Patronage or Meritocracy: Political Institutions and Bureaucratic Efficiency

Hannes Mueller*
Institut d’Analisi Economica, CSIC

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Abstract

This article presents a theoretical model to explain the apparent complementarity between meritocratic bureaucracies and competitive political institutions. It categorizes bureaucratic institutions into patronage and meritocracy. Under patronage politicians influence the selection of bureaucrats. Under meritocracy this influence is prevented by objective criteria for recruitment and promotion. A simple model of these two bureaucratic institutions explains why patronage may lead to a welfare loss. Patronage is adopted nonetheless if lack of political competition allows the political elite to control rent extraction through bureaucratic recruitment. Meritocracy is only introduced when political competition forces the political elite to internalize the welfare loss caused by patronage. The model is illustrated using a case study and data on political and bureaucratic institutions.

Keywords: bureaucracy, patronage, meritocracy, democracy, political competition, public goods, polarization, central bank independence

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*Institut d’Analisi Economica, CSIC; Campus UAB; 08193, Bellaterra (Barcelona); Spain. Tel.: 00 34 935929774. Email: hannes.mueller@iae.csic.es.
1 Introduction

An independent bureaucracy that is recruited and promoted on the basis of merit is often regarded as a cornerstone of good governance.\footnote{Theories regarding this hypothesis reach back to Max Weber whose rational bureaucracy has selection by expertise at its core. The link between meritocracy and efficiency is currently so well-established that bureaucratic independence is seen as a synonym for bureaucratic quality. Economists are most familiar with similar arguments regarding Central Bank independance.} Meritocratic institutions have been introduced in most developed countries throughout the last two centuries. Often, meritocratic reform coincided with a trend towards more open and democratic elections.\footnote{See section 5 for the discussion of the British example. See Bekke and Meer (2000) for other examples in Western Europe. Ruhl and Camoes (2003) show that competitiveness of elections was a key predictor of the introduction of state exams in the United States following the Pendleton Act.} Cross-sectional evidence, too, points to a link between meritocratic bureaucracies and use of elections.\footnote{See sections 6 for an illustration. In particular, it can be shown that recent movements in Central Bank independence correlate with changes in political regimes.} But while there has been extensive work on both political and bureaucratic institutions there is little investigation in their apparent complementarity.\footnote{Acemoglu et al (forthcoming) and Hanssen (2004) are two exceptions.}

This article is the first to develop a theoretical model of the complementarity between competitive political institutions and meritocratic bureaucracies. Starting point for the analysis is the distinction between patronage and meritocracy. Patronage is defined here as the political allocation of posts in the bureaucracy. Bureaucrats can be hired, promoted and fired by the political leadership without institutional restrictions. Under meritocracy the political leadership can interfere less in recruitment and promotion of bureaucrats. Objective standards, firing restrictions and independent civil service commissions all hinder political involvement with the declared aim of maximizing bureaucratic competence. The model gives a possible explanation for why these restrictions might indeed increase merit. It is shown that objective standards in recruitment are a way of introducing political competition into the bureaucracy.\footnote{In light of this insight, meritocratic reforms that follow democratic reforms can be regarded as a spillover of political competition from one layer of government to the next.}

In the model, lack of competition under patronage can imply increased rent extraction and loss of welfare.

The correlation between political institutions and bureaucratic institu-
tions can be explained by a simple trade-off faced by an incumbent who is in control of bureaucratic institutions. If he chooses patronage, future recruitment is politicized and the future government can choose bureaucrats that work in its favor. If he chooses meritocracy, political influence is prevented and bureaucratic selection is independent of political leadership. Depending on the level of political competition, the incumbent will be more or less inclined to choose meritocracy. If political reforms increase competition the incumbent introduces meritocracy to prevent political influence by other groups. This explains the apparent complementarity between competitive political institutions and meritocratic bureaucracies.

The complementarity between political and bureaucratic institutions implies that there can be a positive indirect welfare effect of political competition. The model shows that as political competition increases, the incumbent increasingly internalizes the efficiency loss caused by patronage. Hence, political competition can imply that the incumbent adopts meritocratic reforms, bureaucratic efficiency increases and rent-extraction decreases. However, this link between political competition and bureaucratic efficiency is weakened by an increase in available rents. If rents are extremely high, patronage and low performance persist for almost all levels of political competition.

Two extensions of the model highlight the flexibility of the basic framework. It is shown first that if bureaucrats are required to invest into competence the complementarities between the two sets of institutions increase. Lack of political competition, on the one hand, makes patronage attractive because the political elite can guarantee employment in the future. This guarantee maximizes investment incentives for bureaucrats and leads to high competence under patronage. High levels of political competition, on the other hand, make government volatile and reduce investment incentives under patronage. Meritocracy shields bureaucrats from the volatility of political competition and, thus, provides relatively high levels of competence. The second extension endogenizes political power. Patronage motivates political supporters of a government because they know that recruitment of bureaucrats depends on the political elite. This implies that patronage might be adopted to gather political support, despite the fact that this choice reduces welfare. Likewise, supporters know that if bureaucrats are selected by merit the political elite matters less for outcomes. Meritocracy can then be adopted to dissipate resistance against the political elite.

In summary, this article provides a new, micro-founded explanation for the positive welfare impact of meritocracy and its complementarities with
open and democratic elections. The model also links the benefits of meritocracy directly to actual institutional features like the use of state examinations and objective criteria for recruitment and promotion in the state bureaucracy. At the heart of this idea lies the effective use of competition for posts in the bureaucracy which is prevented under political recruitment. This point is illustrated by arguments of John Stuart Mill and others in the context of British meritocratic reforms which followed democratization in the 19th century. The robust correlations in the cross-section indicate that the revealed link to political reform might not be unique to Britain but could indeed explain the broader patterns we observe.

The following section discusses the related literature. Section 3 presents the basic model. This model is then extended in section 4. Section 5 discusses the British reforms of the 19th century to illustrate the theory. Section 6 presents some correlations in the cross-sectional data. The last section discusses the results, caveats and proposes further research in bureaucratic institutions.

