Moonlighting Politicians: Motivation Matters![*]

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Abstract

In most modern democracies elected officials can work in the private sector while appointed in parliament, i.e. they can moonlight. Gagliarducci, Nannicini and Naticchioni (2010, JPubEc) show, both theoretically and empirically, that high-ability citizens are more likely to run for election if they can keep earning money outside of parliament; for the same reason, they are also more likely to shirk once in office. In the current paper we extend Gagliarducci et al. (2010) by including explicitly the role of politicians' motivation, which is affected by the politicians' degree of fit with the public sector. Our theoretical framework shows that the above trade-off might not arise when politicians are motivated (have *public-fit*), in that high-ability individuals might enter politics and not shirk once in office. We test our predictions by using a unique database of Italian politicians for the period 1996-2006. Interestingly, we find that the effort of public-fit politicians is not negatively affected by outside income opportunities, while this is the case for the non-motivated (*market-fit*) ones. We also show that both public-fit and market-fit politicians are positively selected from the Italian population.

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JEL Codes: D72, A12, J32, J45, P16.

1   Introduction

In the literature on political selection the private sector and politics are assumed to be mutually exclusive (Besley, 2004; Caselli and Morelli, 2004). As a consequence, the common prediction is (adverse) selection of bad politicians since markets reward ability, whilst wages are fixed in parliament.

Yet, in many countries members of Parliament can keep on working in the private sector while in office: this is often referred to as moonlighting. For instance, lawyers may still attend to clients, entrepreneurs may keep on managing their firms etc.[1] A recent paper by Gagliarducci *et al.* (2010), GNN afterwards, shows that virtuous instead of adverse selection of politicians might occur when moonlighting is taken into account. More exactly, GNN highlights the existence of an interesting trade-off. Relying on a unique dataset about the members of the Italian Parliament (*Camera dei Deputati* and *Senato*) for the period 1996-2006, and comparing politicians data to the Italian population data, they find out that politicians display higher incomes before entering parliament than the Italian population, thanks to the possibility of moonlighting. Nevertheless, high ability politicians produce lower effort once in office.

A shortcoming of the GNN analysis is that it deals with politicians without taking explicitly into account the concept of public service motivation, PSM henceforth. Indeed, this is one of oldest and most discussed topics by public administration scholars (see, i.e., Rainey and Steinbauer, 1999). PSM is defined as "an individual's predisposition to respond to motives grounded primarily or uniquely in public institutions and organizations" (Perry and Wise, 1990). Put differently, working activity of public servants is driven by something different than material incentives like, i.e., money or career advancements. We believe that allowing for different degrees of PSM across potential politicians may add interesting insights to the GNN analysis.

Accordingly, the current paper extends the arguments set out in GNN by including explicitly the role of politicians' motivation. A few recent papers in economics have recently investigated selection and incentive schemes when workers are endowed with motivation (Benabou and Tirole, 2003; Besley and Ghatak, 2005; Francois, 2000; Glazer, 2004). The baseline of the concept of motivation emerging from such articles is that people can derive (non-monetary) "motivational" rewards from working.

In our theoretical framework individuals, who differ in their ability level, may work as a politician in the public sector and/or run a private activity in the private sector. Motivated politicians are defined as citizens who have high fit with the public sector environment in terms of value congruence. One can think of persons who, through their job, aim at developing social relations, achieving power, or serving the interests of a community. This type of individuals are supposed to be better fitted with the public/political sector. By contrast, non-motivated politicians are those with better fit in the market sector, for, e.g., their main work value is to obtain monetary incomes.[2]

We find that the trade-off highlighted by GNN might not hold when politician are endowed with PSM. More exactly, we show that only public-fit politicians might enter politics and not shirk once in office even if they have high ability. The intuition is that high motivational rewards from doing politics may outdo

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[1] Outside employment is registered, *e.g.*, in the Italian Parlamento, in the British House of Commons, in the German Bundestag and in the European Parliament. For cross-country reviews, see Djankov et al. (2010); and van Aaken and Voigt (2009).

[2] These behavioral concepts are rather new in the economics literature. Accordingly, we explain them extensively in the next section.

significant opportunity costs a high-ability individual bears when becoming a committed politician, i.e. a politician who gives up moonlighting.

We test our predictions by relying on the database concerning the Italian members of parliament, as in GNN. The dataset contains individual information on attendance in floor voting sessions, and extensive details on pre-election and outside income, apart from a detailed set of control variables, from 1996 to 2006. We define as public-fit politicians those members that had political appointments (at the party and/or at the institutional level) before entering parliament, while market-fit politicians are those who have never had any appointments before entering. We find that outside income affects negatively the effort while in office, mainly absenteeism rate, for market-fit politicians, confirming the finding in GNN. The interesting novelty is that outside income does not affect absenteeism rate for the public-fit ones, and this is consistent with our theoretical model. These findings are confirmed when using an instrument variable approach to control for endogeneity.

As for selection into parliament, we show that both groups of public-fit and market-fit politicians display a pre-election income greater than that of the Italian population, estimates using the Bank of Italy's Survey on Household Income and Wealth (SHIW). This evidence confirms that the prediction of bad politicians (Caselli and Morelli, 2004) does not hold when moonlighting is allowed. Furthermore, we find out that the marginal returns to ability are amplified after election only for market-fit politicians, since the ratio between the marginal outside income and the marginal pre-election income being greater than one for this group. The same ratio is instead equal to one for public-fit politicians, suggesting that their marginal returns to ability do not increase once in office. This might be explained by the fact that if very high-ability public-fit politicians enter they do not exploit all potential benefits in the private market because of their commitment to the parliamentary activity.

The remainder of the paper is organized as follows. In Section 2 we survey political selection and PSM literatures. 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. Finally, Section 6 provides empirical evidence on the selection into parliament.

2   Related Literature

The current paper contributes to the literature on political selection and incentive effects of moonlighting. As first remark, it is interesting to note that in the political economy literature outside employment has not been widely covered. This is probably due to the fact that 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, and hence that high-quality individuals have a higher opportunity cost of running for office. In turn, this was probably related to severe data restrictions concerning politicians' incomes. In recent years, however, more stringent disclosure rules have increased data availability, and large-sample analyses are becoming increasingly feasible. One of the few exception in this literature is Mattozzi and Merlo (2008), since they emphasize the role of the public office in signaling ability or establishing a network that could be helpful in the private sector. In their paper, however, the two options of being a politician or working in a perfectly competitive market are not simultaneously available. For this reason, high-ability citizens might

decide to be in parliament for a short period, after which they might decide to exit to capitalize on their political experience.

