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An Economic Analysis of Judicial Careers

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Abstract

The aim of this paper is to analyze from an economic perspective the effects of the judicial careers arrangement on the trials' outcome. The institutional organization of judicial careers follows two distinct ideal systems. One is characterized by the fact that public prosecutor and judge belong to the same professional body, as magistrates, while the other one is characterized by the separation of the judiciary from prosecutors. We model this feature of the judicial system as a continuum variable and explain why this choice can be appropriate. We obtain that a more unified system of judicial careers leads to fewer distortions in the process preceding the trial, while it introduces more distortions during the trial. We find the optimal degree of separation of judicial careers and provide some comparative statics results.

Keywords: Legal System, Judicial Careers.
JEL Classification Numbers: K00, K40.

1 Introduction

This paper analyzes the link between the arrangement of judicial careers and the outcome of the criminal procedure. The institutional organization of the judiciary differs across countries and can be distinguished in two different ideal systems, depending on whether the public prosecutors and the judges form a unique professional body (as magistrates who have the same objectives and career path), or they belong to separated organizations, so that they respond to distinct "principals". The "unification" versus "separation" of judicial careers may provide public prosecutors with different incentive schemes that are likely to affect the final outcome of criminal procedure. For this reason, we think that it is worth investigating whether and how the role and the status of the prosecutor relative to that one of the judge matter for the outcome of the trial. To this purpose, we propose a theoretical framework to analyze the optimal arrangement of judicial careers.

It is useful to clarify that the public prosecutor plays the basic role to regulate the criminal justice in the adversarial trial, so acting as the gatekeeper of the rule of law. He has a dominant position over the access to the courts, influences the cases considered by the courts and guarantees the effective enforcement of the law. Such a power exists also in nations characterized by compulsory prosecution as in these systems the prosecutor has some degree of discretion in the choice of the "effort" and resources he puts in each case, which in turn affects the trial's outcome (Guarnieri and Pederzoli, 2002; Aaken et al., 2004). For these reasons the role of the prosecutor is relevant within any legal system. To understand the role of public prosecutor in the judicial system, we consider the relationship he entertains with the judiciary (at the extreme there is the case where they form a single professional body) and the degree of subordination of the prosecutor to the directives of the executive (the extreme is when he is dependent on the Minister of Justice or on the government). Both kinds of links are likely to affect the outcome of the criminal procedure. In the first case, the prosecutor and the judge, belonging to the same body and having a common career, may develop a "way of living the court" (for example, sharing the same offices and spending time together) that produces an asymmetry of information in favor of the prosecutor relatively to the defendant attorney during the trial. In the second case, the bias could be determined by the influence of the executive on the prosecutor's choice to pursue specific crimes or not (which is the case analyzed in this work). Conversely, we could observe a propensity of the prosecutor to address his attention toward less complicated cases in order to highlight his competence and ability to the principal. In these situations the distortions arise in the phase that precedes the trial through an adverse

selection of cases.

Understanding the effects of the organization of the judicial system on trials' outcome is important for developed countries as well as for those nations in which the building of the judicial system is an ongoing process (e.g., developing countries or systems in transition). The optimal organization of judicial careers is also a highly debated issue in Italy, where the current unified judicial careers system has been questioned as the proper setting to manage the justice. While there are a number of contrasting opinions on the optimal organization of the Italian system of judicial careers (for an extensive discussion on this issue see the judicial literature, e.g., Palamara, 2009; Guarnieri, 2007; Dominioni, 2009), our contribution has the aim of being a general analysis and is not specifically referred to the Italian case.

The theoretical analysis developed in this work aim at determining the optimal degree of unification/separation of judicial careers. In the trial phase, a higher unification of judicial careers affects the outcome of the trial in the direction of favoring the conviction of the defendant. This may reduce or increase the social welfare depending on a number of fundamentals related to the features of the legal system and the preferences of the society on the importance it attaches to the losses generated by the conviction of an innocent relative to the gains from the conviction of a guilty. We show that the degree of separation of judicial careers may also play a role in the pre-trial phase where the prosecutor has some discretion on the cases to prosecute. In particular, we distinguish between political related crimes (e.g., corruption of public officials or, in general, all cases where politicians may have an interest) and non-political ones. More separated judicial careers allow politicians to influence more easily the prosecutors' choice about the crimes to prosecute. The result is that, under certain conditions, a higher degree of separation of the judicial careers increases the fraction of political crimes not prosecuted, which leads to higher social welfare losses. In other words, the separation of judicial careers reduces the distortions in the trial phase but may have negative effects in the phase preceding the trial.

We then determine the optimal degree of separation/unification of judicial careers from the point of view of the society and present some comparative statics analysis. We obtain that the optimal organization of judicial careers is influenced by various factors among which the ability of the politicians to manipulate the prosecutors' behavior is key. Complete separation of careers is optimal when the politician have limited influence over the prosecutors' activities and society attaches a high weight to the conviction of innocents. In this case, more separation allows to lower the distortions that arise from the conviction of innocents at the expense of a limited

increase of the (political) cases dropped. Instead, full unification of judicial careers is always optimal when society does not give too much weight to the conviction of innocents. Finally, societies where politicians can affect the prosecutors' actions and that attach a relatively high weight to the losses generated by the conviction of innocents are likely to prefer intermediate levels of separation of judicial careers.

A corollary of the analysis is that more developed and democratic societies, which are generally characterized by a better control of free press and citizens on politicians and by a high consideration for the conviction of innocents, are expected to choose greater degrees of separation of judicial careers. The comparative statics analysis also confirms this result and highlights that a higher degree of separation of judicial careers is optimal in societies where political related crimes are more severely punished. The same result also holds for societies where political crimes are more frequent and citizens value such crimes more than other types of offences. This counterintuitive result is related to the distortions that occur during the trial, as in this case the unification of judicial careers implies a higher probability of convicting innocents with severe punishments.

Our theoretical results are consistent with the empirical findings of Aaken et al. (2010) who, using a sample of 73 countries, find that countries with prosecution agencies more dependent on the executive are characterized by higher levels of corruption. The explanation of this result is that politicians can misuse the power over prosecutors and limit their ability to prosecute crimes, as corruption, which in turn makes the latter more likely.

Our work is related to the literature of law and economics that analyzes the behavior of prosecutor and the judiciary. Earlier works in this field studied the optimal enforcement of law and modeled prosecutors and judges as benevolent public agents aimed at maximizing social welfare (Landes, 1971; Forst and Brosi, 1977; Easterbrook, 1983). Several authors however suggest that prosecutors may have career incentives or other objectives that induce them to diverge from the interest of society (Miceli, 1990; Garoupa and Stephen, 2008). In general, it is stressed the fact that prosecutors operate under institutional constraints and are limited in time and resources that have to be allocated over a number of cases. In this respect, part of the literature argues that prosecutors maximize convictions, while others favor the hypothesis that prosecutors aim at maximizing the severity of the sentences (Boari and Fiorentini, 2001; Raghav et al., 2005; Glaeser et al., 2000). Moreover, society and prosecutors may have different objectives that arise from several factors, such as agency costs, risk aversion, different weights assigned to wrong convictions and procedural systems that have the aim to limit prosecutorial

misconduct in favor of the defendant (Boylan, 2005; Garoupa, 2009; Garoupa and Rizzolli, 2007). These kind of considerations have led to a public choice theory of public prosecutor's behavior (Hylton and Khanna, 2007).