2 Related Literature

The approach here is most closely related to work on the role of firing restrictions in Hansson (2004) and Maskin and Tirole (2004). Hanssen (2004) studies the endogenous choice of judicial institutions by a politician and shows theoretically and empirically that more judicial independence arises when politicians are comparatively weak. However, he does not analyze whether and why political influence leads to inefficiencies. Maskin and Tirole (2004) provide a thorough theoretical analysis of the role of political accountability. They show that accountable decision-makers might have an incentive to pander to their masters. This creates an inefficiency that has to be balanced against the selection benefits of accountability. The main difference here is that the inefficiency of political recruitment is the result of a lack of effective competition between the bureaucrats, not pandering.

In their model of politicians and bureaucrats Alesina and Tabellini (2007) argue that career concerns are the main driving force of bureaucratic performance. It is shown here that political influence on bureaucratic careers can create a labor market monopsony for politically aligned types which may distort the career incentive for bureaucrats and lower bureaucratic efficiency. A crucial assumption in this regard is that bureaucrats cannot be controlled
perfectly by the politician and, thus, politicians prefer to recruit and promote bureaucrats that distribute rents towards their group.

The assumption of politically motivated bureaucrats links the work here to theoretical work that analyzes the role of intrinsic motivation in the public sector performance. One key difference is, however, that bureaucrats here are driven by group-specific policy preferences not unlike the policy preference in models of politicians or special interest groups. The main advantage of this assumption from a modelling perspective is that the impact of political recruitment bias under patronage is relatively robust to an expansion in the number of bureaucrats who compete for a post. Private wage payments in rank-order tournaments a la Laezar and Rosen (1981) do not necessarily have this property as restricting the pool of bureaucrats in a tournament can have a positive impact on investments because the chance of getting the wage (price) rises with less competitors.

Finally, this article relates to a quickly growing literature in development economics that tries to explain the inefficiency of government. Banerjee (1997), for example, shows that red tape and corruption can be explained with a combination of market failures and agency problems within government. Red tape arises when a money-minded bureaucrat tries to screen a wealth-constrained population for willingness to pay. The model here ignores the agency problem between politician and bureaucrat and instead stresses the inefficiencies that arise due to political selection of bureaucrats. Iyer and Mani (2008) provide empirical evidence for the political influence of politicians on bureaucratic careers in the Indian bureaucracy. They also show empirically that states with more political influence perform worse. Their model, however, does not explain this. Acemoglu, Ticchi and Vindigni (forthcoming) model the ability of patronage to strengthen political support for the incumbent to show that inefficient bureaucratic institutions might be chosen if the incumbent is politically challenged. This leads to an interesting difference to the results shown here. In their model political competitiveness

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6For theoretical contributions see, for example, Besley and Ghatak (2006), Francois (2000) or Prendergast (2007).

7See, for example, Besley and Coate (1997), Caillaud and Tirole (2002), Grossman and Helpman (2001) or Osborne and Slivinski (1996).

8This and their work are complementary. The aim of the model here is to describe bureaucratic performance and the impact of bureaucratic and political institutions on this performance. Their model aims to provide an account for different bureaucratic career strategies within the same institutional setting and heterogenous bureaucrats.
goes hand in hand with the use of patronage, not meritocracy. The analysis here also provides a micro-foundation for findings in Besley and Persson (forthcoming). They show how the investment in fiscal state capacity varies with political polarization and the relative attractiveness of public good provision. It is shown here how this investment can be understood as a change in the underlying bureaucratic institutions.

3 Basic Model

3.1 Set-Up

Society consists of two groups of equal size identified by the parameter $t \in \{A, B\}$. Each of two groups is politically represented by a politician of the same type. In addition, two bureaucrats, one of each type, compete for a post in the state bureaucracy. Selection for the post allows the chosen bureaucrat to determine government policies which affect the whole of society. The full game has two periods and is structured as follows.

The politician of type $A$ (incumbent) is assumed to be in power in period 1. He remains in power with probability $p \in \left[\frac{1}{2}, 1\right]$ and is replaced by a politician of type $B$ otherwise. Parameter $p$ measures the level of political competition. High values of $p$ can typically be associated with autocratic regimes in which the opposition has no access to political power. Values of $p$ close to $\frac{1}{2}$, on the other hand, can be associated with more competitive environments in which both groups have a similar chance of being in power in the next period.

At the beginning of period one the incumbent chooses the bureaucratic institutions, $S \in \{\text{merit, patr}\}$, that govern bureaucratic recruitment in the second period. Patronage ($S = \text{patr}$) implies that the politician in power in period two can choose the bureaucrat. Under meritocracy ($S = \text{merit}$) this

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9 This probability is assumed to be exogenously given by political institutions in place. Endogenous $p$ is discussed as an extension. The assumption that $p \geq \frac{1}{2}$ is made only to simplify the discussion of the results.

10 Note that this is the definition of political competition used by most empirical studies. The commonly used Polity IV data, for example, defines executive competitiveness as giving "subordinates equal opportunities to become superordinates" (Polity IV Project, Dataset Users Manual, p. 18).

11 Bureaucratic institutions are a state variable similar to government debt in models summarized in Persson and Tabellini (2000).
power is ceded to a neutral commission that is only interested in bureaucratic competence.

Given $S$ and $p$ the two bureaucrats compete by specializing in one of two policy dimensions - public good provision or rent extraction. If a bureaucrat specialized on a policy dimension in period one she is able to provide a successful policy on that dimension with probability $h \in \left(\frac{1}{2}, 1\right)$ in case she is recruited in period two. However, specialization is never perfect in the sense that there is a positive likelihood of $1 - h$ that she provides a successful policy on the other policy dimension in period two. The successful provision of public goods by the bureaucrat pays one to every member of society regardless of their type. Policy success in rent-extraction pays $\tau > 0$ to the group of the bureaucrat and $-\tau$ to the other group. Assume for now that specialization costs on both dimensions are equal to zero.

