

Markets in political influence: A theory of rent-seeking via network and group signals

Cameron K Murray *

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Abstract

The observed underinvestment in rent-seeking activities is a theoretical puzzle. While modifications to the basic rent-seeking lottery model can be made to generate underinvestment, many other empirical regularities, such as party loyalties, distinct strategies of donations and lobbying, and unequal access to political decision makers, cannot be generated by this model. Indeed, money is simply transformed into influence by assumption.

Taking cues from biology and sociology, a theoretical model of political influence as a long-run trust game between individuals and groups generates a much different set of predictions about expected behaviour in the market for political influence. In this model donations and lobbying activities are just a selection of the possible signalling strategies used form group alliances and loyalties between politicians and firms or industries.

The descriptive predictions of the model are examined in light of Australian lobbyist and political donation data from 1998-2012. Further, the likely success of current policy responses to lobbying and political donations are discussed in terms of this new model.

JEL Classification: D72, C6, Z13

Keywords: Political donations, lobbying, signalling, social networks, simulations, rent-seeking

1 Is political influence for sale?

Economists generally answer with a resounding ‘yes’. Since Tullock (1967) and Krueger’s (1974) pioneering articles, the idea that there is a market for political influence generating a cost to society via rent-seeking activities is a well established idea. Yet rent-seeking theory tells us little about the method of political influence, or more clearly, the mechanism by which interest groups ‘transform money into policy’ (Reuben 2002).

Under the banner of rent-seeking, economists have considered the market for political influence to operate much like a lottery or tournament (to take just one recent example, Alcalde & Dahm (2010)). Expenditure on activities seeking to influence political decisions are generally expected to equal the value of Tullock’s rectangle in Figure 1, a situation referred to as *full dissipation*. While many variations of rent-seeking models exist with lower predicted rent-seeking expenditure (such as Menezes & Quiggin (2010)), this author is aware of none that adequately account for the extremely small observed expenditures on rent-seeking activities such as lobbying and political donations.

Current economic theory does provide a framework for understanding the welfare costs arising in the market for political influence. In the market model, favourable policy in the form of monopoly

*University of Queensland, School of Economics. Email: ckmurray@gmail.com

power enables a reduction of output and an increase in price compared to the competitive market outcome. In Figure 1 we see the downward sloping market demand curve, with the competitive market price and quantity, C and Q , and the monopoly price and quantity, MP and QM . If a government decision involves the possibility of creating such a monopoly through regulatory restrictions, the winners from this regulation would rationally invest in rent-seeking activities up to a cost represented by a portion of the whole rectangle between the MP and C lines, or Tullock's rectangle. If the market for rents is competitive, a value equal to the whole rectangle will be 'wasted' on rent-seeking activities, which is the *full dissipation* condition.

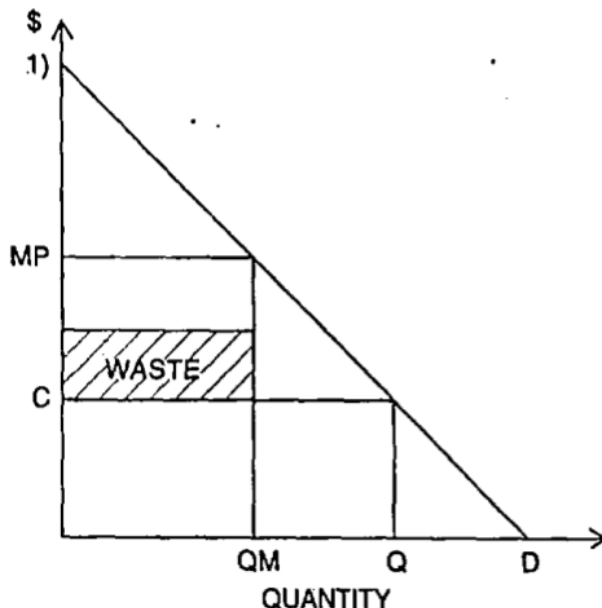


Figure 1: *Tullock's rectangle and Harberger's triangle* Tullock (1997)

Welfare costs however come in two forms: Tullock's rectangle, or losses arising from resources diverted from productive activities to rent-seeking activities, or *rent-seeking costs*, and the efficiency loss arising from constricting the production frontier and growth prospects through sub-optimal allocation and regulation that results from rent-seeking, or *growth costs*¹. Theories of rent-seeking have little to say about *growth costs*, which were first explored in detail by Murphy et al. (1993). Indeed, rent-seeking theories do not predict any particular relationship between the size of rent-allocations (the shift from Q to QM in Figure 1), the scale of *rent-seeking costs*, and size of *growth costs*, even if intuitively they may be related in some circumstances but not others. For example, it is possible that easily persuaded politicians would provide large rents for low *rent-seeking costs*, but these may result in relatively high *growth costs*.

2 Puzzling deviations from the market

Theoretical developments in rent-seeking have, to put it bluntly, failed in a predictive capacity. The empirical evidence against the propositions of the basic model is extensive. Existing empirical studies and new Australian data are used to demonstrate some of these unpredicted empirical regularities.

¹The static representation of this efficiency loss is the 'Harberger' triangle in Figure 1 formed by the lines MP , QM and D . However the possibly larger long run costs in terms of reduced growth are not captured in the static model.

2.1 Entrenched loyalty

Political donors are loyal. Swing politicians receive few donations and are not targeted by lobbyists (Bertrand et al. 2011, Harrigan 2008). For example, Koger & Victor (2009) analyse patterns of lobbying and donation behaviour in the US, finding that -

...lobbyists tend to concentrate their attention on political allies, avoid their ideological adversaries, and infrequently lobby fence-sitters, suggesting that they are not buying votes or persuading legislators on a case-by-case basis.

More importantly, lobbyists appear to systematically switch issues as the politicians they were previously connected to switch committee assignments, hence following people they know rather than sticking to issues. We also find evidence that lobbyists that have issue expertise earn a premium, but we uncover that such a premium for lobbyists that have connections to many politicians and Members of Congress is considerably larger.

More recently Bertrand et al. (2011) investigate the claim that if lobbyists are information providers, than lobbyists with more information and experience should attain a wage premium. Moreover, they should be able to argue both sides of an issue. Yet lobbyists are loyal to their ministerial contacts, and usually change their issues when their contacts change committees. Both Koger & Victor (2009) and Bertrand et al. (2011) conclude that relationships are the source of influence, rather than expertise. Also i Vidal et al. (2011) shows that lobbyists whose US Senate connections leave office suffer a 24% decline in revenue, suggesting that the value of one beneficial social connections can be significant.

Indeed, Harrigan (2008) found distinct strategies exist in Australian political donations data - partisan, where donations are made to one side of politics only, and hedging, where donations are split 50:50 between the two sides of politics. Using Australian federal and State records of political donations (Nicholson et al. n.d.) we can see very strong evidence of this pattern, both in terms of the unique occurrence of 50:50 splits in donations between parties. These patterns are clear in the histograms of donation ratios in Figure 2, Figure 3, and the descriptive statistics of donation strategies in Table 1.