Besides GNN, already presented in the introduction, several articles analyze moonlighting from an empirical point of view: Norris (1996), Maddox (2004), Becker *et al.* (2009). Eggers and Hainmuller (2009) focus on the British Parliament (2005-07) and identify a negative relationship between moonlighting and parliamentary activity. For a exhaustive and general survey of the empirical literature on moonlighting, see also Geys and Mause (2011).

It is also worth noting that some papers have considered honesty, in addition to ability, as a desirable attribute of politicians (*i.e.*, Caselli and Morelli, 2004). Others, instead, have focused on commitment. Besley (2004), for example, argue that paying politicians more will improve their performance, because the salary of a politician plays an efficiency-wage role. On the contrary, Poutvaara and Takalo (2007) show situations where increasing politicians' earnings might lowers candidate quality. To the best of our knowledge, our paper is the first attempt to introduce explicitly motivations into the moonlighting literature.

A second and new strand in the economics literature which is closely related to our contribution emphasizes that workers in public organizations may be especially motivated to work. Beniers and Dur (2007) introduce heterogeneity both in politicians' competence and motivation and analyze how motivation affects the probability of reelection. Besley (2005) allows for "public-spirited individuals" that are less attracted by monetary incentives and stresses the need of a good match between organization and workers' motivation.

While economists are paying growing attention to the study of labor markets where both skills and motivation characterize workers, quite surprisingly, the analysis of the determinants of work motivation has drawn less attention. The current paper tries to fill the gap by introducing some basic insights from the organizational psychology and management literatures.

According to self-determination theory (Deci and Ryan, 1985) different kinds of (general) work motivation exist depending on their degree of autonomy. The most autonomous one is intrinsic motivation - a job is done for the fun or challenge. Less autonomous is extrinsic motivation - a job is done to attain separable outcomes. Ryan and Deci (2000) argue that intrinsic motivation exists in the relation between individuals and activities. Individuals are intrinsically motivated for some activities and not others. Intrinsic work motivation is therefore affected by the job characteristics, as argued, i.e., by Devaro and Brookshire (2007). This gives scope to the notion of person-job fit, which is defined as the match between the needs/desires of a person and what is provided by a job (Edwards, 1991).

By contrast, in case of extrinsic motivation workers are stimulated by the organizational mission rather than by the pleasure found in doing the work itself (Grant, 2008). Consequently, extrinsic work motivation is affected by the degree of person-organization fit, defined as the compatibility between workers and the entire organization in terms of value congruence (Tom, 1971).

According to the applied psychology literature (see, i.e., Ros et al., 1999) work values are desirable goals that act as guiding principles for evaluating work outcomes and settings, and for choosing among different work alternatives. There exist four main types. (i) Intrinsic work values concern pursuit of autonomy, interest, and creativity in work. (ii) Material work values regard job security and income. (iii) Prestige work values concern power, authority, influence, and achievement in work. (iv) Social work values: work is seen as a vehicle for social relations and contribution to people and community.

Narrowing down attention to politicians, PSM can be stimulated by different factors (Perry and Wise, 1990). (i) Advocacy for a special interest: individuals may be drawn to government because of their belief that their choices will facilitate the interests of special groups.[3] (ii) Ego rents: participation in the process of good policy formulation can reinforce an individual's image of self importance. (iii) General motivation to serve the interests of a community. All the above stimuli are examples of extrinsic motivation. Accordingly, PSM is affected by person-organization fit in terms of value congruence.

Following the above reasoning, in our theoretical framework we consider individuals who may work in two different sectors, as anticipated in the introduction. They can operate as a politician in a public sector, where the main organization values consist in developing social relations, achieving power, and serving the interests of a community (social and prestige values). They can also work in a private sector, where the main organization value is instead producing monetary profits (a material value). Individuals differ in terms of work values. Some are mainly driven by social and prestige values, others by material ones. The former are defined as public-fit individuals and assumed to derive higher non-wage rewards from doing politics. The latter are defined as market-fit individuals and supposed to get a higher income when working in the private sector, for any level of ability.

It is worth stressing that the politicians' degree of fit has no welfare effect in our framework. This means that public-fit citizens are not necessarily better politicians. On one hand, they might positively affect the societal well-being if one think of them as a fair politician, committed to his/her constituency and to the country interests. On the other hand, social and prestige values of public-fit politicians can also be associated to the pursuit of power (e.g., re-election) through corruption, policy of patronage, and so on. Our agnostic approach is because we are not able to disentangle between the two opposite cases. Nonetheless, the important aspect is that motivations of public-fit politicians, either "good or "bad", differ from those of market-fit politicians, who are more oriented towards market activities.

3   Theoretical Setup

We build on GNN and consider a society with a continuum of citizens. Each citizen has two options. (i) She may work full-time in the private sector, in which case she obtains a market income $M(a)$, with a denoting her ability; the private sector attaches a positive value to skills, $M'(a) > 0$. (ii) Alternatively, each citizen may become a politician. A politician is allowed to work in the private sector while in office and to get an outside income equal to $P(a)$, with $P'(a) > 0$; this extra-option is referred to as moonlighting. Once in office, a politician is subject to a time/effort constraint. If she devotes more time/effort $e \in [0,1]$ to political activities, she has less time $1 - e$ for her outside job. Finally, let $eR \geq 0$ denote a non-wage reward from doing politics and $W > 0$ a fixed salary earned by the politician while in office.

Two types of citizens exist in the society, who differ in terms of degree of fit or compatibility with the political sector environment. A type p (m) citizen has public (market) fit, which is modelled as follows.

Assumption 1 *(i) For any given e public-fit citizens get a higher non-wage reward from doing politics, $eR_p > eR_m$. (ii) For any given a and e market-fit citizens get a higher income when working in the private sector, $M_m(a) > M_p(a)$, and $(1-e)P_m(a) > (1-e)P_p(a)$.*

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[3] By special groups we also refer to very restricted groups, such as relatives of the politician or the politician herself!

According to the above assumptions, (net) payoff of becoming a politician for a type-$i = m, p$ citizen is given by

$$\pi_i(a, e) \equiv eR_i + W + (1 - e) P_i(a) - M_i(a), \tag{1}$$

where $M_i(a)$ is the opportunity cost of not devoting to full-time job in the private sector. Citizens of each type are uniformly distributed in the ability interval $[0, \bar{a}]$.

The timing of events is as follows:

- at $t = 0$ each citizen, according to her own ability, chooses whether to enter politics or not;

- at $t = 1$ each citizen who has chosen to become a politician decides how much time e to dedicate to parliamentary activities.

The model is solved backwards.