A bureaucrat is defined as competent if she specialized on the dimension of public good provision in period one. Denote the level of competence by $e_t \in \{h, 1-h\}$. The selection of a competent type $A$ bureaucrat ($e_A = h$) then implies, for example, that the public good is provided with probability $h$ while rents are extracted from group $B$ with probability $1 - h$. Hence, the expected utility for all individuals (including the bureaucrat) of group $t$ from a bureaucrat of type $t$ and competence $e_t \in \{h, 1-h\}$ is

$$EU_t(t, e_t) = e_t + (1 - e_t)\tau$$

where the first term represents the expected benefit from public good provision and the second term the expected benefit from rent extraction. Analogously, the expected utility for group $t$ from a bureaucrat of type $-t$ with competence $e_{-t} \in \{h, 1-h\}$ is

$$EU_t(-t, e_{-t}) = e_{-t} - (1 - e_{-t})\tau.$$

Equation (2) shows that the expected utility provided by a bureaucrat from the opposition is always increasing in her competence. This is because

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12 Expertise has, thus, a similar role as in Aghion and Tirole (1997). The main differences here are that policy is two dimensional and that the politician never influences policies. An analysis which endogenizes the distribution of authority between politician and bureaucrat seems attractive but lies beyond the scope of this paper.

13 Results are similar if the costs of rent extraction to the opposition are zero. More generally, the model can easily be expressed as an effort-exertion problem in which the effort determines a probability by which the bureaucrat knows a state of the world. The only crucial assumption is then that uninformed bureaucrats are more likely to take an action that benefits only their group.
both increased public good provision and decreasing rent extraction by a bureaucrat of type $-t$. Expected utility in equation (1), however, is only increasing in competence, $e_t$, if $\tau < 1$. Thus, the parameter $\tau$ measures the extent to which rent extraction implies higher benefits than public good provision. High values of $\tau$ could be either due to large rents (abundant natural resources, low cost of repression, etc.) or small public good gains (heterogeneous tastes, low demand for public goods etc.). Define society as polarized if $\tau \geq 1$. According to this definition, bureaucrats in a polarized society benefit less from public good provision than from extracting rents. When specializing, these bureaucrats are therefore tempted to focus on rent extraction.\textsuperscript{14}

To end the description of the model, the sequencing of the actions is as follows. The incumbent first chooses the bureaucratic system $S$. Then, given $S$, the two bureaucrats simultaneously decide on their specialization $e_t, t = A, B$. The political process determines the politician for period two. One of the two bureaucrats is recruited according to the rules of $S$ and this bureaucrat implements policies that yield expected payoffs in equations (1) and (2). The next section shows that this game has a unique subgame perfect equilibrium. Backwards induction requires that bureaucratic recruitment in period two and the specialization decisions are discussed first. The combination of both then determines bureaucratic performance of patronage and meritocracy.

### 3.2 Bureaucratic Performance

A discussion of bureaucratic performance is most useful in the light of the welfare maximum. Given that both groups in society are of equal size, (utilitarian) welfare is maximized whenever the selected bureaucrat in period two is competent ($e_t = h$). This is due to the fact that rent extraction is welfare neutral while investment in competence improves overall welfare. That means that a bureaucratic system maximizes welfare if it selects a competent bureaucrat. The type of bureaucrat is inconsequential as it only affects the distribution of welfare.

\textsuperscript{14}Note also that for $e_t = e_{-t} = e$ the difference in expected utilities $EU_t(t, e) - EU_t(-t, e)$ is decreasing in $e$. This captures the idea that an overall specialization in rent extraction ($e = 1 - h$) radicalizes the political environment because bureaucrats transfer more rents towards their group.
Meritocracy is assumed to give all recruitment powers to a neutral commission that is only interested in competence. Assume that the commission chooses the candidate with the higher level of competence, $e_t$, and randomizes otherwise.

Patronage gives the right of selecting the bureaucrat to the politician in power in period two. Clearly, politicians have an incentive to recruit a bureaucrat of their own type because she will distribute rents towards their group. This group-specific interest can clash with the selection by merit.

**Lemma 1** Bureaucratic recruitment under patronage is politically biased if $\tau \geq 2h - 1$. A politician of type $t \in \{A, B\}$ then fails to recruit the more competent bureaucrat if the bureaucrat is of type $t \neq t$.

**Proof.** Denote the level of competence of the two bureaucrats by $e_t, e_{-t} \in \{h, 1-h\}$. A politician of type $t$ selects his own type of bureaucrat if

$$e_t + \tau (1 - e_t) \geq e_{-t} - \tau (1 - e_{-t}).$$

Insert $e_t = 1 - h$ and $e_{-t} = h$. With these levels of competence the condition can be re-written into $\tau \geq 2h - 1$. □

Lemma 1 explains why patronage can fail to recruit competent bureaucrats. The reason is that the politician might have to choose between a bureaucrat who would allocate rents to his group and a bureaucrat who is more competent. If rents are important ($\tau \geq 2h - 1$) bureaucratic competence is ignored.

An immediate effect of the bias described in lemma 1 is that recruitment under patronage is fully determined by the type of politician in power. For all $\tau \geq 2h - 1$ politicians of type $t$ always choose bureaucrats of type $t$. This can have consequences for bureaucratic competence under patronage.

**Proposition 1** Under patronage bureaucrats specialize in rent extraction ($e_{A,B} = 1 - h$) if and only if society is polarized ($\tau \geq 1$). They never specialize in rent extraction under meritocracy.

**Proof.** See the appendix. □

Proposition 1 gives a possible explanation for why meritocracy is often regarded as the better bureaucratic system. Patronage can imply that the bureaucrats specialize in extracting rents from the political opposition if these
rents exceed the benefit from public good provision. From a welfare perspective this creates a loss of resources due to bureaucratic incompetence.

The political bias discussed in lemma 1 is at the heart of this failure of patronage. Given that patronage recruits by type and not by competence there is effectively no competition between bureaucrats of different types. Polarization creates a labor market monopsony for bureaucrats with the correct type and, hence, bureaucrats know that they do not compete against bureaucrats with different policy preferences.

Under meritocracy specialization in competence can prevent the competing candidate from taking the bureaucratic post and implementing rent extraction in her favor. As both bureaucrats compete on an equal footing, polarization now works as an incentive for a specialization in competence.

Given the result that patronage can lead to a specialization in rent extraction the question arises whether the incumbent might still choose it as bureaucratic system. The next section shows that the incumbent’s decision is closely related to the level of political competition $p$.

