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Rational dictators and the killing of innocents: Data from Stalin's archives

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ABSTRACT

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We posit a rational choice model of dictatorship to explain the tendency of dictators to repress innocent citizens. This model demonstrates that, when the quality of information about regime enemies is low, a rational dictator will knowingly kill and imprison citizens who are not real enemies. We use the formerly secret Stalin archives to test this proposition against the stylized facts of Stalin's three major repressions. *Journal of Comparative Economics* **39** (1) (2011) 34–42. University of Houston and Hoover Institution, Stanford University, United States; Aarhus University, Denmark; New Economic School, Moscow, Russia.

"Because it is not easy to recognize the enemy, the goal is achieved even if only five percent of those killed are truly enemies"
Joseph Stalin

1. Introduction

Dictatorial regimes have engaged in mass killing and imprisonment of citizens. According to one estimate, Marxist–Leninist regimes killed more than 110 million persons in the twentieth century, more than ninety percent were their own citizens, while democratic regimes rarely kill their own citizens (Heinsohn, 1998, p. 53). Stalin's Russia, Mao's China, Pol Pot's Cambodia, and the current dictators of North Korea have subjected their citizens to mass execution and gulags. Contemporary dictators tend to use exile, a milder form of elimination of perceived enemies. Castro pushed thousands of "undesirables" into emigration as have dictators in former Soviet republics, such as Alexander Lukashenko of Belarus or the late Islam Karimov of Uzbekistan. Cross-sectional empirical analysis also suggests that violence against citizens is linked to dictatorship (Mulligan et al., 2004). In 2008, Freedom House rated thirty four nations as "not free" (http://freedomhouse.org/). Dictatorships appear to be on the rise (Levitsky and Way, 2010).

A particularly striking feature of dictatorial repressions is that they strike persons, who appear to be "innocent," even by the dictator's own standards. In Stalin's repressions, most of his victims had no idea why they were selected. In Pol Pot's

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Cambodia victims were screened by crude criteria, such as checking for calluses on their hands. Unlike democratic justice systems, dictators do not appear to be averse to Type 1 errors in selecting their enemies for punishment (Belova and Gregory, 2009).

The violence of dictators directed against their own citizens is often attributed to warped personalities and mental illness, but its repetition over time and place makes this explanation unsatisfactory. As economists, we are interested in motivations that are general ("Stalin killed millions because he thought it would secure his regime") rather than idiosyncratic ("Stalin killed millions because he was crazy") (Harrison, 2006). If dictatorial behavior is the consequence of idiosyncratic factors, economic investigation does not hold promise.

For this reason, we formulate a dictatorial eliminations model to explain how a dictator eliminates opponents and why he does not shy away from persecuting innocents. This model is a subset of a larger two-stage model in which a potential dictator first chooses between dictatorship and democracy, and, once the former is chosen, trims the population of enemies to remain in power (Gregory et al., 2006). Our eliminations model posits that the number of enemies and exogenous determinants of the dictator's security determine the optimal number of eliminations. A third factor, the quality of information (the ability to identify enemies correctly) is the focus of this paper. Dictators have a secret police to gather information on citizens, but the regime's enemies conceal themselves. With imperfect information, the dictator could eliminate citizens who are content with the status quo while letting real enemies go free. We show that the model provides non-obvious insights into dictatorial behavior, especially in explaining the rationality of eliminating "passive" (non-hostile) citizens.

This paper is a contribution to the theory of dictatorship. Dictatorships have a longer history than democracies; yet the economic modeling of dictators is a relatively young discipline. Hayek described how administered economies breed dictators (1944), Wintrobe (1990, 2000) portrayed dictators as selecting the optimal tradeoff between loyalty and repression; and Olson (1995) distinguished between pro-growth stationary bandits and anti-growth roving bandits. Recent contributions include, among others, de la Mesquita's et al. (2003) model of durable authoritarianism, Acemoglu and Robinson's (2006) dictator's revolution constraint, Myerson's (2008) and Egorov and Sonin's (2010) models of political leadership, Lazarev's (2007) promotion-contract model, Svolik's (2009) model of power-sharing in dictatorships, and Debs' (2010) model of agency problems in a dictatorial hierarchy. Spagat et al. (2005) examined the cyclicality of dictatorial repression.

