A Political-Economy Perspective on Mayoral Elections and Urban Crime

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Abstract

We provide a political-economy analysis of crime prevention in an arbitrary city in the United States. City residents (voters) elect mayors (politicians) and elected mayors determine the resources to be allocated to crime prevention. Between the two time periods, there is an election. Politicians are either honest or dishonest. The marginal cost of public monies ψ measures how efficiently an elected mayor converts tax receipts into crime prevention. Voters have identical per period utility functions. We ascertain the equilibrium outcome and per period voter well-being. Second, we show that an increase in ψ reduces the equilibrium allocation of resources to crime prevention and voter well-being. Third, a dishonest politician can delay the revelation of his dishonesty. A critical value of $\psi, \psi^*,$ exists such that a dishonest incumbent separates and loses the election if and only if $\psi > \psi^*$ and he pools and is re-elected otherwise. Finally, we note that an increase in ψ can raise voter well-being when politicians are more likely to be dishonest.

Keywords: City Resident, Crime Prevention, Election, Mayor, Voting

JEL Codes: R11, R50, D72

1. Introduction

1.1. Preliminaries

The work of researchers such as Witte (1996) tells us that urban crime is a major issue for Americans. Complemeting this point, Rainwater (2019) reminds us that in 2019, "public safety" was one of the top ten worries of mayors in cities throughout the United States (US). Because urban crime is a serious public policy problem, we can now find a large empirical and case-study based literature on this subject. Criminologists in particular and social scientists more generally have examined the ways in which a lack of economic opportunities, social disorganization, poverty, and the presence of unsupervised youth contribute to the presence and prevalence of urban crime.[4]

Politics and politicians in the form of mayors clearly affect the ways in which the problem of city crime is understood and dealt with (Dunn, 2020). This notwithstanding, Marion and Oliver (2013) rightly point out that it simply does not make sense to only blame mayors for the prevalence of urban crime. What actually matters for crime prevention, says Asher (2020), are the policies adopted by a mayor and not his or her party affiliation. Given the clear connection between politics, politicians, i.e., mayors, and the efficacy of alternate crime prevention policies, it is pertinent to ask what economists and regional scientists have written about the nexuses between the behavior of city residents who vote to select their mayor and the urban crime fighting policies that are put in place by the elected mayor. Therefore, we now briefly discuss this literature and then proceed to the main questions that we study in our paper.

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[4] See Ward (1976), Lynch (1981), Kohfeld and Sprague (1988), Hale (1996), White (1996), Gibbons (2004), Kourtit (2019), Lehmann (2019), and the many references cited in these sources for more on this and related issues.

1.2. Literature review

Sharp (2006) examines the reasons for the disparity in the size of contemporay police forces in large cities in the US. Her detailed empirical analysis shows that the size differences in question can be explained by the legacy of the racial unrest during 1960-1970, racial disorders in the 1980s and 1990s, and by the prevalence of racial minorities in the current population. Does a mayor's party affiliation influence urban crime rates? Using regression discontinuity design analysis, Ferreira and Gyourko (2009) demonstrate that whether a mayor is a Democrat or a Republican has no bearing on either crime rates or on the allocation of local public spending in large US cities.

Does a mayor's gender have an impact on crime rates in a city? In their study of this question, Ferreira and Gyourko (2014) first point out that women's participation in mayoral elections in the US increased from negligible numbers in 1970 to approximately one-third in the 2000s. Then, employing a regression discontinuity design, they point out that a mayor's gender has no bearing on city crime rates. Interestingly, this negative result holds in the short and in the long run. Thompson (2017) analyzes how two different fiscal stress labeling systems for municipal governments affect their functioning in Ohio. His econometric analysis shows that the actual label used to delineate a municipality has a minimal impact on both crime rates and on the employment of police.