3.1 Parliamentary activity

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

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

The objective function is linear in e; there are hence only two alternative corner solutions to problem (2), depending on whether R_i is higher or lower than $P_i(a)$. We denote with a_i^* the ability level such that

$$R_i - P_i(a_i^*) = 0 \tag{3}$$

and remark that the LHS of (3) decreases with a given $P'(a) > 0$. We can therefore conclude that politicians whose ability is lower than a_i^* are completely dedicated to the parliamentary activity, *i.e.* they choose $e_i^* = 1$; politicians whose ability is higher than a_i^* are completely dedicated to the private activity, *i.e.* they choose $e_i^* = 0$. The explanation of this result is forthright. Since non-wage reward in parliament, eR_i, is not affected by ability, while opportunity costs of devoting to parliamentary activity is increasing in ability, $(1 - e) P'(a) > 0$, only citizens with relatively low ability spend time in parliament.

Interestingly, one can check that $a_m^* < a_p^*$. Indeed, applying the implicit function theorem to (3) yields

$$\frac{\partial a_i^*}{\partial R} = \frac{1}{P_i'(a)} > 0 \text{ and } \frac{\partial a_i^*}{\partial P} = -\frac{1}{P_i'(a)} < 0. \tag{4}$$

Inequality $a_m^* < a_p^*$ follows because $R_p > R_m$ and $P_p < P_m$ for any a. As a consequence, there exists a non-empty ability interval $a \in (a_m^*, a_p^*]$, in which public-fit politicians do not moonlight, $e_p^* = 1$, whilst market-fit politicians do moonlight, $e_m^* = 0$.

We restrict out attention to the case where high-fit politicians choose to fully devote to the parliamentary activity for any level of ability a. In symbols, we let

$$a_p^* \equiv \bar{a}. \tag{5}$$

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This is without loss of generality, as we will discuss extensively in Subsection 3.4.

We sum up the above findings in the following

Proposition 1 *Once in office, market-fit politicians with ability $a \in [0, a_m^*]$ do not moonlight, while those with ability $a \in (a_m^*, \bar{a}]$ do moonlight. By contrast, public-fit politicians do not moonlight for any level of ability.*

Proof. If $a \leq a_m^*$, $R_p > P_p$ and $R_m \geq P_m$ by $P'(a) > 0$, (3), and (4). As a result, citizens with $a \in [0, a_m^*]$ choose $e^* = 1$. If $a_m^* < a \leq \bar{a}$, $R_p \geq P_p$ and $R_m < P_m$. Accordingly, citizens with $a \in (a_m^*, \bar{a}]$ choose $e_p^* = 1$ and $e_m^* = 0$. ∎

The result of Proposition 1 derives straightforwardly from Assumption 1. *Ceteris paribus*, public-fit politicians derive higher benefits - $R_p > R_m$ - and incur lower opportunity costs - $P_p < P_m$ - than market-fit colleagues when fully committed in office, thus giving up moonlighting even for higher levels of ability.

In what follows, we analyse the citizens' choice whether to enter politics at $t = 0$ by considering separately public-fit and market-fit citizens.

3.2 Public-fit citizens

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

$$\pi_p\left(a, e_p^*\right) = R_p + W - M_p\left(a\right) \tag{6}$$

We compute

$$\frac{\partial \pi_p\left(a, e_p^*\right)}{\partial a} = -M_p'\left(a\right), \tag{7}$$

which ensures that a public-fit politician's payoff is decreasing in the ability. This is because a public-fit politician gives up moonlighting, hence the higher her ability, the higher the opportunity cost of becoming a politician.

In Figure 1 we represent $\pi_p^*\left(a, e_p^*\right)$ as a linear function of ability a and optimal time spent in parliament e_p^* by public-fit citizens.[4] To this aim, we calculate the ability level $a_{p,1}$ such that

$$R_p + W - M_p\left(a_{p,1}\right) = 0 \tag{8}$$

and recall that the LHS of (8) decreases with a.

FIGURE 1

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[4] In this and next figures we let $\pi_i\left(0, e_i^*\right) = R_i + W - M_i\left(0\right)$ be positive. This means simply that a zero-ability citizen decides to enter politics due to her small opportunity cost $M_i\left(0\right)$.
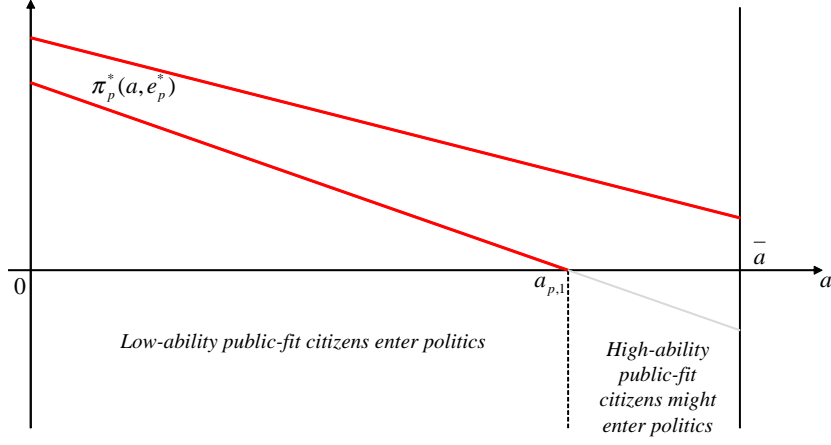
Since public-fit citizens enter politics at $t = 0$ iff $\pi_p\left(a, e_p^*\right)$ is non-negative, two conclusions can be drawn. (i) If $a_{p,1} < \bar{a}$, public-fit citizens with ability $a \leq a_{p,1}$ enter politics, while public-fit citizens with ability $a > a_{p,1}$ do not. (ii) If $a_{p,1} \geq \bar{a}$, public-fit citizens enter politics for any level of ability. Inequality $a_{p,1} \geq \bar{a}$ rewrites as

$$R_p + W \geq M_p\left(\bar{a}\right). \tag{9}$$

We sum up the public-fit citizens' first-stage choice of entering politics in the following

Lemma 1 *Public-fit citizens enter politics at $t = 0$ iff $a \leq a_{p,1}$ when condition (9) is not fulfilled. They enter for any ability level when condition (9) is fulfilled.*

The first result is the classical adverse selection effect (see, *e.g.*, Caselli and Morelli, 2004) and can be explained as follows. Since a public-fit politician is fully committed in office, her opportunity costs increase with a since markets reward ability, $M_p'\left(a\right) > 0$, whilst total reward in parliament is fixed, $\partial\left(R_p + W\right)/\partial a = 0$. Interestingly, the adverse selection effect might not occur when (9) is fulfilled because of a huge non-wage reward from doing politics, R_p, which outdoes the (significant) opportunity cost of being a committed politician, $M_p\left(\bar{a}\right) - W$. In this case the trade-off highlighted in GNN disappears: high-ability public-fit individuals enter politics and do not shirk.