### 3.3 Political and Bureaucratic Institutions

In the first period the incumbent tries to affect outcomes in the second period by choosing the set of bureaucratic institutions, $S \in \{\text{merit}, \text{patr}\}$. His expected utility from patronage is

$$EU_A(S = \text{patr}, p, \tau) = p(e_A + \tau (1 - e_A)) + (1 - p) (e_B - \tau (1 - e_B))$$

with

$$e_{A,B} = \begin{cases} h & \text{if } \tau < 1 \\ 1 - h & \text{if } \tau \geq 1 \end{cases}.$$

by proposition 1. The expected utility from meritocracy is

$$EU_A(S = \text{merit}, \tau) = \frac{1}{2} (h + \tau (1 - h)) + \frac{1}{2} (h - \tau (1 - h)).$$

Note first that under patronage both governments always recruit a bureaucrat of their own type in period 2. This implies that if group $A$ is more powerful (higher $p$) then the likelihood that bureaucrat $A$ gets the post in period 2 is also higher. As $p$ increases the incumbent can therefore expect more rents to be distributed towards the group he represents. Meritocracy
does not have the same properties because recruitment is politically neutral and both bureaucrats are selected with probability $\frac{1}{2}$. Hence, political institutions affect expected utility under patronage but not under meritocracy. This establishes the link between political and bureaucratic institutions.

**Proposition 2** Meritocracy is more attractive to the incumbent if political reforms increase political competition,

$$\frac{\delta [EU_A (S = merit, \tau) - EU_A (S = patr, p, \tau)]}{\delta p} < 0.$$ 

There is a unique level of political competition

$$\tilde{p} = \left\{ \begin{array}{ll} \frac{1}{2} & \text{if } \tau < 1 \\ \frac{1}{2} + \frac{2h-1}{2h^2} & \text{if } \tau \geq 1 \end{array} \right.$$ 

at which the incumbent is indifferent between meritocracy and patronage. For all values of $p \leq \tilde{p}$, $\tilde{p} \in (\frac{1}{2}, 1)$ meritocracy is introduced.

**Proof.** See the appendix.

The results in proposition 2 suggest a simple link between political and bureaucratic institutions. If political institutions exclude access to political power for the opposition ($p = 1$) meritocratic reform is impossible. An autocrat who knows that his absolute powers shield the bureaucracy from political influence by the opposition never introduces institutions like state exams or a civil service commission as these institutions would restrict his control over recruitment. Meritocracy is only introduced if the incumbent is competing against other groups, i.e. if he knows there is a good chance that the opposition will come to power in the next period.

But meritocratic reform is not equally attractive at all levels of polarization, $\tau$. When rents are low ($\tau < 1$) the incumbent knows that bureaucratic competence does not suffer under patronage. In terms of welfare the incumbent’s choice is always optimal. The choice for the incumbent is therefore only between political and random recruitment and he will only introduce meritocracy under perfect political competition, i.e. at $p = \frac{1}{2}$.

In polarized societies ($\tau \geq 1$), however, political reform can lead to a real increase in bureaucratic efficiency if it moves $p$ below $\tilde{p}$. This is because patronage combined with high polarization leads to a specialization in rent extraction among bureaucrats (proposition 1). If political reforms
increase competition for political power this specialization in rent extraction is more likely to backfire for the incumbent. Hence, as $p$ falls, the incumbent internalizes more of the costs of patronage and introduces meritocracy. 

Note that $\tilde{p} > \frac{1}{2}$ for $\tau \geq 1$, i.e. the incumbent introduces meritocracy even if that diminishes the likelihood that a bureaucrat from his group is recruited in period 2. In other words, the incumbent is willing to trade in some control over recruitment for a specialization in public good provision. However, this trade-off is affected negatively by increases in polarization and the introduction of meritocracy becomes less likely with rising polarization. Formally

$$\frac{\delta \tilde{p}}{\delta \tau} = -\frac{2h - 1}{2h\tau^2} < 0.$$ 

In other words, the adoption of inferior bureaucratic institutions is more likely with the rising importance of rents. A finding that is consistent with several empirical regularities discussed in the (development) literature.\textsuperscript{15}

In summary, the model delivers a micro-foundation for the choice of inferior bureaucratic institutions and how this choice links to the political institutions of a country. In the context of large extractable rents, absolutist political institutions always imply a choice of inefficient bureaucratic institutions which are geared towards the extraction of these rents. Political reforms can lead to an improvement of bureaucratic performance if they give a diverse set of groups access to political power. According to the model, political competition implies that the political elite of a country adopts meritocratic reforms, bureaucratic efficiency increases and rent-extraction decreases.

4 Extensions

4.1 Costly Investment in Competence

There are some reasons to believe that a specialization in competence could be more costly than a specialization in rent extraction. This is particularly plausible where public good provision requires more expertise that is specific to the public sector. A typical example of this relation-specific investment

\textsuperscript{15}One possible application is the \textit{resource curse}. The model here shows that abundant natural resources can be a curse because they imply inefficient bureaucratic institutions. Another example is discussed in the last section.
are the long (and relatively low-pay) career paths that civil servants have to go through before they can reach posts with political influence.

Assume that competence costs the bureaucrat $c$ regardless of whether she is selected for the post or not. The set of political institutions now affects the level of competence directly under patronage because bureaucrats know that return on their investment in competence depends on the probability of being hired in the next period.

**Proposition 3** For an intermediate range of political polarization, $\tau \in [2h - 1, 1]$, the bureaucrat tends to be more competent under patronage if there is less political competition.

**Proof.** See appendix. ■

The intuition of proposition 3 is that since specialization in competence is costly, a bureaucrat will only invest in competence if she is sufficiently confident that this competence will be put to use. Under biased recruitment ($\tau > 2h - 1$) her recruitment and, hence, return to investment is more likely with less political competition. In other words, investment in competence requires a lack of political competition because only that can guarantee that her investment will pay off. Competitive political institutions make recruitment equally unlikely for both bureaucrats and, hence, lead to low overall investment incentives and competence.

Under meritocracy, political institutions have no impact on the competence of the bureaucracy. However, investment costs still affect the overall level of competence that meritocracy provides. In fact, it can be shown that patronage can welfare dominate meritocracy if political competition is lacking. In other words, the combination of patronage and lack of political competition can lead to a more competent bureaucracy than selection by merit.

These observations are important because they reinforce the notion that political and bureaucratic institutions are complementary. An absolutist ruler can guarantee to hire his group and, thus, maximizes their incentives to invest into competence. This incentive can be so strong that welfare is higher under patronage than under meritocracy. However, if political power is shared, patrons are weak - whoever is in power cannot guarantee employment in the future. Patronage then harms competence and meritocracy welfare.