Heberlig *et al.* (2017) utilize data for 104 cities during 1992 to 2012 and show that a reduction in the crime rate increases the likelihood that an incumbent mayor will seek another term in office. In addition and in contrast with the other mayoral accomplishments they study, a reduction in the crime rate seems to help mayors win re-election. Wiig (2018) describes how a citywide, multi-instrument surveillance network was used to complement the technologically mediated community policing in Camden, New Jersey. He points out that even though the success

of this surveillance-driven community policing strategy in reducing crime was mixed, the strategy did succeed in providing Camden with a positive "ready for business" image.

Concentrating on Brazil, Ingram and da Costa (2019) study how the party identification of mayors, the partisan alignment of mayors and governors, electoral competition, and voter participation affect homicide rates. Geographically weighted regression analysis shows that the above four explanatory variables have dissimilar impacts on homicide rates across Brazil's 5562 municipalities. Finally, Batabyal *et al.* (2020) study the centralized versus decentralized provision of a controversial crime-fighting technology such as facial recognition software to the police in American cities. They show that there are circumstances in which the technology is provided with majority voting in a city even though it is inefficient to do so and that it is efficient to provide the technology in a city but majority voting will lead to this technology not being provided.

Our review of the literature leads to the following noteworthy conclusion. To the best of our knowledge, there are *no theoretical political-economy* studies that have analyzed the connections between the voting behavior of the residents of a particular city, the election of a mayor in this city, and the prevalence of crime in this same city.

1.3. Objectives

Given this lacuna in the literature, we adapt the analysis in Batabyal and Beladi (2020) and provide the *first* formal, political-economy analysis of urban crime that arises from the interaction between city residents (voters) and mayors (politicians) who promise to devote resources to the prevention of crime. The remainder of this paper is organized as follows.

Section 2 describes the two-period, political-economy model of crime prevention in an arbitrary city in the United States. In this model, city residents or voters elect mayors or politicians to office in each time period and elected mayors decide the extent of the resources to devote to

crime prevention. Between the two time periods, there is an election. Politicians are either *honest* which means that they are genuinely interested and hence efficient in disbursing resources to fight crime or *dishonest* which means that they are less interested and thus inefficient in disbursing resources to combat crime. The marginal cost of public monies $\psi \geq 1$ measures how *efficiently* elected mayors convert tax receipts into crime prevention. All voters have identical per period utility functions. Section 3 computes the equilibrium outcome and per period voter well-being. Section 4 demonstrates that an increase in ψ reduces the equilibrium prevention of crime and voter well-being. Section 5 permits a dishonest politician to borrow money and thereby delay the revelation of his inefficiency. In this setting, a dishonest politician may seem to be honest and this influences his chance of getting elected mayor. This section solves for the equilibrium outcome and then demonstrates that there exists a critical value of ψ, ψ^*, with the property that the dishonest incumbent separates and loses the election if and only if $\psi > \psi^*$ and that he pools and is re-elected mayor otherwise. Section 6 points out that an increase in ψ can raise voter well-being when politicians are more likely to be dishonest. Section 7 concludes and then suggests three ways in which the research described in this paper might be extended.

2. The Theoretical Framework

Consider the interaction between residents and politicians seeking to be the mayor of an arbitrary city in the United States. There are two time periods in our model.[5] Between the first and the second time period, there is an election to determine which politician will be elected mayor in the second period. Politicians differ in terms of how *honest* they are in genuinely wanting to reduce

[5] Time is discrete and not continuous in our model.

crime in the city under study.[6] These politicians also differ in terms of the *efficiency* with which they are able to convert tax revenues into actual crime prevention. Voters are uncertain about the honesty of the politicians seeking to be elected mayor. Put differently, they are uncertain about how efficient politcians are in reducing crime in the city under study.[7]

We suppose that politicians are honest with probability $p > 0$ and that they are dishonest with complementary probability $(1 - p) > 0$. We assume that an honest politician is also efficient in disbursing resources to fight crime and that a dishonest politician is relatively inefficient in disbursing resources to combat crime in the city under consideration.[8] We model this efficiency aspect of the story by supposing that an honest or efficient politician disburses resources to fight and thereby reduce crime at *low* cost. Similarly, a dishonest or inefficient politician distributes resources to combat and therefore lower crime at *high* cost. In symbols, an honest politician disburses resources for crime reduction at unit cost $\delta_L > 0$, a dishonest politician distributes resources for lowering crime at unit cost δ_H, and we have $\delta_H > \delta_L$.[9]

All residents (voters) of the city under study have an identical per period quasi-linear utility function[10] and this function is given by

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Honesty is viewed as a binary and not as a continuous variable in our model.