3.3 Market-fit citizens

In this subsection we turn our focus on market-fit citizens and study their first-stage decision of entering politics. According to Proposition 1, their second-stage effort choice is

$$e_m^* = \begin{cases} 1 & \text{iff } a \leq a_m^*, \\ 0 & \text{iff } a > a_m^*, \end{cases}$$

Market-fit citizens' payoff is hence,

$$\pi_m\left(a, e_m^*\right) = \begin{cases} R_m + W - M_m\left(a\right) & \text{iff } a \leq a_m^*, \\ W + P_m\left(a\right) - M_m\left(a\right) & \text{iff } a > a_m^*, \end{cases} \tag{10}$$

which is obtained after substituting e_m^* into (1) with $i = m$.

We compute

$$\frac{\partial\pi_m\left(a, e_m^*\right)}{\partial a} = \begin{cases} -M_m'\left(a\right) & \text{iff } a \leq a_m^*, \\ P_m'\left(a\right) - M_m'\left(a\right) & \text{iff } a > a_m^*. \end{cases} \tag{11}$$

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and let

$$P'_m(a) > M'_m(a), \tag{12}$$

according to which marginal returns to ability of market-fit citizens are enhanced once in office. Expression (11) and condition (12) ensure that a market-fit politician's payoff is decreasing in ability when she does not moonlight, $a \leq a_m^*$. Higher ability, in fact, increases the opportunity cost $M_m(a)$. By contrast, the payoff becomes increasing in ability when the politician does moonlight, $a > a_m^*$, since marginal returns to ability of market-fit citizens are supposed to be enhanced once in office. Put differently, condition (12) states that market-fit politicians exploit the political position to improve their business. This hypothesis has empirical support, as we will see in Section 6.
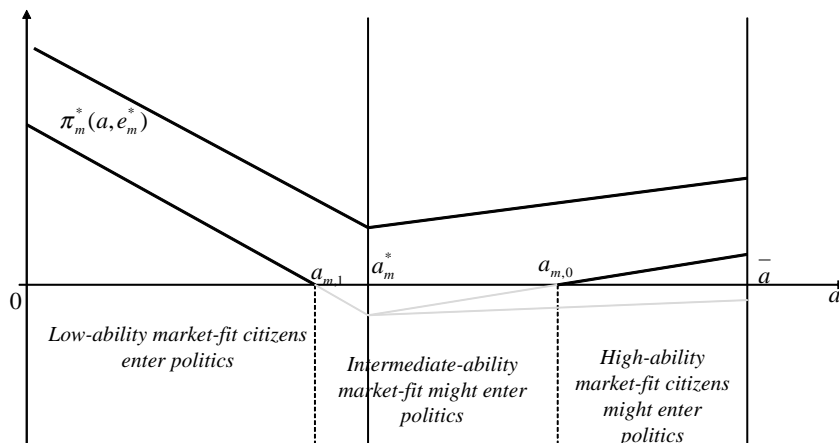
In Figure 2 we draw optimal net payoff $\pi_m^*(a, e_m^*)$ as a linear function of ability a and time spent in parliament e_m^* by market-fit citizens. Note that $\pi_m(a_m^*, 1) = \pi_m(a_m^*, 0)$ by (3). We first focus on interval $a \leq a_m^*$ and calculate the ability level $a_{m,1}$ such that

$$R_m + W - M_m(a_{m,1}) = 0. \tag{13}$$

We then turn to $a > a_m^*$ and denote with $a_{m,0}$ the ability level such that

$$W + P_m(a_{m,0}) - M_m(a_{m,0}) = 0. \tag{14}$$

FIGURE 2

Public-fit citizens enter politics at $t = 0$ iff $\pi_m(a, e_m^*)$ is non-negative. Recalling that the LHS of (13) decreases with a, whilst that of (14), is increasing, we can conclude what follows. (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 public-fit citizens with ability $a_{m,1} < a < a_{m,0}$ do not. (ii) If $a_{m,1} < a_m^*$ and $a_{m,0} \geq \bar{a}$, market-fit citizens with ability $a \leq a_{m,1}$ enter politics, while public-fit citizens with ability $a > a_{m,1}$ do not. (iii) Finally, if $a_{m,1} \geq a_m^*$, market-fit citizens enter politics for any level of ability.

We sum up the market-fit citizens' first-stage choice of entering politics in the following

Lemma 2 *Under condition (12), market-fit citizens enter politics at $t = 0$ iff $a \leq a_{m,1}$ and $a \geq a_{m,0}$, when $a_{m,0} < \bar{a}$; iff $a \leq a_{m,1}$ when $a_{m,0} \geq \bar{a}$. They enter for any ability level when $a_{m,1} \geq a_m^*$.*

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The adverse selection result might not arise also when citizens are market-fit. The reasoning is as in GNN: Proposition 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 given (12) and the upper tail of the ability distribution of market-fit citizens might find it profitable to enter politics.

3.4 Empirical predictions

The theoretical framework developed in the previous sub-sections allows to derive some empirical predictions on politicians' effort and self-selection optimal choices, which we sum up in the following

Proposition 2 *Once in office, only market-fit politicians' effort is decreasing in the ability according to Proposition 1. As a result, high-ability market-fit citizens are more likely to enter politics if the political position has a positive effect on the private activity, $P_m'(a) > M_m'(a)$. By contrast, high-ability public-fit citizens enter politics if and only if their relatively high non-wage reward from doing politics outdoes the significant opportunity cost due to their stronger commitment, $R_p \geq M_p(\overline{a}) - W$.*

Before proceeding with the empirical analysis, we discuss the effect of hypothesis (5) on the above findings. Relaxing such a condition, i.e. letting $a_p^* < \overline{a}$, yields a scenario where high-ability public-fit politicians moonlight once in office, as one can easily check. In this case plugging $e_p^* = 0$ into (1) with $i = p$ gives the payoff of becoming a politician for a high-ability type p:

$$\pi_p\left(a, e_p^*\right) = \ W + P_p(a) - M_p(a) \quad \text{with } a > a_p^*. \tag{15}$$

If we let

$$P_p'(a) = M_p'(a), \tag{16}$$

i.e. if we suppose that returns to ability of public-fit citizens are the same before and after election, unlike market-fit citizens, then $\pi_p\left(a, e_p^*\right)$ does not depend on $a > a_p^*$. Consequently, the results of Lemma 1 are not affected and hypothesis (5) is with no loss of generality. As we will see in Section 6, condition (16) has empirical support.