This paper studies how a dictator preserves his power by eliminating opponents by means of execution, imprisonment, or exile. Unlike democracies, where politicians adjust polices to the median voter, dictators can directly adjust their constituency by trimming enemies. We use this model to develop propositions concerning dictatorial behavior, which have general applicability to "rational" dictators, whose overriding objective is power. The assumption that the dictator's objective is to remain in power is unobjectionable. The goal of the Bolsheviks was to preserve their "dictatorship of the proletariat" after their unexpected victory in the 1917 Revolution. North Korea's Kim Jong Il and Iran's Mullahs share the same objective. Stalin's objective function was described succinctly by an intimate: "He had only one passion, absolute and devouring: lust for power" (Bazhanov, 1990, p. 106). What distinguishes brutal dictatorships, and Stalin, in particular, from other politicians is the intensity of preferences with respect to holding onto power.

Dictatorships do not readily divulge their secrets. An exception is the one-party dictatorship that began with the Bolshevik October Revolution of 1917 and then morphed into a one-man Stalin dictatorship in the early 1930s. This was the world's first full-fledged Marxist dictatorship; it would be the model for Eastern Europe, China, Vietnam, Cuba, and even Saddam Hussein's Iraq. The internal workings of the Soviet dictatorship became available for researchers to study with the opening of the Soviet state and party archives in the early 1990s (Gregory and Harrison, 2005). Today, researchers have extensive documentation of Stalin's use of repression to eliminate perceived enemies during his one-man rule (Gregory, 2009).

In this paper, we study the elimination of massive numbers of ordinary citizens in Stalin's three mass repressions: the "dekulakization" of the countryside between 1930 and 1932, the "mass operations" of the Great Terror in 1937 and 1938, and "national operations" against ethnic minorities starting in 1937 and proceeding into the early postwar period. Official state security statistics understate the true number of victims because they capture only those formally sentenced. They show that three quarter of a million persons were executed and two million persons were imprisoned between 1930 and 1944 (Kozlov, 2004, Statistical appendix, vol. 1). They were all sentenced by extra-judicial tribunals, signifying that they had committed some form of political crime.

Our paper is organized as follows. The following section describes the dictatorial eliminations model. The next section examines the stylized facts of Stalin's repressions with respect to the model's comparative statics, with particular attention to the information parameter. The final section presents our conclusions.

2. A dictatorial eliminations model with imperfect information

Let us begin with the intuition of the model: models of democracy and voting assume that incumbents and challengers base their policies on the median voter. Democratic politicians might shape the physical composition of voters by targeted transfers which lead some voters to leave their district (Glaeser and Shleifer, 2005). Other regimes can affect the political stance of their citizenry by propaganda and reeducation, by organizing an inflow of supportive citizens (a process applied by colonial powers), by forcing enemies into migration or exile, or by eliminating those in opposition to the current regime.

Our model assumes that the dictator will not trim his constituency if the share of "enemies" is below the "revolution constraint" (Acemoglu and Robinson, 2006, pp. 120–122). However, once it reaches or exceeds this constraint, the dictator

activates eliminations. This model is a special case of more general models, where for example the dictator has a choice of repression versus loyalty. In the present model, we concentrate on a central policy variable of the dictator: the amount of repression.

A remarkable quote from Stalin from October 1938 (1 month before he called off the Great Terror) captures as well as anything the intuition of our model. Stalin, who is unveiling his new history of the communist party, tells the Politburo about those who could not accept his policies of collectivization and forced industrialization:

> "*If our cadres are weakly trained, this means that the state is at risk. Take the case of the followers of Bukharin. Their leaders, losing their roots among the people, began to cooperate with foreign intelligence. But besides their leaders, there was a mass following, and they were not all spies and intelligence agents. We could assume that ten-fifteen-twenty thousand and maybe more were Bukharin's people. We could consider that the same number or more were Trotsky's people. But were all these spies? Of course not. But what happened to them? They were people who could not accept the sharp turn to the collective farm; they could not fathom this change, because they were not politically trained, they did not know the laws of socialist and economic development. . ..For that reason we lost a part of our cadres, but we gained a huge cadre of workers, and we received new cadres and we won over the people to the collective farms and we won over the peasantry.*"(Khlevnyuk et al., 2009, vol. III, p. 686)

In other words, Stalin told his audience (who knew that almost 700,000 people had been executed in the past year and a half) that it was necessary to eliminate those who did not accept his policy platform. Moreover, they should be eliminated even though their resistance was inactive. In a cavalier display of indifference, he declared that their loss was not that important. They had been replaced by people who accepted his policy platform. As a final note, this quotation tells us that Stalin actually had rules of thumb whereby he calculated the number of enemies – in this case up to forty thousand or more from the camps of Bukharin and Trotsky alone.