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Go to https://www.ny1.com/nyc/all-boroughs/news/2021/04/21/exclusive--covid-19--crime-at-top-of-voters--minds-in-ny1-ipsos-poll for empirical evidence that voters in New York City care greatly about crime in the upcoming mayoral primaries in June 2021. Go to https://thehill.com/homenews/campaign/509185-majority-say-they-are-concerned-about-rising-crime-in-us-cities-poll for poll evidence that voters are generally concerned about crime in U.S. cities. Both sites accessed on 7 June 2021.

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Following Sharp (2006) and for concreteness, we shall think of "disbursing resources" as being akin to contributing to the size of the city police force. So, in this way of looking at the issue, increasing (decreasing) the disbursement of resources is equivalent to raising (lowering) the size of the city police force. It is understood that all else being equal, a larger police force is likely to reduce crime by more than a smaller police force.

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Go to https://www.london.gov.uk/press-releases/mayoral/sadiq-khan-delivers-major-speech-on-violence for additional details on how honesty matters in the context of fighting crime in a prominent city outside the US, namely, London. Accessed on 7 June 2021.

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The quasi-linearity of the utility function means that the marginal utility from the crime index R does not depend on taxes T and, similarly, the marginal utility from taxes T is independent of the crime index R. This is because the cross-partial derivatives of

$$U(R,T) = H(R) - \psi T, \tag{1}$$

where the function $H(\cdot)$ is differentiable, strictly increasing, and strictly concave, R denotes a crime index, T denotes taxes, and $\psi \geq 1$ represents the marginal cost of public monies. The reader should think of R as a crime index such as the NeighborhoodScout's crime index which ranks crime on a 0-100 scale and where 0 (100) is the least (most) safe that a city can be. The specific point to grasp here is that an increase (decrease) in R raises (lowers) a city resident's utility and is therefore desirable (undesirable).[11] Because the parameter ψ can be thought of as a measure of the scarcity of public resources in our city, an increase in ψ means that it is now *more* difficult for politicians to raise tax revenues to increase the size of the police force in our city.[12] Without loss of generality and to keep the subsequent mathematical analysis transparent, we suppose that there is no discounting between the two time periods. Finally, $G > 0$ denotes the private gain to politicians from being elected mayor in the city under study.[13]

With this description of the theoretical model out of the way, we are now in a position to solve for the equilibrium result that arises from the interaction between residents (voters) on the one hand and politicians on the other in our city and to then determine the per period well-being

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the quasi-linear utility function in equation (1) are equal to zero. As noted in a standard textbook---see Varian (1992, p. 222)---this feature makes quasi-liear utility functions very useful for "equilibrium and welfare analysis." This also explains why the field of mechanism design---and our model can be thought of as one kind of mechanism design model---frequently makes use of quasi-linear utility functions. If we were to replace the quasi-linear utility function with a more general utility function then the way in which we proceed with the analysis would not change but it would be harder to interpret the results obtained because, as noted above, the cross-partial derivatives of the utility function would no longer be equal to zero.

[11] Go to https://help.neighborhoodscout.com/support/solutions/articles/25000001997-what-is-the-crime-index- for additional details about this index. Accessed on 8 June 2021.

[12] Go to https://www.brookings.edu/articles/mayors-and-the-fiscal-powers-needed-to-deliver-change-lessons-from-the-united-states/ for additional details on the point that tax revenues are needed to fight crime in cities. Accessed on 8 June 2021.

[13] Go to https://www.pressconnects.com/story/news/local/2017/04/28/mayor-owns-six-properties-city-problem/101036952/ for more details on an instance in which the suggestion is that a mayor enjoyed certain private benefits from being in office. Accessed on 8 June 2021.

of the voters.