	AUS	QLD	NSW	VIC	WA	SA
Mean Hedging donation (\$)	163,875	59,391	219,414	218,169	55,196	101,334
Mean Liberal partisan donation (\$)	23,429	10,432	21,827	51,256	32,571	23,085
Mean Labor partisan donation (\$)	38,252	21,305	54,512	48,900	18,481	32,592
Total Hedging (\$mill)	63.2	2.7	41.0	12.4	1.9	2.8
Total Liberal partisan (\$mill)	47.9	2.9	11.1	13.2	7.0	2.6
Total Labor partisan (\$mill)	87.6	6.5	47.9	17.8	3.5	3.5

Table 1: Average and total donation over the 1998-2012 period for each strategy

A striking part of this data is the degree to which hedging dominates the political donation signalling game as a whole, making up 32% of the total revenue to the major political parties. Why preach to the choir?

Additionally, only 7% (or 26) of the 363 donors adopting the hedging strategy² are also clients of registered lobbyists. Of the 2733 registered clients of professional lobbyists, a mere 4.3% (or 120) are also donors to the major political parties. In general the two rent-seeking activities appear to be substitutes rather than complements. This is a puzzle.

²Donation shares between 40 and 60%

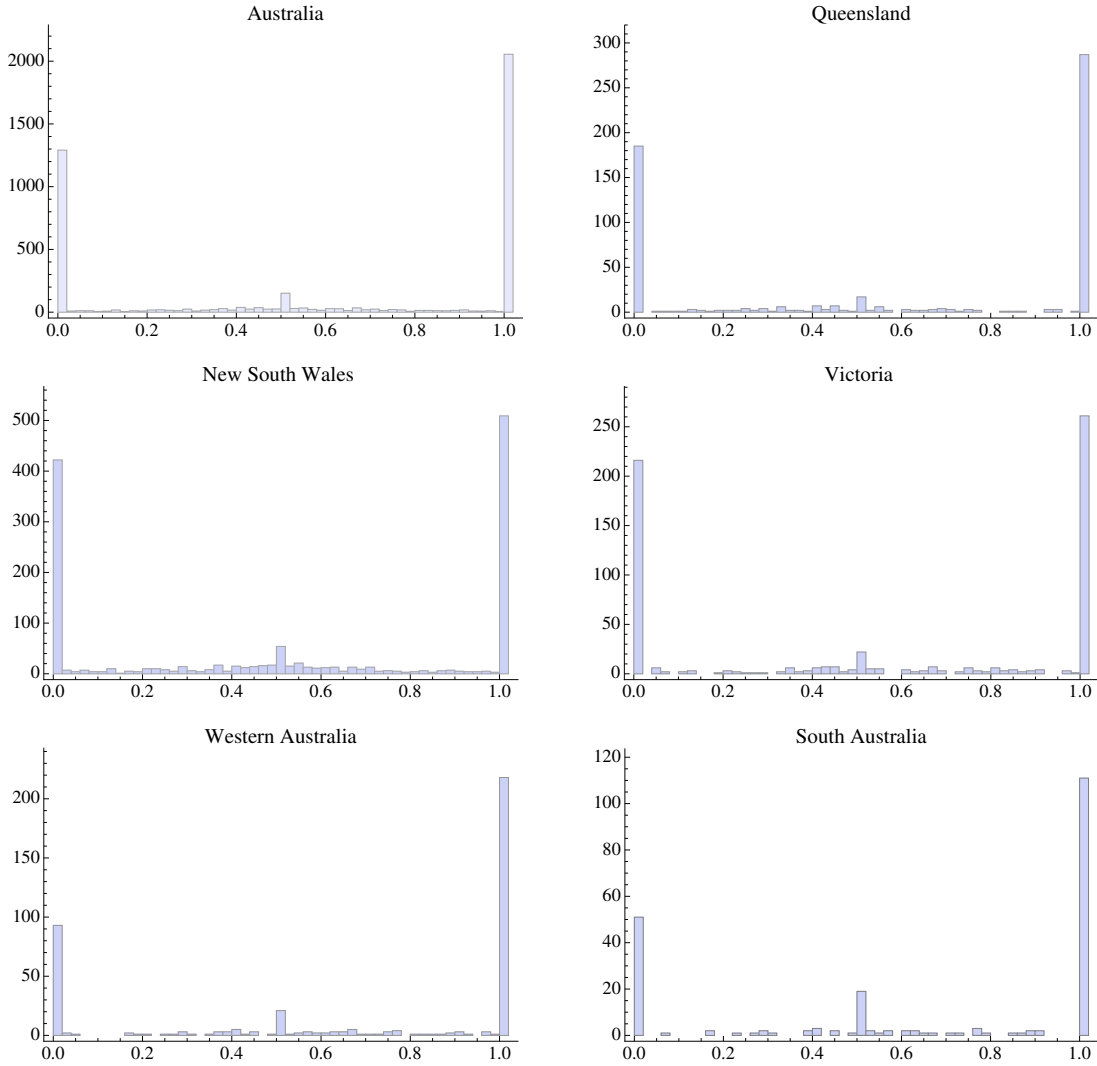


Figure 2: Australian political donation strategies

2.2 A free lunch?

Tullock (1997) laments that the *rent-seeking* costs appear exceptionally low when one actually tries to measure them. He states “We now have various statistic on lobbying activities, etc. They are not complete, but they show actual expenditures which are trivial compared to the size of the gain.” In a recent survey of the empirical literature, Del Rosal (2011) finds estimates of *rent-seeking costs* are often zero, and methodological problems are more prevalent in the higher estimates within the empirical literature.

Theoretical developments treating rent-seeking as a deterministic contest show that the increasing asymmetry of information among contestants for rents reduces competition and *rent-seeking costs* (Kirkegaard n.d.). Yet this assumption requires further explanation. What mechanism sustains this information imbalance? Why doesn’t a market for information emerge given the enormous returns available?

Others argue that uncertainty and risk-aversion explain low rent-seeking costs (Treich 2010). If outcomes are uncertain, risk-averse agents will fail to invest an optimal amount in rent-seeking activities. This explanation relies on a finite number of risk-taking agents, and relies on information

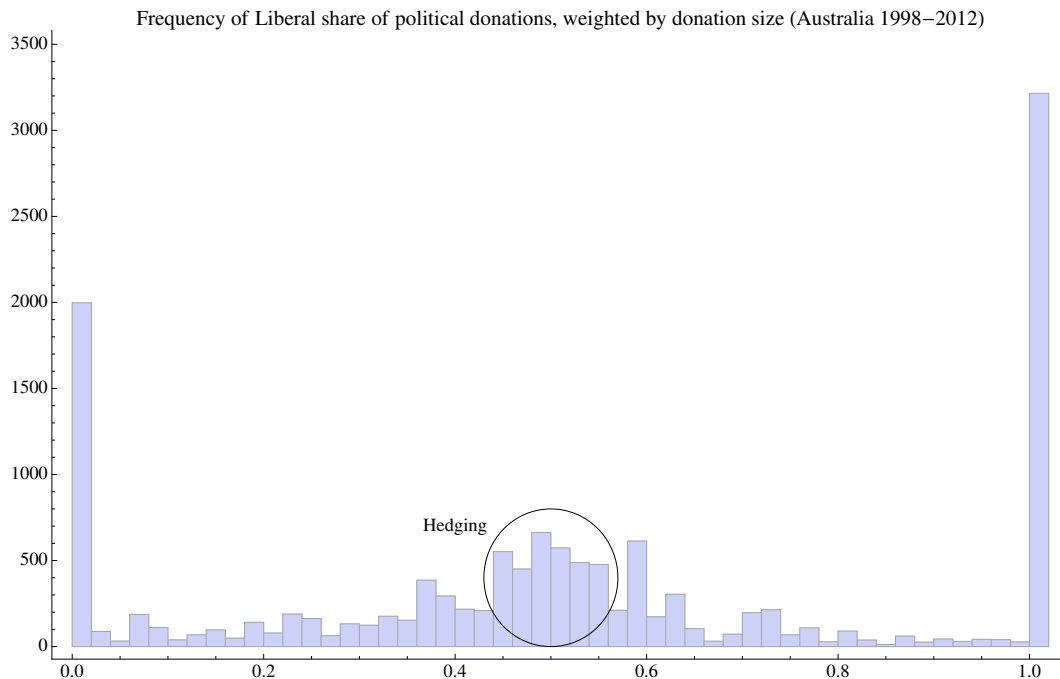


Figure 3: *Revenue from Australian political donation strategies*

failures. If risk-averse agents know others are underinvesting, this increases their certainty of a pay-off.

