The second strand of literature we contribute to is on political selection and the incentive effects of moonlighting. As a preliminary remark, it is worth noting that outside employment has not been widely covered in the political economy literature. This is probably because models that predict adverse selection in politics (Besley, 2004; Caselli and Morelli, 2004) are based on the assumption that the private and political sectors are mutually exclusive. Such is the case of the US, characterized by strict regulations for members of congress in relation to outside incomes. Nonetheless, in most of the OECD countries moonlighting is allowed. Furthermore, in recent years more stringent disclosure rules have increased data availability on politicians' incomes, allowing for research analysis on this issue. For instance, Mattozzi and Merlo (2008) emphasize the role of public office in signaling ability or establishing a network that could be helpful in the market sector. However, in their paper the two options of being a politician and working in the market sector are not simultaneously available, and high-ability citizens might stay in parliament for a short period, after which they could decide to exit to capitalize on their political experience.

Besides GNN, already presented in the introduction, several articles analyze the moonlighting phenomenon from an empirical point of view and confirm the existence of a trade-off between political and moonlighting activity. In particular, Norris (1996) and Becker *et al.* (2009) rely on samples of British and German parliamentarians, respectively, to show that a politician facing a low degree of electoral competition, hence less constrained by the need to show political initiative, has substantially higher outside earnings. Similarly, Eggers and Hainmuller (2009) focus on the British Parliament (2005-07) and identify a negative relationship between inside and outside effort.

For a recent survey of the empirical literature on moonlighting politicians, see Geys and Mause (2013).

3 Theoretical setup

We consider a society with two types of citizens, denoted by $i = p, m$, who differ in terms of degree of fit with the public and market environments. Type- p (m) citizens have public (market) fit, whose characteristics are specified in Assumption 1 below. Citizens of both types have ability a , which is uniformly distributed in the interval $[0, \bar{a}]$. Each citizen has two options.

(i) She may work full-time in the market sector. In this case she obtains an income $M_i(a) \geq 0$, plus a motivational reward Q_i from doing business. We let $M'_i(a) > 0$, *i.e.*, the higher the ability, the higher the market income.

(ii) Alternatively, citizens may become politicians. A politician gets a fixed salary $W > 0$ plus a motivational reward from doing politics, $eR_i \geq 0$, where $e \in [0, 1]$ is the time devoted to political activities. In addition, a politician is allowed to work in the market sector while in office, *i.e.*, she can moonlight. Accordingly, she is subject to a time constraint. If she increases commitment e to the political activity, she has less time $1 - e$ for her outside job. Total benefits from the moonlighting activity of a type- i politician are thus $(1 - e)[P_i(a) + Q_i]$, where $P_i(a)$ is a monetary income earned in the market while in office and Q_i is the motivational reward from doing business. We let $P'_i(a) > 0$.

Summing up, the net payoff of becoming a politician for a type- $i = p, m$ citizen is given by

$$\pi_i(a, e) \equiv W + eR_i + (1 - e)[P_i(a) + Q_i] - [M_i(a) + Q_i], \quad (1)$$

where $M_i(a) + Q_i$ is the opportunity cost of entering into politics.

Public fit and market fit are modelled as follows.

Assumption 1 (i) For any given e public-fit citizens get a higher motivational reward from doing politics, $eR_p > eR_m$. (ii) For any given a and e market-fit citizens get higher total benefits when working in the market sector, $M_m(a) + Q_m > M_p(a) + Q_p$, and $(1 - e)[P_m(a) + Q_m] > (1 - e)[P_p(a) + Q_p]$.³

Finally, we describe the timing of the model, which is solved backwards.

- At $t = 0$ the citizens choose whether to enter politics or not.
- At $t = 1$ citizens who have previously chosen to become politicians decide how much time e to dedicate to political activities.⁴

³Note that we do not impose any functional relation between ability and fit. Further, one might argue that (market) ability a should be distinguished by political skills because, *e.g.*, a high-ability individual may lack the competence and charisma to be a successful politician. Accordingly, we might enrich our framework by considering individuals characterized by a two-dimensional ability $a \equiv (a_1, a_2)$, where a_1 denotes market ability and a_2 political skills (see Mattozzi and Merlo, 2008, for a similar specification). Yet this is what we substantially do when considering fit in addition to ability as a characteristic of citizens. For any given level of a , a public-fit individual can be thought of as having higher political skills than a market-fit one due to the right fit; for the same reason, a market-fit individual is more successful in her private activity. A similar characterization is proposed by Ferraz and Finan (2009) who measure the quality of legislators through education, type of previous profession, and political experience in office. The last feature corresponds precisely to our empirical definition of public fit.

⁴Before proceeding, we stress that an important focus of our analysis is on the *self*-selection decision of running

3.1 Commitment once in office

In this subsection we study the politicians' second-period choice of time e to be devoted to the political activity. Such a choice follows their first-period decision of entering politics, thus of giving up a full-time job in the market sector. Accordingly, a type- i politician solves the following problem,

$$\begin{aligned} \max_e W + eR_i + (1 - e) [P_i(a) + Q_i] \\ \text{s.t. } e \in [0, 1]. \end{aligned} \quad (2)$$

The objective function is linear in e . Indeed, the derivative of (2) with respect to e is constant,

$$R_i - [P_i(a) + Q_i]. \quad (3)$$

As a consequence, there are only two alternative corner solutions to problem (2), $e = 1$ when (3) is positive, $e = 0$ when (3) is negative. We denote with a_i^* the ability level such that

$$R_i - [P_i(a_i^*) + Q_i] \equiv 0. \quad (4)$$

The LHS of (4) decreases with a since $P'_i(a) > 0$. Politicians whose ability is lower than a_i^* are thus completely committed to the political activity, *i.e.*, they choose $e_i^* \equiv 1$. Politicians whose ability is higher than a_i^* are instead completely dedicated to the private activity, *i.e.*, they choose $e_i^* \equiv 0$. The explanation of this result is simple. Since the motivational reward in politics, eR_i , is not affected by ability, while the opportunity cost of devoting to the political activity is increasing in ability, $(1 - e)P'_i(a) > 0$, only citizens with relatively low ability spend time doing politics.

More interestingly, applying the implicit function theorem to (4) yields

$$\frac{\partial a_i^*}{\partial R} = \frac{1}{P'(a)} > 0 \text{ and } \frac{\partial a_i^*}{\partial (P + Q)} = -\frac{1}{P'(a)} < 0. \quad (5)$$

Since $R_p > R_m$ and $P_p + Q_p < P_m + Q_m$ for any given a , we can conclude that $a_p^* > a_m^*$. There exists a non-empty ability interval $a \in (a_m^*, a_p^*]$, where public-fit politicians do not moonlight, $e_p^* \equiv 1$, whilst market-fit politicians do moonlight, $e_m^* \equiv 0$.

We restrict our attention to the case where public-fit politicians choose to fully devote to the political activity for any level of ability a . In symbols,

Assumption 2 $a_p^* \equiv \bar{a}$.

The role of this hypothesis is discussed in Subsection 3.4.

We sum up our findings in the following

Lemma 1 *Under Assumptions 1 and 2, market-fit politicians with ability $a \in [0, a_m^*]$ choose $e_m^* \equiv 1$, while those with ability $a \in (a_m^*, \bar{a}]$ choose $e_m^* \equiv 0$. By contrast, public-fit politicians select $e_p^* \equiv 1$ for any level of ability.*

The result of Lemma 1 derives from the concepts of public fit and market fit. *Ceteris paribus*, public-fit politicians derive higher benefits, $R_p > R_m$, and incur lower opportunity costs, $P_p + Q_p < P_m + Q_m$, than market-fit colleagues when fully committed in office. The former give up moonlighting even for high levels of ability.

for office. Accordingly, we disregard the role of political parties and voters in determining quality of the politicians by supposing that the individuals' ability and motivation are private information, and that elected politicians represent a random draw from all those willing to serve.

3.2 Selection into politics: Public-fit citizens

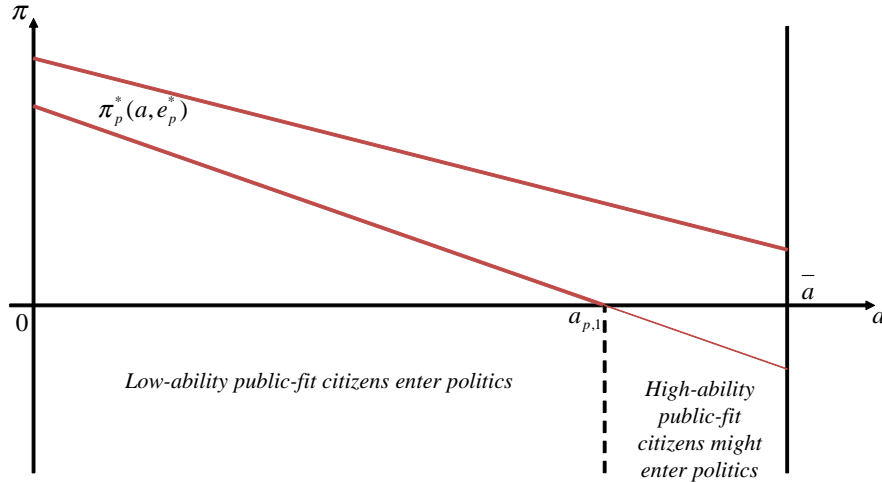
In this subsection we focus on public-fit citizens and study their first-period decision of entering politics. According to Lemma 1, public-fit citizens select $e_p^* \equiv 1$ at $t = 1$. Plugging such a value into (1) with $i = p$ yields the net payoff of becoming politician for a type p ,

$$\pi_p(a, e_p^*) \equiv W + R_p - [M_p(a) + Q_p]. \quad (6)$$

The above expression is decreasing in the ability level, $\partial \pi_p(a, e_p^*) / \partial a = -M'_p(a) < 0$. This is because a public-fit individual gives up moonlighting once in office. As a result, her opportunity costs of becoming a politician increase with a since markets reward ability, $\partial [Q_p + M_p(a)] / \partial a > 0$, whilst total reward in politics is fixed, $\partial (R_p + W) / \partial a = 0$.