2.1. Formal setup

We consider a situation in which the dictator chooses the level of elimination among those who constitute potential opposition to his rule. The dictator faces a population which is a continuum of size 1, consisting of two types of citizens, e and p.[1] We follow the standard in the political economy literature (Persson and Tabellini, 2000, Ch. 2–3; Acemoglu and Robinson, 2006, Ch. 5), and consider a one-dimensional policy space. Accordingly, a dictator's ideology stance, $\phi \in \mathrm{R}$ (one of his two choice variable) within the policy space is a policy platform that implies certain benefits and costs to the two different groups in society, such as the effects of collectivization, the tax on human capital, provision of public goods, safety and security, the access to privileges, avoidance of punishment, or freedom of speech. What matters in our analysis is that citizens differ in their preferences for the ideological position. This is the nucleus for any voting, for any political process and, not least, for the actions of dictators.

The dictator has two choice variables: one, ϕ, is the ideology stance variable, and the other, m, is the number of citizens that the dictator would like to have had eliminated in order to secure his regime. Citizen i has the following standard utility function (see e.g., Persson and Tabellini, 2000), which depends on the policy variable, ϕ:

$$v_i(\phi) = -|\phi - \bar{\phi}_i|$$

For each $i = e, p, \bar{\phi}_i$ is the ideal choice. Without loss of generality, we assume $\bar{\phi}_e = 0$ and $\bar{\phi}_p = 1$. Finally, let α be the share of e-types and, accordingly, $1 - \alpha$ is the share of p-types. Furthermore, p-types are assumed to form a majority, i.e. $\alpha < \frac{1}{2}$.

A citizen might revolt if she dislikes the dictator's policy choice. There is a cost of revolt for each individual, $\kappa > 0$. If the revolt is successful, then democratic elections take place, and we simply assume that the preferred choice of the median citizen voter wins this election (this would have corresponded to a unique equilibrium in a standard Downsian model with two opportunistic politicians). A revolt fails if the share of participants is less than θ, and it necessarily succeeds if the share of participants exceeds θ. Thus, the parameter θ captures in reduced form the Acemoglu and Robinson (2006, pp. 120–122) revolution constraint, which describes the condition under which those excluded from political power decide to overthrow those who are in control.[2] Accordingly, the parameter θ reflects how secure the dictator's power base is; the security of a dictator stems from the dictator's control of the political process, the military, the secret police, etc. A large θ implies a secure dictator.

The dictator maximizes his utility of staying in power. If the chosen policy is ϕ then the dictator gets disutility of $|\phi - \bar{\phi}_D|$. We assume that the dictator's own ideal policy is $\bar{\phi}_D > 1$. If the dictator is ousted his utility is normalized to $-\bar{\Phi}_D$. To prevent a revolt, the dictator can opt to eliminate regime enemies in the population. Thus, the dictator bears the per-person cost of repression, c; it might be a physical cost of elimination, or a loss in production capacity of the workforce.[3] Therefore, the dictator's utility is as follows:

[1] As will become clear below, e-type agents will turn out to oppose the incumbent dictatorial regime, i.e. they are regime enemies from the dictator's perspective, while p-types can be referred to as passives.

[2] In the (Acemoglu and Robinson, 2006) framework, citizens decide whether to accept the status quo or revolt by comparing net payoffs received with or without a revolution. The revolution constraint is binding when the share of income (in the case of non-democracy) to the ruling class exceeds the fraction of resources destroyed in the course of revolution (p. 122).

[3] In principle, these costs could include a reduction in the popularity of the regime, creating a feedback link between θ and the optimal number of eliminations. For the sake of brevity, we do not consider this extension in the current paper.

$$u_D(\phi, m) = \begin{cases} -|\phi - \bar{\phi}_D| - cm, & \text{If dictator stays in power and implements policy } \phi \\ -\bar{\Phi}_D, & \text{if dictator is ousted} \end{cases}$$

In what follows, we assume $\overline{\Phi}_D > 0$ is large enough for the dictator to prefer to stick to power at the cost of policy concessions that satisfy either *e* or *p*-types.