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16If $p = 1$, for example, patronage leads to higher welfare than meritocracy for all $c \in (\tau (1 - h), (2h - 1) (1 - \tau))$, $\tau \in (2h - 1, \frac{2h - 1}{n})$. 

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dominates because it does not rely on the absence of political competition to provide investment incentives.\textsuperscript{17}

\section*{4.2 Endogenous Political Power}

Patronage is often referred to as the use of spoils to gather political support.\textsuperscript{18} This section incorporates this view by making $p$ endogenous to the choice of bureaucratic system.

The political process is modelled as a voting game. There are three kinds of voters. The first kind is only interested in public good provision and votes for the politician that is expected to provide the highest benefit on that policy dimension. This group has a mass of $1 - \alpha$. The second group has a mass of $\alpha$ and votes for the politician that promises most rents. Thus, the parameter $\alpha$ measures the impact of spoils driven groups on the political process. Assume that the political system is biased in the sense that a share $\lambda \in [0, 1]$ of these voters is of type $t = A$. Uncertainty in the political process is modelled through a third group of noise voters whose votes lead to an aggregate shock on votes $\varepsilon$ for the politician of type $B$. Assume that this shock is distributed uniformly on the interval $[-1, 1]$.

Voting takes place after the type $A$ incumbent chose the bureaucratic system. This allows the system to affect voting behavior. In addition, voting by the first two groups of voters takes place before investments are conducted. Bureaucrats therefore know that their investment has no impact on voting behavior. Indifferent voters are assumed to randomize their vote.

Note that in this model the identity of the politician has no impact on outcomes under meritocracy and it is therefore not important whether the incumbent wins or loses political power. In addition, both bureaucrats always invest into competence regardless of which group is more powerful. Overall, the incumbent’s expected utility from $S = \text{merit}$ remains unchanged and is still given by equation (4).

Under patronage all voters interested in rents vote for their candidate. Competence between the two bureaucrats is identical. The incumbent therefore wins the election if

$$\alpha \lambda + \frac{1}{2} (1 - \alpha) \geq \alpha (1 - \lambda) + \frac{1}{2} (1 - \alpha) + \varepsilon$$

\textsuperscript{17}It is verified in the appendix that meritocracy yields higher competence for $p = \frac{1}{2}$, $\tau < 1$ and all $c < h$.

\textsuperscript{18}See Acemoglu et al (forthcoming) for an argument along these lines.
or
\[ \varepsilon \leq \alpha (2\lambda - 1). \]
Given that \( \varepsilon \) is distributed uniformly on the interval \([-1, 1]\) the probability of re-election can then be written
\[ p \left( \text{patr}; \lambda, \alpha \right) = \frac{1}{2} + \frac{\alpha (2\lambda - 1)}{2}. \]
The following result follows immediately.

**Proposition 4** If society is not polarized \((\tau < 1)\) meritocracy is only introduced when the incumbent is politically weak \((\lambda \leq \frac{1}{2})\). If polarization is high \((\tau \geq 1)\) meritocracy is introduced if and only if
\[ \frac{2h - 1}{h} \geq \alpha (2\lambda - 1) \tau. \]

**Proof.** See appendix. ■

The main novelty in proposition 4 is that as spoils become more important for political outcomes (rising \( \alpha \)) the introduction of meritocracy is less likely. This is because the politician is not in control of spoils under meritocracy. If the politician has a large power base \((\lambda > \frac{1}{2})\) this factor can drive the adoption of patronage. For high levels of polarization \((\tau \geq 1)\) this implies that inefficient bureaucratic institutions are adopted to allow the political elite to stay in power.

Meritocratic reforms can be used to dissipate political resistance \((\lambda \leq \frac{1}{2})\) because they ensure that bureaucratic decisions are not affected by the political leadership. Thus, weak political elites have an incentive to introduce meritocracy because this reform can prevent regime change. One possible example of this mechanism is the argument that Prussian feudalism might have survived so long because of a relatively meritocratic bureaucracy. The rising classes were less willing to stage revolution because they were able to reach relatively influential positions in the powerful bureaucracy.

## 5 Meritocratic Reform in Great Britain

The starting point of institutionalized meritocratic recruitment in Great Britain is in the 19th century. After centuries of patronage reformers introduced state exams and a separate body to administer them - both institutional features reduced political control over recruitment with the declared aim of increasing competence.
In line with the arguments laid out here bureaucratic reform was preceded by radical political changes throughout the 19th century. The middle classes had gained the right to vote in the first reform act in 1832. In addition, the prerogative power of the crown had come to be increasingly taken over by ministers who could be held accountable by parliament. Thus, the executive had become more volatile in the interests it represented both because new groups had entered the political arena and because institutional changes facilitated their access to executive power.

At the beginning of the 19th century patronage was the norm in Great Britain while objective criteria hardly played any role in recruitment into the bureaucracy.\textsuperscript{19} The struggle for the introduction of the merit system began in 1853 when Charles Trevelyan and Stafford Northcote were asked by the then Chancellor of the Exchequer, William Gladstone, to write a report on its recruitment and promotion.\textsuperscript{20} In 1854, the Northcote Trevelyan report was published. On its first page the report motivates the reform.

\textit{The great and increasing accumulation of public business, and the consequent pressure upon the Government, need only be alluded to; and the inconveniences which are inseparable from the frequent changes which take place in the responsible administration are matter of sufficient notoriety. It may safely be asserted that, as matters now stand, the Government of the country could not be carried on without the aid of an efficient body of permanent officers, occupying a position duly subordinate to that of the Ministers who are directly responsible to the Crown and to Parliament, yet possessing sufficient independence, character, ability, and experience to be able to advise, assist, and to some extent, influence, those who are from time to time set over them.}\textsuperscript{21}

The report explicitly mentions frequent changes in the administration as a reason for bureaucratic reform. This means that reformers at the time were aware that political change had taken its toll on bureaucratic performance. In particular, they were worried about the effect of executive volatility on bureaucratic performance. This argument is very much in line with proposition

\textsuperscript{19}An indication of the lax standards in recruitment is a minute of the treasury from the year 1820 mentioned by Greaves (1947). The document stresses that men previously convicted of revenue offences should not be appointed as customs officials.