Table 1 shows that the scale of donations compared to the scale of rents being allocated by government is quite low. These donations reflect the whole of the 14 year sample period. Surely \$200million over a 14 year period is a significant underinvestment.

Moreover, the hedging strategy, while far less common, clearly involves significantly higher mean donations. A better explanation of the purpose of donations is needed.

2.3 Where is the bribery and extortion?

Bribery is rare in countries with effective monitoring and policing. Indeed, if one subscribes to rent-seeking theory, bribery appears the cheapest mode of influence, and the lowest cost to society, as it diverts no resources to rent-seeking activities. If bribery is rare, how are politicians ultimately persuaded? Through sheer volume of contact with lobbyists, or their arguments and industry specific information?

Some research suggests that lobbying through information provision works only under conditions where preferences of politicians and interest groups already align, and indeed it is not the information itself that is persuasive, but the signal it creates (Potters & Winden 1992).

Additionally, politicians in developed countries don't generally appear to extort companies that benefit from new policies. If companies were not bribing politicians for the rents they receive from new policies, the rational response is for politicians extort payments from them to not introduce costly regulation. Cynical economists may believe this happens behind closed doors. Alternatively, donations and revolving doors between politics and the private sector could be a form of soft bribery of politicians who are cheap because they can't coordinate their own interests against the pressure groups.

2.4 Super-optimal markets

Though rent-seeking theory assumes a market for political favour operating optimally, the economic profession has been focussed on the welfare costs of this market. Which is surprising and confusing at the same time. The baseline welfare calculation would involve perfect and complete markets, even for political influence. In this case, any costs below the full Tullock rectangle would be super-optimal.

For example, if information asymmetry is a market failure that means rent dissipation is low, the economic solution would be to address the market failure by improving information. In the market for political influence, this would increase *rent-seeking costs* and result in welfare loss for society as whole. Exactly which baseline the welfare costs and benefits from the market for political influence can be compared to is unresolved.

2.5 Equality of access to the market

Not every interest group lobbies on every policy proposal, yet every group and individual is usually affected by large scale reallocation of rents. The theoretical reason is that the marginal costs for coordinating and monitoring free-riders is higher for dispersed groups (Becker 1983). This is a common economic coordination problem, but it simply leads to the questions such as why some groups' coordination costs are higher, and why a sufficient number of low-cost-of-coordination groups don't emerge. How can the labor movement have coordinated so well historically against smaller and more well-connected business interests?

In its basic form, rent-seeking theories say nothing about equality of rent distributions resulting from rent-seeking markets. Only recently has Shughart II et al. (2003) expanded the competitive market picture of rent-seeking by estimating a long-term inverse relationship between the Gini coefficient and interest group dominance in US states. If successful rent-seeking leads to greater inequality, one needs to consider that increasing inequality further improves that bargaining position of selected interest groups, bringing into question the assumptions of competitive markets for interest groups. Maybe winning rent-seekers increase their chances at winning future decisions.

3 A new model of political influence

A better model of political influence would better predict the empirical regularities of low rent-seeking expenditure, loyalty, minimal outright bribery, and the unequal allocation of rents amongst competing interests. In the spirit of Diego Gambetta (2009), we suggest that rent-seeking markets operate on trust, and that rent-seeking activities are not bribes so much as signals of trust and group loyalties. Trust and loyalty then generate favoritism.

To really understand the role of trust in facilitating cooperation, one first needs a very working definition of trust, which is *the likelihood of expectations of behaviour from a counter-party being met*. Expectations are formed by previous experience, but also but also by other signalling methods.

Signals can be many things, and by definition their meaning arises from common usage. For example, a school uniform signals the school, approximate age and possibly residential location of a child. Membership of a certain club might signal a loyalty to certain types of behaviour. And political donations might signal that your social credit is sound and any favours will be reciprocated in the future.

This section begins by looking at social structures, networks of trust and groups, before developing a mathematical model of political signalling that generates predictions more in line with the apparent deviations from the perfect rent-seeking market earlier discussed.

3.1 Social ties and groups

The weight of evidence on lobbying, donations and favouritism of social connections shows social ties to be important determinants of political influence (Grossmann & Dominguez 2009, Koger & Victor 2009, Bertrand et al. 2011). The *embeddedness* of economic relations within social structures allows for group loyalties to transfer from the social to economic sphere.

Loyalty can be thought of as an adherence to a set of beliefs, ideals or norms, regardless of individual material payoff.³ The challenge, as Frijters & Foster (2013) explain, is that, “unlike the goods traditionally analyzed by economists, loyalty cannot be bought, and is not tradeable in the open market.”

Loyalty can be considered as a principle determinant of the well-known in-group bias observed in cooperation behaviour (Hewstone et al. 2002). People favour others who exhibit common traits to themselves, even without promise of future reciprocation of favouritism. This may be because they are more likely to be loyal to the same set of values and ideals, or because common groups seem to increase the chance of future reciprocation of favours. Either way, choosing members of a common group is a rational strategy for reducing uncertainty and risk.

Widespread evidence exists that common group memberships are valuable, meaning that the costs of acquiring group loyalties are typically less than the benefits. For example, Fisman (2001) shows that political group affiliations and social connections of company directors in Indonesia add to company share values. Engelberg et al. (2012) finds that when banks and firms are connected through common group loyalties, such as management attending the same college or previously at the same firm, credit interest costs for firms are lower after controlling for company credit ratings.

Moreover, groups themselves often arise through the formation of social networks during everyday activities. For example, a mothers group might simply start from bringing loosely connected friends together, subsequently forming a coherent recognisable group, with its own cultures and customs. The network nature of group formation allows for a better understanding of the coordination challenges faced by groups. As Granovetter (2005) explains, “overcoming free-rider problems is more likely in groups whose social network is dense and cohesive, since actors in such networks typically internalize norms that discourage free riding and emphasize trust.”

These close social ties themselves generate reciprocal trust. For example, firms with current or former politicians on their board of directors receive many benefits, such as higher chances of government bailouts or improved chances of winning government contracts (Faccio 2006). Both direct social ties and indirect ties as a result of common groups seem to perform similar functions in terms of generating trust and favourable bias from others.