4 Data

We make use of a dataset on the members of the Italian Parliament (*Camera dei Deputati* and *Senato*) for the period 1996-2006 (legislatures XIII and XIV). This is the same database used in GNN, to make results comparable. Accordingly, see GNN for further details about the data.[5]

The dataset includes yearly total income information, as well as information over the legislative term on absences in floor voting sessions, not attended without any legitimate reason.[6] The database also provides a

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[5] The data sources used to collect this information included: the Annals of the Italian Parliament (*La Navicella*) for the demographic information, edited by Editoriale Italiana. To account for possible mistakes, we cross-checked the same information on the Italian Parliament's website; The Archive of Tax Returns for the members of Italian Parliament (*Servizio Prerogative e Immunità*), which provided the income information (except the parliament salary); the Press Office of the Italian Parliament for statistics on individual attendance and the parliament salary.

[6] Note that non-attendance because of parliament missions and cabinet meetings are not considered as absences. Further, note that electronic votes account for about 90% of total floor votes, the rest being held with hand counting.

wide set of individual characteristics for politicians: political experience; current appointments in parliament (whether or not a politician is in a second committee, and whether or not he is president or vice president of parliament or of a single committee); political party affiliation; the electoral system under which the politician was elected (majoritarian or proportional); the district of election; coalition type (whether they support the government or not); and self-declared demographics (age, gender, place of birth, place of residence, level of education, field of education, previous job, marital status, and number of children).

As for outside income, in the data we observe the total income, both earned and unearned -such as property rents. We would have preferred having only earned income, since it requires an effort to be achieved. However, Gagliarducci et al (2010) checked on a random sample of politicians the importance of unearned income, finding that properties are not considerable in number and should not play a substantial role. Moreover, it is important to 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.

4.1 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 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). Furthermore, after 1994 new political actors joined the party system following the corruption scandal that involved many formerly established political leaders and parties. At the same time, the new electoral majoritarian rule favoured a new the bipolar political framework. As in GNN, the data used only refer to legislatures XIII and XIV, and thus are homogeneous with respect to both the electoral rule and the party system.

An important element is that the regulation concerning outside income 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 the decision related to incompatibilities with other non-elective public offices. For instance, magistrates, academics, and any other public servant 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 they have to choose between a seat in parliament and these activities. Besides these incompatibilities, no limits are set to the amount of outside income.

Let us now move to the empirical counterpart of the variables introduced in the theoretical model. The main crucial issue is the choice of the empirical counterpart of motivation. Since our data are very rich for what concerns past political activity, we exploit this set of variables to have a proxy for motivation. In particular, a public-fit member is defined as an individual that, before entering parliament, had at least one of the following political experience:

- mayor or councillor of a municipality;

- president or councillor of a region or of a province;

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- **-** past previous appointments in a party at the local or national level (and also those declaring they are politicians as job);

- **-** previously appointed as member of the European parliament.

On the contrary, private-fit politicians are defined as those who enter parliament directly from the private sector, without any political experience neither at the institutional level (city, province, region) nor at the party level, both local and national. Since past political experience is used to derive the public-fit/private-fit variable, we focus on the sample of freshmen, *i.e.* members for the first time in parliament.

It is interesting to note that out of 763 freshmen in the data, 31.7% are market-fit politicians, *i.e.* with no political experience before entering parliament, and 68.3% had at least one of the past political experience above mentioned.

We remark that measuring the dedication of a member of parliament is not easy task; the commitment to the public office is in fact a multi-dimensional object. Being aware of this shortcoming, we proxy the time devoted to parliamentary activity with the absences in electronic floor voting sessions that lacked a legitimate reason. As a robustness check measure, we make use of bill sponsorship as "first name" ("primo firmatario"). However, this measure is a less precise proxy for effort, since it is not always clear whether it was the administrative staff, rather than the politician himself, who drafted them.

From our data it comes out that public-fit politicians display a much lower absenteeism rate, *i.e.* 28% with respect to 35% of market-fit politicians, and the difference is statistically different from zero. Also for bills proposed, public-fit politicians display a higher figure, 8.1 vs 7.5, which is however smaller and not statistically different from zero .

The dataset contains the gross salary from parliament and the gross total income of all the members of parliament, from the first to the third full calendar year of the legislative term. Further, for freshmen we also observe the gross total income one year before election. The pre-election income can be considered as a proxy for ability, once one controls for occupation, age, education etc.

We can hence compute outside income by taking the difference between the gross total income and the gross parliament salary (which is constant, up to some inflation adjustment) in a specific year. Since absences are measured per term, we take the average of the outside income over the first and the third full calendar year in office.

After splitting the sample into market-fit and public-fit politicians, the two groups on which the empirical analysis is carried out, Table 1 reports the descriptive statistics for our control variables. Most of them do not differ significantly between the two groups.

5 Empirical analysis: Effort and outside income

The first part of the empirical analysis is devoted to the analysis of politicians once in office, *i.e.* to the relationship between outside income and effort.

We begin by studying the relation between effort while in office and pre-election income, the latter being a proxy for individual ability, as argued above. We estimate the following equation:

$$e_{it} = \gamma M_{it} + \beta X_{it} + \varepsilon_{it},$$

Table 1: Descriptives statistics

	Market-fit	Public-fit	Total
Male	0.91	0.91	0.91
Age	51.53	49.86	50.39
Graduate	0.82	0.71	0.75
House	0.69	0.66	0.67
Gov. Coalition	0.53	0.57	0.55
Maj_election	0.72	0.75	0.74
Legislature 14	0.35	0.61	0.52
Appointed parl.	0.06	0.06	0.06
Second committee	0.11	0.12	0.12
Left wing party	0.34	0.43	0.40
Lawyer	0.17	0.15	0.15
Bureaucrat	0.04	0.08	0.06
Manager	0.08	0.09	0.08
Journalist	0.09	0.07	0.08
Entrepreneur	0.10	0.11	0.10
Teacher	0.06	0.10	0.09
Self employed	0.10	0.11	0.10
Physicians	0.05	0.09	0.08
Univ. professors	0.17	0.07	0.10
Clerks	0.03	0.04	0.04
Others occupations	0.12	0.10	0.10
Northeast	0.15	0.21	0.19
Northwest	0.32	0.26	0.28
Centre	0.32	0.26	0.28
South	0.30	0.24	0.26
Islands	0.09	0.13	0.12
Observations	242	521	763

where e_{it} is the absenteeism rate, M_{it} is the pre-election income, and X_{it} is a full set of controls (age, education, previous job, government coalition, district, etc.).

Results are included in Table 2. When considering the whole sample, the same results as in GNN emerge: individual with higher ability are associated with higher absenteeism rates. In particular, one standard deviation in pre-election income (145,000 euros) is associated to a 2.3 percentage point increase in absenteeism rate, a not negligible amount given that the average in absenteeism is around 30%.[7] When splitting the sample, we find that the same negative relation applies, with the same magnitude, for the sample of market-fit politicians, while the coefficient is lower and not statistically different from zero for public-fit politicians. This evidence is consistent with the theoretical findings of Proposition 1.