\textsuperscript{20}One potential reason for the reform effort was bad bureaucratic performance. According to Clark (1959) the report came at a time in which stories of bureaucratic incompetence were increasingly common.

\textsuperscript{21}Northcote and Trevelyan (1954), p. 1 (reprint)
3. If competence requires an investment in know-how, increased volatility in the political elite jeopardizes competence under patronage. While it is not clear what exact mechanism the Northcote and Trevelyan had in mind they explicitly hoped that an insulation from politics would increase bureaucratic performance.

A more detailed look at the British reform debate yields further insights in how reformers explained the inferior performance of patronage. An integral part of the 19th century debate, involving scholars like Mill and Malthus, were the ongoing reforms in the East India Company. Again, the central aim of these reforms was to improve bureaucratic performance by decreasing the influence of the British political elite on bureaucratic recruitment. Describing what he believed to be recruitment and promotion by merit in the East India company John Stuart Mill\textsuperscript{22}, for example, argued

‘A second great advantage of the present system is, that those who are sent out as candidates to rise by degrees are generally unconnected with the influential classes in the country, and out of the range of Parliamentary influence. The consequence is, that those who have the disposal of offices in India have little or no motive to put unfit persons into important situations [...]’\textsuperscript{23}

Thus, it was the political motive to recruit unfit persons that made patronage a bad choice. Mill saw meritocratic promotion as a way to improve competence in this context because it diminished the influence of the political elite on bureaucratic careers. Note that this statement is in line with the mechanisms laid out in lemma 1 and proposition 1 - patronage leads to a political bias in recruitment which hinders competition for bureaucratic posts by merit. Insulating the bureaucracy from political influence leads to meritocratic promotions and more competent personal.

But did the political changes in the 19th century shift the preferences between patronage and meritocracy? It is hard to find direct evidence for a causal relationship here. However, the timing of actual reform is suggestive in this regard. Northcote and Trevelyan had proposed to modify recruitment procedures through the introduction of an entry examination for all public servants, administered by an independent Board of Examiners. Reforms, however, did not take place because parliament resisted their implementation.

\textsuperscript{22}See Ryan (1972) for a revealing account of Mill’s arguments and his influence on the Northcote Trevelyan report.

\textsuperscript{23}J.S.Mill, cited in Ryan (1972), p. 44
State exams were not introduced until 1870 - in the middle of a wave of political reforms that would guarantee representatives of the working class access to parliament.\footnote{See Justman and Gradstein (1999) for a detailed account of the increasing representativeness of the British parliament.}

One interpretation of this timing of events is that the established members of parliament feared that the control over political recruitment could fall into the hands of the middle and working classes. As their political power was fading, the members of parliament preferred to transfer the power of bureaucratic recruitment to a neutral body. Following this interpretation, meritocracy was endorsed by parliament because it kept recruitment out of the grasp of a future government with different policy preferences. This is the essence of proposition 2.

In summary, reformers stressed that meritocracy was needed because patronage was biasing recruitment towards the politically powerful. They argued that political bias led to recruitment of unfit personal and that isolating the bureaucracy from politics would lead to an increase in government performance. In disregard of these arguments parliament resisted meritocratic reform until a wave of political reforms threatened to shift its composition towards the middle classes. It then allocated recruitment rights to a third body that was supposed to recruit according to transparent guidelines.

\section{Democracy and Bureaucratic Independence}

The previous section has shown that the timing and arguments of British meritocratic reforms are consistent with the model presented in section 3. This section provides a look at the broad cross-country evidence which motivated the theoretical arguments in this study. It is shown that competitive political institutions and bureaucratic independence are indeed correlated.

There is little available data that quantifies specific bureaucratic institutions for a large set of countries.\footnote{Rauch and Evans (2000) provide data that measure the use of state exams specifically but only for a relatively small set of countries.} However, a commonly used measure of overall bureaucratic independence is contained in the International Country Risk Guide provided by the Political Risk Survey Group (PRSG). The group provides an index of bureaucratic quality based on expert opinions for more than 120 countries. According to the variable description, the index captures
the degree to which the bureaucracy of a country is permanent, independent and has its own established mechanism for recruitment and training.\textsuperscript{26}

Figure 1 displays the basic correlation between the polity index and bureaucratic quality controlling for GNP per capita. The Polity index is a widely used measure of political institutions. Negative scores of the index indicate a system that leans towards autocracy while positive scores indicate democratic institutions. As can be seen in the graph, more democratic political institutions are associated with higher levels of bureaucratic permanence and independence. Regression analysis confirms that this correlation between democratic and meritocratic institutions is statistically significant and robust to the inclusion of a relatively large set of controls.\textsuperscript{27}

One problem with the PRSG data is that it does not provide clues as to which institutions exactly are responsible for high bureaucratic quality. This concern can be avoided with data on Central Bank Independence (CBI) as it combines relatively large cross-sections with a specific description of what is measured. The index introduced by Cukierman et al (1992), for example, contains a category which seeks to measure the independence of the Central Bank CEO from politics on a 0 to 1 scale.\textsuperscript{28} It has recently been updated and extended by Crowe and Meade (2008) so that the data contains some variation across time. Table 1, column (1) shows the correlation of CEO independence in 2003 with the average Polity index for the years 1998 till 2003.\textsuperscript{29} The coefficient suggests that a change from perfect autocracy to perfect democracy would be associated with a 0.16 point increase in CEO independence. Column (2) shows that the simple correlation is robust to con-

\textsuperscript{26}The exact wording from www.prsgroup.com is: \textit{High points are given to countries where the bureaucracy has the strength and expertise to govern without drastic changes in policy or interruptions in government services. In these low-risk countries, the bureaucracy tends to be somewhat autonomous from political pressure and to have an established mechanism for recruitment and training.}

\textsuperscript{27}Polity score remains a significant predictor of bureaucratic quality when latitude, share of Muslims, share of Catholics, french and UK legal origin, natural resources and ethnic fragmentation are controlled for. Both natural resources and ethnic fragmentation have no predictive power in the same regression.

\textsuperscript{28}The index combines length of CEO tenure, the question of who appoints the CEO, who controls CEO dismissal and whether the CEO can hold other offices in government.