Our contribution is also related to the economic theory of the optimal crime deterrence that takes into account the effects of judicial errors on deterrence. The Becker's (1968) seminal contribution on the theory of criminal law enforcement states that the probability and the severity of punishment deter crime, as people act in response to risks and benefits produced by the criminal justice system. As crime deterrence is socially costly, the design of sanctions should balance these costs against the advantages of reducing crime (see Garoupa, 1997, and Polinsky and Shavell, 2008, for an extensive review on this issue). This implies that the fine should be set at the highest level since is a costless transfer, while conviction or detection are expensive. An interesting point of view, first developed by Harris (1970) and Ehrlich (1982) and then incorporated explicitly in the standard economic models, regards the effects of legal errors on the optimal deterrence setting. The standard view of the theory asserts that the conviction of an innocent (type-I error) and the acquittal of a guilty individual (type-II error) exert symmetric effects on deterrence (Png, 1986; Kaplow, 1994; Garoupa 1997; Polinsky and Shavell, 2007). Recent research questions the existence of a symmetric effect of the two types of error and finds that risk aversion, loss-aversion or differential sensitivity to procedural fairness, lead type-I errors to have larger negative effects on deterrence than type-II errors (Garoupa and Rizzolli, 2009; Rizzolli and Stanca, 2009). Although we do not consider explicitly deterrence, our framework contains features that make it close to this latter strand of the literature.

The paper is organized as follows. Next subsection contains the description of judicial systems in some European countries and the US. In Section 2 we present the framework. Section 3 provides some preliminary results. The optimal organization of judicial careers is determined in Section 4 and the comparative statics analysis is presented in Section 5. Section 6 concludes.

1.1   The procuracy and the judiciary: an international comparative analysis

Despite the status of public prosecutors differs in all judicial systems according to the institutional arrangement of procuracy, in all democratic regimes they share the important power to request the judicial application of criminal law, so acting as the gatekeeper of the rule of law. The public prosecutor influences the cases considered by the courts and guarantees the effective enforcement of the law. For this reason the role of public prosecutors has been often highly

debated, especially with respect to the limits and controls set over their performance that can account for their ability to act autonomously and as well as a guarantee of independence.

Trying to assess the role of public prosecutors in the judicial system, three aspects has to be taken into account, namely: procedural rules, the structure of the criminal process and the institutional set-up of the procuracy with particular attention to the relationship between prosecutors and judges.

For what concerns the procedural principles of the penal system, it has to be considered first whether the procuracy enjoys the monopoly to indict and, second, how the discretion regarding the decision to indict is institutionalized, that is whether public prosecutors operate under the principle of mandatory or discretionary prosecution. It is commonly argued that both aspects do not play a key role in determining the effectiveness of the prosecutors' discretionary powers. In fact, even when private prosecution is allowed, private suits are rare as citizens cannot rely on the same amount of resources available to public prosecutors. Moreover, even the distinction between the mandatory and the opportunity principle should not be considered so straightforward, as in practice even when public prosecutors operate under the principle of mandatory prosecution they still have some degree of discretion on the choice of priority cases and on the level of "effort" and investigative means allocated to different cases (Guarnieri and Pederzoli, 2002; Di Federico, 2004; Aaken et al., 2004).

The structure of the criminal process is also relevant to assess who plays the most significant function in the pre-trial phase. In this respect the existence of an instructor judge that review the cases handled by the prosecutor may play an important role.

The institutional arrangement of the prosecution agency is particularly important as it determines the career prospects of prosecutors, which in turn may affect their choices about the cases to prosecute, and ensures their effective independence. In particular, it has to be considered whether appointment procedures, promotion, transfer and removal from office are decided by members of the executive, by the judiciary, or by members of the procuracy. Of course self-governing bodies of the procuracy guarantee the highest degree of independence, while the executive may restrain prosecutors' discretion when the prosecution agency is subordinate to the Minister of the Justice. In such cases, prosecutors might also be indirectly influenced to cater the interests of the organ that ultimately determines their career. When the judge and the prosecutor form a single professional body the public prosecutors enjoy the same guarantee of independence as the judges. However, as already mentioned, also this institutional arrangement may affect the outcome of the criminal procedure.

In our framework, we model the organizational feature of the judicial system as a continuous variable. In fact, despite "separation" versus "unification" of the judicial careers seems to be a well defined classification, in practice we observe several variables, such as the models of recruitment and training, the mechanisms for career advancement and eventual transfers to other positions. In order to better understand this point, we will analyze the organizational characteristics of the judicial system by making an "ideal-typical" distinction between common law and civil law countries with special attention to the status of the public prosecutor.

Traditionally, civil law countries (such as European continental countries) tend to be bureaucratic with the presence of a career system. The members belonging to the magistrates body are organized following a pyramidal structure, where hierarchical superiors have a certain degree of discretion in determining recruitment, promotions to higher positions and transfers. The selection takes place by a public competition of young law graduates, usually without any previous professional experience. Once recruited, they follow a training program within the judiciary and this is crucial to determine a strong sense of identity and socialization among the judiciary members. Advancements and promotions up the career involve seniority and merit criteria, depending on whether the role assignment presents an economic basis or a prestigious one. In general, senior judges can to some extent exert their authority over the career decisions linked to merit concerns, ending up to influence the moves of low-ranking judges to more important positions.

On the other hand, common law countries (Anglo-Saxon systems) tend to reflect a professional model of judiciary. Judicial selection is based on professional legal experience, usually as legal advocates or legal academics, depending on the specific position to be covered. In fact, promotion are not common, so this sort of "lateral recruitment" acts as a guarantee of independence of judges from their higher-ranking colleagues. While in the civil law systems of judiciary the judges tend to be more dependent in relation to other judges, in the common law tradition we observe greater guarantees in terms of internal independence, but we can notice a kind of political or professional external influence. We now move to a brief description of the procuracy and the judiciary of some European countries and the US (for more on this see Guarnieri and Pederzoli, 2002, and Guarnieri, 2007).

In the France judiciary both judges and prosecutors belong to the same professional body and are indicated with the term "magistrate". Prosecutors fall under the control of the Minister of Justice. According to the principle of opportunity, the chief prosecutor of each unit, subordinated to the minister, is free to choose whether to begin an action or dismiss a case.

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All the relevant cases are handled by the instructing judge who enjoys guarantees of judicial independence. As a consequence, when the examining phase starts, the government cannot directly influence a case anymore. Public prosecutors together with the judges are recruited through national public competitions which are open to young law graduates. They can move from a position to another and the experience in prosecution offices tends to support career advancements. After recruitment, the magistrates professional performances are often evaluated. Starting from the reform introduced in 1994, the decisions about the status of public prosecutor have to be made by the Minister of Justice on the basis of a consultative ad hoc opinion expressed by a newly-constituted section of the Superior Council of the Magistracy, in order to prevent the use of the hierarchical supervision of the Minister for partisan reasons.

The Italian judicial system is analogous to the French one as a result of the adoption of the Napoleonic model during Unification. As in France, judicial and prosecution functions are performed by members of the same professional body and are jointly recruited through a public competition opened to young law graduates. However, prosecutors enjoy the same independent status as judges in Italy, since the corps of magistrates is self-governed and all decisions concerning magistrates, from recruitment to retirement are handled by the Superior Council of the Magistracy (CSM) composed (two-third majority) of magistrates elected by their colleagues. The public prosecutors have a monopoly in initiating criminal action which is mandatory for all criminal violations. Nevertheless, the choices of priorities in the exercise of criminal initiate as well as the use of the means of investigation are de facto made by public prosecutors who operate in the absence of effective hierarchical controls.