If social ties and group loyalties improve trust and generate favour, these seem crucial ingredients in the market for political influence. It may be the case that donations are used as signals of social position and group loyalties by less well-connected firms, rather than by the firms who have a high degree of trust from multiple social ties. Alternatively, if markets for political influence resemble credit markets, donations and regular lobbying could be a relationship ‘fee’ or some other signal that the credit is sound and that the social convention of deferred pay-offs will be followed. Perhaps the revolving door of politicians into business is evidence of future credit pay-offs and should be considered a rent-seeking cost? Anthropologists have developed a picture of early markets operating exclusively on social credit, and the trust that religious institutions and social conventions provided (Graeber 2011). In the covert market for political influence, perhaps these ancient notions of markets provide a more practical understanding.

³Although individual payoffs may also be related to certain types of loyalty

3.2 Signalling trust

If social position generates trust and favouritism what generates social position? The most fundamental answer is signals. Individuals read signals about another person and their commonalities and trustworthiness from their observed behaviour. We can thus think of social position as the sum of signals presented to another person

$$SP_t = f(s_1, \dots, s_n) \quad (1)$$

where SP_t is the social position at time t , and s_1, \dots, s_n are signals observed prior to time t . When one adds net positive signals at time t , the $t + 1$ social position is closer. Since social position is defined by the accumulation of signals each signal in isolation may not be sorting, but that need not matter, since non-sorting signals will lose their discriminatory power.

One critical question is how social position, or the trust embedded in that position, results in political influence. Are they one and the same? In the absence of regulatory restrictions on political behaviour, or indeed social restrictions enforced through media and public pressure, trust would be political influence. The family of political leaders would be the most influential people. Historically, with hereditary governing regimes (Lords, Kings, and so forth) this would have been the case.

But modern monitoring of political behaviour such as nepotism, cronyism and bribery, may break down the relationship between trust and political influence. The benefits to increased trust, or social closeness to politicians, may not only have diminishing returns, but a turning point, or peak. Why the peak? Because if one is very high on the trust scale, it may pay to distance oneself from political decision makers in order to maintain maximum influence. After a point, the more one is seen in the social company of a politician, the less likely that politician can favour that individual directly. It means there are incentives to conceal close trust relationships in order to allow political favouritism. Figure 4 shows not only that such incentives exist, but that public knowledge of such relationships is likely to be damaging to political influence.



Figure 4: *Incentives to conceal social position and trust (AAP n.d.)*

Public signals and private signals must be conceptually distinguished. Donations are known to be publicly recorded and could be considered public signals - observable not just to individuals, but to groups. Thus a public signalling strategy might be optimal for someone seeking loyalty from a

group rather than another individual. Lobbying on the other hand is rather more private. It is perhaps more a signal of ongoing personal ties, rather than group ties, since others in the group may not even be aware of private lobby meetings at all. Private signals may be a way to avoid the peak of political influence.

Under our basic assumptions, political influence is a concave function of trust with a peak. A function such as

$$PI_{i,j} = (2mT_{i,j} - T_{i,j}^2) \quad (2)$$

where $PI_{i,j}$ is the political influence of individual or group i on politician or party j , and $T_{i,j}$ could represent the relationship between trust or relative social position and political influence. m is the level of trust that results in maximum ability to exert political influence.

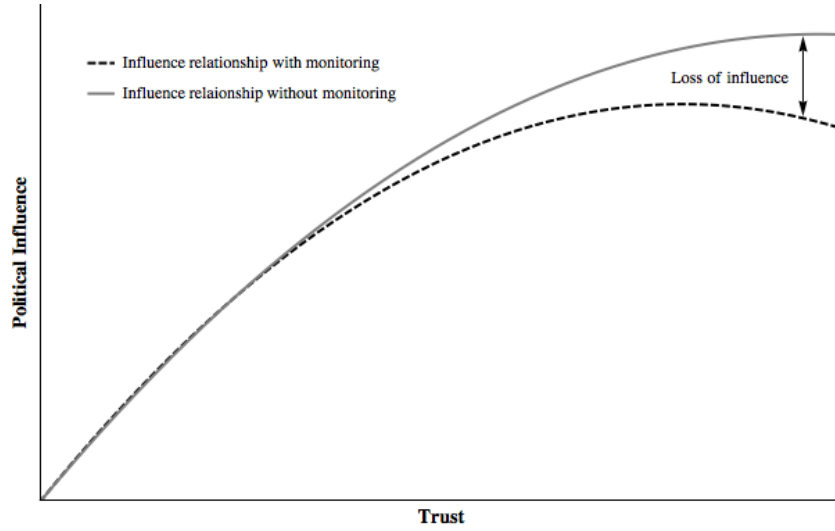


Figure 5: *The impact of monitoring on the trust-influence relationship*

The game of political donations and lobbying is one small component of the total trust signalling game that plays out in every conceivable social relationship. We can take the level of trust as the current relative social position between i and j , $SP_{i,j}$ which is a result of all other social signals, and see that a signal (of which one is political donations) increases trust by some factor.

$$T = SP_{i,j}(1 + s_{i,j}^\alpha) \quad (3)$$

where $s_{i,j}$ is a new signal between i and j , and $0 < \alpha < 1$ shows the diminishing returns to higher levels of the same signal. Remember, the value of each signal rests on the other signals that accompany it. Donating a large amount to a political party but having no other social relationships would be a very poor investment. This additive methods of signals shows that a diversity of small signals is far better than a large single signal, which can be understood as an adaptive method which allows easily mimicked signals to still be sorting and avoid a pooling equilibrium.

The most simple way to start looking at the signalling game is the situation where there is one group with political power. Imagine a Principality of Machiavelli's time. He writes that "those who wish to win favour of a prince will generally approach him with gifts of what they value most, or what they believe will most delight him" (Machiavelli 1532). One can only assess this behaviour within the framework of a trust signalling game, since all-powerful princes would want for nothing that another can give, yet giving what you cannot afford to give is a clear signal of loyalty.

In the single political decision maker scenario, we simply equate the marginal cost of the signal to its marginal benefit in terms of rents. Those with more ‘skin in the game’, which is a measure of the ability to capture rents, will signal proportionally higher. Expected rents, R are $\omega PI_{i,j}$ where ω is ‘skin in the game’.

Agents will optimally signal when marginal benefit in terms of rent equal marginal cost of the signal, C which is proportional to $s_{i,j}$

$$\frac{\partial R}{\partial T} = \frac{\partial C}{\partial T}. \quad (4)$$

There are two important ways to consider solving the equilibrium. The first is where ω is fixed, and the second is where ω is a function of social position itself. This second method reflects that those already closer to the political class are likely to have more ‘skin in the game’. A further consideration is that the size of α contributes to the diminishing returns to each signal. All four possible solutions are plotted in Figure 6 below.

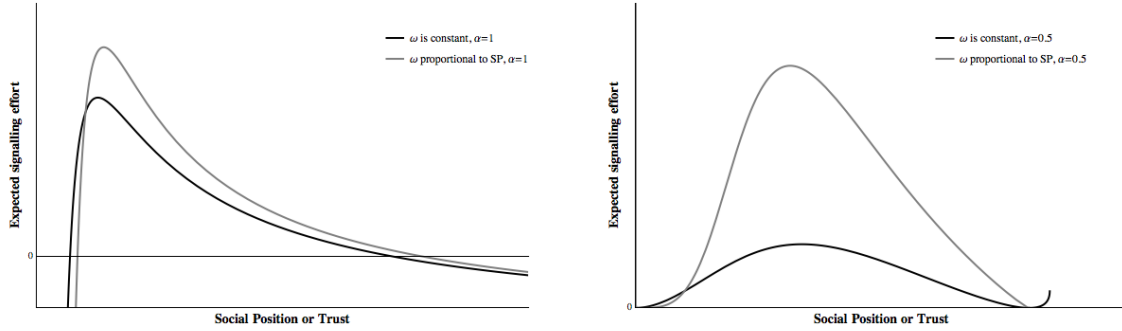


Figure 6: *Optimal signalling solutions for social positions*

Notice that the once the peak level of trust is obtained through social positioning further signals are not required. Even negative signals are predicted to conceal such a close relationship⁴.