3. The Equilibrium Result and Voter Well-Being

Let i denote the type of the incumbent mayor in office in our city in time period 1. Then, the value of the crime index that arises in this time period is given by the solution to the maximization problem

$$max_{\{R\}} H(R) - \psi\delta_i R. \quad (2)$$

The first-order necessary condition for an interior solution[14] to the above problem is given by the equation

$$H'(R^*) = \psi\delta_i, \quad (3)$$

where R^* is the optimal value of the crime index.[15] We know that the $H(R)$ function is strictly increasing and strictly concave. From this it follows that the derivative $H'(R)$ is positive and decreasing in R. Using this last point, we deduce that

$$R_L^* \equiv R^*(\delta_L) > R^*(\delta_H) \equiv R_H^*. \quad (4)$$

The inequality in (4) tells us that the value of the crime index when the honest or low cost incumbent fights crime by raising the size of the city police force is *greater* than the value when a dishonest or high cost incumbent combats crime by increasing the size of the city police force. Our city voters observe the value of the crime index that emerges in the first time period and then they

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[14] We focus on an interior solution because that is what is interesting to analyze in our model. In this regard, corner solutions are not noteworthy. To see this, let us use the NeighborhoodScout example discussed in section 2 and consider the two possible corner solutions involving the crime index R. We could either have $R = 100$ or $R = 0$. If $R = 100$ then our city is already as safe as it can possibly be and the question of distinguishing between honest and dishonest politicians is irrelevant. Put differently, if $R = 100$ in time period 1 then it would make sense to simply re-elect the incumbent mayor. On the other hand if $R = 0$ then out city is maximally unsafe and the question of distinguishing between the crime fighting abilities of honest and dishonest politicians---see equation (4)---would, once again, be immaterial. In other words, if $R = 0$ in time period 1 then there would be little point in continuing with the incumbent mayor.

[15] Note that because the $H(\cdot)$ function is concave, the second-order sufficieny condition $H''(\cdot) \leq 0$ is satisfied.

re-elect the honest incumbent[16] and get rid of the dishonest incumbent in which case a new incumbent is elected to replace the dishonest incumbent as mayor.

If a dishonest politician is removed from office then the new incumbent will be honest and efficient with probability $p > 0$ and dishonest and inefficient with probability $(1 - p) > 0$. As such, suppose that in the first time period, the incumbent mayor in office is honest. Then, after observing the value of the crime index in our city, residents will re-elect this incumbent. In this case, an arbitrary city voter's per period well-being is

$$U = H(R_L^*) - \psi\delta_L R_L^*, \tag{5}$$

and therefore this person's total well-being is simply the sum of the two per period expressions given in equation (5) or $2U$.

On the other hand, if the incumbent mayor in the first time period is dishonest and inefficient then this incumbent will be removed from office. In this case, an arbitrary city voter's well-being in the first time period is

$$U_1 = H(R_H^*) - \psi\delta_H R_H^*. \tag{6}$$

This same voter's well-being in the second time period depends on whether the elected mayor turns out to be honest (this happens with probability p) or dishonest (this happens with probability $(1 - p)$). Consequently, this arbitrary city voter's second period well-being can be expressed as a weighted sum and that sum is

$$U_2 = p\{H(R_L^*) - \psi\delta_L R_L^*\} + (1 - p)\{H(R_H^*) - \psi\delta_H R_H^*\}. \tag{7}$$

Hence, in this second case, an arbitrary city voter's total well-being is given by the sum of the two

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Go to https://www.bendbulletin.com/opinion/guest-column-honesty-important-in-mayor-s-race/article_18acc40a-49e5-5118-ae54-9701b1360e05.html for evidence on the point that honesty is an important trait in mayoral elections. Accessed on 8 June 2021.

expressions given in equations (6) and (7) or $U_1 + U_2$. We now proceed to show that a rise in the marginal cost of public monies or ψ reduces both the equilibrium value of the crime index and the well-being of voters in the city under study.