We then move on considering the relation between absenteeism rate and outside income, which is more related to a time constraint between market and public activities. As in GNN, we estimate the following equation:

$$e_{it} = \gamma \tilde{P}_{it} + \beta X_{it} + \varepsilon_{it}:$$

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

Table 3 shows the estimates of the coefficient of interest. In the first column, for the whole set of politicians the coefficient is equal to 0.02. In the second and third column we split the sample into market-fit ad public-fit politicians. It is interesting to note that the coefficient obtained for market-fit politicians is even greater and statistically different from zero, while for public-fit politicians the relation between realized outside income and absenteeism rate is still lower in magnitude and not statistically different from zero.

However, an endogeneity problem may arise, since $\tilde{P}_{it}$ is jointly determined with e_{it}. As in GNN, we instrument $\tilde{P}_{it}$ with the pre-election income $M_{(t-1)}$, which we assume to affect e_{it} only through $\tilde{P}_{it}$. By doing so, we recover the effect of outside income opportunities, rather than the mechanical correlation between the realized outside income $\tilde{P}_{it}$ and the time devoted to parliamentary activities. As shown in columns (4) and (5) in Table 3, results are confirmed: the relation is still positive for market-fit and not statistically different from zero for public-fit ones. Note also that the F-test confirms that the instruments are not weak.

As a robustness check we carry out the same regressions, both OLS and IV, using as a proxy for effort the bills sponsorship as "first name" ("primo firmatario"). In Table 4 we can see that coefficients are negative as expected but not statistically different from zero for all groups (the point estimate is greater anyway for market-fit politicians). By contrast, when using 2SLS we find that outside income decreases the amount of bills proposed for market-fit politicians, while this relation is not statistically different from zero for public-fit politicians. All these findings are consistent with the empirical predictions of Proposition 1.

5.1   Effort and outside income: robustness checks

The first robustness check concerns the drop from the sample of those members who self-declare to be national politicians, *i.e.* those who have some appointments in the party at the national level. Indeed,

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[7]Note that the coefficient is very close to that in GNN but not the same. This is due to the fact that in this paper we have to drop some covariates that are used to define the group of public-fit politicians, such as having had previous political experience or having being major etc.

Table 2: Effort while in office and pre-election income

	All	Market-fit	Public-fit
Pre-election income	0.023**	0.022*	0.015
	(-0.009)	(0.0118)	(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***
Maj_election	-0.017	-0.043	0.009
Legislature 14	-0.134***	-0.098***	-0.142***
Appointed 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

Clustered (at individual level) robust stan.errors in parentheses (showed only for the variable of interest).
*** p<0.01, ** p<0.05, * p<0.1. All income measures are in euro (2004 prices).

Table 3: Effort while in office and outside income

	OLS			2SLS	
	(1)	(2)	(3)	(4)	(5)
	All	Market-fit	Public-fit	Market-fit	Public-fit
Outside income	0.020***	0.021**	0.015	0.026**	0.019
	(-0.007)	(-0.011)	(-0.010)	(-0.013)	(-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***
Maj_election	-0.016	-0.044	0.012	-0.044	0.012
Legislature 14	-0.128***	-0.095***	-0.138***	-0.097***	-0.138***
Appointed 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

Clustered (at individual level) robust stan.errors in parentheses (showed only for the variable of interest). *** $p<0.01$, ** $p<0.05$, * $p<0.1$. All income measures are in euro (2004 prices).

Table 4: Bills proposed and outside income

	OLS			2SLS	
	(1)	(2)	(3)	(4)	(5)
	All	Market-fit	Public-fit	Market-fit	Public-fit
Outside income	-0.177	-0.205	-0.084	-0.698**	0.028
	(-0.163)	(-0.279)	(-0.226)	(-0.349)	(-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
Maj_election	0.951*	0.426	0.996	0.408	1.065*
Legislature 14	-1.594***	-1.486	-1.524***	-1.155	-1.574***
Appointed 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

Clustered (at individual level) robust stan.errors in parentheses (showed only for the variable of interest). *** $p<0.01$, ** $p<0.05$, * $p<0.1$. All income measures are in euro (2004 prices).

national politicians are more likely to spend time outside parliament, thus not attending the voting session. This might alter the relation between their absenteeism rate and outside income. Not surprisingly, most of the current national politicians are included in the public-fit group.

Table 5 includes results concerning the relation between our main proxy for effort, the absenteeism rate, and outside income for the group of freshmen that are not national politicians. Not surprising, excluding from the market-fit group the national politicians the coefficients are even higher, and highly significant, while for the public-fit politicians the coefficients are still much lower and not statistically different from zero.

A second important robustness check concern the definition of public-fit politicians. So far, a public-fit member has been defined as an individual that had at least one of the aforementioned political experience before entering parliament. One might argue that probably those who had been only for instance affiliated to some political party when they were young might not be introduced in the public-fit group. And it is not difficult to imagine other cases for which doubts arise about the definition of public-fit. To test the robustness of our results with respect to this issue, we introduce additional definitions in which an individual is a public-fit member if he had -before entering parliament- at least two, three, or four of the aforementioned political experiences. Table 6 reports the results for these three groups of public-fit politicians. We exclude national politicians to avoid possible additional noise in the data (CIOè?). It is interesting to note that for these three additional definitions of public-fit, coefficients are still not statistically different from zero, both using OLS and IV, suggesting that our results are not sensitive to the change in the definition of public-fit members.[8]

6 Empirical analysis: motivation and selection

The regulation of outside income in Italy never changed during the period of time covered by the dataset. Accordingly, we cannot directly test the implications of our model in terms of political selection. Nevertheless, something interesting about the characteristics and the incentives of those who are elected, and how they change for the two motivation groups, can still be gathered from the data.

At first, we compare the pre-election incomes for politicians with incomes of the Italian population. Both can be estimated by means of SHIW data for the year 1995 and 2000: these are the years in which we observe the pre-election income of the freshmen politicians elected in 1996 and 2001, respectively. SHIW is a representative sample of the Italian population, and it represents the most well known database for incomes in Italy. Since almost every politician in the sample was employed before appointment (except 2 students and 71 retired), to make the comparison coherent we extract individuals who declared to be employed in the SHIW. Because of differences in the coding, we could only match managers, entrepreneurs, self-employed, lawyers, clerks, teachers, and blue collars, and we further restrict the joint sample to individuals in working age (25-60).[9]

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[8]For the group of individuals with at least four political experince the coefficient is even negative. Note however that the sample size in this case is rather small. DIRE DI QUANTO?

[9]The 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 (instead of gross) 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

Table 5: Effort while in office 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***	0.026***	0.01	0.028**	0.009
	(-0.007)	(-0.01)	(-0.008)	(-0.012)	(-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***
Appointed 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

Clustered (at individual level) robust stan.errors in parentheses (showed only for the variable of interest). *** p<0.01, ** p<0.05, * p<0.1. All income measures are in euro (2004 prices).