In Figure 1 we represent $\pi_p^*(a, e_p^*)$ as a linear function of ability a given the optimal time spent doing politics by public-fit citizens, $e_p^* \equiv 1$.⁵

Figure 1. Selection of public-fit citizens



Parameter $a_{p,1}$ in the above figure denotes the ability level such that a public-fit citizen is indifferent between entering politics or not. In symbols, $(\pi_p(a, e_p^*) \equiv) W + R_p - M_p(a_{p,1}) - Q_p \equiv 0$. Obviously, public-fit citizens enter politics at $t = 0$ if and only if $\pi_p(a, e_p^*)$ is non-negative. Two conclusions can thus be drawn.

- (i) If $a_{p,1} \geq \bar{a}$, i.e., if

$$R_p \geq Q_p + M_p(\bar{a}) - W, \quad (7)$$

public-fit citizens enter politics for any level of ability. This case is represented by the upper line in Figure 1. Adverse selection does not occur because of a relatively high motivational reward from doing politics, R_p , which outdoes the opportunity cost of being a top-ability committed politician, $Q_p + M_p(\bar{a}) - W$. An interesting conclusion can be drawn. Top-ability public-fit individuals enter politics and do not shirk.

⁵In Figure 1, as well as in Figure 2 below, we let $\pi_i(0, 1) = W + R_i - [M_i(0) + Q_i]$ be positive. This simply means that a zero-ability committed citizen, both public-fit and market-fit, decides to enter politics due to her small opportunity cost $M_i(0) + Q_i$. For the sake of completeness, in Appendix A we study the remaining scenarios concerning public-fit and market-fit citizens' entry choice at $t = 0$. As a final remark, one can easily check that nothing substantial changes in our analysis if $\pi_i(a, e_i^*)$ is assumed to be non-linear, provided it is continuous and monotonic.

(ii) If $a_{p,1} < \bar{a}$, *i.e.*, if

$$R_p < Q_p + M_p(\bar{a}) - W, \quad (8)$$

public-fit citizens with ability $a \leq a_{p,1}$ enter politics, while public-fit citizens with ability $a > a_{p,1}$ do not. This is the classical adverse selection effect and it is represented by the lower line in Figure 1.

3.3 Selection into politics: Market-fit citizens

We now turn to market-fit citizens and study their first-period decision to enter politics. According to Lemma 1, their second-period effort choice is

$$e_m^* \equiv \begin{cases} 1 & \text{iff } a \in [0, a_m^*], \\ 0 & \text{iff } a \in (a_m^*, \bar{a}]. \end{cases} \quad (9)$$

Substituting (9) into (1) with $i = m$ gives the market-fit citizens' net payoff of becoming a politician,

$$\pi_m(a, e_m^*) \equiv \begin{cases} W + R_m - [M_m(a) + Q_m] & \text{iff } a \in [0, a_m^*], & (a) \\ W + P_m(a) - M_m(a) & \text{iff } a \in (a_m^*, \bar{a}]. & (b) \end{cases} \quad (10)$$

We have

$$\frac{\partial \pi_m(a, e_m^*)}{\partial a} = \begin{cases} -M'_m(a) & \text{iff } a \in [0, a_m^*], \\ P'_m(a) - M'_m(a) & \text{iff } a \in (a_m^*, \bar{a}]. \end{cases} \quad (11)$$

Derivative (11) suggests that market-fit politician's payoff is decreasing in ability when she does not moonlight, *i.e.*, when $a \leq a_m^*$. Higher ability, in fact, increases the opportunity cost $M_m(a)$. When $a > a_m^*$ the politician does moonlight and payoff $\pi_m(a, e_m^*)$ becomes increasing in ability if and only if

$$P'_m(a) > M'_m(a), \quad (12)$$

according to which marginal returns to ability of market-fit citizens are enhanced once in office. By contrast, payoff $\pi_m(a, e_m^*)$ is decreasing when the opposite occurs,

$$P'_m(a) < M'_m(a). \quad (13)$$

Condition $P'_m(a) > M'_m(a)$ describes a situation where market-fit politicians exploit their political position to improve their private business. According to condition $P'_m(a) < M'_m(a)$ the market has instead a negative opinion on part-time market-fit politicians.

In Figure 2 we draw the optimal net payoff $\pi_m^*(a, e_m^*)$ as a linear function of ability a given the optimal time spent doing politics by market-fit citizens, e_m^* . Note that $\pi_m(a_m^*, 1) = \pi_m(a_m^*, 0)$ by (4) and (10). We first focus on interval $a \leq a_m^*$ and calculate the ability level $a_{m,1}$ such that a market-fit citizen is indifferent between entering politics with commitment or not entering,

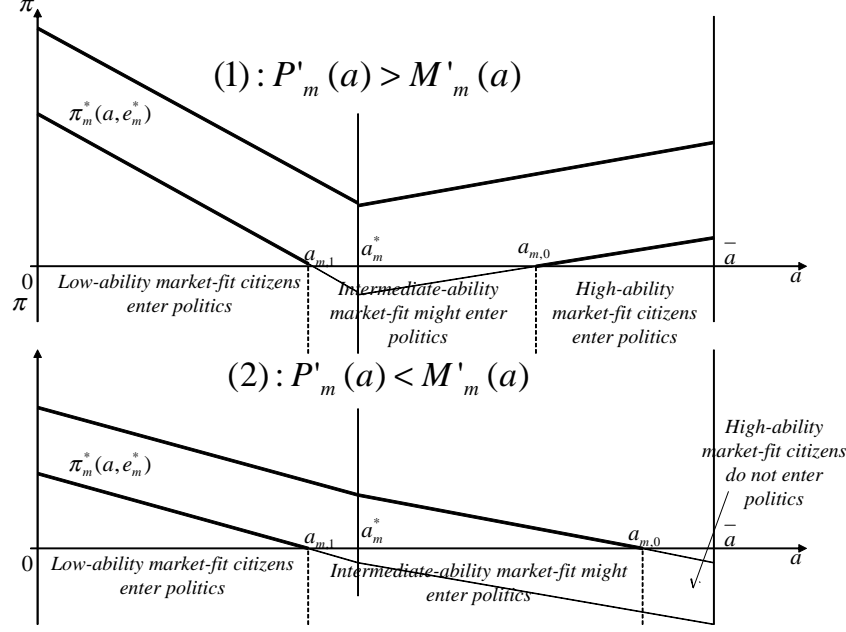
$$W + R_m - [M_m(a_{m,1}) + Q_m] \equiv 0. \quad (14)$$

We then turn to interval $a > a_m^*$ and denote with $a_{m,0}$ the ability level such that a market-fit citizen is indifferent between entering politics without commitment or not entering,

$$W + P_m(a_{m,0}) - M_m(a_{m,0}) \equiv 0. \quad (15)$$

Market-fit citizens enter politics at $t = 0$ if and only if $\pi_m(a, e_m^*)$ is non-negative. We consider two alternative cases.

Figure 2. Selection of market-fit citizens



(1) First focus on the upper panel of Figure 2, where $P'_m(a) > M'_m(a)$ hence $\pi_m(a, e_m^*)$ is increasing in $a \in (a_m^*, \bar{a}]$. (i) If $a_{m,1} < a_m^*$ and $a_{m,0} < \bar{a}$, market-fit citizens with ability $a \leq a_{m,1}$ and $a \geq a_{m,0}$ enter politics, while those with ability $a_{m,1} < a < a_{m,0}$ do not. (ii) If $a_{m,1} \geq a_m^*$ market-fit citizens enter politics for any level of ability. In both cases, the adverse selection problem does not arise. The reasoning is as follows. Lemma 1 ensures that market-fit citizens with ability $a > a_m^*$ do moonlight once in office. As a consequence, their payoff of becoming a politician increases with ability since $P'_m(a) > M'_m(a)$ and the upper tail of the ability distribution of market-fit citizens finds it profitable to enter politics.

(2) Now consider the lower panel of Figure 2, where $P'_m(a) < M'_m(a)$ and $\pi_m(a, e_m^*)$ is decreasing in $a \in (a_m^*, \bar{a}]$. (i) If $a_{m,1} < a_m^*$ market-fit citizens with ability $a \leq a_{m,1}$ enter politics, while those with ability $a > a_{m,1}$ do not. (ii) If $a_{m,1} \geq a_m^*$ and $a_{m,0} < \bar{a}$ market-fit citizens with ability $a \leq a_{m,0}$ enter politics, while those with ability $a > a_{m,0}$ do not. In both cases adverse selection occurs.⁶

3.4 Predictions and robustness checks

The above theoretical model provides some predictions on politicians' effort and self-selection optimal choices. They can be summarized by the following proposition.

Proposition 1 *The backward solution to the two-period model described above is as follows:*

$t = 1$ *Only market-fit politicians' commitment is decreasing in ability according to Lemma 1. In other words, only high-ability market-fit politicians do moonlight, whilst high-ability public-fit ones do not.*

$t = 0$ *High-ability market-fit citizens enter (do not enter) politics if the political position has a positive (negative) effect on the market activity, $P'_m(a) > M'_m(a)$ ($P'_m(a) < M'_m(a)$). By*

⁶We recall that the remaining scenarios concerning public-fit and market-fit citizens' self-selection decisions are studied in Appendix A.

contrast, high-ability public-fit citizens enter (do not enter) politics if their relatively high motivational reward from doing politics outdoes (is outdone by) the significant opportunity cost due to their stronger commitment, $R_p \geq (<) Q_p + M_p(\bar{a}) - W$.

We discuss three aspects related to the robustness of our theoretical findings.