In Germany public prosecutors form a separate organization from the judiciary, even though the two share the education pattern. The organizational features of the judicial system reflects the federal structure of the political system. Federal prosecutors are proposed by the federal Minister of Justice and confirmed by the Bundesrat, whereas prosecutors serving in the Lander are selected by the individual land ministries of Justice through public examinations. Their status is similar to civil servants and often considered as political executives. Careers are mostly influenced by chief prosecutors and ministerial officials. The German criminal process is based on the principle of compulsory prosecution, but the rule of opportunity has been introduced for minor infractions.

In Spain public prosecutors and judges are institutionally separated from each other and enjoy a different status. The prosecutors at the top of hierarchy are appointed by the executive and the Spanish Higher Council is only asked to give an advisory opinion. The activity of the

public prosecutor is limited by the presence of an examining judge who manages all politically relevant cases.

Judges and prosecutors in the Portuguese system belongs to different organizations and prosecutors benefit from strong guarantees of independence. The administration of public prosecution is controlled by the Higher Council for Public Prosecution (Conselho Superior do Ministerio Publico) and the majority of its members are elected by the entire body of prosecutors. The chief prosecutor is appointed and can be removed by the President of the Republic on a proposal by the Government. However, the cohabitation which characterized the Portuguese political system in recent years provided public prosecutor with a high level of autonomy.

The English system does not incorporate either the public monopoly of prosecution (although private suites are rare) or the principle of compulsory criminal prosecution. The police plays a key role in criminal investigation and it is autonomous with respect to the prosecution. A system of public national prosecution, the Crown Prosecution Service, was established in 1986 with the aim to initiate criminal proceedings. This is under the guidance of the Director of Public Prosecution who is appointed by the Attorney General, member of the Cabinet and the main institutional channel connecting public prosecutors to the political environment. However, the Attorney General takes decisions independently from other members of the Cabinet and rarely intervene in the daily handling of cases. Appointments are made on the basis of professional qualifications.

In the United States the federal prosecution system coexists with the state prosecution systems. State level chief prosecutors are often elected by citizens and enjoy significant levels of autonomy in relation to other political institutions. Federal chief prosecutors are appointed by the President but must be confirmed by the Senate. They remain in office four years and often have important professional and political experience prior to their appointment (careers structure is less defined with respect to other judicial systems). Federal chief prosecutors can resign and take up other professional and political positions, so that they have great autonomy and extensive powers to regulate access to criminal justice system, and they operate under the principle of opportunity.

2 The Model

We consider a framework where each prosecutor faces a continuous measure of cases whose size is normalized to 1. For each case, the prosecutor decides whether bringing it to court

or not. The generic individual j whose case has been selected for prosecution can be guilty or innocent. The variable $h_j \in \{c, n\}$ denotes the true state of nature about the guiltiness of individual j, with $h_j = c$ denoting that he is guilty, and $h_j = n$ that he is innocent. We assume that the probability that individual j is guilty ($h_j = c$) is $q \in (0, 1)$, so that $1 - q$ is the probability that the individual is innocent ($h_j = n$). The parameter q is exogenous and represents an inverse measure of the accuracy of the prosecutor in the selection of cases, i.e. of the fact that he mistakenly prosecutes innocent individuals. The judge decides whether the prosecuted individual is guilty or not and imposes a sanction.[1] It is assumed that he also makes mistakes and that he is subject to two kind of errors. One type of error is to convict an innocent (error of type I), and the other one is to acquit a guilty individual (error of type II). $p^c \in (0, 1)$ denotes the probability that a guilty individual brought to court is convicted. Therefore, $1 - p^c$ represents the probability that a guilty is acquitted and that the judge makes an error of type II. The probability that an innocent is convicted is denoted with $p^n \in (0, 1)$ which also corresponds to the probability that the judge incurs in an error of type I.

We assume that there are two types of cases denoted with $i \in \{H, L\}$. A fraction $\alpha \in (0, 1)$ of cases have a "political" nature ($i = H$), in the sense that politicians have a direct interest over them and would find convenient that such cases are not prosecuted. The remaining fraction $1 - \alpha$ are instead cases where politics has no interest ($i = L$). The two types of cases may differ also for the level of social welfare S_i generated by a conviction of a guilty individual. The level of this welfare is normalized to $S_L = S$ for cases of type L, and it is assumed to be given by $S_H = \delta S$ for political cases, where δ is a positive parameter measuring the relative importance attached by society to politics related offences. This distinction is a way to capture the fact that in reality political offences are characterized by corruption and other related crimes which may have social costs different to other crimes (i.e., $\delta \neq 1$). However, as it will be clear later, removing this assumption, which is equivalent to set $\delta = 1$, does not affect the main results of the paper.

In measuring social welfare, we also assume that society suffers a welfare loss in those cases where an innocent is convicted. This cost is denoted by D_i, for $i \in \{H, L\}$, as it depends on the type of offence for which the individual is convicted. In particular, it is reasonable to assume that the higher is the social welfare associated to a conviction of a guilty S_i, the higher is the sanction associated to that crime and, therefore, the welfare losses D_i generated by a conviction of an innocent. To make things more clear, at some point we will consider the ratio

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[1] In our framework, the defendant does not play any active role.

$\gamma \equiv D_i/S_i$ that we assume to be equal for all $i \in \{H, L\}$. The parameter γ can be interpreted as a measure of the weight that society attaches to the conviction of an innocent relative to the conviction of a guilty. It is reasonable to think that more developed and democratic societies give more importance to the loss generated by the conviction of an innocent rather than the benefit from the conviction of a guilty and, therefore, have a higher γ. It is generally argued that the costs of convicting an innocent are higher than the benefits of convicting a guilty individual (e.g., Posner, 1999). In our model, this case corresponds to assuming that $D_i > S_i$, or $\gamma > 1$. We also assume that the welfare gain from the conviction of a guilty is higher than the welfare loss from a wrongful acquittal G_i (i.e., $S_i > G_i$) and, without any loss of generality, we normalize to zero the social welfare losses G_i due to the acquittal of a guilty individual (see footnote 3 for more details on this point).

It is worth emphasizing that we do not provide here a microfoundation to the social welfare gains and losses as this allows us to simplify the analysis. Nevertheless, the characteristics of our framework are in line with the deterrence theory models. An increase in the conviction of guilties increases deterrence and therefore social welfare, while wrongful convictions reduce deterrence and social welfare.

Our variable of interest is the degree of separation/unification of judicial careers of prosecutors and judges. The judge always belongs to the judicial system, while the prosecutor can belong to this body or be under the control of the executive. The degree of separation of the judicial careers is here represented by the parameter $\lambda \in [\lambda_m, \bar{\lambda}]$. $\lambda = \lambda_m$ corresponds to the maximal separation, in the sense that prosecutors and judges belong to different bodies without any link. This is the case when the prosecutor is under the control of the executive, while the judge belongs to the judicial system. $\lambda = \bar{\lambda}$ refers instead to the case where judges and prosecutors belong to the same body (judicial system) and are completely independent on the executive power. Intermediate levels of λ correspond to cases where both the executive and the judiciary have some influence over the prosecutor (see the discussion in the Introduction for more details on this point).

As said above, the prosecutor faces a continuous measure of cases of size 1. For each case, he decides whether bringing it to court or not. The prosecution of a political case reduces some rents $A > 0$ of the political party affected by the case in question by a fraction $0 < \phi < 1$, so that the party's payoff in this case is $(1 - \phi)A$. We assume that the degree of rents disruption ϕ is independent on the politician being declared guilty or not afterwords, as trials generally require time and the reputation of the politician and his party are damaged in the meantime.