4. A Rise in the Marginal Cost of Public Monies

Let us begin by totally differentiating the first-order necessary condition for an optimum given in equation (3). This gives us

$$H''(R^*)dR^* = \delta_i d\psi. \tag{8}$$

We now use the strict concavity of the $H(\cdot)$ function---which means that the second derivative of this function is negative or $H''(\cdot) < 0$---to obtain an expression that can be signed. That expression is

$$\frac{dR^*}{d\psi} = \frac{\delta_i}{H''(R^*)} < 0. \tag{9}$$

Equation (9) shows that when the marginal cost of public monies or ψ increases, the equilibrium value of the crime index *falls*. This result arises because an increase in ψ means that it is now *more* difficult to raise the tax revenues that will be used to increase the size of the city police force and thereby reduce crime.

To demonstrate the validity of a similar claim for the well-being of voters in the city under study, we use a well-known result in microeconomic theory, namely, the envelope theorem.[17] Now, recalling equation (1) and then using the envelope theorem, we get

[17] See Varian (1992, pp. 490-492) for a textbook description of the envelope theorem.

$$\frac{dU(R_i^*)}{d\psi} = \frac{\partial U(R_i^*)}{\partial \psi} = -\delta_i R_i^* < 0. \quad (10)$$

The right-hand-side (RHS) of equation (10) clearly tells us that an increase in the marginal cost of public monies or ψ *lowers* the well-being of voters in our city in *both* time periods and for *both* possible types of incumbent politicians (honest or dishonest). This negative finding strengthens the previous finding in equation (9) that an increase in ψ lowers the equilibrium value of the crime index R^*. Specifically, since the RHS of equation (10) depends on R^* which is lower, it follows that the well-being of voters in our city is also lower. We now proceed to analyze the case in which a dishonest politician is able to hide the fact that he is dishonest by borrowing monies and thereby delaying the revelation of his inefficiency to our city voters.

5. A Dishonest Politician Seeming to be Honest

The modeling framework now is basically the same as the framework described in section 2 but there is one salient difference. Specifically, a dishonest incumbent can *delay* the revelation of his dishonesty and inefficiency by borrowing money denoted by $M > 0$. This borrowing is observable to our city voters only after the election at the end of the first time period. In addition, this borrowing by a dishonest incumbent permits him to appear honest because he can act as if the unit cost of raising the crime index or lowering crime is low when it is, in fact, high.[18] The reader should note that this course of action also results in the creation of a budget deficit in an election year.

In the first time period, the incumbent mayor observes the unit cost $\delta \in \{\delta_L, \delta_H\}$. He then

[18] See Janezic and Gallego (2020) for evidence on the point that mayors do lie in actual instances and that in some settings, lying by mayors can be a beneficial strategy. Accessed on 8 June 2021.

selects the value of the crime index or the amount by which crime is to be reduced R and the amount of money M that he would like to borrow. These two actions lead to a total tax bill given by $T = \delta R - M$. Next, our city voters observe the choices of R and T before the election. On the basis of these two observations, voters draw a conclusion about the incumbent mayor's type. The incumbent is re-elected if he is at least as likely to be honest as a rival who is honest with prior probability $p > 0$ and dishonest with prior probability $(1 - p) > 0$. In the second time period, the politician then in office again selects R given δ and he repays the money M he borrowed in the first time period. These two actions give rise to a tax bill denoted by $T = \delta R_{\delta} + M$. No additional elections take place in our model.

There are now two tasks to complete. First, we would like to compute the equilibrium outcome that arises in the interaction between our city voters and politicians. Second, we want to establish that there exists a critical value of $\psi, \psi^*,$ with the property that the dishonest incumbent *separates* and loses the election if and only if $\psi > \psi^*$ and that he *pools* and is re-elected otherwise.[19]