To eliminate his opponents, the dictator needs to know who is who. Though the actual policy preferences of individual citizens are unobservable, they can be correctly identified (labeled) with probability $\rho > \frac{1}{2}$, say by a secret police. Thus, ρ is a measure of the quality of information available to the dictator. Formally, the relationship between the true type of person and the attached label is defined as follows:

$$Pr(Label = Enemy|Type = e) = Pr(Label = Passive|Type = p) = \rho$$

Timing of the game:

1. The Dictator chooses policy ϕ.
2. The dictator chooses how many citizens to eliminate, *m*.
3. Citizens decide whether or not to revolt. If they revolt and succeed, the policy outcome is the ideal point of the median voter.

We look for Subgame-Perfect Nash Equilibria, which may in this simple game be found by backward induction; in such an equilibrium, agents correctly foresee what happens next to their own moves. Following Acemoglu and Robinson (2006), we always assume that (i) members of classes are identical; (ii) the collective-action problem is solved so that we can focus on equilibria, where members of the same group behave identically.

2.2. Analysis

We go backward through the game tree to solve the game. Citizen *i* opts to revolt if the gains of overthrowing the dictator exceed the cost of participating in a revolt. Formally, this happens when $v_i(\bar{\phi}_m) - v_i(\phi^*_{Dic}) = -|1 - \bar{\phi}_i| + |(\phi^*_{Dic}) - \bar{\phi}_i| > \kappa$, where $\bar{\phi}_m = 1$ is the median voter's ideal policy, $\bar{\phi}_i$ is the citizen *i*'s ideal policy, and ϕ^*_{Dic} is the equilibrium policy choice of the dictator. With the dictator's ideal policy $\bar{\phi}_D$ being, by assumption, closer to the ideal policy of the majority (*p*-types) than to the ideal policy of the minority (*e*-types), he is always better off eliminating the *e*-types. (This is what justifies the chosen names "enemies" and "passives:" In equilibrium, the dictator aim's to eliminate those who are more likely to revolt – that is, those whose ideal policy choice is further away from the dictator's.)

The dictator's choice of the optimal policy ϕ_{Dic}, depends on his capacity to single out and eliminate those who are dissatisfied with his policy choice. The better his information technology and the lower the cost of elimination, the closer will be the dictator's optimal choice ϕ^*_{Dic} to his ideal policy $\bar{\phi}_D$.

For each group *i*, the dictator might either appease its members, i.e. to choose a policy to satisfy $-|1 - \bar{\phi}_i| + |\phi - \bar{\phi}_i| > \kappa$, or eliminate sufficient number that the group is unable to revolt. We focus on the case, in which the dictator opts to appease the passives, whose ideal points are closer to his, and eliminates the enemies.

By the Bayes formula, the share of true enemies among those who are labeled enemies is $\frac{\rho\alpha}{\rho\alpha+(1-\rho)(1-\alpha)}$. If *m* persons labeled as enemies are eliminated, the expected post-repression share of enemies in the population is:

$$R(m) = \frac{1}{1-m}\left(\alpha - \frac{\rho\alpha}{\rho\alpha + (1-\rho)(1-\alpha)}m\right). \tag{1}$$

Thus, the dictator's policy choice is determined as follows:

$$\phi^*_{Dic} = \arg\max_{\phi} u^D(\phi)$$

$$\text{s.t } v_p(1) - v_p(\phi) \le \kappa \text{ and } R(m) \le \theta.$$

The solution is $\phi^*_{Dic} = \bar{\phi}_D$ if $\bar{\phi}_D - 1 < \kappa$ (that is, the dictator's ideal policy is so close to the passives' ideal point that he does need to pander to them), or $\phi^*_{Dic} = 1 + \kappa$, otherwise.

When $v_e(\bar{\phi}_m) - v_e(\phi^*_{Dic}) = \phi^*_{Dic} - 1 > \kappa$, i.e. enemies prefer to revolt rather than accept the dictator's policy, the dictator needs to eliminate so many true enemies that the expected number of actual enemies, $R(m)$ does not exceed θ. Since there is an elimination cost $c > 0$, the dictator wants to eliminate as few citizens as possible, given the constraint that he does not want to be overthrown. Using the above equations and solving $R(m) = \theta$ for *m*, one gets

$$m^*(\rho, \alpha, \theta) = Max\left[0, (\alpha - \theta)\left(\frac{\rho\alpha}{\rho\alpha + (1-\rho)(1-\alpha)} - \theta\right)^{-1}\right], \tag{2}$$

which results in costs to the dictator of $Max[0, cm^*(\rho, \alpha, \theta)]$.