This feature simplifies the analysis but it is not essential. The party might affect the decision of the prosecutor whether to prosecute a case by offering him a benefit $B > 0$ for not bringing the case to court.[2] However, offering such a deal is costly to the party and, as we will see, also for the prosecutor. In fact, with some probability $g > 0$, the "agreement" becomes public knowledge and the party obtains a payoff equal to $(1 - \phi - c)A$, where $c \equiv c(B, \Theta)$ is the additional cost that citizens impose on the party for the misbehavior with the prosecutor. This cost is assumed to be increasing in B and related to a vector Θ of other variables that we will discuss next. With the complementary probability $1 - g$, the deal is not revealed to public and the party's rents A are unchanged. We also assume that a take-it-or-leave-it offer on dropping or prosecuting the case is made by the prosecutor to the political party.

The prosecutor maximizes the following utility function

$$U = \eta T + dB - Q(\lambda, V, \chi) \tag{1}$$

where η is a positive constant, T is the total social value of the cases prosecuted, d is the measure of the cases dropped (i.e. not brought to the court), and $Q(\cdot)$ is the expected cost of the prosecutor for not prosecuting some cases. The first component ηT may have two possible interpretations. One is that it captures a behavioral aspect of the prosecutor who derives utility from his work having a high social value. In this sense, the parameter η can be interpreted as a measure of the sensibility of the prosecutor toward his "social function." Another possible interpretation is that this component captures some organizational feature of the judicial system providing incentives (e.g., promotions of career) positively related to the total value of the cases prosecuted. In this case, the value of η may represent a measure of the incentives in the judicial system for a greater prosecution of cases. The components dB and $Q(\lambda, V, \chi)$ represent respectively the benefit and cost of the prosecutor from dropping political cases. The cost function $Q(\cdot)$ is assumed to be increasing and convex in the degree of unification of the judicial careers λ and in the total value V of the cases dropped, and to depend on a vector of other variables that are summarized in the parameter χ. For example, it is reasonable that χ is increasing in the probability g that the agreement between politicians and prosecutor becomes of public knowledge. To simplify the analysis, we assume that $Q(\cdot)$ has a quadratic form, i.e., $Q(\cdot) = \chi \lambda^2 V^2$ where $V = dS_H$ incorporates the fact that eventually only political cases are not prosecuted. The idea behind this assumption is that it is increasingly more (less) costly for the prosecutor to drop political cases when he is less (more) dependent

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[2] This benefit can be related to promotions or the possibility to move to better places, etc.

from the executive, i.e. λ is higher (lower), and when the size of political cases not prosecuted is larger or such cases are more important for society.

Finally, we assume that the degree of separation of judicial careers affects the probability that the defendant is convicted. In particular, we assume that a higher degree of unification of judicial careers (a higher λ) leads to an increase in the probability that the defendant is convicted, i.e. $dp^h(h, \lambda)/d\lambda > 0$ for all $h \in \{c, n\}$. As already discussed in the Introduction, the idea behind this assumption is that when prosecutors and judges belong to the same body there are a number of reasons, like the possibility of transmitting information outside the trial or incentives for cooperation, that give an advantage to the prosecutor over the defence.

3 Preliminary Results

We first analyze the effect of variations in the degree of separation of judicial careers on the social welfare of cases that are prosecuted.

The net social value of a case $i \in \{H, L\}$ that the prosecutor bring to court is

$$W_i = qp^c(\lambda) S_i - (1 - q) p^n(\lambda) D_i, \tag{2}$$

where the first component represents the expected social value from the conviction of a guilty individual and the second component is the expected social loss from the conviction of an innocent.[3] We first require that the net social value of a case W_i is positive and this implies that

$$\frac{1 - q}{q} \frac{p^n(\lambda)}{p^c(\lambda)} \frac{D_i}{S_i} < 1. \tag{3}$$

The following assumption allows us to focus on this case.

Assumption 1 *The values of the parameters are such that condition (3) is always satisfied—i.e., $W_i > 0$ for all $i \in \{H, L\}$.*

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[3]We remind that the social welfare loss from the acquittal of a guilty individual G_i has been normalized to zero. However, this assumption does not lead to any loss of generality. When $G_i > 0$, the net social value of a case i that the prosecutor brings to court becomes $W_i = qp^c(\lambda) S_i - q(1 - p^c(\lambda))G_i - (1 - q) p^n(\lambda) D_i$. The net social value can also be rewritten as $W_i = qp^c(\lambda)(S_i - G_i) - (1 - q) p^n(\lambda) D_i - qG_i$. As it will be clear next, what matters in our analysis is how W_i varies with λ, and it is immediate from the last expression that one may think to S_i as the difference between the social welfare associated to a conviction of a guilty and the loss from the acquittal of a guilty. In other words, normalizing the welfare losses from the acquittal of guilties to zero does not reduce the generality of our model, as long as the welfare gain from the conviction of a guilty is higher than the welfare loss from a wrongful acquittal (i.e., $S_i > G_i$).

An increase in the degree of unification of judicial careers λ has the following effect on the net social value of the generic case i prosecuted

$$\frac{dW_i}{d\lambda} = q\frac{dp^c(\lambda)}{d\lambda}S_i - (1-q)\frac{dp^n(\lambda)}{d\lambda}D_i. \tag{4}$$

Given that $dp^c(\lambda)/d\lambda$ and $dp^n(\lambda)/d\lambda$ are both strictly positive, the sign of $dW_i/d\lambda$ will be generally ambiguous. It is often argued that the unification of judicial careers is negative because it distorts the trial's outcome. In our framework, this is the case (i.e., $dW_i/d\lambda < 0$) when

$$q\frac{dp^c(\lambda)}{d\lambda}S_i < (1-q)\frac{dp^n(\lambda)}{d\lambda}D_i$$

for all $\lambda \in [\lambda_m, \bar{\lambda}]$. After some manipulations, this condition can be rewritten as

$$\frac{\varepsilon_{p^c,\lambda}}{\varepsilon_{p^n,\lambda}} < \frac{1-q}{q}\frac{p^n(\lambda)}{p^c(\lambda)}\frac{D_i}{S_i}, \tag{5}$$

where $\varepsilon_{p^c,\lambda}$ and $\varepsilon_{p^n,\lambda}$ denote respectively the elasticity of the probability to convict a guilty and an innocent with respect to λ, i.e.

$$\varepsilon_{p^c,\lambda} = \frac{dp^c(\lambda)}{d\lambda}\frac{\lambda}{p^c(\lambda)} \quad \text{and} \quad \varepsilon_{p^n,\lambda} = \frac{dp^n(\lambda)}{d\lambda}\frac{\lambda}{p^n(\lambda)}. \tag{6}$$

Condition (5) defines when a higher degree of unification of judicial careers reduces the social welfare of the cases prosecuted. In our framework, this happens when the ratio of elasticities $\varepsilon_{p^c,\lambda}/\varepsilon_{p^n,\lambda}$ is lower than a certain threshold (the right hand side of (5)). Assumption (1) implies that such threshold is lower than 1. This means that a necessary condition for a higher unification of judicial careers to have a negative effect on the social welfare of a case prosecuted ($dW_i/d\lambda < 0$) is that it leads to a relative increase in the probability of convicting an innocent higher than the percentage increase in the probability of convicting a guilty individual ($\varepsilon_{p^c,\lambda}/\varepsilon_{p^n,\lambda} < 1$). Moreover, the threshold in the right hand side of (5) is higher, and therefore the probability that more unification of judicial careers reduces social welfare, under the following two circumstances. First, when the expected probability of convicting an innocent is high relative to the expected probability of convicting a guilty (i.e., $(1-q)p^n(\lambda)$ is high relative to $qp^c(\lambda)$) and, second, when society attaches more importance to the conviction of an innocent relative to the conviction of a guilty (i.e., the ratio $D_i/S_i \equiv \gamma$ is high). Another way of interpreting (5) is to say that for any given level of the parameters q, p^n, p^c and γ, a higher degree of unification of judicial careers reduces the social value of prosecuted cases ($dW_i/d\lambda < 0$) when the elasticity $\varepsilon_{p^n,\lambda}$ to convict an innocent (with respect to λ) is high relative to that one to convict a guilty $\varepsilon_{p^c,\lambda}$.