Further, notice that when ‘skin in the game’ is more closely reflective of reality, that individuals socially closer to political decision makers have higher stakes, that the likely signallers are socially closer than would otherwise be the case. Further, signals are likely to be larger at these levels. The observed relationship between skin and signal could simply be the result of social norms (people need to signal in a manner perceived as fair, thus if you have high stakes you are expected to not skimp on donations). Other explanations are possible.

3.3 Two party model

The more interesting question is how the signalling game works when there are two or more political groups to which signals are directed. A critical motivating puzzle is, after all, how the distinct hedging and partisan strategies observed in political donations and lobbying data arise.

Are there two political groups in Australia or the US? Or is there a third group that straddles the ideological divide, as visualised by Figure 7? How closely aligned are interests of the major political parties?

⁴The mathematical problem of using an exponential relationship between signal and social position creates multiple solutions. The solution using the positive root is shown.

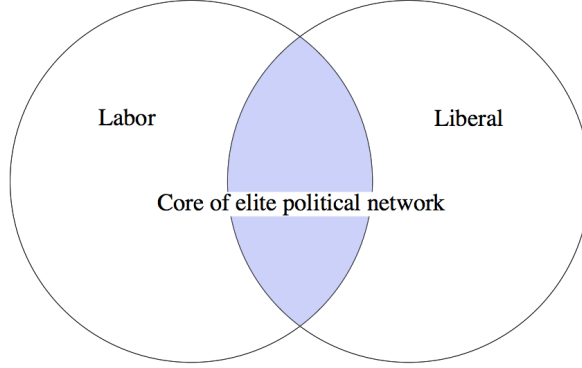


Figure 7: *Possible existing political groups*

To begin the analysis it is useful to consider that there are in fact just two groups who hold equal scope for political favours in the long run. Figure 8 below shows that optimal signalling to each party, based on the previous model, depending on relative social positions between individual, firm or interest group i and political parties j and k .

The surfaces of the graph are the optimal signals to each political party given an individual's relative social position to each party. There are areas where associations with one party should be concealed while the other party is signalled, and other areas where both parties should be signalled approximately equally. So how does an agent make a choice in this situation?

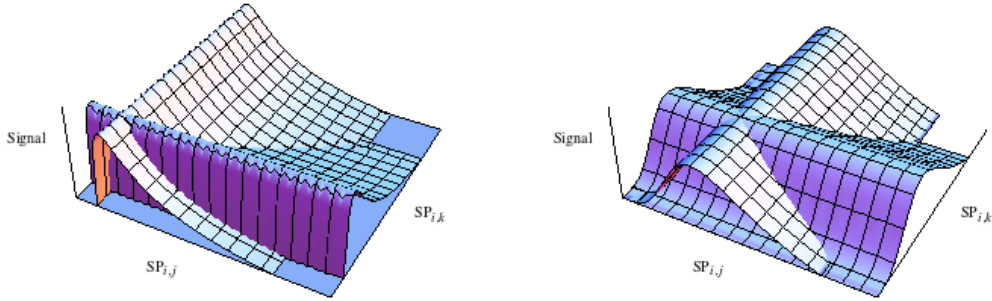


Figure 8: *Optimal signal depending on relative position ($\alpha = 1$ and $\alpha = 0.5$)*

Some assumptions about how social position relates to political influence need to be considered at this point. How does this work with two parties? Is influence additive with number of parties? Multiplicative? Negative additive (they cancel)? Like all things, it is best to start with the most basic assumption, and we proceed with an additive model where

$$PI_i = \sum_1^n PI_{i,n} = \sum_1^n (2mT_{i,n} - T_{i,n}^2) \quad (5)$$

It is also expected that politicians will signal trust to the direction of their constituents. The model does not explicitly address political motivations for signalling, only that interpersonal social positions are the combined results of signals in both directions, and that it is advantageous for politicians to maintain trust in order to receive future reciprocal favours.

3.4 Model simulation

So far the basic model and its solution reveals little about the expected patterns in the data - loyalty, small donation size, the optimality of rent-seeking markets, or the equality of access for interest groups. Critically, this model applies within an existing social network structure. To examine whether the model explains the data, it needs to be applied to a simulated social network.

We know from much research that social networks exhibit certain characteristics, such as power law distributions of connections. Thus, a basic network can be populated by drawing a relative social position to each of the two political parties for an individual from a power-law-type of distribution, such as a Pareto distribution.

A simulated network of 700 individuals is generated using a Pareto and Chi squared distribution of relative social positions. Each individual then follows the two-party optimisation problem with either diminishing returns to signals, $\alpha = 0.5$, or constant returns $\alpha = 1$, to generate expected signalling to each of the two political parties in two model formulations. This gives the results in Figure 9 and Table 2.

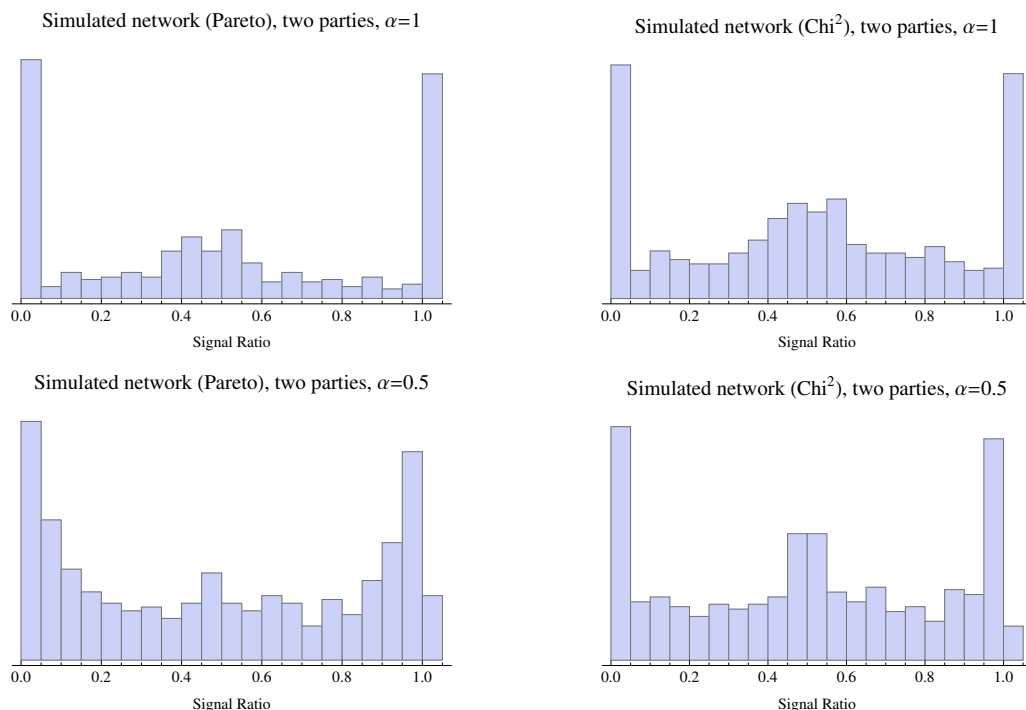


Figure 9: *Optimal signalling on simulated social network*

Quite surprisingly, the very simple model utilised within common structural shapes of social networks generates some evidence of the hedging and partisan signalling strategies, and very clear evidence that hedging strategies typically have much higher donations.