\textsuperscript{29}The freedom house measure of electoral democracy yields identical results both in terms of significance and magnitude of the estimated effect. Unbundling the PolityIV index also reveals that the basic correlation holds for the subindexes \textit{competitiveness of participation} and \textit{competitiveness of executive recruitment} which is very much consistent with the theoretical explanations chosen here.
trolling for GDP per capita while column (3) reveals that running the same regression in the earlier time period yields identical results. Interestingly, the average Polity index in this earlier period does not predict CEO independence in 2003 (column (4)). The underlying reason is considerable change both in political and bureaucratic institutions between the 1980s and 2003. Column (5) confirms that political and bureaucratic change went hand in hand, i.e. the changes in Polity index and CEO independence are correlated.

According to the model, Central Bank independence and the political institutions are correlated because higher concentration of political power leads to a preference to control the central bank technocrat while more political competition implies that political control is ineffective and, thus, given up for better central bank performance.

7 Discussion

This article has made an attempt to explain the apparent complementarity between bureaucratic and political institutions. Two sets of institutions, meritocracy and patronage, have been modelled with the aim to analyze their impact on economic welfare and their relationship with political institutions such as elections. The model shows that meritocratic institutions perform better in most settings because patronage leads to a political bias in recruitment which hinders competition for bureaucratic posts by merit. According to the basic model, political competition destabilizes political recruitment under patronage and makes it unattractive as a control mechanism for the government. Meritocracy is then chosen by governments because it improves overall competence.

One drawback of the present model is that it takes political power as exogenously given. This drawback is partly alleviated in a second extension which analyzes the case where the choice of bureaucratic institutions feeds back to political support for the politician. The extension highlights the fact that bureaucratic systems can both increase and decrease political conflict. Patronage increases the stakes of the political game while meritocracy reduces them. Political mobilization can therefore become an additional incentive to implement inefficient patronage.

30 The result is also robust to a variation of the Polity data used. All results hold, for example, when using the average Polity score from 1970 till 1980.
A possible criticism regarding the categorization of bureaucratic institutions in meritocracy and patronage is that, theoretically, meritocracy and patronage could be combined to prevent a trade-off between political preference and competence. And indeed, in the presented model a pre-selection according to objective criteria followed by a choice by the political elite would perform as well as meritocracy in terms of welfare. An obstacle for implementing this idea is, however, that two real candidates will rarely have exactly the same level of competence. This fact always leaves some scope for the modelled trade-off between political preference and competence.

The model shows that political institutions might affect government quality indirectly through the incentives they establish within the bureaucracy. This has two main empirical implications. First, our understanding of the performance of political institutions might benefit from a thorough classification and measurement of bureaucratic institutions. It would be interesting, for example, to know how important the indirect effects of political reforms on bureaucratic reforms are for growth outcomes.\(^{31}\) Secondly, the measurement of bureaucratic institutions might reveal an additional channel through which polarization affects welfare. The more polarized a society, the less likely is the adoption of bureaucratic institutions that are geared to public good provision.

An intriguing application of this last finding is the military. To see this, note that the definition of polarization here captures the difference between external and internal wars. If an external war looms, all members of society would suffer a huge loss if national defence is not successful. Thus, the present government wants to recruit the military by merit because this maximizes defence (public good provision). In a civil war the government wants to recruit the military by patronage because it wants to be sure that the hired military is loyal, i.e. the group-specific control of rents is more important than maximizing the overall level of military competence.

On a more theoretical level this article has highlighted the trade-off between representation and competence that is at the core of the selection problem for both politicians and bureaucrats. A crucial assumption in this regard has been that meritocratic recruitment leads to perfect representation of the population. Since this is unlikely to be true in general, promotion\(^{31}\)Surveys on activities inside the UK bureaucracy by Page and Jenkins (2005) and the US bureaucracy by Dolan (2000) show that senior bureaucrats might have a considerable and independant impact on policies.
by merit might lead to an overrepresentation of particular groups. A discussion of welfare with this meritocratic bias lies beyond the scope of this paper but it should be kept in mind that meritocracy is no guarantee for representativeness.

A Proof of Proposition 1

Note first that $\tau \geq 1$ implies $\tau \geq 2h - 1$ so that recruitment under patronage is biased. Given a level of competence $e_B$ the candidate of type $A$ wants to specialize in rent extraction if

$$p (h + \tau (1 - h)) + (1 - p) (e_B - \tau (1 - e_B))$$

$$\leq p (1 - h + \tau h) + (1 - p) (e_B - \tau (1 - e_B))$$

which is the case if and only if $\tau \geq 1$. Independence of $p$ and $e_B$ implies that the candidate of type $B$ has exactly the same incentives and specializes in rent extraction if and only if $\tau \geq 1$. For levels of polarization $\tau < 2h - 1$ patronage is unbiased and selects politically only when both bureaucrats are of equal competence. It can be shown that both candidates specialize in public good provision in that case.

Under meritocracy there is two cases to be considered. Given that the candidate of type $t$ is competent the candidate of of type $t$ also wants to be competent if

$$\frac{1}{2} (h + \tau (1 - h)) + \frac{1}{2} (h - \tau (1 - h))$$

$$> h - \tau (1 - h)$$

or

$$\tau (1 - h) > 0.$$ 

And if the other candidate does not specialize in public good provision the candidate of type $t$ wants to be competent if

$$h + \tau (1 - h)$$

$$> \frac{1}{2} (1 - h + \tau h) + \frac{1}{2} (1 - h - \tau h)$$

or

$$2h - 1 + \tau (1 - h) > 0.$$
Note that $h \in \left( \frac{1}{2}, 1 \right)$ and $\tau > 0$. Hence, both competence conditions are satisfied which implies that both candidates have a weakly dominant strategy of specializing in public good provision, $e_t = e_{-t} = h$.