It is worth emphasizing that the distortions generated in the trial by a higher unification of judicial careers are not necessarily negative for social welfare. In fact, when (5) is not satisfied, $dW_i/d\lambda > 0$. For example, if γ is low, namely society attaches a low value to the welfare losses generated by the conviction of innocents, then the right hand side of (5) will be low, and it is likely that more unification of careers leads to an increase in social welfare as the expected gains from the convictions of guilty individuals more than compensate the expected losses from the conviction of innocents. Moreover, in countries with an efficient legal system (here interpreted as relatively high values of p^c and q, and low values of p^n) higher levels of unification of judicial careers are likely to have a positive effect on social welfare.

The above results are summarized in the following lemma.

Lemma 1 *A higher degree of unification of judicial careers λ has a negative effect on the social welfare of the cases prosecuted when condition (5) is satisfied. This happens when the probability that an innocent is convicted is high relative to the conviction of a guilty (i.e., $(1-q)\, p^n\, (\lambda)\, /qp^c\, (\lambda)$ is large enough), when society gives a relatively high value to the conviction of an innocent relative to the conviction of a guilty (high γ), and when the elasticity to convict a guilty $\varepsilon_{p^c,\lambda}$ relative to convict an innocent $\varepsilon_{p^n,\lambda}$ is relatively low. When (5) is not satisfied, a higher unification of judicial careers λ has positive effects on the social welfare of the prosecuted cases.*

Proof. In the text. ■

We now move to analyze the optimal decision of the prosecutor on the cases to prosecute and to drop. In order to do this, we first determine the benefit B that the party affected by the political case is available to provide to the prosecutor. This will be given by the following condition

$$(1-\phi)A \leq g\left[1-\phi - c(B)\right]A + (1-g)A,$$

where the left hand side is the party's rents when the case is prosecuted and the right hand side is the expected payoff from affecting the decision of the prosecutor. As it is the prosecutor offering the deal, this implies that the above condition holds with equality. Rearranging terms, we obtain that

$$B = c^{-1}\left(\frac{1-g}{g}\phi\right),\qquad(7)$$

which states that the benefit obtained by the prosecutor (i.e., the maximal benefit that the party is available to offer) for dropping a political case is increasing in the degree of disruption

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of the party's rents generated by the prosecution of the case and decreasing in the probability that the deal between the party and the prosecutor will be discovered by the citizens.

The size of the cases that have not a political measure is $1 - \alpha$ and they are all prosecuted. From the prosecution of these cases, the prosecutor obtains a benefit $(1 - \alpha) \eta S$ (see (1)). A measure α of cases have a political nature and parties can promise a benefit B to the prosecutor for each of these cases dropped. $x \in [0, 1]$ denotes the fraction of political cases that are prosecuted and $1 - x$ the fraction dropped. Using this notation and (1), the maximization problem of the prosecutor becomes

$$\max_{x} U = (1 - \alpha) \eta S + \alpha \left[x \eta \delta S + (1 - x) B \right] - \chi \lambda^2 \alpha^2 (1 - x)^2 \delta^2 S^2. \tag{8}$$

The first order condition of problem (8) is[4]

$$\alpha \eta \delta S - \alpha B + 2 \chi (1 - x) \alpha^2 \lambda^2 \delta^2 S^2 = 0,$$

which implies that the fraction of political cases prosecuted among those (of measure α) under consideration is

$$x^* = 1 - \frac{B - \eta \delta S}{2 \chi \alpha \lambda^2 \delta^2 S^2}. \tag{9}$$

It is immediate from (9) that $x^* < 1$ if $B > \eta \delta S$, where B is defined by (7); while $x^* = 1$ for all $B \leq \eta \delta S$. To simplify the analysis, we also assume that the parameters values are such that x^* is always strictly positive, i.e. there is always some political case prosecuted. While this assumption does not play any role, it allows us to avoid considering the lower corner solution for x, which would not add anything to the analysis.

From (9) we observe that, when x^* is interior (i.e., $B > \eta \delta S$), a higher degree of unification of judicial careers λ increases the fraction x^* of political cases prosecuted ($\partial x^* / \partial \lambda > 0$), and reduces the size of political cases $\alpha (1 - x^*)$ dropped by the prosecutor because a higher "distance" between the executive and the prosecutor increases the costs for the prosecutor to ignore the political cases. Moreover, when politics can offer more convenient deals to prosecutors (higher B) or when political cases are relatively less important (lower δ), the fraction of political cases brought to court decreases ($\partial x^* / \partial B < 0$ and $\partial x^* / \partial \delta > 0$ respectively).

The above results are summarized in the following lemma.

Lemma 2 *When the executive can provide sufficient rents to the prosecutor ($B > \eta \delta S$), the optimal fraction of political cases prosecuted x^* is given by (9) and a measure $\alpha (1 - x^*)$ of*

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[4]It is straightforward that the second order condition is always satisfied as U is globally concave in x.

political cases are not brought to court. The fraction of political cases prosecuted x^* is increasing λ and δ, and decreasing in B—i.e., $\partial x^*/\partial \lambda > 0$, $\partial x^*/\partial \delta > 0$ and $\partial x^*/\partial B < 0$. When the executive cannot provide enough rents to the prosecutor $(B \leq \eta \delta S)$, $x^* = 1$ and all cases are prosecuted.

Proof. In the text. ∎

4   The Optimal Organization of Judicial Careers

In the previous Section we have determined the distortions generated by the separation/unification of judicial careers on the pre-trial and on the trial phase. We now determine the optimal degree of separation λ of careers from the society point of view. For this reason, we assume that the choice of λ is made by a benevolent social planner. The social welfare function is

$$Z = (1 - \alpha) \left[q p^c (\lambda) S - (1 - q) p^n (\lambda) D \right] + \alpha x^* (\lambda) \left[q p^c (\lambda) \delta S - (1 - q) p^n (\lambda) \delta D \right],$$

where the first and the second component are the total social welfare from the prosecution of the non-political and the political cases respectively. We remind that the social welfare from the cases not prosecuted has been normalized to zero. Hence, the maximization problem of the social planner can be written as

$$\max_{\lambda} Z = \left[1 - \alpha + \alpha \delta x^* (\lambda) \right] \left[q p^c (\lambda) S - (1 - q) p^n (\lambda) D \right], \tag{10}$$

where $x^* (\lambda)$ is determined as the solution of the prosecutor's problem and it is defined by (9) when $B > \eta \delta S$, and it is equal to 1 otherwise.

Consider first the case where $B > \eta \delta S$ so that $x^* (\lambda)$ is interior. The first order condition of problem (10) defining the optimal level of separation of judicial careers λ^* is[5]

$$
\begin{aligned}
F \equiv{} & \alpha \delta \frac{\partial x^* (\lambda)}{\partial \lambda} \left[q p^c (\lambda) S - (1 - q) p^n (\lambda) D \right] \\
& + \left[1 - \alpha + \alpha \delta x^* (\lambda) \right] \left[q \frac{\partial p^c (\lambda)}{\partial \lambda} S - (1 - q) \frac{\partial p^n (\lambda)}{\partial \lambda} D \right] \\
={} & 0,
\end{aligned} \tag{11}
$$

where the first component represents the welfare gains from the fact that a higher unification of judicial careers λ increases the measure of political cases prosecuted, and the second component are the potential welfare gains or losses due to the distortions in the trials from a higher λ.