Moreover, the model predicts substantial concealment of social positions. The pattern of such concealment however is quite different. The hedging strategy is not evident at all, being completely

	Pareto $\alpha = 1$	Pareto $\alpha = 0.5$	Chi squared $\alpha = 1$	Chi squared $\alpha = 0.5$
Mean Hedging donation (\$)	42.4	6.1	40.1	10.4
Mean Partisan donation (\$)	18.7	2.9	15.0	4.0

Table 2: *Donation sizes on simulated networks*

dominated by partisans. If the model has merit than it should be expected that ‘insiders’ looking to conceal their political relationships usually are close to just one side of politics.

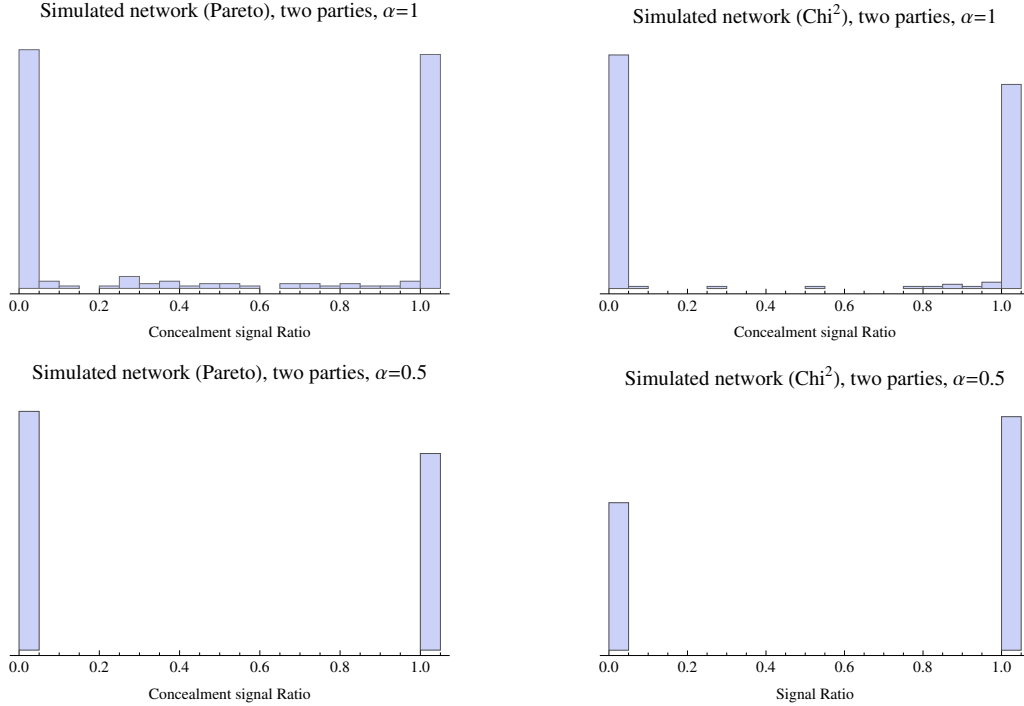


Figure 10: *Optimal concealment signal ratio on simulated social network*

A foundation assumption of the model is that social position is a result of accumulated signals in previous time periods. As such, the model can also be analysed over time. At each time increment individuals choose to optimise their signals so that in the next period their social position is advanced. In the most simple form no new agents enter the model - political social positions merely change due to positive signals, which deteriorate each period, such that continuous signals are necessary to progress social position in the long run.

As Figure 11 shows, three distinct groups emerge during this repeated signalling game, as earlier hypothesised when discussing potential groups to which signals can be made. This result emerges due to the nature of social networks, and the repeated nature of the game, since there are in reality just two existing parties in the game. The longer the game progresses, the more entrenched the signalling strategies become.

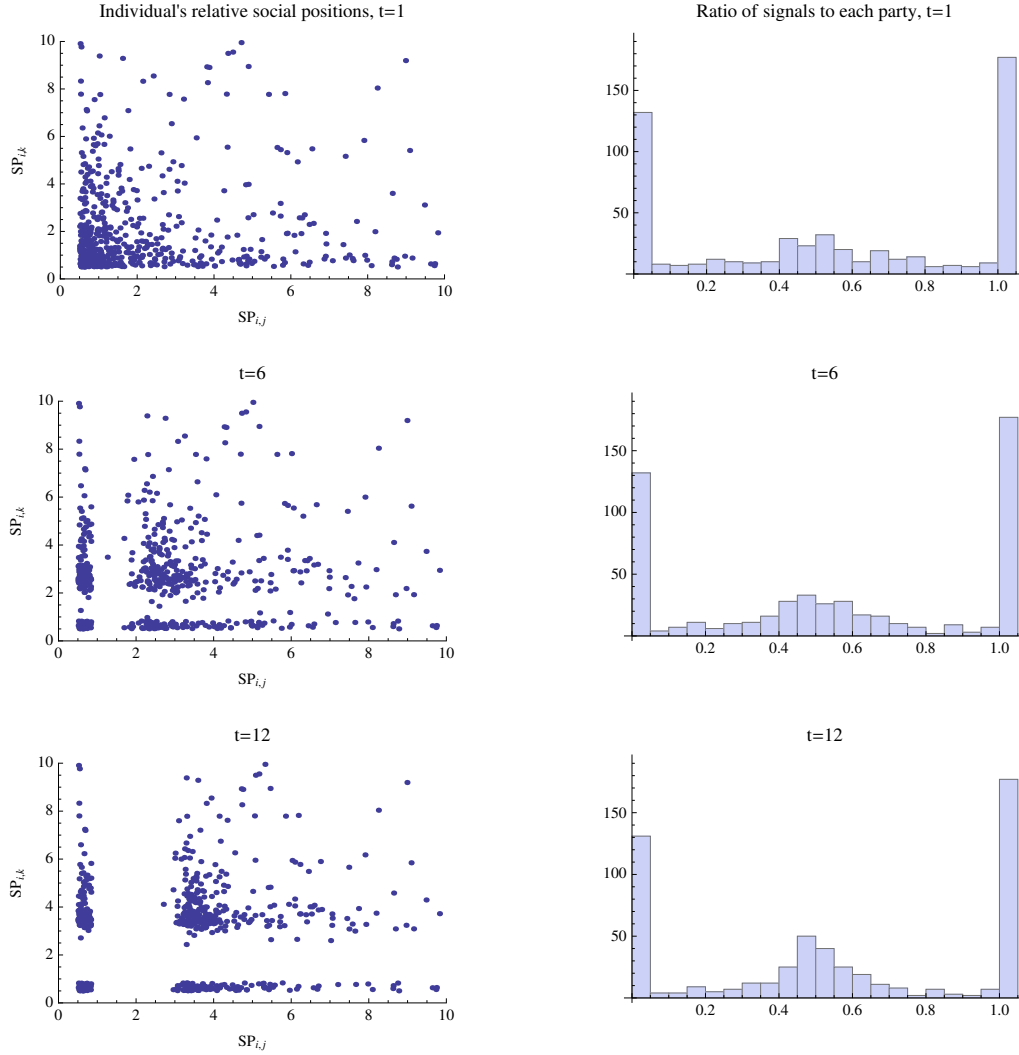


Figure 11: *Effect of donation signals on social position over time*

3.5 Super-optimal markets?

Unfortunately, the model says little about the relative size of *rent-seeking costs* of any individual signal compared to the rents available⁵. On the whole securing rents through political influence appears a relatively low cost enterprise, meaning that *growth costs* are the main welfare implication of the market for political influence.