If $\alpha < \theta$ (the percentage of enemies is below the revolution constraint), the dictator has no reason to eliminate, i.e. $m^* = 0$. If $\alpha > \theta$, then $m^* > 0$. Indeed, given our assumption that $\rho > \frac{1}{2}$, we have $\rho > \rho\alpha + (1-\rho)(1-\alpha)$, and hence both numerator and denominator of (2) are positive.

To be of value in "explaining" stylized facts, the model must explain how the dictator determines the number of eliminations (m), and how the quality of information ρ and the dictator's security θ affect the dictator's actions.

This framework yields a series of intuitively compelling results with respect to the determinants of eliminations. Firstly, we have $\frac{\partial m^*}{\partial \rho} < 0$, implying that better quality information results in fewer eliminations. Second, $\frac{\partial m^*}{\partial \alpha} > 0$, so that a larger share of enemies requires a larger m^*. Finally, $\frac{\partial m^*}{\partial \theta} < 0$, suggesting that a more secure dictator (larger θ) eliminates fewer citizens.

Most central to the present paper: Since the reported number of enemies will be an overestimate due to imperfect information, there will actually be more citizens labeled as enemies than actual enemies, so that $m^* > \alpha$ can occur. The implication is that, for low quality information, eliminations in excess of the true number of enemies would be a rational choice of the dictator. Even though we assume that the dictator knows the number of true enemies, α, he also knows that his information (ρ) is of low quality so that he is better off "over-eliminating", fully aware that he is eliminating "passives" in the process. For interpretational purposes, the extent of eliminations of passive citizens can be stated as the share $r = \frac{m^*}{\alpha}$, i.e. the ratio of those labeled enemies in equilibrium to the actual share of enemies in the population. In the limiting case of perfect information, $\rho = 1$, and $m^* = \frac{\alpha-\theta}{1-\theta}$, i.e. the dictator simply eliminates the number of labeled enemies in excess of the revolution threshold θ – all of whom are "true" enemies.

Using r through (2), we obtain the following results concerning the impact of the dictator's security, and the quality of information on the elimination of passives: Straightforward calculations yield that $\frac{\partial r}{\partial \theta} < 0$ and $\frac{\partial r}{\partial \rho} < 0$. In other words, when the dictator is more secure or when an "enemy type" has clearly visible characteristics (e.g., a peasant household having livestock), then repression can be more targeted and takes less toll on passives.

The following Proposition summarizes the above discussion:

Proposition 1. *In the dictatorial eliminations model*:

1. In equilibrium, enemies revolt if and only if the number of those who are eliminated is below $m^*(\rho, \alpha, \theta)$, given in (2), and $\left|\phi^*_{Dic} - 1\right| > \kappa$; and passives revolt when $\upsilon_p(\phi^*_{Dic}) > \kappa$.
2. The equilibrium level of eliminations is determined by $m^*(\rho, \alpha, \theta)$. given in (2). Equilibrium eliminations $m^*(\rho, \alpha, \theta)$ increase with the number of enemies, α, and decrease with the quality of information ρ and the dictator's security (θ).
3. The measure of elimination of passives, r, decreases with the dictator's security, θ, and with the quality of information ρ.

The central properties of the elimination model are illustrated in Fig. 1. For a given level of regime enemies, α, the number of eliminations falls as the dictators security increases (i.e. an increase in the revolution constraint, θ). Eventually for a sufficiently high θ, we have $\theta > \alpha$, so that the revolution threshold holds, and no eliminations are ordered. On the other hand, a zone of excess eliminations (m^* in excess of the true or believed to be true number of total enemies in the population, α) is to be expected for low levels of θ, i.e. a small dictatorial power base. A lower ρ increases the number of eliminations and the zone of excess eliminations.