---

[5]$F \equiv \partial Z/\partial \lambda$ and represents the left hand side of (11) that will be used later.

When condition (5) is satisfied, $q \left(\partial p^c \left(\lambda \right) / \partial \lambda \right) S - \left(1 - q \right) \left(\partial p^n \left(\lambda \right) / \partial \lambda \right) D < 0$, and the optimal degree of separation of judicial careers is implicitly defined by (11). This means that $\lambda^* \in [\lambda_m, \bar{\lambda}]$ and the optimal degree of separation of judicial careers is likely to be at intermediate levels. The second order condition of problem (10) is

$$
\begin{aligned}
\frac{\partial F}{\partial \lambda} & \equiv \alpha \delta \frac{\partial^2 x^* \left(\lambda \right)}{\partial \lambda^2} \left[q p^c \left(\lambda \right) S - \left(1 - q \right) p^n \left(\lambda \right) D \right] \\
& + 2 \alpha \delta \frac{\partial x^* \left(\lambda \right)}{\partial \lambda} \left[q \frac{\partial p^c \left(\lambda \right)}{\partial \lambda} S - \left(1 - q \right) \frac{\partial p^n \left(\lambda \right)}{\partial \lambda} D \right] \\
& + \left[1 - \alpha + \alpha \delta x^* \left(\lambda \right) \right] \left[q \frac{\partial^2 p^c \left(\lambda \right)}{\partial \lambda^2} S - \left(1 - q \right) \frac{\partial^2 p^n \left(\lambda \right)}{\partial \lambda^2} D \right] \\
& < 0.
\end{aligned}
\tag{12}
$$

From (9) follows that

$$
\frac{\partial x^* \left(\lambda \right)}{\partial \lambda} = \frac{B - \eta \delta S}{\chi \alpha \lambda^3 \delta^2 S^2}
\tag{13}
$$

and

$$
\frac{\partial^2 x^* \left(\lambda \right)}{\partial \lambda^2} = - \frac{3 \left(B - \eta \delta S \right)}{\chi \alpha \lambda^4 \delta^2 S^2},
$$

which are positive and negative respectively when $B > \eta \delta S$. Hence, a sufficient condition for the second order condition to be satisfied is that

$$
q \frac{\partial^2 p^c \left(\lambda \right)}{\partial \lambda^2} S - \left(1 - q \right) \frac{\partial^2 p^n \left(\lambda \right)}{\partial \lambda^2} D \leq 0.
\tag{14}
$$

Expression (14) is equivalent to say that the welfare losses generated by a higher level of unification of judicial careers for each case prosecuted are non increasing in λ, and we will assume that this is always satisfied.[6]

When condition (5) does not hold, $q \left(\partial p^c \left(\lambda \right) / \partial \lambda \right) S - \left(1 - q \right) \left(\partial p^n \left(\lambda \right) / \partial \lambda \right) D > 0$, and $F(\lambda) > 0$ for all $\lambda \in [\lambda_m, \bar{\lambda}]$. This means that full unification of judicial careers is optimal $(\lambda^* = \bar{\lambda})$.

Consider now the case where $B \leq \eta \delta S$, which implies that $x^* \left(\lambda \right) = 1$. It is immediate that full separation of judicial careers $(\lambda^* = \lambda_m)$ is socially optimal when condition (5) is satisfied because the social welfare function in (10) is monotonically decreasing in λ—i.e., $F(\lambda) < 0$ for all $\lambda \in [\lambda_m, \bar{\lambda}]$. Vice versa, when condition (5) does not hold, $Z(\lambda)$ in (10) is monotonically increasing in λ meaning that full unification of careers $(\lambda^* = \bar{\lambda})$ is socially optimal.

These results are summarized in the following proposition.

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[6] It is worth emphasizing that condition (14) is sufficient but not necessary for the second order condition to be satisfied. A possible interpretation of (14) is that the transmission of information from the prosecutor to the judge is characterized by decreasing returns.

Proposition 1 *The optimal organization of judicial careers the following:*

(i) when condition (5) is satisfied and $B > \eta \delta S$, the optimal degree of separation of judicial careers is implicitly defined by (11), $\lambda^* \in [\lambda_m, \bar{\lambda}]$, and it is likely to get intermediate values;

(ii) when condition (5) holds and $B \leq \eta \delta S$, the full separation of judicial careers is optimal $(\lambda^* = \lambda_m)$;

(iii) when condition (5) is not satisfied, the full unification of judicial careers should be preferred by society $(\lambda^* = \bar{\lambda})$.

Proof. In the text. ∎

The intuition for this result is the following. A higher degree of separation of judicial careers (lower λ) has two effects. On the one hand, more separation increases the size of political cases not prosecuted when politicians can affects the prosecutor's behavior (i.e., when $B > \eta \delta S$). This always generates social welfare losses. On the other hand, more separation increases social welfare when condition (5) is satisfied because it reduces the trial's distortions. These two effects go in the opposite direction and explain the first part of the proposition stating that the optimal degree of separation is likely to be intermediate in this case. When condition (5) holds and $B \leq \eta \delta S$ (case (ii)), the optimal organization is the full separation of careers because this allows to reduce the distortions in the trial without increasing the distortions in the selection of cases. This comes from the fact that politicians cannot affect the prosecutors' behavior in this case as they cannot guarantee them sufficiently high rents. When condition (5) is not satisfied (case (iii)), the maximal unification of judicial careers is optimal because this is good also in the trial and not only in the pre-trial phase where it allows to reduce the distortions in the selection of cases. We remind that condition (5) is more likely of not being satisfied in societies that attach a low value to the welfare losses generated by the conviction of innocents and in countries with an efficient legal and police system where the probability that an innocent is prosecuted, and eventually convicted, is relatively low.[7]

5   Comparative Statics

We now make some comparative static analysis in order to understand the effect of different levels in fundamental parameters on the optimal degree of separation of judicial careers λ^*.

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[7]It could also be argued that a higher degree of separation of judicial careers may allow the party in power to ally with the prosecutor to bring to court innocents of competing parties. If this effect is strong enough to more than compensate the lower influence that the prosecutor has on the trial, then it may be the case that wrongful convictions increase when separation decreases, i.e., $dp^n(\lambda)/d\lambda < 0$. This implies that $dW/d\lambda$ is positive and Proposition 1 part (iii) applies, meaning that full unification of judicial careers will always be preferred by society $(\lambda^* = \bar{\lambda})$.

Given that the optimal judicial career in cases (ii) and (iii) of Proposition 1 is a corner solution, we shall focus here on case (i) where condition (5) is satisfied, $B > \eta\delta S$ and λ^* is interior.