We begin by pointing out that voters do *not* observe either the incumbent's type δ or the money M that he has borrowed before the election. Therefore, in a pooling equilibrium, the following equality

$$\delta_H R_L^* - M = \delta_L R_L^* \tag{11}$$

[19] The game we are analyzing here is a "signaling game" which is one kind of dynamic game of incomplete information. Standard equilibria to analyze in signaling games are the "pooling" and "separating" equilibria. Now, as in our present analysis, consider a signaling game with two kinds of players, i.e., politicians and voters. In a pooling equilibrium, all *types* (honest or dishonest) of a specific kind of player (in our case politicians) send the *same* message or signal to the other kind of player (in our case voters). This interaction between politicians and voters leads to a pooling equilibrium. In contrast, when the different types of politicians (honest or dishonest) send *different* messages or signals to the voters, the ensuing interaction between politicians and voters leads to a separating equilibrium. For more on these ideas, the reader ought to consult a standard game theory text such as Fudenberg and Tirole (1991).

must hold. An implication of equation (11) is that in order to bewilder voters into thinking that he is honest, a dishonest incumbent mayor will borrow

$$M = (\delta_H - \delta_L)R_L^* \tag{12}$$

in the first time period. Since this borrowed money must be paid back in the second time period, a dishonest incumbent will choose to pool and be re-elected mayor if and only if the borrowed quantity M is no larger than $2G$ which is his private gain from being mayor for two time periods. In symbols, the inequality that must hold is

$$2G \geq (\delta_H - \delta_L)R_L^*. \tag{13}$$

Now, supposing that the expression in (13) holds as an equality, we get

$$R_L^*(\psi^*) = \frac{2G}{\delta_H - \delta_L}. \tag{14}$$

Using equation (3), we can simplify the expression in equation (14) and, simultaneously, infer the critical value of ψ, ψ^* that we are looking for. We get

$$\psi^* = \frac{1}{\delta_L} H' \left(\frac{2G}{\delta_H - \delta_L}\right). \tag{15}$$

We have already demonstrated in section 4 that the optimal value of the crime index R_L^* is a *decreasing* function of the marginal cost of public monies ψ. This last result tells us that when ψ increases, the left-hand-side (LHS) of (13) decreases. This allows us to conclude that for all $\psi > \psi^*$, (13) holds as a strict inequality and hence we get a separating equilibrium. In this equilibrium, a dishonest incumbent mayor will choose to separate and lose the election at the end

of the first time period. In contrast, when $\psi \leq \psi^*$, this incumbent mayor will effectively pool and be re-elected mayor in the second time period.

Before continuing further, let us stress three points about our analysis thus far. First, an inefficient incumbent politician's ability to borrow money M does not ensure that he will be re-elected mayor in the election after the first time period. The purpose of borrowing M is to bewilder voters into thinking that an inefficient mayor is efficient. If voters believe this attempt to bewilder them then this makes re-election more likely but not certain for the inefficient incumbent mayor. Second, the $2G$ term on the LHS of (13) makes sense because the per period private gain from being elected mayor is the constant G and we are accounting for this private gain over two time periods in (13). Finally, in general, there is nothing necessarily untoward about an elected politician borrowing money, promising to pay it back in an ensuing time period, and thereby creating a budget deficit. This happens and hence we now have a literature on the "political budget cycle."[20] That said, our final task in this paper is to demonstrate that a rise in ψ can increase voter well-being when politicians are more likely to be dishonest.

6. A Second Rise in the Marginal Cost of Public Monies

Upon reflection, it is easy to confirm that in the pooling equilibrium that we have been discussing, the well-being of voters differs only in the second time period. Hence, before the resolution of uncertainty about δ and M, voter welfare in the two time periods under study is given by

$$U_1 = H(R_L^*) - \psi\delta_L R_L^* \tag{16}$$

[20] See Waknis (2014), Bohn (2019), Ferris and Dash (2019), and the references cited in these papers for additional details about this literature.

and

$$E[U_2] = p\{H(R_L^*) - \psi\delta_L R_L^*\} + (1-p)\{H(R_H^*) - \psi(\delta_H R_H^* + M)\}, \qquad (17)$$

where $E[\cdot]$ is the expectation operator.