(i) We first study the role played by Assumption 2 in driving our results. Relaxing such a condition by letting $a_p^* < \bar{a}$ yields a scenario where public-fit politicians with ability $a \in (a_p^*, \bar{a}]$ moonlight once in office. Their political effort becomes decreasing in ability. Plugging $e_p^* = 0$ into (1) with $i = p$ gives the following payoff of becoming a politician for a high-ability public-fit citizen:

$$\pi_p(a, e_p^*) = W + P_p(a) - M_p(a) \text{ if } a \in (a_p^*, \bar{a}]. \quad (16)$$

Mutatis mutandis, the above value is equivalent to (10-b). Accordingly, the analysis on self-selection decisions is as in the case of market-fit individuals (see Figure 2). High-ability public-fit citizens enter (do not enter) politics if the political position has a positive (negative) effect on the private activity,

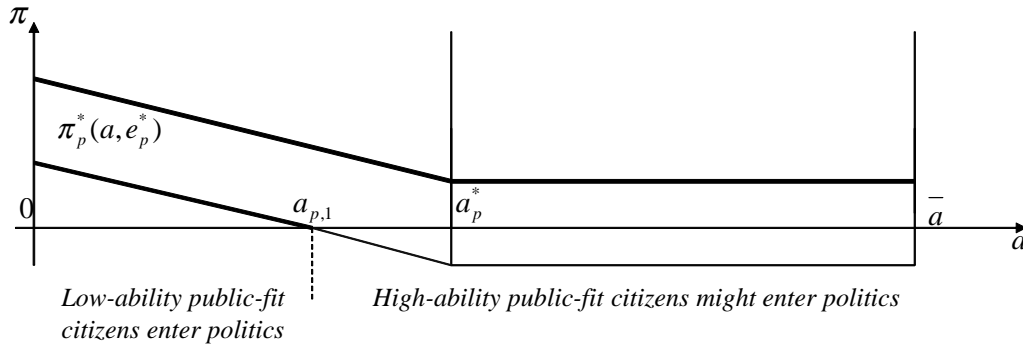
$$P'_p(a) > M'_p(a) \text{ } (P'_p(a) < M'_p(a)). \quad (17)$$

We also consider the equality case,

$$P'_p(a) = M'_p(a), \quad (18)$$

according to which returns to ability of public-fit citizens are supposed to be the same before and after election. In this scenario $\pi_p(a, e_p^*)$ does not depend on $a \in (a_p^*, \bar{a}]$. Graphically, $\pi_p(a, e_p^*)$ becomes a horizontal line in interval $(a_p^*, \bar{a}]$, with the effect that the results of public-fit citizens' selection described in Figure 1 stand: see Figure 1bis. Either public-fit citizens enter politics for any level of ability, this occurs when $a_{p,1} \geq a_p^*$, or only public-fit citizens with ability $a \leq a_{p,1}$ run for office, this occurs when $a_{p,1} < a_p^*$.

Figure 1bis. Selection of public-fit citizens when $P'_p(a) = M'_p(a)$



We can conclude that relaxing Assumption 2 only affects our findings on the effort choice of public-fit politicians, provided that condition (18) is fulfilled.

(ii) The existing economics literature on work motivation (see, *e.g.*, Handy and Katz, 1998; Heyes, 2005; and Delfgaauw and Dur, 2007) does not model explicitly the concept of person-environment fit and assumes that the outside option of agents is influenced just by ability. This

amounts to modify Assumption 1 by letting $Q_m = Q_p = 0$, $M_m(a) = M_p(a)$, and $P_m(a) = P_p(a)$ for any given a . Interestingly, this alternative framework does not affect inequality $a_m^* < a_p^*$ since R_p is still higher R_m , see expressions (5). It follows that Lemma 1 is still true, and so are our results on the effort choice. The same conclusion holds for the market-fit individuals' entry choice, since conditions $P'_m(a) \geq M'_m(a)$ are unaffected. By contrast, condition (7), $R_p \geq Q_p + M_p(\bar{a}) - W$, according to which public-fit individuals enter for any a , should be rewritten as $R_p \geq M_p(\bar{a}) - W$. Note that $M_p(\bar{a}) - W > Q_p + M_p(\bar{a}) - W$ if we specify that $Q_m > 0 > Q_p$ in Assumption 1, which amounts to lay down what follows. The motivational reward of an individual working in the market sector is increased (reduced) by the right fit (the wrong fit) in comparison with the no-fit case, where $Q_m = Q_p = 0$. This is in line with the definition of person-environment fit, in which case relying on our formulation, instead of the no-fit case considered by the extant literature, produces only the following difference: high-ability public-fit citizens are more likely to enter politics.

(iii) Finally, one might believe that population of public-fit citizens is characterized by a lower maximum level of ability than that of market-fit due to ex-ante self-selection choices. Indeed, the most brilliant individuals might be attracted by market activities, where remuneration is generally more sensitive to ability. In symbols, this amounts to let $\bar{a}_p < \bar{a}_m = \bar{a}$, where $\bar{a}_p(\bar{a}_m)$ denotes the maximum ability level of public-fit (market-fit) citizens. As for the effort choices, Lemma 1 is not affected unless $\bar{a}_p \leq a_m^*$. Only in this peculiar case the ability interval $a \in (a_m^*, a_p^*]$, where just public-fit politicians do not moonlight, would be empty. As for the entry choices, condition (7), $R_p \geq Q_p + M_p(\bar{a}) - W$, must be rewritten as

$$R_p \geq Q_p + M_p(\bar{a}_m) - W, \quad (19)$$

with $M_p(\bar{a}_m) - W < M_p(\bar{a}) - W$.

We can conclude that letting $\bar{a}_p < \bar{a}_m = \bar{a}$ only affects our findings on self-selection decisions of public-fit citizens, who become more likely to enter because their opportunity costs diminish due to their relatively low ability.

4 Data and institutional framework

We make use of a dataset on the members of the Italian Parliament (*Camera dei Deputati* and *Senato*) for the period 1996-2006 (two legislatures, XIII and XIV).⁷ The database provides a rich set of individual characteristics for politicians: political experience, appointments in parliament, political party affiliation, electoral system, district of election, coalition type, self-declared demographics, absences, bills, and incomes.

Before defining the empirical counterparts of the main theoretical variables, two issues are worth mentioning. The first one concerns the Italian institutional framework. In 1994 the electoral rule was changed, from a proportional system to a mixed system (legislature XII, 1994-1996, XIII, 1996-2001, and XIV, 2001-2006), with 25% of members elected under a proportional rule and a

⁷It is the same database used in GNN to make the results comparable. The data sources include: the Annals of the Italian Parliament (*La Navicella*) for the demographic information, edited by Editoriale Italiana; The Archive of Tax Returns for the members of Italian Parliament (*Servizio Prerogative e Immunità*), which provided the personal income information; the Press Office of the Italian Parliament for statistics on individual attendance and the parliament salary. See GNN for further details.

75% under a majoritarian one, and with the number of seats (945) that has remained unchanged over time (630 in the House of Representatives and 315 in the Senate). At the same time, in 1994, new political actors joined the party system following the corruption scandal in 1992-1993 that involved many formerly established political leaders and parties. The data are homogeneous with respect to both the electoral rule and the party system since they only refer to legislatures XIII and XIV.

The second issue regards the regulation of outside activity, which has not changed since its introduction in 1957 (*Decreto del Presidente della Repubblica*, N.361). Outside employment is monitored by the Committee on Elections (*Giunta per le Elezioni*), which is the institutional body for decisions related to the incompatibility with other non-elective public offices. Magistrates, academics, and any other public servants cannot simultaneously hold a position in parliament. They are asked to leave on absence. In few cases, such as an executive manager of a state-owned or state-assisted company, or other elective offices (mayors or governors), leave on absence is not allowed, and thus a choice must be made between a seat in parliament and these activities. Besides these incompatibilities, no limits are set to the amount of outside activity. For this reason, the Italian case is particularly well suited to investigate the moonlighting phenomenon.

4.1 Public-fit and market-fit politicians: empirical definition and descriptive statistics

Let us now move to the empirical counterpart of the variables introduced in the theoretical model. A first crucial aspect concerns the choice of a proxy for the dedication of a member of parliament. This is not an easy task since commitment to the public office is a multi-dimensional object. Being aware of it, we proxy the time devoted to parliamentary activity with the absenteeism rate in electronic floor voting sessions.⁸ As a robustness check measure, we make use of bills as main sponsor, *i.e.*, the politician is the "first name" ("primo firmatario") in proposing the bill. However, this measure might be considered as a less precise proxy for effort, since it is not always clear who actually spent time on preparing the bills, whether the administrative staff or the politician herself.

Another important variable in the empirical analysis is the proxy for ability. For freshmen, *i.e.*, members for the first time in parliament, our rich dataset includes the gross total income one year before election. Since in the econometric analysis we control for occupation, age, and education, we argue that higher pre-election income signals higher ability in a within occupation-age-education dimension. This seems to be a reasonable assumption. Having a proxy for ability is crucial in the empirical analysis, hence we focus on the sample of freshmen.⁹

The data also provides the gross salary from parliament and the gross total income, both earned and unearned, of all members of parliament. It is then possible to recover a measure of outside income by taking the difference between gross total income and gross parliamentary salary (which is constant, up to some inflation adjustment) in a specific year. Since absences are

⁸Non-attendance because of legitimate reasons, such as parliament missions and cabinet meetings, are not considered as an absence. It is worth mentioning that electronic votes account for about 90% of total floor votes, the rest being held with hand counting.

⁹A recent paper by Besley *et al.* (2012) proposes to use as a proxy for ability the individual fixed effects derived in a panel regression of income on control variables. We cannot do the same because we observe pre-election income only for one year in our data, hence we cannot carry out panel estimates.

measured per term, we take the average of outside income over the term.¹⁰

Probably the most important issue regards the empirical counterpart of motivation. Since our data are very rich for what concerns past political activity, we exploit this set of variables to derive the following baseline definition. A public-fit member is defined as an individual that had at least one of the following political experiences before entering the parliament:

- mayor or councillor of a municipality;
- president or councillor of a province;
- president or councillor of a region;
- member of the European parliament;
- affiliation/appointment in a political party at the local and/or national level.

The intuition behind this definition is straightforward. Members of parliament with previous political experiences have already shown interest for politics, for the community they live in, have shown their willingness to dedicate time/effort to political activities. This is especially true because most of the experiences considered concerns activities either with no monetary rewards, such as being affiliated to a political party at the local level (almost 35% of freshmen with previous political experiences), or with negligible monetary rewards, such as being a councillor of a municipality (55%) or mayor of a municipality (almost 30%).¹¹ Since this definition is crucial in the empirical analysis, we carry out a wide set of robustness checks in Subsection 5.1.