We first determine the effect of an increase in the number α of political crimes on λ^*. Using the implicit function theorem, we have that

$$\frac{\partial \lambda^*}{\partial \alpha} = -\frac{\partial F/\partial \alpha}{\partial F/\partial \lambda^*}$$

where F comes from the first order condition of problem (10) reported in (11). $\partial F/\partial \lambda^* < 0$ follows from the second order condition (12), and this means that the sign of $\partial \lambda^*/\partial \alpha$ is equal to the sign of $\partial F/\partial \alpha$, which is given by

$$
\begin{aligned}
\frac{\partial F}{\partial \alpha} =\ & \left[\delta \frac{\partial x^*}{\partial \lambda} + \alpha\delta \frac{\partial \left(\partial x^*/\partial \lambda \right)}{\partial \alpha} \right] \left[qp^c\left(\lambda\right)S - \left(1-q\right)p^n\left(\lambda\right)D \right] \\
& + \left[-1 + \delta x^* + \alpha\delta \frac{\partial x^*}{\partial \alpha} \right] \left[q\frac{\partial p^c\left(\lambda\right)}{\partial \lambda}S - \left(1-q\right)\frac{\partial p^n\left(\lambda\right)}{\partial \lambda}D \right].
\end{aligned}
\tag{15}
$$

From (9), we get

$$\frac{\partial \left(\partial x^*/\partial \lambda \right)}{\partial \alpha} = -\frac{B - \eta\delta S}{\chi\alpha^2\lambda^3\delta^2 S^2} \tag{16}$$

and

$$\frac{\partial x^*}{\partial \alpha} = \frac{B - \eta\delta S}{2\chi\alpha^2\lambda^2\delta^2 S^2}. \tag{17}$$

Using (13), (16) and (17), we obtain that

$$\delta\frac{\partial x^*}{\partial \lambda} + \alpha\delta\frac{\partial \left(\partial x^*/\partial \lambda \right)}{\partial \alpha} = 0,$$

and

$$-1 + \delta x^* + \alpha\delta\frac{\partial x^*}{\partial \alpha} = -1 + \delta.$$

Given that (5) holds, the last component in square brackets of (15) is negative, and the sign of $\partial \lambda^*/\partial \alpha$ is equal to the sign of $1 - \delta$. Therefore, $\partial \lambda^*/\partial \alpha \gtrless 0$ if $\delta \lessgtr 1$. In other words, as the proportion of political crimes in the society increases, a higher separation of judicial careers (i.e., a lower λ^*) is optimal when political crimes are more valuable to society $(\delta > 1)$ than other type of offences. This result is counterintuitive as one would expect that a higher proportion α of political crimes would lead to more unification of judicial careers. And this should especially be true when political crimes are more valuable to society $(\delta > 1)$ as this allows to better insulate the prosecutor from politics. Instead, we obtain that this is not the case. The intuition for this result is related to the trial's distortions. In fact, a higher α increases the fraction x^* of political crimes prosecuted (see (17)). This increase does not change the optimal level of λ if $\delta = 1$, because the new cases that are now prosecuted lead

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to the same distortions in the trial as those cases already brought to court (this explains why $\partial \lambda^* / \partial \alpha = 0$ in this case). When $\delta > 1$, the new cases prosecuted are more valuable to society and are therefore characterized by higher sanctions. This implies that, for a given the level of λ, the welfare losses in the trial for the new cases prosecuted are higher. In turn, this implies that the optimal level of separation of judicial careers has to increase (lower λ^*). The opposite is true for $\delta < 1$.

Another parameter of interest in the choice of the optimal degree of separation of judicial careers is the importance of political cases relative to other types of crimes for society as measured by δ. From (11), we have that

$$\frac{\partial \lambda^*}{\partial \delta} = -\frac{\partial F / \partial \delta}{\partial F / \partial \lambda^*}$$

and, therefore, $sign(\partial \lambda^* / \partial \delta) = sign(\partial F / \partial \delta)$. The latter is given by

$$
\begin{aligned}
\frac{\partial F}{\partial \delta} = & \ \alpha \left[\frac{\partial x^*}{\partial \lambda} + \delta \frac{\partial \left(\partial x^* / \partial \lambda \right)}{\partial \delta} \right] \left[q p^c \left(\lambda \right) S - \left(1 - q \right) p^n \left(\lambda \right) D \right] \\
& + \alpha \left[x^* + \delta \frac{\partial x^*}{\partial \delta} \right] \left[q \frac{\partial p^c \left(\lambda \right)}{\partial \lambda} S - \left(1 - q \right) \frac{\partial p^n \left(\lambda \right)}{\partial \lambda} D \right],
\end{aligned}
\tag{18}
$$

where

$$\frac{\partial \left(\partial x^* / \partial \lambda \right)}{\partial \delta} = \frac{-2B + \eta \delta S}{\chi \alpha \lambda^3 \delta^3 S^2} \tag{19}$$

and

$$\frac{\partial x^*}{\partial \delta} = \frac{B - \eta \delta S}{2 \chi \alpha \lambda^2 \delta^3 S^2}. \tag{20}$$

From (13) and (19) follows that

$$\frac{\partial x^*}{\partial \lambda} + \delta \frac{\partial \left(\partial x^* / \partial \lambda \right)}{\partial \delta} = -\frac{B}{\chi \alpha \lambda^3 \delta^2 S^2} < 0,$$

while using (9) and (20) we get that

$$x^* + \delta \frac{\partial x^*}{\partial \delta} = 1.$$

These two expressions, together with Assumption (1) and the fact that condition (5) holds, imply that $\partial F / \partial \delta$ in (18) is negative and, therefore, that $\partial \lambda^* / \partial \delta < 0$.[8] In words, when society attaches more importance to political crimes, the optimal degree of separation of judicial careers is lower. The interpretation of this result is similar to that one relative to the effect of α on λ^*. When δ increases, the fraction of political cases x^* prosecuted also increases because,

---

[8] Assumption (1) ensures that the value of each case $q p^c \left(\lambda \right) S - \left(1 - q \right) p^n \left(\lambda \right) D$ is positive, while condition (5) implies that more unification generates welfare losses in the trial, i.e. that $q \left(\partial p^c \left(\lambda \right) / \partial \lambda \right) S - \left(1 - q \right) \left(\partial p^n \left(\lambda \right) / \partial \lambda \right) D$ is negative.

for any given λ, it becomes more costly for the prosecutor to drop such cases. This in turn increases the distortions in the trial, which makes optimal a reduction of λ^*, namely a higher degree of separation of judicial careers.

The optimal level of separation of judicial careers λ^* depends on the value that society attaches to the conviction of an innocent relative to the welfare losses generated by a conviction of a guilty. This is represented by the parameter γ. Using the fact that $\gamma \equiv D_i/S_i$, we can rewrite (11) as follows

$$F \equiv \alpha\delta\frac{\partial x^*(\lambda)}{\partial\lambda}\left[qp^c(\lambda) - (1-q)p^n(\lambda)\gamma\right]S \tag{21}$$
$$+\left[1 - \alpha + \alpha\delta x^*(\lambda)\right]\left[q\frac{\partial p^c(\lambda)}{\partial\lambda} - (1-q)\frac{\partial p^n(\lambda)}{\partial\lambda}\gamma\right]S$$
$$0.$$

Given that
$$\frac{\partial\lambda^*}{\partial\gamma} = -\frac{\partial F/\partial\gamma}{\partial F/\partial\lambda^*},$$
we have that $sign(\partial\lambda^*/\partial\gamma) = sign(\partial F/\partial\gamma)$ as $\partial F/\partial\lambda^* < 0$ from the second order condition. From (21) follows that

$$\frac{\partial F}{\partial\gamma} = -\alpha\delta\frac{\partial x^*}{\partial\lambda}(1-q)p^n(\lambda)S - \left[1 - \alpha + \alpha\delta x^*(\lambda)\right](1-q)\frac{\partial p^n(\lambda)}{\partial\lambda}S < 0,$$

and that $\partial\lambda^*/\partial\gamma < 0$. This result means that, as expected, a society with a more dislike for the conviction of innocents (higher values of γ) should prefer a higher degree of separation of the judicial careers (lower λ^*). More separation of judicial careers reduces the probability of convicting both innocents and guilties and will be optimal when society cares more about the losses from the convictions of the formers than the gains generated by the conviction of the latter.