To figure out the effect of the marginal cost of public monies ψ on voter well-being over the two time periods in our city, we differentiate the sum $U_1 + E[U_2]$ with respect to ψ. This gives us

$$\frac{d\{U_1+E[U_2]\}}{d\psi} = -(1+p)\delta_L\delta R_L^* - (1-p)(\delta_H R_H^* + M) - (1-p)\psi\frac{dM}{d\psi}. \qquad (18)$$

In order to sign the expression on the RHS of equation (18), we need to first sign the derivative $dM/d\psi$. To do so, we differentiate equation (12), keeping in mind the dependence of R_L^* on ψ. This gives us

$$\frac{dM}{d\psi} = (\delta_H - \delta_L)\frac{dR_L^*}{d\psi} < 0 \qquad (19)$$

and the sign of the expression on the RHS of equation (19) follows from the fact that R_L^* is a decreasing function of ψ.

Let us now use the result in equation (19) to ascertain the sign of the derivative in equation (18). After several algebraic steps, we infer that the well-being of voters in our city *might* increase with a rise in ψ as long as the inequality below

$$-\psi \frac{dM}{d\psi} > \frac{1+p}{1-p}\delta_L R_L^* + \delta_H R_H^* + M \qquad (20)$$

holds. A careful review shows that the RHS of the inequality in (20) is *increasing* in the probability p. Therefore, the likelihood that the condition in (20) will hold is higher when p is *small*. In turn, this last inference suggests that the condition in (20) will hold more often than not when $(1-p)$ is large and this means that the politician under consideration is more likely to be dishonest.

Why does this counterintuitive result hold? To answer this question, observe that in comparison with dishonest politicians, we generally expect honest politicians to make our city safer by raising the crime index to a higher value. All else being equal, this increased value of the crime index makes the residents of our city better off. However, in order to fund the increase in the size of the city police force that makes the city safer and hence voters better off, politicians need to raise tax revenues and this taxation influences the well-being of voters negatively.

Now remember that the marginal cost of public monies or ψ measures how hard it is for politicians to raise tax revenues. In our setting, when we allow dishonest politicians to appear honest, there is a range of values for ψ $(\psi \leq \psi^*)$ where dishonest politicians effectively appear to be honest. The interaction of this "range of values for ψ" with the magnitude of the probability p gives rise to scenarios in which the activities of dishonest politicians *may* raise the well-being of voters in our city. This completes our political-economy perspective on mayoral elections and urban crime.

7. Conclusions

In this paper, we provided a political-economy analysis of crime prevention in an arbitrary city in the United States. City residents (voters) elected mayors (politicians) and elected mayors

determined the resources to be allocated to crime prevention. Between the two time periods, there was an election. Politicians were either honest or dishonest. The marginal cost of public monies ψ measured how efficiently an elected mayor converted tax receipts into crime prevention. Voters had identical per period utility functions. We ascertained the equilibrium outcome and the per period well-being of the voters. Second, we showed that an increase in ψ reduced the equilibrium allocation of resources to crime prevention and voter well-being. Third, a dishonest politician could delay the revelation of his dishonesty. We showed that a critical value of $\psi, \psi^*,$ existed such that the dishonest incumbent separated and lost the election if and only if $\psi > \psi^*$ and that he pooled and was re-elected otherwise. Finally, we noted that an increase in ψ could raise voter well-being when politicians were more likely to be dishonest.

The analysis in this paper can be extended in a number of different directions. Here are three potential extensions. First, it would be useful to distinguish between *different kinds* of criminal activity in a city and to then see what impact different kinds of crime reducing activities undertaken by the police in one time period have on the electability of mayors and on the well-being of residents in subsequent time periods. Second, it would be helpful to study criminal activity in a set of cities where the actions of a "tough-on-crime" mayor in one city drives criminals to othere cities and hence gives rise to crime related *spatial spillovers*. Finally, one could analyze how the notion of stability, proposed by Greenberg *et al.* (2002), affects the modeling environment examined in this paper. Studies of crime prevention in cities that incorporate these aspects of the problem into the analysis will provide further insights into how the interactions between politicians (mayors) and voters (residents) can lead to lower crime and hence to higher well-being for all the involved parties.

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