A final remark. Throughout the model we assumed the dictator directly targets m^* eliminations of citizens labeled as enemies as his choice variable, i.e. the regime has screened and labeled the entire population. We can alternatively assume that the dictator uses the number of random arrests as his choice variable and eliminates those among those arrested that are convicted (labeled) as enemies; again using some imperfect screening technology on all those arrested. This reinterpretation

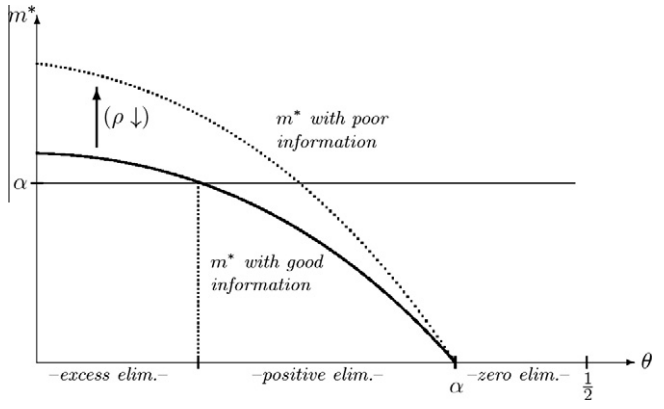

Fig. 1. Eliminations m^* as a function of dictator security (revolution constraint θ).

results in a fully equivalent model giving a convictions to arrests ratio that displays the same intuitive properties of the specification presented above.

3. Stalin's three mass repressions

In an earlier paper (Gregory et al., 2006) we sought to test the consistency of our model against the stylized facts of Stalin's three major eliminations. In particular, we attempted to determine whether the comparative statics were consistent with the historical facts of Stalinist Russia. Ours was a relatively speculative venture insofar as it is difficult to pinpoint the security and number of enemies variables in each of the repression campaigns. In this paper, we concentrate only on the proposition (Proposition 1) that the elimination of passives increases as the quality of information decreases (holding constant the dictator's security).

Stalin conducted three eliminations campaigns after he consolidated power in 1929. All were initiated by extra-ordinary instructions directly from Stalin. They were followed by operational decrees from state security that identified the numbers and characteristics of enemies and their punishment by regions, the expedited procedures for sentencing, and the starting and ending dates (Gregory, 2009). Each of these operations were scheduled to be finished within 4 months or less, but were extended. They were closely monitored by Stalin and therefore directly reveal the dictator's preferences. These mass repressions provide a unique window into the mind of a dictator, unfiltered by intermediaries.

3.1. Dekulakization, 1930–1932

Stalin ordered the "destruction of the kulaks as a class" on January 30, 1930. He set limits of 60,000 concentration camp sentences or executions of the most dangerous "first-category" kulaks and for the deportation of 150,000 "second-category" kulaks (and their families) broken down into nine regions. A "control figure" of 3–5% of the peasant population was set as the ultimate goal of dekulakization, but no time limit was given (Ivnitsky, pp. 118–123). Individual victims were to be chosen by local party and state security officials and committees of peasants. Notably, petitions by some regions, such as the Urals, for higher "limits" were rejected unambiguously (Ivnitsky, 2000, pp. 169–70).

3.2. Mass operations, 1937–1938

Stalin set mass operations in motion to liquidate class enemies "once and for all time" with top secret telegrams of June 28 and July 3, 1937 to regional party secretaries, requiring them "... to investigate all returnees (from deportation and the gulag) so that the most hostile are immediately arrested and shot according to administrative measures via troikas. ... the numbers to be shot and deported must be given within 5 days. (Fond 3, op. 74, del. 21, 89.) The NKVD Order of July 30, 1930 gave "limits" for first-and second-category enemies for 65 regions adding up to 75,950 executions and 193,000 prison sentences. The operation began August 5, 1937 and was scheduled to end within 4 months. It was ultimately extended on January 30, 1938 with additional limits through mid November of 1938. Unlike dekulakization, the July 30 decree encouraged regions to petition for higher limits. As requests for higher limits flooded in, they were approved by Stalin or by the NKVD central headquarters. The mass operations of 1937–1938 were closely monitored by Stalin, who met fifteen times with his NKVD head between July 4 and July 29, 1937 (http://www.melgrosh.unimelb.edu). Although the acceleration of mass operations gives the impression of regional spontaneity, records show that all but a few executions were approved either by Stalin or by the NKVD leadership (Gregory, 2009, p. 189).