Another interesting feature affecting the choice of λ is the capacity of the executive to provide rents to the prosecutor for dropping political cases. An increase in B has the following effect on the optimal λ:
$$\frac{\partial\lambda^*}{\partial B} = -\frac{\partial F/\partial B}{\partial F/\partial\lambda^*}.$$
Again, $sign(\partial\lambda^*/\partial B) = sign(\partial F/\partial B)$, where

$$\frac{\partial F}{\partial B} = \alpha\delta\frac{\partial(\partial x^*/\partial\lambda)}{\partial B}\left[qp^c(\lambda)S - (1-q)p^n(\lambda)D\right] + \alpha\delta\frac{\partial x^*}{\partial B}\left[q\frac{\partial p^c(\lambda)}{\partial\lambda}S - (1-q)\frac{\partial p^n(\lambda)}{\partial\lambda}D\right].$$

From (9) and (13), we obtain respectively

$$\frac{\partial x^*}{\partial B} = -\frac{1}{2\chi\alpha\lambda^2\delta^2 S^2} < 0,$$

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and

$$\frac{\partial\left(\partial x^*/\partial\lambda\right)}{\partial B} = \frac{B}{\chi\alpha\lambda^3\delta^2 S^2} > 0,$$

which, together with Assumption (1) and condition (5), imply that $\partial F/\partial B$ and $\partial\lambda^*/\partial B$ are positive. This means that when politicians have the possibility to provide more rents to prosecutors, it is optimal for society to increase the degree of unification of the judicial careers in order to better insulate the prosecutors from the executive branch.

On the relationship between politics and the judiciary, we said that the parameter χ in the cost function of the prosecutor is positively related to the probability g that the agreement between the party and the prosecutor for dropping a case becomes known to the public. The increase in χ (generated by an increase in g) implies that

$$\frac{\partial\lambda^*}{\partial\chi} = -\frac{\partial F/\partial\chi}{\partial F/\partial\lambda^*}$$

so that $sign(\partial\lambda^*/\partial g) = sign(\partial\lambda^*/\partial\chi) = sign(\partial F/\partial\chi)$. From (11)

$$\frac{\partial F}{\partial\chi} = \alpha\delta\frac{\partial\left(\partial x^*/\partial\lambda\right)}{\partial\chi}\left[qp^c\left(\lambda\right)S - (1-q)p^n\left(\lambda\right)D\right] + \alpha\delta\frac{\partial x^*}{\partial\chi}\left[q\frac{\partial p^c\left(\lambda\right)}{\partial\lambda}S - (1-q)\frac{\partial p^n\left(\lambda\right)}{\partial\lambda}D\right],$$

where (9) and (13) imply respectively that

$$\frac{\partial x^*}{\partial\chi} = \frac{B - \eta\delta S}{2\chi^2\alpha\lambda^2\delta^2 S^2} > 0$$

and

$$\frac{\partial\left(\partial x^*/\partial\lambda\right)}{\partial\chi} = -\frac{B - \eta\delta S}{\chi^2\alpha\lambda^3\delta^2 S^2} < 0.$$

The sign of the last two expressions comes from the fact that condition (5) holds. In turn, $\partial F/\partial\chi < 0$ and, therefore, $\partial\lambda^*/\partial\chi$ and $\partial\lambda^*/\partial g$ will also be negative. This means that a society where the behavior of the politician becomes more easily known to public (for example, because the press is more free) may afford to have less insulated prosecutors—i.e., more separated judicial careers—as politicians will try less frequently to affect the prosecutors' behavior.

The following proposition summarizes the above results.

Proposition 2 *Let us consider case* (i) *of Proposition 1 where condition (5) is satisfied,* $B > \eta\delta S$ *and the optimal degree of unification of judicial careers* λ^* *is interior and implicitly defined by (11). The following comparative statics results hold:*

(i) $\partial\lambda^*/\partial\alpha \gtreqless 0$ *if* $\delta \lesseqgtr 1$, *i.e., an increase in the number of political cases decreases the optimal level of unification of judicial careers if political crimes are more valuable to society than other offences, i.e.* $\delta > 1$, *and vice versa;*

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(ii) $\partial \lambda^*/\partial \delta < 0$, *which means that as political crimes becomes more valuable to society relative to other crimes, more separation of judicial careers is optimal;*

(iii) $\partial \lambda^*/\partial \gamma < 0$, *i.e., more separation is better in societies attaching more social welfare to the conviction of an innocent relative to the conviction of a guilty individual;*

(iv) $\partial \lambda^*/\partial B > 0$, *meaning that when politicians can provide more rents to the prosecutor, more unification of judicial careers is optimal;*

(v) $\partial \lambda^*/\partial g < 0$, *namely societies with a better information system may find optimal more separated judicial careers.*

Proof. In the text. ∎

6   Concluding Remarks

In this paper, we have presented a simple framework to analyze the optimal choice of the separation/unification of judicial careers. We have explained that complete separation of judicial careers means that the prosecutor is under the control of the executive, while under compete unification prosecutors and judges belong to the same body (the judiciary) independent on the executive. In this work, the degree of unification/separation of the judicial careers has been modeled as a continuous variable.

A lower "distance" between the judge and the prosecutor (higher unification of judicial careers) affects the outcome of the trial in the direction of favoring the conviction of the defendant. Whether this reduces or increases social welfare depends on various factors. One of these factors is the importance that society attaches to the conviction of an innocent relative to the conviction of a guilty. When this is relatively high, more unification of careers is likely to have negative effects on social welfare, and the opposite is true in societies where the weight associated the conviction of an innocent is not too large. Another factor playing an important role is the efficiency of the judicial and police system in the pre-trial phase. If the system is relatively efficient, so that it is relatively unlikely that innocent individuals are prosecuted, then a higher degree of unification of judicial careers is more likely to be optimal.

The degree of separation of judicial careers may also play a role in the pre-trial phase where the prosecutor has to decide which cases to prosecute. We have shown that as the degree of separation of the judicial careers increases, it becomes less costly for the prosecutor not to bring to court political cases and, therefore, politicians will be able to affect the prosecutor's behavior more easily. This in turn leads to a higher fraction of political crimes not prosecuted and increases social welfare losses.

We have then analyzed the optimal organization of judicial careers from the society point of view and developed some comparative statics analysis. The optimal degree of separation of judicial careers is affected by various factors. One is the ability of the politicians to affect the prosecutors' actions. When this is limited and society attaches a high weight to the conviction of innocents, complete separation of careers may be optimal. In fact, this allows lower distortions in terms of conviction of innocents and, at the same time, the distortions in the selection of the cases prosecuted are limited. Full unification of judicial careers is always optimal whenever society does not attach too much weight to the conviction of innocents or when the legal and police system is so effective that the probability of prosecuting and convicting an innocent is relatively low. Societies that are heavily concerned about the losses generated by the conviction of innocents and with politicians that can affect the prosecutors' actions are more likely to be characterized by judicial careers with intermediate characteristics.

The comparative statics analysis has also highlighted that a higher degree of separation of judicial careers is optimal in societies where political related crimes are more severely punished, and in countries where political crimes are more frequent if their citizens value such crimes more than other types of offences. We have explained this result as a consequence of the large losses from the additional conviction of innocents that more unification of judicial careers leads when political crimes are severely punished.

Finally, we think that it would be interesting to extend this simple framework in a number of directions. In particular, the choice of the organization of judicial careers could be made by politicians instead than by a benevolent planner. It would also be worthy taking into account the general equilibrium effects of different levels of deterrence generated by different degrees of separation of judicial careers.

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