Table 6: Effort while in office and outside income: different definitions of public-fit

	At least 2 experiences		At least 3 experiences		At least 4 experiences	
	OLS	2SLS	OLS	2SLS	OLS	2SLS
Outside income	0.006	0.023	-0.001	0.035	-0.139***	-0.01
	(-0.019)	(-0.030)	(-0.029)	(-0.039)	(-0.050)	(-0.163)
Male	0.039	0.033	0.088	0.072	0.551***	0.428**
Age	-0.003	-0.003*	0.001	0	0.009**	0.007
Graduate	-0.004	-0.009	0.02	0.012	0.025	0.046
House	-0.102***	-0.104***	-0.097*	-0.100**	0.039	0.028
Gov. Coalition	-0.277***	-0.279***	-0.318***	-0.321***	-0.278***	-0.291***
Maj_election	-0.027	-0.024	-0.088*	-0.084*	-0.281**	-0.302***
Legislature 14	-0.144***	-0.145***	-0.156***	-0.159***	-0.191**	-0.224***
Appointed parl.	0.098	0.091	0.110*	0.101*	0.048	-0.056
Second committee	0.032	0.035	0.038	0.047	0.038	0.051
Left wing party	-0.087**	-0.085**	-0.069	-0.07	-0.101	-0.101
Lawyer	0.096	0.09	0.004	-0.015	-0.206	-0.246
Bureaucrat	0.086	0.084	0.004	0	-0.217	-0.210*
Manager	0.032	0.027	0.005	0.006	-0.279*	-0.256**
Journalist	0.196**	0.196**	0.238**	0.239**	-	-
Entrepreneur	0.112	0.103	0.042	0.025	-0.779***	-0.762***
Teacher	0.051	0.053	0.075	0.078	-0.123	-0.108
Self employed	0.095	0.091	0.125	0.114	0.229	0.134
Physicians	0.143*	0.142*	0.058	0.054	-0.263	-0.281
Univ. professors	0.144	0.14	0.161	0.15	-0.026	0.037
Others occupations	0.108	0.106	0.07	0.069	-0.114	-0.125
Northeast	-0.076*	-0.074*	-0.085	-0.083	-0.019	-0.02
Northwest	-0.073	-0.071*	-0.047	-0.053	-0.203*	-0.159
South	-0.002	0.005	0.032	0.045	0.213	0.231*
Islands	-0.001	0.004	0.067	0.071	0.117	0.143
Constant	0.691***	0.708***	0.529***	0.577***	-0.081	0.181
F-test for instrument		27.1		13.04		11.18
Observations	217	217	124	124	59	59
R-squared	0.437	0.435	0.519	0.511	0.582	0.554

Clustered (at individual level) robust stan.errors in parentheses (showed only for the variable of interest). *** $p<0.01$, ** $p<0.05$, * $p<0.1$. All income measures are in euro (2004 prices).

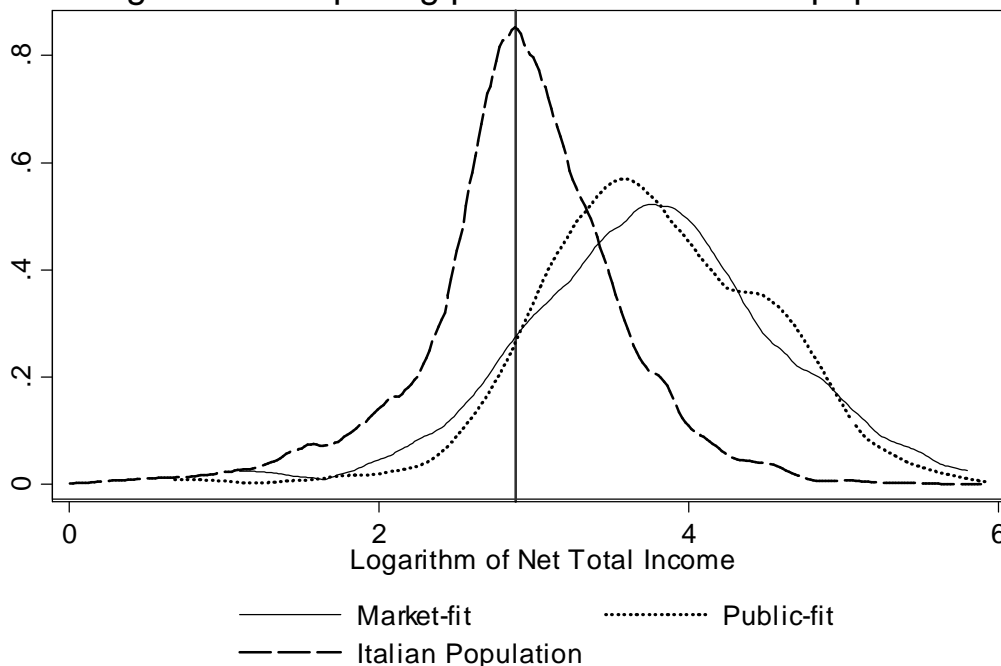Figure 4: Comparing politicians and Italian population

Figure 4 includes the income distribution for the Italian populations and for the two populations of politicians, *i.e.* public-fit and private-fit. It is interesting to note that both public-fit and market-fit are on the right of the Italian population, suggesting a positive selection for the two groups. It is also worth stressing that the distribution of public-fit politicians is slightly on the left of the private-fit one.

This evidence might be due to differences in composition between the two groups. For this reason we carry out quantile regressions over the whole sample of the Italian population and of the two groups of politicians, see Table 7. We control for individual covariates (age, gender, one year dummy, five job dummies, and four education dummies) and we introduce two dummies, one for private-fit politicians and one for public-fit politicians. In such a way we can test whether there are higher pre-election incomes for the two politicians groups, and whether they are statistically different from zero. We restrict the analysis to individuals for which pre-election incomes is more likely to reflect individual skills, removing from initial sample of freshmen those members that are former army officers, students, current political party officials, trade unionists, clerks, blue collars, and teachers. By doing so, we end up with a sample of 507 politicians (321 public-fit and 186 market-fit). Income are in logarithm to derive percentage changes.

It is interesting to note that both the market-fit and public-fit politicians display higher pre-election income with respect to the Italian population, and that these premia increase along the income distribution. Further, note that the premia for public-fit politicians are lower than those of market-fit ones, confirming

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Brandolini (1999), we also account for under-reporting in the SHIW by increasing the income of the Italian population by 30% (half increment for employees). We do not make the same correction for the income of politicians, as we observe their true tax returns.