Consistently with the baseline definition of public-fit politicians, market-fit politicians are referred to as individuals who enter parliament directly from the market sector, without any declared political experience neither at the institutional level (municipality, province, region, European parliament) nor at the party level (local and national). It is interesting to note that out of the 763 freshmen in the two legislatures, 31.7% are market-fit politicians, *i.e.*, with no political experience before entering parliament, and 68.3% are public-fit politicians, *i.e.*, with at least one of the aforementioned past political experiences.

Table 1 includes the descriptive statistics for absenteeism rate, bills as main sponsor, pre-election income, and outside income, split by public-fit and market-fit politicians.¹² The absenteeism rate is higher for market-fit politicians than for public-fit ones, 35% vs 28%, and this

¹⁰In particular, we take the average of outside incomes from the third to the fifth year in the legislature, as in GNN. We cannot consider the tax records of the first year in parliament, since they refers to the year before the entry into parliament. Similarly, it is not possible to include the second year in the legislature, since the tax records refer to the entry year in parliament, that usually takes place in June. Hence, they include two time periods, before and after the entry, and for this reason they do not represent a proper measure of outside incomes. Furthermore, having only earned income, which requires an effort to be achieved, would have been preferable. However, GNN checked on a random sample of politicians the importance of unearned income, finding that properties are not considerable in number and do not play a substantial role. Note that even if total income were not a perfect proxy for earned income, it could still be a good measure of politicians' private activities, as far as unearned income also requires some duties of management.

¹¹Only mayors of big cities earn high salary (more than 5,000 euro per month). Salary of mayors of municipalities, which are on average small, can be less than 2,000 euro per month. The amount is even lower for councillors.

¹²As already stressed, we focus on the group of freshmen. Moreover, as in GNN, we drop outliers from the sample. Outliers are individuals earning either more than 2 million euros as pre-election and/or outside income, as well as those earning less than 15 thousands euro as pre-election income. This sample definition applies throughout the empirical analysis.

difference is statistically different from zero. Even stronger is the difference at the median, 30% vs 20%. In a similar vein, public-fit politicians propose more bills as main sponsor, 8 vs 7.45, even if in this case the difference is not significant. As for income variables, it comes out that pre-election income is 32% higher for market-fit politicians, 128,000 vs 97,000 euro. Interestingly, the difference strongly increases once in office, *i.e.*, the outside income for market-fit politicians is 81% greater than for public-fit ones. Similar results are derived when considering the median, 32% difference in pre-election incomes and 83% for outside incomes.

One might argue that these differences are at least partially due to a composition effect, *i.e.*, market-fit politicians being self selected into better-paying occupations. To address this issue, we carry out a regression analysis by using the logarithm of pre-election income as dependent variable, a dummy variable equal to one for public-fit politicians as main covariate, and by controlling for all variables included in Table 2, which are described in the next paragraph. The coefficient of the dummy for public-fit politicians represents the percentage difference in pre-election incomes between the two groups. Using OLS, the disparity between the two groups dampens, even if it is still equal to 20% for pre-election incomes and to 58% for outside incomes. Relying on median quantile regression, the percentage difference is 14% for pre-election incomes and 53% for outside incomes.

The above evidence suggests that slight differences in incomes between market-fit and public-fit politicians exist before entering the parliament and that such differences get wider during the mandate. This descriptive evidence is consistent with the basic intuition of Lemma 1: public-fit politicians are more committed to the parliamentary activity once in office.

[Table 1 around here]

In the econometric analysis we make use of the following wide set of control variables available in the dataset: individual covariates (male, age, graduate, occupation in 11 dummies); information about the parliament mandate (house of representatives, legislature, appointments in the parliament -president/vice president/secretary in parliament/committee); information on the parliamentary election and appointments (having been elected in a majoritarian -instead of a proportional- election, district of election -Northwest, Northeast, Center, South, Islands); party information (being in a left wing party, being in a party included in the government coalition); being member of a second committee. Table 2 reports the descriptive statistics for market-fit and public-fit politicians. It emerges that public servants, *i.e.*, teachers and bureaucrats, are more concentrated among public-fit politicians, as well as in left wing parties. Further, the graduate rates in the two groups are much higher than that of the Italian population, which was for instance equal to 12.2% in 2005, and it is greater among market-fit politicians. It is interesting to observe that the two types of politicians are almost equally distributed even in more "market-oriented" occupations, such as entrepreneurs, lawyers, self-employed, managers.

[Table 2 around here]

5 Empirical analysis: commitment and incomes

In this section we are interested in analysing the empirical relation between parliamentary commitment and income variables. We first focus on effort while in office and pre-election income, the

latter being a proxy for individual ability in a within age-education-occupation dimension. We estimate the following equation using OLS,

$$\alpha_{j,t} = \gamma M_{j,t-1} + \beta X_{j,t} + \varepsilon_{j,t}, \quad (20)$$

where j is the observation/individual, $\alpha_{j,t}$ is the absenteeism rate, $M_{j,t-1}$ is the pre-election income, and $X_{j,t}$ is the full set of controls included in Table 2.

A positive relation between pre-election incomes and absenteeism rates applies when considering the whole sample of freshmen politicians, as in the first column of Table 3.¹³ When focusing on the sample of market-fit politicians, we find that individuals with higher pre-election incomes are associated with higher absenteeism rates. More exactly, one standard deviation of pre-election income, 131,000 euros, is associated to a 2.8 percentage point increase in absenteeism rate, a not negligible amount given that the average absenteeism is around 30%. Interestingly, for public-fit politicians the coefficient is still positive but lower and not statistically different from zero. This evidence is consistent with the findings summed up in Lemma 1, according to which commitment once in office is decreasing in ability only for market-fit politicians.

[Table 3 around here]

We then move on considering the relation between absenteeism rate and outside income. It is crucial to investigate the outside income because it can be an indicator of time constraint between public and market activities. Moreover, the dynamics of market returns might substantially change after election, and in a possibly different way between market-fit and public-fit, as also shown by the descriptive statistics. We estimate the following equation,

$$\alpha_{j,t} = \gamma \tilde{P}_{j,t} + \beta X_{j,t} + \varepsilon_{j,t}, \quad (21)$$

where $\tilde{P}_{j,t}$ is the realized outside income, *i.e.*, the empirical counterpart of $(1 - e)P(a)$.

The first column of Table 4 shows that for the whole set of politicians the coefficient is equal to 0.02. When splitting the sample, the coefficient for market-fit politicians is even greater and statistically different from zero: an increase in one standard deviation of outside income, 136,000 euros, entails a 2.93 percentage point increase in the absenteeism rate. For public-fit politicians the coefficient is instead lower in magnitude and not statistically different from zero.

[Table 4 around here]

However, an endogeneity problem arises because $\tilde{P}_{j,t}$ is jointly determined with $\alpha_{j,t}$. As in GNN, we instrument $\tilde{P}_{j,t}$ with the pre-election income $M_{j,t-1}$, which we assume to affect $\alpha_{j,t}$ only through $\tilde{P}_{j,t}$. By doing so, we recover the effect of outside income opportunities, $P_{j,t}$, rather than the mechanical correlation between the realized outside income $\tilde{P}_{j,t}$ and the time devoted to parliamentary activities. This represents our preferred specification, and it will be used in the rest of the paper for the robustness checks. Columns (4) and (5) of Table 4 show that for market-fit politicians the coefficient is greater and significant, while it is still not significant for public-fit politicians. Note also that the F-test confirms that the instruments are not weak.

¹³This is in line with GNN. Yet our coefficient is slightly different because in the current paper we have to drop some covariates, *e.g.*, variables concerning previous political experiences, used to define the group of public-fit politicians.

Finally, we carry out the same regressions, both OLS and 2SLS, by relying on an alternative proxy for effort, the number of bills as main sponsor. In Table 5 we can see that OLS coefficients are negative - the higher the outside incomes, the lower the number of bills proposed - but not statistically different from zero for the two groups. As expected, the effect is anyway stronger for market-fit politicians. Interestingly, when resorting to 2SLS we find that outside income decreases the amount of bills proposed for market-fit politicians in a significant way, whilst the coefficient is not statistically different from zero for public-fit politicians. We can conclude that also findings concerning bills are consistent with the predictions of Lemma 1.

[Table 5 around here]

5.1 Commitment and outside income: robustness checks

In this subsection, we provide some robustness checks which concern mainly the identification of the public-fit politicians' group. The first check is related to the so-called national politicians, *i.e.*, those who have some current appointments in the party at the national level. National politicians are more likely not to attend the voting session for political reasons, such as participation in electoral and party meetings. Not surprisingly, most of the current national politicians, 78%, are included in the public-fit group, and this might alter the relation between absenteeism rate and outside income.

Table 6 includes OLS and 2SLS estimates concerning the relation between absenteeism rate and outside income for the sample of freshmen after excluding the current national politicians. Interestingly, the differences between the two groups get wider. Indeed, for market-fit politicians the coefficients become higher and are still significant. For public-fit politicians the coefficients are instead much lower, almost close to zero, and not significant.

[Table 6 around here]

The second robustness check concerns the definition of public-fit politicians. One might argue that the intensity of previous political experiences should be taken into account. Individuals with only one political experience might be motivationally similar to those with no political experience but rather different from those with three or four experiences. To test the robustness of our results with respect to this issue, we introduce two alternative definitions of public-fit politicians, based on a stronger intensity of previous political experience. We define as a public-fit politician individuals with at least two or three of the aforementioned political experiences. Table 7 reports the OLS and 2SLS estimates for these two additional groups of public-fit politicians, using the sample of freshmen as in Table 6. The coefficients are highly not significant, both using OLS and 2SLS. This suggests that our results are not sensitive to the change in the intensity of previous political experiences.¹⁴

[Table 7 around here]

The third robustness check is still focused on alternative definitions of public-fit politicians. Political experiences acquired before entering parliament can be divided into two main categories.

¹⁴Results are consistent even when considering individuals with four political experiences. In this case, however, the sample of public-fit politicians shrinks to only 59 individuals.

The first one concerns formal institutional appointments, such as having been major or counsellor of a municipality, president or counselor of a region/province, member of the European parliament. These are full-time remunerated occupations which require demanding commitment. The second category includes instead party affiliation at the local or national level, which can be thought of as being more related to pure motivation. On one hand, people usually receive no monetary rewards; on the other hand, party affiliation generally require less commitment. To explicitly take into account possible differences between these two subgroups, we make use of two additional definitions of public-fit politicians: individuals (i) with institutional appointments and no party affiliation before entering the parliament, (ii) with party affiliation and no institutional appointments before entering the parliament. OLS and 2SLS estimates for the former subgroup are reported in the first two columns of Table 8, while the third and fourth columns refer to the latter subgroup. Coefficients are always very close to zero and not statistically significant for the two groups, both in OLS and in 2SLS.