3.3. National operations

National operations began contemporaneously with but were distinct from Mass Operations. National operations were set in motion by a series of extraordinary decrees aimed against "socially dangerous" nationalities, such as Germans, Poles, Latvians, Koreans, and others. The two nationalities that bore the brunt of the operation were Poles, whose victims numbered over 130,000, and Germans. According to the aborted 1937 census, there were eight million fewer Germans in the USSR in 1937 than in 1926 (Vsesoiuznaia perepis' 1937, 2007, p. 111). Victims of overlapping mass operations and national operations are difficult to separate out, but if we judge by the decree under which they were tried, of the quarter million persons arrested in Ukraine in 1937–1938, 31% were arrested under national operations, the rest under mass operations (Vassiliev, 2006, p. 151). More than 350,000 were executed and some 320,000 were imprisoned under the July 30, 1937 mass operations decree, while national operations accounted for a quarter million executions and a hundred thousand prison sentences (Iunge and Binner, 2003, p. 217). The major distinction between national operations and mass operations was that national operations had no centrally set quotas.

National operations, although not called by this title, continued through the war and into the early postwar period, as a part of general repression policy and again without quotas. Between 1945 and 1950, between 57 and 70% of convictions for political crimes were for "suspect" nationalities, such as Ukrainians, Germans, Poles, and citizens of Baltic states (Mozokhin, 2006, compiled from statistical appendices: "nationality of convicted"). The same nationalities increased from 13% of the Gulag population in 1943 to 28% in 1951 (Naselenie Rossii, vol. 2, p. 188).

Table 1 shows the numbers of victims from each of the three repression campaigns.

3.4. Using the model to explain eliminations of passives

Our eliminations model concludes that the number of innocents repressed rises as the quality of information declines, ceteris paribus. We would like to examine this proposition against the historical facts of Stalin's three repressions.

The probability of correctly labeling enemies would be expected, at first glance, to improve over time as the dictator's intelligence services gather more information on the citizenry. Indeed, the volume of information grew exponentially between 1930 and 1937. NKVD operational officers maintained surveillance of suspect individuals and special intelligence officials kept track of the military (Fond 3, op. 74, del.21, l. 9). The approximately one and a half million party members who had left the party between 1922 and 1935 "represented a huge pool of self-declared 'enemies of the people' for the NKVD" (Lewin, 2005, p. 45). By the end of the 1930s, 50 million Soviet citizens had internal passports, which listed their backgrounds, nationality, class, and other characteristics (Shearer, 2004, p. 846). The NKVD had 27,650 NKVD "residents" who received information from some 500,000 informants (Shearer, 2004, p. 846).

Despite these quantitative advances, the probability of correctly labeling an enemy was lower during mass operations in 1937–1938 than in 1930–1932 for several reasons. First, the target of dekulakization was relatively easy to identify based on landholdings, active sectarianism, or service in the white army, and their numbers were even known by the statistical administration. The list of enemies prepared by Stalin's NKVD head, Ezhov, for his July 30, 1937 decree was extremely vague, such as "former kulaks, socially dangerous elements, criminals, marginal elements, and those circulating in criminal circles." Second, in the case of dekulakization, local authorities selected victims, and denunciations were largely against those households that had more assets – the very targets of dekulakization. In the mass operations, denunciations played an even greater role and, with an inability to determine whether the denunciation was self serving or civic, there were few constraints on opportunism. The NKVD itself opportunistically selected victims with large apartments that became a part of the NKVD inventory (Vatlin, 2004, pp. 126–215). Moreover, most denunciations were obtained through torture until interrogees revealed fellow "conspirators", often giving names of friends and even casual acquaintances.

As Stalin turned to national operations, there was a steep increase in the quality of information simply because nationality was registered on internal passports, census authorities had kept track of nationalities and where they resided, and employers listed nationality in the work books of their employees. Moreover, last names often gave away the nationality, sometimes incorrectly. As Stalin ordered the repression of Volga Germans or of Lithuanian or Polish citizens residing in the USSR, they were easy to find and identify. Moreover, there was little problem of identifying which of them should be repressed, for the targets of national operations were typically the entire affected population.

Throughout Stalin's repression campaigns, there was a clear understanding that innocent parties were to be convicted. However, the number of convictions of passives and the reactions of the victims and their families was quite different in the three operations. Stalin, in announcing mass operations in mid 1937, declared: "Every member of the party, honest non-party members, citizen of the Soviet Union not only has the right but is obligated to report the deficiencies he sees. If they are right, maybe only 5% of the time, this is nevertheless bread." (Khaustov et al., 2004, p. 209) In a similar quote, Stalin later said: "Because it is not easy to recognize the enemy, the goal is achieved even if only five percent of those killed are truly enemies (Gregory, 2009, p. 196). Gregory (2009, p. 196) refers to this as Stalin's "Five percent rule".