Not only are the costs of Tullock's rectangle likely to be small, but it is not at all clear what those costs really are. If we include the costs of all possible signals, such as seeking strategic group membership and social ladder-climbing, we need to assume as a baseline that no effort would be expended building social networks or group memberships, or at least they would be far less costly. Social relationships exist regardless of whether one attempts to choose politically advantageous social ties. Should the costs of private schooling be included if one of the returns to private schooling is improved social connections?

⁵However, when social position is considered as a complete combination of all signals, Equation 4 will hold for all possible signals

Answers about the true scale of *rent-seeking costs* are evasive, but this new theory offers better suggestions of where to look. The theory also suggests how to begin to analysing the source of *growth costs* from rent-seeking and favouritism. These *growth costs* arise when political allocations are made due to loyalty to the less productive firms and individuals of society, when more productive options exist but are not socially well connected (or connected to the other side of politics).

We consider four scenarios that demonstrate both the value of social connections to facilitating group outcomes, but also the costs to reduced social connectivity through sub-group loyalties and poorly connected social networks. A rent allocation game is simulated on four different social networks - disconnected, fully connected, randomly connected⁶, and subdivided into two distinct groups. Each member of the network has a randomly assigned productivity measure that determines the group payoff when they are allocated the rent. The decision maker for the rent allocation is drawn randomly each period and the allocate to rents to the highest productivity person they are connected to.

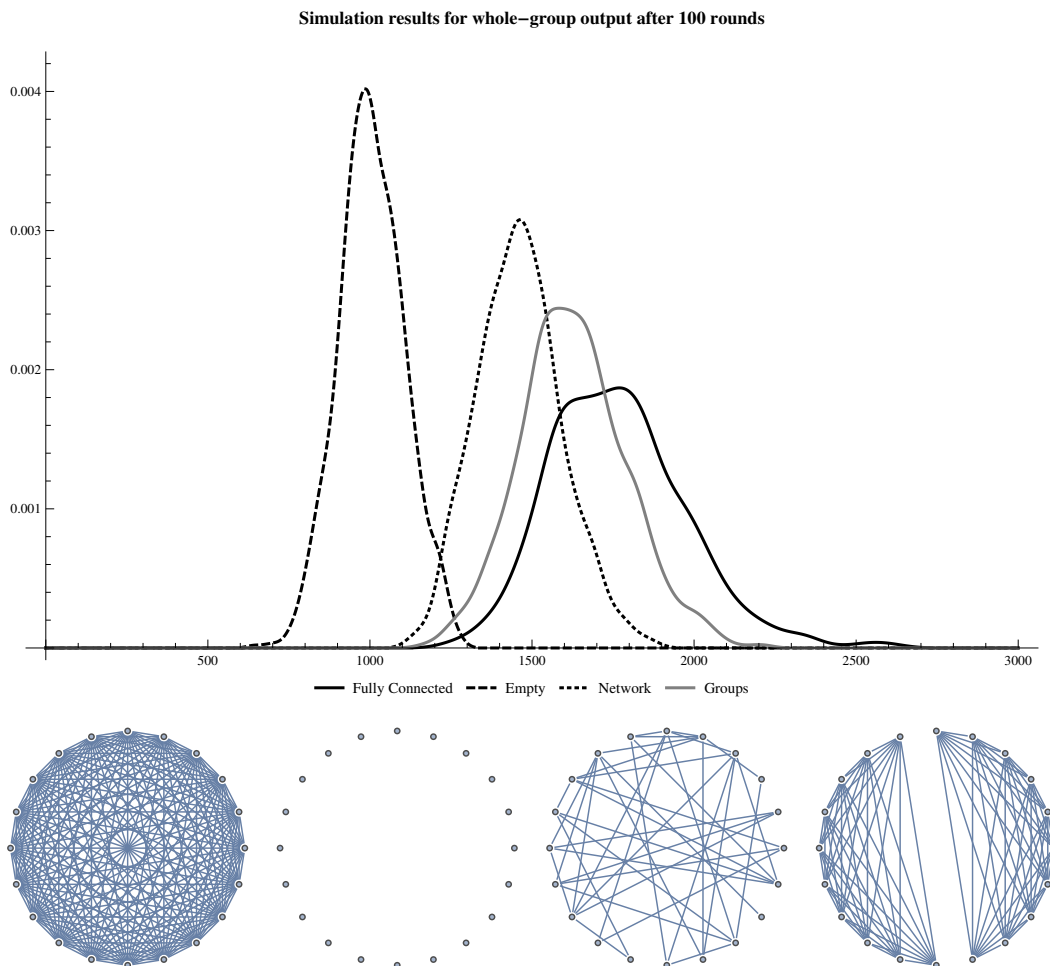


Figure 12: *Distribution of total output in simulated allocation game*

The disconnected network will simply comprise of random choices, and the fully connected network will make the optimal choice each round. However, the exercise remain useful as a demonstration of the problems with measuring the baseline of welfare loss from the market for political influence.

⁶With edge-node ratio of 1.2

Figure 12 shows the results of 1000 variations of a 100 round game, with productivity numbers assigned randomly to players from a normal distribution with mean 10 and standard deviation of 4. This does mean that some players have negative numbers. This may reflect the reality that some production choices were better off never made in the first place.

The results show that compared to the perfectly connected group, sub-group loyalties and poorly connected networks can lead to reduced output if decisions are made that lead to lower productivity firms and individuals in certain roles. It is useful to think about this type of game in terms of bureaucracies, where senior positions may be given to the socially well connected, or in terms of large contracts for government construction, where higher prices and less efficient designs may be selected. If the political signalling game generates loyal subgroups, it is likely to also be generating *growth costs* to society as a whole. Exactly how these can be measured is an important question that relies on quite subjective counterfactuals.

3.6 Equality

Despite economic theorising with assumptions of homogenous agents of equal wealth and perfectly contestable markets for new social links, inequality appears to be a dominant outcome of successful rent-seeking. That access to political power is not contestable through a formal market, but via an informal social structure, means that advantageous positions in the social network can more cheaply coordinate not only to influence policy, but defend their positions on the network.

For example, analysis by Bihagen et al. (2012) shows that not only have class divisions increased over recent decades in Sweden, but education as a tool for reducing equality is becoming less beneficial over time. The entrenchment of elite groups appears to happen as a product of evolving social structures, and it reduces pay-offs to education for those in less beneficial parts of the social network.

The general rule appears to be that winners improve their chances of winning future rent allocation decisions as group reciprocation and trust reinforces itself, such as through the revolving door. A simple model of this process might be as follows

$$SP_{t+1} = SP_t + \alpha W_t \quad (6)$$

where SP is social position, W is a win from a rent allocation decision which occurs in proportion to political influence.