The last robustness check is inspired by the literature showing how politicians coming from the public sector, *i.e.*, public servants, display peculiar motivations and behave differently from the others (Brändle and Stutzer, 2013). Accordingly, an alternative approach to the definition of public-fit politicians is to consider individuals who were public servants before entering the parliament. In our data, this amounts to consider as a public-fit politician teachers and bureaucrats, no matter the political experiences they had before entering the parliament. The last two columns of Table 8 include the related estimates. Coefficients are not statistically different from zero both in OLS and 2SLS.¹⁵

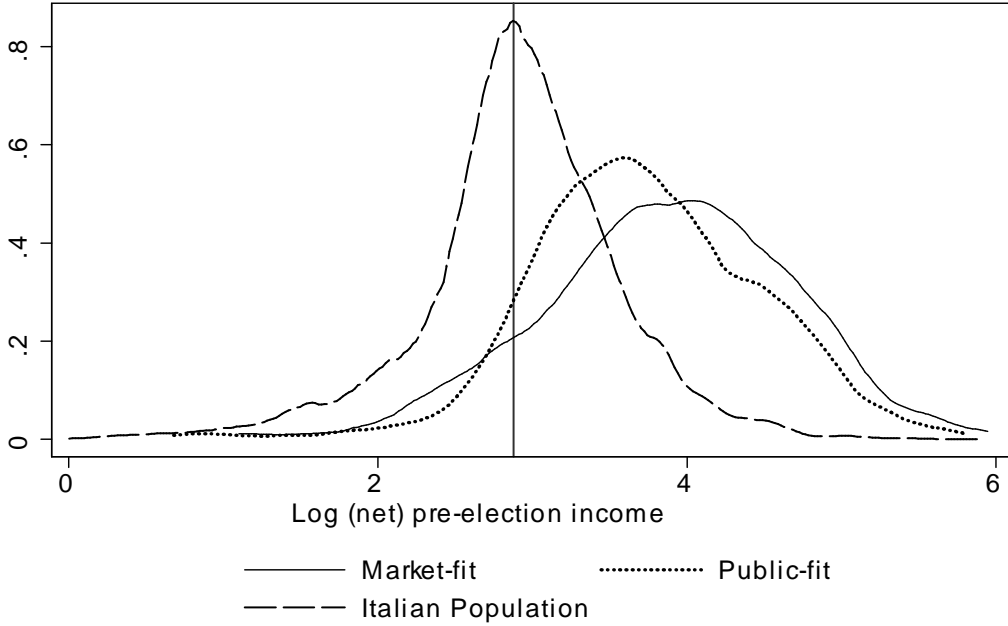
[Table 8 around here]

So far, we carried out robustness checks concerning the definition of public-fit politicians, while we have not changed the definition of market-fit politicians, *i.e.*, those declaring no previous political experience. In our opinion, this represents the best available definition for market-fit politicians. However, one might argue that modifying the definition of public-fit politicians should imply a change in the definition of the market-fit, with the latter defined as the residual group with respect to the different definitions of public-fit group. To take this issue on board, we also estimate equation (21) by OLS and 2SLS for the market-fit groups that emerge as residual of all the various definitions of public-fit politicians used so far. Table 9 shows that in basically all cases the coefficients remain positive and statistically significant and their magnitude close to that of Table 4 for both OLS and 2SLS estimates. This evidence guarantees the robustness of our findings concerning market-fit politicians. It also suggests that the main results are driven by the core group of the baseline definition of market-fit politicians, *i.e.*, those with no political experience before entering the parliament, which are included in basically all the groups obtained as residual of the alternative definitions of public-fit politicians

[Table 9 around here]

¹⁵University professors are not included in the set of public servants, since it can be easily the case that they are at the same time lawyers, physicians, architects, engineers, etc. Along this crucial dimension university professors differ from teachers or bureaucrats. When including them, the OLS coefficients become slightly significant, while the 2SLS ones remain not statistically different from zero.

Figure 3: Comparing the Italian population with market-fit and public-fit politicians



6 Empirical analysis: selection and motivation

In this section we investigate the issue of politicians' selection.¹⁶ As in GNN we begin the analysis by comparing the pre-election incomes of politicians with incomes of the Italian population. The latter are estimated by means of the SHIW data for the year 1995 and 2000. These are the years in which it is observed the pre-election income of freshmen politicians elected in 1996 and 2001, respectively. Almost every politician in the sample was employed before appointment. Accordingly, we extract individuals who declared to be employed in the SHIW. Because of differences in the occupation coding, only managers, entrepreneurs, self-employed, lawyers, clerks, teachers, and blue collars can be matched. The sample is also restricted to individuals aged 25-60.¹⁷ We end up with a sample of 507 politicians (321 public-fit and 186 market-fit).

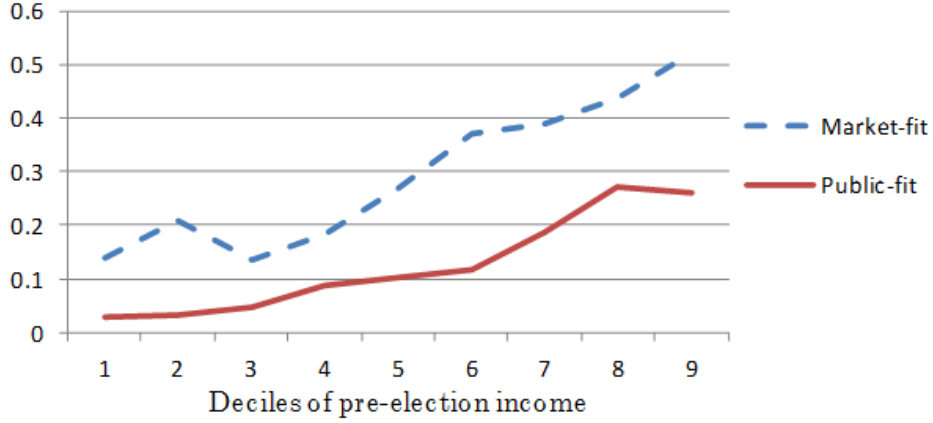
Figure 3 shows the comparison between the income distribution of the Italian population and that of the two groups of politicians. Interestingly, both public-fit and market-fit politicians are clearly to the right of the Italian population, suggesting an advantageous selection for the two groups. It is also worth stressing that the distribution of public-fit politicians is slightly on the left of that of the market-fit.

One might believe this evidence is due to disparities in composition among the three groups.

¹⁶Note that since the regulation of outside income in Italy never changed during the period of time covered by the dataset, it is not possible to directly test the implications of our model in terms of political selection due to a variation in the moonlighting rules.

¹⁷The choice of these thresholds are due to the fact that the minimum age for being candidate to the House of Representatives is 25 years, 40 to the Senate. Further, since the SHIW only provides net total income, we derived the same measure for politicians by subtracting the net tax reported in the tax returns from the gross pre-election income. Following Brandolini (1999), it is possible to take into account under-reporting in the SHIW by increasing the income of the Italian population by 30% for self employed and 15% for employees. By contrast, there is no problem of under-reporting for the parliamentarians' income for tax returns are available.

Figure 4. Pre-election income premia for public-fit and market-fit politicians



For this reason we carry out quantile regressions over the whole sample of the Italian population and over the two groups of politicians. We control for individual covariates (age, gender, year dummy, five job dummies, and four education dummies) and we introduce two dummies, one for market-fit politicians and one for public-fit politicians. Incomes are in logarithm to derive percentage changes. Figure 4 includes public-fit and market-fit politicians' pre-election income premia with respect to the Italian population. It clearly confirms that an advantageous selection is at stake.¹⁸ Further, premia for the two groups increase along the income distribution. It is also interesting to observe that the premia for public-fit politicians are lower than those of market-fit ones, confirming what we derived in Figure 3, and that the difference between the two groups slightly increases along the distribution, *i.e.*, gaps in pre-election incomes are greater at the top of the distribution.

The fact that the premia for being politicians increase along the distribution suggests that high-ability citizens might have a relative advantage once they enter into parliament, *i.e.*, the marginal return to ability for market income is greater when appointed than when not appointed. The theoretical model showed that this is prerequisite to observe high-ability market-fit politicians in parliament: see Proposition 1. The condition is formally stated in expression (12), which can be rewritten as follows,

$$\frac{\frac{\partial P_i(a)}{\partial a}}{\frac{\partial M_i(a)}{\partial a}} = \frac{\partial P_i(a)}{\partial M_i(a)} > 1, \quad (22)$$

$i = p, m$. We formally test this condition by regressing outside income on pre-election income, *i.e.*, by estimating the following equation,

$$\tilde{P}_{j,t} = \theta_i M_{j,t-1} + \beta e_{j,t} + \gamma X_{j,t} + v_{j,t}. \quad (23)$$

Condition (22) is fulfilled if the pre-election coefficient θ_i is greater than one, $H_0 : \theta_i \leq 1$. Since it is not possible to observe the outside income opportunities $P(a)$ but just the realized outside income $\tilde{P}(a)$, we include absences in voting sessions as an additional control to recover an estimate of θ for the same level of effort e . Results are included in Table 10, according to which $\theta_m > 1$

¹⁸ All coefficients reported in Figure 4 are statistically significant at least at 5% level.

in case of market-fit politicians, while $\theta_p = 1$ in case of public-fit politicians.¹⁹ This means that high-ability market-fit politicians enter the parliament since they can benefit from higher marginal returns to ability once in office, for instance because they have the chance to reveal their skills to a wider audience, or because of network spillovers. This finding is in line with GNN. The novelty of this contribution lies in the evidence on public-fit politicians, who seem not to exploit the political position to improve their private business.

[Table 10 around here]

Overall, we find a clear advantageous selection of public-fit politicians compared with the Italian population. This suggests that public-fit politicians have to be considered as high-ability individuals. Yet they are less skilled than market-fit, with the gap increasing along the pre-election income distribution. Further, public-fit do not display higher marginal returns to ability once in office, $\theta_p = 1$. Our theoretical framework provides two different explanations for these findings.