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Table 7. Income premia at difference decile of the distribution			
Decile	Market-fit	Public-fit	Difference
1	0.1393***	0.0301**	0.1092
2	0.2085***	0.0311**	0.1774
3	0.1366***	0.0463**	0.0903
4	0.1814***	0.0868***	0.0946
5	0.2693***	0.1006***	0.1687
6	0.3696***	0.1178***	0.2518
7	0.3894***	0.1852***	0.2042
8	0.4352***	0.2728***	0.1624
9	0.5219***	0.2598***	0.2621

10419 observations. ** p<0.01, ** p<0.05, * p<0.1. All income measures are in euro (2004 prices).

what we derived in the previous graph, and that the difference between the two groups slightly increases along the distribution. This evidence suggests that there is a positive selection in both groups of politicians, which is stronger for market-fit ones.

This can be due to the fact that high-ability citizens would enter politics only if the payoff from being in office were higher than the payoff from staying out of politics. To investigate further this issue, we decompose the financial gain from election into its two main components: parliament salary and outside income. Table 8 summarizes the pre-election income, total income while in office, the parliament salary, and the outside income by quintiles of the pre-election income for the two groups of politicians. The average total income while in office exceeds the pre-election income in every quintile, *i.e.* in both groups all members of parliament (except 49) gain from being elected. Nonetheless, it is interesting to note that the gain composition is significantly different at different quintiles of pre-election income. Members with a low income before election gain mostly because of the parliament salary, for both groups, while citizens with a high pre-election income gain because they can keep on running their private business. However, the magnitude of moonlighting varies significantly in the two groups. At the fifth quintile, the outside income is 79% of the pre-election income for market-fit politicians, while being only 64% for public-fit politicians. The difference between the two groups is even stronger when excluding outliers, *i.e.* considering the median (75% vs 49% respectively). Similar finding are derived for the fourth quintile.

To some extent, this evidence suggests that high-ability citizens might have a relative advantage in terms of outside income, *i.e.* the marginal return to ability for market income is greater when appointed than when not appointed. Recall this is a necessary condition for observing market-fit high-ability individuals entering politics in our framework, condition (12). Such a relation can be rewritten as

$$\frac{\frac{\partial P(a)}{\partial a}}{\frac{\partial M a)}{\partial a}} = \frac{\partial P(a)}{\partial M(a)} > 1,$$

which we formally test by regressing outside income on pre-election income. More exactly, we estimate the following equation through OLS,

Table 8: Gains from election for Market-fit and Public-fit politicians

Quintile			Public-fit			Market-fit	
		N	Mean	Median	N	Mean	Median
1	Pre-election income	65	30	31	38	34	33
	Total in office	65	135	131	38	139	130
	Parliament wage	65	124	123	38	123	123
	Outside income	65	11	7	38	16	7
2	Pre-election income	64	52	52	37	67	66
	Total in office	64	145	134	37	157	147
	Parliament wage	64	124	125	37	123	123
	Outside income	64	21	11	37	34	24
3	Pre-election income	64	70	71	37	92	93
	Total in office	64	146	137	37	159	143
	Parliament wage	64	124	125	37	123	123
	Outside income	64	23	14	37	36	19
4	Pre-election income	64	104	100	37	136	136
	Total in office	64	153	137	37	202	191
	Parliament wage	64	125	125	37	124	123
	Outside income	64	29	13	37	78	68
5	Pre-election income	64	231	182	37	325	253
	Total in office	64	274	213	37	383	311
	Parliament wage	64	124	125	37	124	123
	Outside income	64	150	90	37	259	189

All income measures are in euro (2004 prices).

$$\tilde{P}_i = \theta M_i + \beta e_i + \gamma X_i + v_i,$$

and we evaluate whether the pre-election coefficient θ is greater than one, $H_0 : \theta \leqq 1$. Since we are not able to observe the outside income opportunities $P(a)$, but the just 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 dedication e. Results are included in Table 9: $\theta > 1$ for market-fit politicians , while $\theta = 1$ for public-fit politicians. This suggests that top-skilled market-fit politicians might enter in parliament since they can benefit from increasing marginal returns to ability once in office, with respect to the market. Such evidence confirms that when moonlighting is allowed the bad politicians prediction (Morelli and Caselli, 2004) does no longer hold in case of market-fit individuals. This is in line with GNN. The novelty of our contribution lies in that adverse selection might not apply to public-fit politicians not because of moonlighting, rather because of the motivationaI extra-reward, as pointed out with Proposition 2. Indeed, top-ability public-fit politicians incur a significant opportunity cost of becoming a politician due to their higher commitment. If motivation is not sufficient, they do not enter. Alternatively, if they enter they do not exploit all potential benefits in the private market because they are committed to the parliament activity. These findings are consistent with Proposition 2.[10]

7   Conclusion

In this paper we aim at extending the arguments set out in Gagliarducci, Nannicini and Naticchioni (2010, GNN), by including explicitly the role of politicians' motivation.

In our theoretical framework individuals, who differ in their ability level, may work as a politician in the public sector and/or run a private activity in the private sector. Motivated politicians are defined as citizens who have high fit with the public sector environment in terms of value congruence. In the contrary, non-motivated politicians are those with better fit in the market sector, for, e.g., their main work value is to obtain monetary incomes.

Our findings show that the trade-off highlighted by GNN might not hold in case of public-fit politiicians. In particular, we show that only public-fit politicians might enter politics and not shirk once in office even if they have high ability.

We test our predictions by relying on the database concerning the Italian members of parliament, as in GNN. We point out that for market-fit politicians outside income affects negatively the effort (abseenteism rate) while in office, confirming the finding in GNN. The interesting finding is that outside income does not affect absenteeism rate for the public-fit ones, consistently with our theoretical model. These findings are confirmed when using an instrument variable approach to control for endogeneity.

As for selection into parliament, we show that both groups of public-fit and market-fit politicians display a pre-election income greater than that of the Italian population, estimates using the Bank of Italy's Survey on Household Income and Wealth (SHIW). Furthermore, we find out that the marginal returns to ability

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[10]As discussed in the previous section, the absenteeism rate and outside income are equilibrium outcomes. To address this issue, we use the same instrument variable as in GNN, where 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 concentrated (see GNN for details on the instrument). As in GNN results do not differ much.

Table 9: Relation between pre-election income and outside income			
	All	Market-fit	Public-fit
Pre-election income	1.102***	1.112***	1.044***
H0: θ<=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

Clustered (at individual level) robust stan.errors (not reported). *** p<0.01, ** p<0.05, * p<0.1. All income measures are in euro (2004 prices).

are amplified after election only for market-fit politicians, while the same ratio is equal to one for public-fit politicians. This might be explained by the fact that if very high-ability public-fit politicians enter they do not exploit all potential benefits in the private market because of their commitment to the parliamentary activity.

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