**B  Proof of Proposition 2**

The first part of the proposition follows immediately from the fact that expected utility under patronage is falling with falling political power while it is stable under meritocracy. For the second part note that $e_{A,B} = h$ if $\tau < 1$. Thus, the incumbent introduces meritocracy if

$$
\frac{1}{2} (h + \tau (1 - h)) + \frac{1}{2} (h - \tau (1 - h)) \\
\geq p (h + \tau (1 - h)) + (1 - p) (h - \tau (1 - h))
$$

or

$$
p \leq \frac{1}{2}.
$$

For values of $\tau \geq 1$ patronage leads to incompetent bureaucrats by proposition 1. The incumbent then introduces meritocracy if

$$
\frac{1}{2} (h + \tau (1 - h)) + \frac{1}{2} (h - \tau (1 - h)) \\
\geq p (1 - h + \tau h) + (1 - p) (1 - h - \tau h)
$$

or

$$
p \leq \frac{1}{2} + \frac{2h - 1}{2h\tau}
$$

which implies that the incumbent is indifferent between meritocracy at a level of political power $\tilde{p} \in \left( \frac{1}{2}, 1 \right)$ for all $\tau \geq 1$, $h \in \left( \frac{1}{2}, 1 \right)$.

**C  Proof to Proposition 3**

Note first that Lemma 1 still holds. The condition $\tau \geq 2h - 1$ ensures that bureaucrats get hired if and only if their type of politician is in power. Given
a competence level \( e_B \in \{ h, 1 - h \} \), candidate \( A \) then invests in competence if

\[
p (h + \tau (1 - h)) + (1 - p) (e_B - \tau (1 - e_B)) - c > p (1 - h + \tau h) + (1 - p) (e_B - \tau (1 - e_B))
\]

or

\[
p (2h - 1) (1 - \tau) > c
\]

which is easier to satisfy for high \( p \) as long as \( \tau < 1 \). The proof for bureaucrat \( B \) is analogous.

D Investment Costs and Biased Recruitment

This section proves that meritocracy can be strictly preferred to patronage for \( \tau < 1 \) if investment costs are positive. In order to verify the statement in the text it is sufficient to show that with positive investment costs \( c > 0 \) meritocracy leads to more competence at \( p = \frac{1}{2} \) for some \( \tau \in (2h - 1, 1) \). The reason is that for \( p = \frac{1}{2} \) the incumbent is indifferent between the two bureaucratic institutions if they result in identical competence. However, if both candidates increase their competence his expected utility is strictly increasing.

Note first that \( \tau > 2h - 1 \) implies biased recruitment under patronage and investment in competence follows the rules in the proof for proposition 3. This implies incompetence in patronage for all

\[
p (2h - 1) (1 - \tau) \leq c
\]

which is always satisfied for \( c > 0 \) and \( \tau \rightarrow 1 \).

In order to complete the proof one needs to analyze investment under meritocracy. There are two cases. A candidate invests given that the other candidate invests if

\[
\frac{1}{2} (h + \tau (1 - h)) + \frac{1}{2} (h - \tau (1 - h)) - c > h - \tau (1 - h)
\]

or

\[
\tau (1 - h) > c
\]
while she invests given that the other candidate does not invest if
\[ h + \tau (1 - h) - c > \frac{1}{2} (1 - h + \tau h) + \frac{1}{2} (1 - h - \tau h) \]
or
\[ 2h - 1 + \tau (1 - h) > c \]
which implies that for \( \tau (1 - h) \leq c < 2h - 1 + \tau (1 - h) \) there is no pure strategy equilibrium in investments. It can be shown that meritocracy has a unique symmetric equilibrium in which both candidates invest into competence with probability
\[
\Pr(inv) = \begin{cases} 
1 - \frac{c - \tau (1 - h)}{2h - 1} & \text{if } c < \tau (1 - h) \\
\frac{1}{2} & \text{if } \tau (1 - h) \leq c < 2h - 1 + \tau (1 - h) \\
0 & \text{if } 2h - 1 + \tau (1 - h) \leq c 
\end{cases}
\]
and, thus, there is some competence under meritocracy for all \( c < 2h - 1 + \tau (1 - h) \). For \( \tau \to 1 \) this condition becomes
\[ c < h. \]

Thus, meritocracy leads to more competence than patronage for all \( 0 < c < h \) and \( \tau \) close to 1. At \( p = \frac{1}{2} \) the incumbent therefore strictly prefers meritocracy.

### E Proof of Proposition 4

Assume first that \( \tau < 1 \) and patronage manages to create competent bureaucrats. The incumbent therefore wants to introduce meritocracy if
\[
\frac{1}{2} (h + \tau (1 - h)) + \frac{1}{2} (h - \tau (1 - h)) \\
\geq \left( \frac{1}{2} + \frac{\alpha (2\lambda - 1)}{2} \right) (h + \tau (1 - h)) \\
+ \left( 1 - \left( \frac{1}{2} + \frac{\alpha (2\lambda - 1)}{2} \right) \right) (h - \tau (1 - h))
\]
which simplifies to
\[ \lambda \geq \frac{1}{2}. \]
Assume now that patronage creates incompetent bureaucrats ($\tau \geq 1$). Meritocracy is then introduced if

$$
\frac{1}{2} (h + \tau (1 - h)) + \frac{1}{2} (h - \tau (1 - h)) \\
\geq \left( \frac{1}{2} + \frac{\alpha (2\lambda - 1)}{2} \right) (1 - h + \tau h) \\
+ \left( 1 - \left( \frac{1}{2} + \frac{\alpha (2\lambda - 1)}{2} \right) \right) (1 - h - \tau h)
$$

or

$$
2h - 1 \geq \alpha (2\lambda - 1) \tau h
$$

which implies that meritocracy is introduced for $\alpha \to 0$ or $\lambda \to \frac{1}{2}$.

**Acknowledgements**

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**References**


Table 1: Democracy and Independence of Central Bank Chief Executive Officer (CEO)

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Observations: 88, 88, 66, 89, 63
R-squared: 0.065, 0.066, 0.094, 0.000, 0.098

Standard OLS Errors in parenthesis, *** p<0.01, ** p<0.05, * p<0.1

Sources: Independence of Central Bank CEO is from Crowe and Meade (2008). Polity score is from the PolityIV dataset. GDP per capita is from the IMF website. Polity Score is the average Polity2 score for the stated periods. GDP per capita is ln(GDP per capita, 2002, in Billion US Dollars). For a detailed description of CEO Independence see Cukierman et al (1992).
**Figure 1: Basic Correlation of Political and Bureaucratic Institutions**

*Controlled for GNP per capita, i.e. the y-axis displays the residual bureaucratic quality not explained by log(GNPpc79-95). Bureaucratic Quality is 1999 value. Polity Score is Polity2 average score from 1970-1999.*