The first possible explanation is related to Figure 1. Suppose that $a_{p,1}$, the ability level such that a public-fit citizen is indifferent between entering politics or not, is slightly lower than \bar{a} , $a_{p,1} = \bar{a} - \varepsilon$. In this case only public-fit individuals belonging to the very upper tail of the ability distribution shun politics because their motivational rewards, even if higher than those of market-fit, are not sufficient to cover large opportunity costs they bear as top-ability committed politicians. This might explain why public-fit politicians are advantageously selected from the Italian population, on one hand, but display lower pre-election income with respect to market-fit ones, on the other hand. Top-ability market-fit citizens decide to enter because they know they will moonlight once in office, while top-ability public-fit potential candidates do not enter since they know they will be committed.²⁰

The second possible explanation is related to the last robustness check discussed in the theoretical part. The group of public-fit citizens might be characterized by a lower maximum level of ability than that of market-fit, due to *ex-ante* self-selection. In symbols, $\bar{a}_p < \bar{a}_m = \bar{a}$, with inequality $R_p \geq Q_p + M_p(\bar{a}_m) - W$ being fulfilled. The opportunity costs borne by public-fit individuals when entering politics diminish due to their relatively low ability, $M_p(\bar{a}_m) < M_p(\bar{a})$. Consequently, the motivational rewards R_p might be sufficient to cover such costs. This would explain the differences in pre-election income between the two groups.

In conclusion, note that even though it is not possible to test empirically which explanation applies since they are observationally equivalent, both support the punchline of the paper that motivation matters.²¹

¹⁹As in GNN we restrict the analysis to individuals for which pre-election incomes are more likely to reflect individual skills. We thus remove from the initial sample of freshmen those members that are former army officers, students, current political party officials, trade unionists, clerks, blue collars, and teachers. Further, to address the endogeneity issue due to the fact that absenteeism rate and outside income are equilibrium outcomes, we use the same instrument variable as in GNN. The instrument for the absenteeism rate is the time distance (in hours) between Rome and the province of residence, where politicians' outside activities are likely to be located (see GNN for details on the instrument). The results do not differ much in comparison to the baseline estimates, and are available upon request.

²⁰Here we suppose public-fit politicians are committed once in office for any ability level. Following the first robustness check discussed in the theoretical part, we could relax Assumption 1, in which case high-ability public-fit individuals enter and then moonlight, like the market-fit politicians do. However, we would expect to observe $\theta_p > 1$ to fit this scenario.

²¹A last remark is related to the probability to be a candidate for the next legislative term. This is something that goes beyond our static theoretical framework. Yet we expect that public-fit politicians display higher probability to

7 Conclusion

In this paper we investigated the role of motivation on political selection and commitment once in office. We adopted a framework where moonlighting is allowed and agents are heterogeneous in terms of ability and motivation. We showed that the opportunistic behavior of high-ability parliamentarians highlighted by the previous literature (GNN) could be mitigated by public service motivation. More precisely, we found that high-ability public-fit individuals may enter politics and refrain from shirking once in office. This is because they get high motivational rewards from doing politics, which may outdo the significant opportunity costs they bear when becoming committed politicians.

Overall, our results confirm the importance of acknowledging the role of work motivation when studying self-selection and effort choices in vocational labor markets, such as politics.

Finally, we believe that our paper could contribute to the long-standing debate on the regulation of politicians' moonlighting. From a normative point of view our analysis suggests that declaring outside jobs as incompatible with the political mandate might especially affect the entry decision of citizens with poor public service motivation. Lacking the moonlighting option, high-ability market-fit individuals are more likely to shun politics because their motivational rewards are low relatively to the opportunity costs they would have to bear as committed politicians.

A Appendix

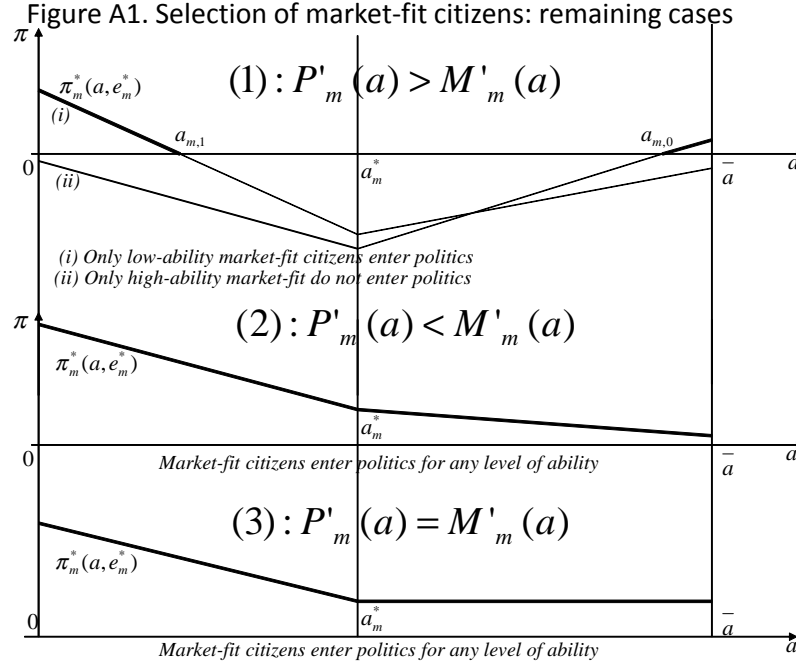
In this Appendix we complete the analysis of the scenarios concerning the citizens' entry choice at $t = 0$. We first focus on public-fit citizens, whose optimal entry decision is described by Figure 1. If we relax condition $\pi_i(0, e_i^*) > 0$ (see Footnote 5), $\pi_i(a, e_i^*)$ becomes negative for any a and no public-fit individual enters politics. Besides this trivial equilibrium, no other case should be taken into account. Let us hence move to market-fit citizens and have a look at Figure A1, where we disregard the case in which nobody enters politics.

(1) Suppose first $P'_m(a) > M'_m(a)$, in which case $\pi_m(a, e_m^*)$ is increasing in $a \in (a_m^*, \bar{a}]$. Two possible scenarios are not taken into account in Figure 2. (i) If $a_{m,1} < a_m^*$ and $a_{m,0} > \bar{a}$, only market-fit citizens with ability $a \leq a_{m,1}$ enter politics. There is adverse selection. (ii) If $a_{m,1} < 0$ and $a_{m,0} < \bar{a}$ only market-fit citizens with ability $a \geq a_{m,0}$ enter politics. Positive sorting does occur.

(2) Assume now $P'_m(a) < M'_m(a)$, in which case $\pi_m(a, e_m^*)$ is decreasing in $a \in (a_m^*, \bar{a}]$. There is only one scenario Figure 2 does not taken into account. If $a_{m,1} > a_m^*$ and $a_{m,0} > \bar{a}$ market-fit citizens enter politics for any ability level and adverse selection does not arise.

(3) Finally if $P'_m(a) = M'_m(a)$, $\pi_m(a, e_m^*)$ becomes a straight line in $a \in (a_m^*, \bar{a}]$. In this case, either market-fit citizens enter politics for any ability level, this occurs when $a_{m,1} > a_m^*$, or only low-ability enter. The latter case occurs when $a_{m,1} < a_m^*$ and it is already considered in Figure 2.

run for office in the next election, since they enjoy higher motivational rewards in doing politics and, at the same time, they incur lower opportunity costs. Conversely, market-fit politicians could have higher incentives in leaving politics given $\theta_m > 1$. To test this hypothesis we carry out a probit model using as dependent variable a dummy equal to one if the member of parliament is a candidate in the next election. The main covariate is the baseline public-fit politician dummy. We control for all variables included in Table 2 as well as pre-election and outside incomes, and absenteeism rate. Computing the marginal effects it comes out that public-fit politicians' probability to run for office in the next election is 14% higher than that of market-fit. This is consistent to our expectations and to the predictions of Mattozzi and Merlo (2008) who stress the importance of post congressional returns in driving the following behavior of high-ability market-fit citizens: they serve for a period and then leave parliament



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Tables

Table 1: Descriptive statistics for the variables of interest

		Abs.Rate	Bills	Pre-elec.inc.	Outside inc.
Market-fit	Mean	0.35	7.45	128	82
	Median	0.30	5.00	91	29
	Min	0.00	0.00	17	0
	Max	0.96	68.00	1,066	1,114
Public-fit	Mean	0.28	8.00	97	46
	Median	0.20	5.00	69	16
	Min	0.00	0.00	15	0
	Max	0.94	170	1,240	1,509

Notes. Absenteeism rate as percentage of electronic floor voting sessions not attended without legitimate reason. Incomes are in thousand of Euros. Outside incomes, bills as main sponsor, and absenteeism rates are averages over the legislature. Politicians with more than two million Euros of pre-election and outside income, and less than fifteen thousand Euros of pre-election income, are excluded. Life Senator and Ministers excluded.

Table 2: Descriptive statistics for the control variables

	Market-fit	Public-fit	Total
Male	0.90	0.91	0.91
Age	51.24	49.66	50.16
Graduate	0.81	0.72	0.75
House	0.70	0.67	0.68
Gov. Coalition	0.53	0.56	0.55
Majoritarian election	0.73	0.76	0.75
Legislature 14	0.35	0.60	0.52
Appointments in parliament	0.06	0.06	0.06
Second committee	0.12	0.12	0.12
Left wing party	0.33	0.44	0.40
Lawyer	0.17	0.15	0.16
Bureaucrat	0.04	0.08	0.07
Manager	0.08	0.09	0.08
Journalist	0.09	0.07	0.08
Entrepreneur	0.10	0.10	0.10
Teacher	0.06	0.10	0.09
Self employed	0.10	0.11	0.11
Physicians	0.05	0.09	0.08
Univ. professors	0.16	0.07	0.10
Clerks	0.03	0.04	0.04
Others occupations	0.12	0.10	0.10
Northeast	0.14	0.21	0.19
Northwest	0.33	0.26	0.28
Centre	0.33	0.26	0.28
South	0.31	0.25	0.27
Islands	0.09	0.12	0.11
Observations	242	521	763

Notes. Politicians with more than two million Euros of pre-election and outside income, and less than fifteen thousand Euros of pre-election income, are excluded. Life senators and ministers excluded.