We can simulate this process on a group of 50 players. We give each player a social position, SP , measure of 1 as their starting condition, use $\alpha = 1.5$. The decision maker then chooses to allocate rents to other players based on probabilities proportional to each SP measure. When we simulate this process for 100 rounds, ending up with a distribution of rents that mimics the typical distribution of incomes across many countries.

Clearly, the notion that winners of rent allocations improve their chances of winning again is plausible, and indeed, may be a crucial factor in the long term evolution of incomes. In this simulation a single high-powered group is formed, yet the formation of groups in the two-party repeated signalling game will have the same effect.

4 Applying signalling theory

With these general foundations in mind, policies to reduce the welfare costs from the market for political influence can be assessed from a more informed position.

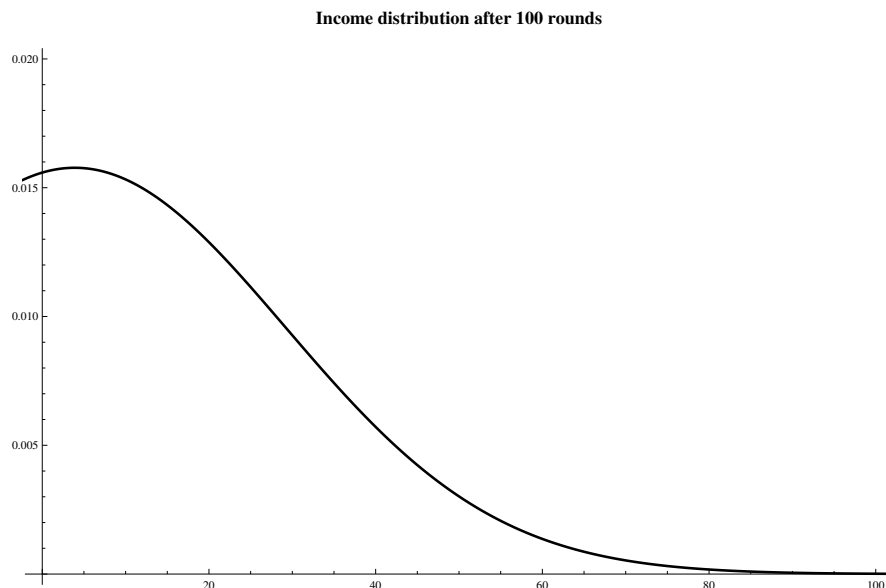


Figure 13: *Distribution of rents allocated after 100 round simulation*

Consider Ayers and Bulow's (1998) argument that mandating donor anonymity would disrupt the market for political influence, since donations are identifying signals of trust in a game of reciprocity. If we believe that signalling trust through donations is only required for less connected firms, then we will simply see that market for political influence constrict to a smaller, but better socially connected group, while *rent-seeking costs* may rise from investments in alternative forms of social ladder-climbing.

It is also not clear whether caps on lobbying decrease *rent-seeking costs* (Che & Gale 1998, Kaplan & Wettstein 2006, Pastine & Pastine 2010). If professional lobbying is merely an attempt to signal allegiance and trust, capping or outlawing it would result in a narrow field of influence by those who have trust through fully social means. Like mandated donor anonymity, such a move could force those who use professional lobbyists to divert resources to establishing social connection through alternative and possibly more costly means, such as joining exclusive social and sporting clubs.

Another policy that can be considered under a more comprehensive theory is the directive requiring regular rotation of staff in sensitive areas introduced by the German government in 1998. One would suspect that because long term cooperation cannot be expected, that in-group bias and social loyalties would have less influence on decisions by these rotated staff. However, some offsetting expenditure on making even more covert social ties with potential job candidates from other areas of government might occur.

In an interesting use of laboratory experiments, Abbink (2004) tested this policy under the framework of a repeated trust/bribery game. In this game the first mover (the firm) decides whether or not transfer money to the second mover (the government official), who then accepts or rejects the bribe, with a 0.3% chance of being 'caught' when accepting and having all monies taken. A small transfer fee is taken for each offer regardless of it being accepted or rejected. If the bribe is accepted, the official is forced to a decision between two alternatives X and Y, where X is more beneficial to the second mover (the official) and Y is more beneficial to the first mover, but Y comes at a cost to others playing similar games in parallel during the sessions, but is concealed from the other players. Significant reductions in bribes and improvement in total welfare were observed. These results are consistent with the notion that the trust from long-term relationships are key factors creating political influence.

The *output costs* of the market for political influence can also be estimated empirically by merging data on social networks with data on firm production. Doing so also establishes a verifiable baseline. The best analysis of this type is Cingano’s (2009) work based on connections of Italian local politicians sitting on private company boards. He explicitly acknowledges that social connections can generate welfare benefits, such as through productivity gains for the industry as a whole by better navigating red-tape. Or they can reduce welfare through what he describes as the *grabbing hand* manipulation of government contracting decisions. The results show that the *grabbing hand* dominates through a 5% increase in revenue from government contracts, yet the lack of productivity change indicates that the provision of public goods decreased by around 20%. It is difficult to tell whether the model implicitly generates the *grabbing hand* effect, since it relies on controlling for productivity changes per firm over a short time (12 year) period, which are likely to simply be a noisy, approximately mean zero, set of figures.⁷ Implicitly this analysis assumes zero *rent-seeking costs*, and ignores long-run *growth costs* from reduced provision of public goods. However, this type of empirical work, where economic production models enable estimating of welfare costs in terms of decreased output against a known baseline, is promising.

5 Conclusions future directions

Including insights from network analysis and group loyalties appears to provide important clues about how the current puzzles in the rent-seeking literature can be explained. The pure economic approach to understanding the market for political influence fails to explain too many empirical observations, and simply raises more questions than it answers. For example, if asymmetric information is a reason for low *rent-seeking costs* what exactly constrains the formation of a market in information?

The new model presented here of a long-run game of trust signals predicts many of currently puzzling empirical realities. It not only predicts two distinct donation strategies, but it shows that these strategies can become more entrenched in the long run, and that hedging donors are likely to have higher average donations.

Furthermore, the source of growth costs can be pinned down to be the result of the sub-group loyalties that select lower productivity outcomes based on favouritism. These types of reduced productivity decisions can include such things as government contract decisions, including location decisions such as commissioning rail lines near land owned by socially connected owners, rather than more appropriate locations. Over time the game of creating beneficial conditions for sub-groups comes at a cost to the rest of society.

Moreover, the process of social signalling, group formation and political loyalty is a fundamental driver of inequality. As winners of rents improve their standing they increase their chances of winning future rents, and reduce the costs of signalling their loyalty.

Future research could build upon this model in a number of ways. First, measures of social position via friendships, corporate relationships, and other common groups such as clubs and teams, could be used as predictive variables in situations where winners and loser of rent allocation decisions can be identified. This literature includes many important articles, but is likely to be expanded as access to information improves.

Second, experiment studies could build on the theory to test whether in fact signals can create sub-groups, and the the loyalty within these can generate cost to society as a whole. The experimental setting would allow many variables to be controlled, such as information and player identification, payoffs and even policy measures such a rotation policies.

⁷Consider the scenario where a firm wins a large government contract and subsequently undertakes a period of capital investment to increase productive capacity. This will generate a decline in measured productivity in the short-term, but would result in a long term improvement in labour productivity.

At a much more fundamental level however, the economics profession as a whole needs to consider how to incorporate the loyal *non-economic individual* into their analysis, and the flow-on concepts of groups and social networks. Many more areas where pure economic analysis is lacking could be improved with these simple ideas.

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