How authorities reacted to protests is another indicator. The reaction to complaints from relatives of victims of 1937–1938 mass operations was indifference. During Dekulakization however, there was a genuine concern that innocents – defined as poor and middle farmers – be spared. On February 25, 1930, the Politburo (Stalin) issued the following warning: "In a number of localities there have been strictly forbidden instances of dekulakization of middle-peasant households, which constitute the crudest violation of the party line and will lead inevitably to difficulties in collectivizing agriculture." (Ivnitsky, 2000, p. 223). A March 10 order complained that "a number of middle-peasant households were de-kulakized and in some regions the percent de-kulakized reached 15%." (Ivnitsky, 2000, p. 303). A March 18, 1930 directive from the supreme court complained about the "sentencing of a substantial number of middle and even poor peasants without any evidence establishing their guilt" and "the cavalier sentencing to death for counter-revolutionary offenses." (Ivnitsky, 2000, p. 312). The OGPU itself processed complaints from de-kulakized peasants claiming to be poor and middle peasants, and even examined tax records and other documents in support of their claims. (Ivnitsky, 2000, p. 349).

Almost by definition, there were no "wrong labels" in national operations, unless some victims, such as Russians, were classified as Poles, either by mistake or on purpose. For example, in the Perm region, the regional NKVD arrested 4142 persons under German national operations. It was later demonstrated that only 390 were indeed Germans (Leibovich, 2006, p. 52). There was no official attempt to determine whether those repressed under national operations were "innocent". Guilt was in the fact of ethnicity, not in actions.

Table 1
Numbers of Victims, Stalin's Three Eliminations Campaigns (thousands). *Source*: Gregory (2009), Tables 6-1, 6-2, 6-4, 6-5.

	Executions	Prison terms	Deportations (families)
Dekulakization	18	47	135
Mass operations	353	320	?
National operations, 1937–38 only	247	97	?

We can also judge "innocence" by the reaction of victims and their families. There was a relatively small number of letters of complaint from those who felt they were unjustly de-kulakized in 1930–1932 compared to the violent reaction to mass operations. As arrests of innocent victims multiplied, disbelieving relatives flooded the complaints bureau of the USSR Prosecutor at a rate of 50,000–60,000 letters per month. (Kozlov, vol. I, Document 90) There were no special commissions established to assess these complaints and even top party officials could provide little help to victims (such as the teacher of prime-minister Molotov's children).

Our conclusions, based on qualitative information, are that the number of "false" convictions peaked in 1937–38 and was much lower in 1930–32 and for national operations. This conclusions is consistent with our proposition that repression of innocents rises with the declining quality of information.

4. Conclusions

Some may object to the use of rational choice to model historical events of unimaginable cruelty and brutality that appear, at first glance, to defy explanation. The easiest explanation is that they must be due to some highly unusual configuration of events and the personal character of those responsible. If holocausts, ethnic cleansing, cultural revolutions, or Great Terrors did not repeat themselves, attempts to model them (such as in this paper) would be hollow. However, the fact that such tragedies do repeat themselves and appear to be specific to certain types of economic and political systems gives economists license to delve into these matters. We emphasize the strict distinction between rationality and morality. In this work, we simply accept the dictator's objective function – the exercise and maintenance of raw power. The objective function itself may be immoral, but we must accept it as given.

We have not "proved" that Stalin used "our" rational choice model in which he trimmed the population when he felt the revolution constraint had been exceeded. What we have shown is that he conducted three mass terror operations between 1930 and 1945 with different model parameters and that each operation is "consistent" with the proposition that more innocents are persecuted as the quality of information declines ceteris paribus.

What is more is that we show that a simple model, devoid of complex behavioral assumptions, with minimal addition of imperfect information, can yield fairly powerful conclusions, the most important being that a rational dictator will repress innocent victims. We provide formerly secret material from the Soviet archives to demonstrate that this was even official policy.

A final comment: Stalin executed and imprisoned millions of ordinary people, who – viewed by the outside observer and with the benefits of historic hindsight – posed absolutely no threat to him or to his regime. Stalin reserved the right to repress those whom he felt might be a threat in the future but even with this expanded version, it is hard to imagine that many of his victims posed even a future threat. It is this fact that has been used to support the insanity explanation of Stalin's excesses; yet we, as economists, are obliged not only to accept Stalin's objective function but also his definition and perception of what and who constituted a threat to him. For us to attempt to differentiate real from imagined enemies would, however, take us down a very slippery slope.

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