Table 3: Absenteeism rate and pre-election income

	All	Market-fit	Public-fit
Pre-election income	0.023** (0.009)	0.022* (0.012)	0.015 (0.012)
Male	0.040*	0.045	0.038
Age	-0.003***	-0.004**	-0.003**
Graduate	-0.002	0.016	0.004
House	-0.093***	-0.067*	-0.111***
Gov. Coalition	-0.242***	-0.221***	-0.259***
Majoritarian election	-0.017	-0.043	0.009
Legislature 14	-0.134***	-0.098***	-0.142***
Appointments in parl.	0.017	0.021	0.008
Second committee	-0.024	0.012	-0.044
Left wing party	-0.099***	-0.113***	-0.101***
Lawyer	0.067	0.021	0.067
Bureaucrat	0.049	-0.049	0.073
Manager	0.035	-0.014	0.044
Journalist	0.090**	0.002	0.120**
Entrepreneur	0.077*	-0.054	0.120**
Teacher	0.065	0.036	0.069
Self employed	0.061	-0.001	0.074
Physicians	0.073	0.016	0.087
Univ. professors	0.069	0.013	0.064
Others occupations	0.043	-0.024	0.07
Northeast	-0.059**	0.056	-0.095***
Northwest	-0.059**	-0.037	-0.070**
South	-0.009	0.026	-0.03
Islands	-0.055**	-0.068	-0.053
Constant	0.707***	0.732***	0.703***
Observations	763	242	521
R-squared	0.398	0.42	0.404

Notes. *** stands for $p < 0.01$, ** for $p < 0.05$, and * for $p < 0.1$. Robust standard errors in parentheses (showed only for the variable of interest). Dependent variable: absenteeism rate. Income measures are in hundred thousand of euros (2004 prices). Politicians with more than two million Euros of pre-election and outside income, and less than fifteen thousand Euros of pre-election income, are excluded. Life senators and ministers excluded. All control variables are dummies, apart from Age.

Table 4: Absenteeism rate and outside income

	OLS			2SLS	
	(1)	(2)	(3)	(4)	(5)
	All	Market-fit	Public-fit	Market-fit	Public-fit
Outside income	0.020*** (0.007)	0.021** (0.011)	0.015 (0.010)	0.026** (0.013)	0.019 (0.013)
Male	0.040*	0.046	0.037	0.045	0.037
Age	-0.003***	-0.004**	-0.003**	-0.004***	-0.003***
Graduate	0.001	0.023	0.003	0.022	0.002
House	-0.093***	-0.064*	-0.112***	-0.063*	-0.112***
Gov. Coalition	-0.242***	-0.221***	-0.259***	-0.220***	-0.259***
Majoritarian election	-0.016	-0.044	0.012	-0.044	0.012
Legislature 14	-0.128***	-0.095***	-0.138***	-0.097***	-0.138***
Appointments in parl.	0.017	0.024	0.008	0.023	0.007
Second committee	-0.023	0.017	-0.045	0.017	-0.044
Left wing party	-0.100***	-0.116***	-0.100***	-0.116***	-0.100***
Lawyer	0.069*	0.013	0.069	0.007	0.067
Bureaucrat	0.052	-0.056	0.076	-0.057	0.076
Manager	0.037	-0.014	0.044	-0.015	0.042
Journalist	0.095**	0.005	0.124**	0.005	0.124**
Entrepreneur	0.077*	-0.061	0.121**	-0.064	0.119**
Teacher	0.065	0.03	0.071	0.03	0.072
Self employed	0.059	-0.011	0.075	-0.013	0.075
Physicians	0.073	0.008	0.089	0.005	0.089
Univ. professors	0.077*	0.017	0.067	0.015	0.067
Others occupations	0.046	-0.028	0.073	-0.028	0.073
Northeast	-0.057**	0.057	-0.094***	0.053	-0.093***
Northwest	-0.059**	-0.036	-0.072**	-0.038	-0.072***
South	-0.008	0.027	-0.029	0.027	-0.028
Islands	-0.049*	-0.063	-0.048	-0.062	-0.047
Constant	0.707***	0.734***	0.705***	0.738***	0.711***
F-test for instruments				91.44	28.94
Pre-election income in the 1st stage				0.833***	0.799***
Observations	763	242	521	242	521
R-squared	0.398	0.421	0.404	0.421	0.404

Notes. *** stands for $p < 0.01$, ** for $p < 0.05$, and * for $p < 0.1$. Robust standard errors in parentheses (showed only for the variable of interest). Dependent variable: absenteeism rate. Income measures are in hundred thousand of euros (2004 prices). Politicians with more than two million Euros of pre-election and outside income, and less than fifteen thousand Euros of pre-election income, are excluded. Life senators and ministers excluded. All control variables are dummies, apart from Age. In columns (4) and (5) outside income is instrumented with pre-election income.

Table 5: Bills proposed as main sponsor and outside income

	OLS			2SLS	
	(1)	(2)	(3)	(4)	(5)
	All	Market-fit	Public-fit	Market-fit	Public-fit
Outside income	-0.177 (0.163)	-0.205 (0.279)	-0.084 (0.226)	-0.698** (0.349)	0.028 (0.346)
Male	-0.664	-2.084	-0.098	-1.846	-0.226
Age	-0.094***	-0.059	-0.115***	-0.06	-0.117***
Graduate	0.864	1.844*	0.39	1.683	0.438
House	-1.259**	-1.008	-1.032*	-1.125	-1.044*
Gov. Coalition	-1.016**	-1.238	-1.01	-1.356	-1.001
Majoritarian election	0.951*	0.426	0.996	0.408	1.065*
Legislature 14	-1.594***	-1.486	-1.524***	-1.155	-1.574***
Appointments in parl.	2.611**	2.975	2.634*	2.85	2.580*
Second committee	0.358	0.269	0.742	0.29	0.754
Left wing party	-1.837***	-0.806	-1.979***	-0.885	-1.968***
Lawyer	0.019	-3.768	1.913	-3.773	2.524*
Bureaucrat	-0.217	2.741	-0.431	1.85	-0.063
Manager	-1.633	-5.805**	0.17	-5.934**	0.669
Journalist	-1.33	-3.898	-0.134	-4.804*	0.45
Entrepreneur	-1.267	-3.702	-0.262	-4.101	0.373
Teacher	-2.012	-5.507**	-0.528	-6.336**	0.106
Self employed	-1.417	-2.743	-0.734	-3.301	-0.191
Physicians	-1.537	-3.063	-0.696	-3.363	-0.302
Univ. professors	-1.889	-4.667*	-0.58	-4.859*	-0.059
Others occupations	-1.37	-1.37	-1.373	-1.879	-0.607
Northeast	-0.325	-0.325	-0.43	-0.041	-0.578
Northwest	-1.825**	-2.344	-1.464*	-2.273	-1.595*
South	-0.854	-1.728	-0.487	-1.827	-0.648
Islands	-1.656*	-3.612**	-1.127	-3.801**	-1.198
Constant	15.660***	16.964***	15.089***	17.814***	14.784***
F-test for instruments				75.525	33.418
Pre-election income in the 1st stage				0.831***	0.839***
Observations	781	247	534	247	534
R-squared	0.098	0.182	0.108	0.164	0.111

Notes. *** stands for $p < 0.01$, ** for $p < 0.05$, and * for $p < 0.1$. Robust standard errors in parentheses (showed only for the variable of interest). Dependent variable: bills proposed as main sponsor. Income measures are in hundred thousand of euros (2004 prices). Politicians with more than two million Euros of pre-election and outside income, and less than fifteen thousand Euros of pre-election income, are excluded. Life senators and ministers excluded. All control variables are dummies, apart from Age. In columns (4) and (5) outside income is instrumented with pre-election income.

Table 6: Absenteeism rate and outside income: excluding national politicians

	OLS			2SLS	
	(1)	(2)	(3)	(4)	(5)
	All	Market-fit	Public-fit	Market-fit	Public-fit
Outside income	0.020*** (0.007)	0.026*** (0.010)	0.01 (0.008)	0.028** (0.012)	0.009 (0.011)
Male	0.085***	0.062	0.110***	0.061	0.110***
Age	-0.004***	-0.004**	-0.004***	-0.004***	-0.004***
Graduate	0.014	0.048	0.008	0.048	0.009
House	-0.079***	-0.048	-0.099***	-0.047	-0.099***
Gov. Coalition	-0.241***	-0.231***	-0.262***	-0.230***	-0.262***
Maj_election	-0.045*	-0.070**	-0.014	-0.070**	-0.015
Legislature 14	-0.134***	-0.082**	-0.160***	-0.083**	-0.160***
Appointments in parl.	0.03	0.085*	0.004	0.085**	0.004
Second committee	0.023	0.072	-0.004	0.072*	-0.004
Left wing party	-0.126***	-0.143***	-0.131***	-0.143***	-0.131***
Lawyer	0.06	-0.047	0.082	-0.05	0.082
Bureaucrat	0.038	-0.102	0.08	-0.102	0.08
Manager	0.009	-0.124	0.061	-0.124	0.062
Journalist	0.098*	0.01	0.131*	0.01	0.131*
Entrepreneur	0.058	-0.084	0.107*	-0.085	0.108*
Teacher	0.061	-0.021	0.094	-0.021	0.094
Self employed	0.045	-0.03	0.078	-0.031	0.078
Physicians	0.071	-0.048	0.116*	-0.049	0.116*
Univ. professors	0.075	-0.028	0.096	-0.029	0.097
Others occupations	0.055	-0.042	0.09	-0.043	0.09
Northeast	-0.015	0.075	-0.060*	0.073	-0.060*
Northwest	-0.03	0.001	-0.047	0.001	-0.047
South	0.028	0.081	-0.008	0.081*	-0.009
Islands	-0.031	-0.062	-0.033	-0.062	-0.033
Constant	0.682***	0.706***	0.668***	0.707***	0.666***
F-test for instruments				108.88	21.4
Pre-election income in the 1st stage				0.885***	0.835***
Observations	540	195	345	195	345
R-squared	0.436	0.495	0.43	0.495	0.43

Notes. *** stands for $p < 0.01$, ** for $p < 0.05$, and * for $p < 0.1$. Robust standard errors in parentheses (showed only for the variable of interest). Dependent variable: absenteeism rate. Income measures are in hundred thousand of euros (2004 prices). Politicians with more than two million Euros of pre-election and outside income, and less than fifteen thousand Euros of pre-election income, are excluded. Life senators and ministers excluded. All control variables are dummies, apart from Age. In columns (4) and (5) outside income is instrumented with pre-election income.

Table 7: Absenteeism rate and outside income: alternative definitions of public-fit politicians, based on different intensity of previous political experiences.

	At least 2 experiences		At least 3 experiences	
	OLS	2SLS	OLS	2SLS
Outside income	0.006 (0.019)	0.023 (0.030)	-0.001 (0.029)	0.035 (0.039)
Male	0.039	0.033	0.088	0.072
Age	-0.003	-0.003*	0.001	0.000
Graduate	-0.004	-0.009	0.02	0.012
House	-0.102***	-0.104***	-0.097*	-0.100**
Gov. Coalition	-0.277***	-0.279***	-0.318***	-0.321***
Majoritarian election	-0.027	-0.024	-0.088*	-0.084*
Legislature 14	-0.144***	-0.145***	-0.156***	-0.159***
Appointments in parl.	0.098	0.091	0.110*	0.101*
Second committee	0.032	0.035	0.038	0.047
Left wing party	-0.087**	-0.085**	-0.069	-0.07
Lawyer	0.096	0.09	0.004	-0.015
Bureaucrat	0.086	0.084	0.004	0.000
Manager	0.032	0.027	0.005	0.006
Journalist	0.196**	0.196**	0.238**	0.239**
Entrepreneur	0.112	0.103	0.042	0.025
Teacher	0.051	0.053	0.075	0.078
Self employed	0.095	0.091	0.125	0.114
Physicians	0.143*	0.142*	0.058	0.054
Univ. professors	0.144	0.14	0.161	0.150
Others occupations	0.108	0.106	0.07	0.069
Northeast	-0.076*	-0.074*	-0.085	-0.083
Northwest	-0.073	-0.071*	-0.047	-0.053
South	-0.002	0.005	0.032	0.045
Islands	-0.001	0.004	0.067	0.071
Constant	0.691***	0.708***	0.529***	0.577***
F-test for instrument		27.1		13.04
Observations	217	217	124	124
R-squared	0.437	0.435	0.519	0.511

Notes. *** stands for $p < 0.01$, ** for $p < 0.05$, and * for $p < 0.1$. Robust standard errors in parentheses (showed only for the variable of interest). Dependent variable: absenteeism rate. Income measures are in hundred thousand of euros (2004 prices). Politicians with more than two million Euros of pre-election and outside income, and less than fifteen thousand Euros of pre-election income, are excluded. Life senators and ministers excluded. All control variables are dummies, apart from Age. In 2SLS outside income is instrumented with pre-election income.

Table 8: Absenteeism rate and outside income: further alternative definitions of public-fit politicians

	Institutional appoint.		Party affiliation		Public Servants	
	OLS	2SLS	OLS	2SLS	OLS	2SLS
Outside income	0.001 (0.012)	-0.008 (0.013)	0.007 (0.01)	0.014 (0.009)	0.035 (0.046)	0.082 (0.099)
Male	0.110***	0.112***	-0.011	-0.006	0.002	0.005
Age	-0.005***	-0.004***	0.005	0.004	-0.005*	-0.006*
Graduate	0.005	0.006	0.05	0.051	-0.007	-0.015
House	-0.102***	-0.101***	-0.112	-0.115*	-0.09	-0.092
Gov. Coalition	-0.210***	-0.209***	-0.270***	-0.267***	-0.289***	-0.279***
Majoritarian election	-0.013	-0.014	0.054	0.055	-0.012	-0.018
Legislature 14	-0.145***	-0.145***	-0.192***	-0.188***	-0.174***	-0.163***
Appointments in parl.	0.012	0.012	-0.190*	-0.193**	0.065*	0.056
Second committee	-0.101**	-0.102**	0.048	0.044	0.041	0.036
Left wing party	-0.120***	-0.123***	-0.082	-0.078	-0.194***	-0.186***
Northeast	-0.085*	-0.086*	0.019	0.02	-0.053	-0.059
Northwest	-0.067	-0.068	-0.12	-0.123*	-0.097	-0.096
South	-0.033	-0.036	-0.068	-0.065	0.028	0.031
Islands	-0.004	-0.007	-0.201**	-0.196**	-0.087	-0.089
Constant	0.707***	0.698***	0.799***	0.510***	0.975***	1.031***
Occupation dummies	Yes		Yes		Yes	
F-test for instrument	31.56		26.18		14.73	
Observations	269	269	78	78	119	119
R-squared	0.434	0.434	0.585	0.584	0.485	0.481

Notes. *** stands for $p < 0.01$, ** for $p < 0.05$, and * for $p < 0.1$. Robust standard errors in parentheses (showed only for the variable of interest). Dependent variable: absenteeism rate. Income measures are in hundred thousand of euros (2004 prices). Politicians with more than two million Euros of pre-election and outside income, and less than fifteen thousand Euros of pre-election income, are excluded. All control variables are dummies, apart from Age. In 2SLS outside income is instrumented with pre-election income.

Table 9: Absenteeism rate and outside income: groups of market-fit individuals derived as residual of the different definitions for public-fit politicians

	2 pol. exp.		3 pol. exp.		Institut.appont.		Party affiliation		Public servants	
	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS
Outside income	0.021*** (0.008)	0.02 (0.012)	0.021*** (0.008)	0.019* (0.011)	0.022*** (0.007)	0.036*** (0.01)	0.022** (0.009)	0.031** (0.012)	0.019*** (0.007)	0.026** (0.01)
Male	0.097***	0.097***	0.083***	0.083***	0.011	0.009	0.052**	0.050**	0.045	0.044
Age	-0.004***	-0.004***	-0.005***	-0.005***	-0.002**	-0.003**	-0.003***	-0.004***	-0.003***	-0.003***
Graduate	0.033	0.034	0.024	0.024	0.002	-0.001	-0.009	-0.011	0.003	0.002
House	-0.065**	-0.065**	-0.063**	-0.063**	-0.083***	-0.083***	-0.084***	-0.085***	-0.090***	-0.091***
Gov. Coalition	-0.215***	-0.215***	-0.217***	-0.217***	-0.263***	-0.264***	-0.243***	-0.244***	-0.239***	-0.240***
Maj.election	-0.042	-0.042	-0.028	-0.029	-0.013	-0.011	-0.02	-0.019	-0.016	-0.014
Legislature 14	-0.127***	-0.127***	-0.144***	-0.143***	-0.114***	-0.114***	-0.126***	-0.127***	-0.126***	-0.127***
Appoint. in parl.	-0.021	-0.021	-0.018	-0.018	0.022	0.019	0.039	0.037	0.008	0.007
Second comm.	0.013	0.013	0.014	0.014	0.018	0.019	-0.025	-0.024	-0.036	-0.035
Left wing party	-0.165***	-0.165***	-0.151***	-0.152***	-0.088***	-0.088***	-0.101***	-0.100***	-0.084***	-0.083***
Northeast	0.039	0.039	0.015	0.015	-0.026	-0.029	-0.063**	-0.064**	-0.051*	-0.052*
Northwest	0.000	0.000	-0.016	-0.015	-0.055*	-0.058**	-0.052**	-0.053**	-0.047*	-0.047*
South	0.053	0.053	0.028	0.028	0.004	0.006	-0.003	-0.001	-0.01	-0.008
Islands	-0.048	-0.049	-0.05	-0.051	-0.084**	-0.081**	-0.038	-0.035	-0.035	-0.032
Constant	0.655***	0.653***	0.681***	0.678***	0.702***	0.720***	0.704***	0.714***	0.672***	0.681***
Occ. dummies	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
F-test for instr.		49.15		58.13		65.29		144.97		90.79
Observations	323	323	416	416	494	494	685	685	644	644
R-squared	0.49	0.49	0.47	0.47	0.41	0.40	0.41	0.41	0.39	0.39

Notes. *** stands for $p < 0.01$, ** for $p < 0.05$, and * for $p < 0.1$. Robust standard errors in parentheses (showed only for the variable of interest). Dependent variable: absenteeism rate. Income measures are in hundred thousand of euros (2004 prices). Politicians with more than two million Euros of pre-election and outside income, and less than fifteen thousand Euros of pre-election income, are excluded. Life senators and ministers excluded. All control variables are dummies, apart from Age. In 2SLS outside income is instrumented with pre-election income.

Table 10: Relation between pre-election income and outside income

	All	Market-fit	Public-fit
Pre-election income	1.102***	1.112***	1.044
H0: $\theta \leq 0$. P-value	(0.103)	(0.037**)	(0.446)
Absenteeism rate	0.003	0.002	0.004*
Male	-0.268***	-0.391**	-0.148
Age	0.003	-0.004	0.011**
Graduate	0.027	-0.264	0.132
House	0.095	-0.12	0.289**
Gov. Coalition	-0.006	-0.081	-0.015
Maj_election	-0.088	0.228	-0.369**
Legislature 14	-0.216***	-0.08	-0.255*
Appointed parl.	0.057	-0.202	0.229
Second committee	-0.221*	-0.548*	0.036
Left wing party	0.025	0.142	-0.018
Northeast	-0.249*	-0.124	-0.092
Northwest	-0.156	-0.159	0.157
South	-0.279*	-0.127	-0.138
Islands	-0.526***	-0.263	-0.342**
Occupational dummies	YES	YES	YES
Constant	-0.405	0.475	-0.830**
Observations	385	144	241
R-squared	0.821	0.896	0.609

Notes. *** stands for $p < 0.01$, ** for $p < 0.05$, and * for $p < 0.1$. P-value in parentheses, relative to the test $H_0: \theta \leq 0$. Dependent variable: outside income. Income measures are in hundred thousand of euros (2004 prices). Politicians with more than two million Euros of pre-election and outside income, and less than fifteen thousand Euros of pre-election income, are excluded. All control variables are dummies, apart from Age.