Political Contributions and Land Reform Delay: The Case of South Africa

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Abstract

There is a rich historical and theoretical tradition of studying the effects of asset inequality and redistribution to alleviate issues of rural poverty. Although there has been much scholarship into the idea of land redistribution, both from an economic and political standpoint, there has been relatively little regarding the relationship between economic outcomes and how they feed into the political sphere. Much of the literature has looked at land reform as a policy that has the potential to improve rural livelihoods, but few papers have investigated how the political likelihood of a land reform passing can affect present incentives. Moreover the passing of a policy is itself an activity that requires economic resources, which are often diverted away from productive activities. The model posed here attempts to show that there are long term benefits to land reform that is often overlooked when it is implemented. Moreover, the political sphere is linked to the economic one both as a source of funds for passing reforms (economic to political) and as reforms that change rural livelihoods (political to economic). Using South Africa as a contextual guide, the model makes sense of the implementation of land reform as well as the

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underlying mechanisms that might be driving its success or failure.

1 Introduction

There is a rich historical and theoretical tradition of studying the effects of asset inequality and redistribution to alleviate issues of rural poverty. One particularly important asset has been land reform. Land reform can be broken up into two broad categories: the titling and registering of land (exemplified by De Soto [2003]) and the “missing capital” story, and that of actual redistribution of land from large landowners to smallholders. The idea of titling has not been met with as much political backlash, as it is usually welcomed as a way to formalize capital so that it can be protected by private property rights. Land redistribution, however, goes in the face of private property and is usually met with large political resistance from landowners, who also oftentimes happen to be a powerful political class in society. Although there has been much scholarship into the idea of land redistribution, both from an economic and political standpoint, there has been relatively little regarding the relationship between economic outcomes and how they feed into the political sphere.  

An evaluation of a land reform that seeks to redistribute land must take into account the potential economic benefits (or costs) to its redistribution, and also how political power and class interest can change economic behavior.

In South Africa, for instance, land reform (in one incarnation or another) has been underway for more than two decades and has failed to redistribute the amount of land promised by the newly formed government in 1994. Much of this has been attributed to low budgets and bureaucratic inefficiency in the Department of Land Reform, or unwillingness to choose land when faced with the choice of a cash payout by the claimant.  

2 One such work is Carter and Morrow [2015], but it does not explicitly deal with how household budgets constrain the amount of money that can be contributed to political lobbying efforts.

3 In the Land Restitution program many claims for land have been made over the years, but most end in a cash settlement instead of actually redistributed land. This is often either due to large landholders being unable to come to an agreement with the government about compensation for expropriated land, or it is simply not in the best interest of the claimant to enter into agriculture. As a result, the government often recommends a cash settlement as the costs of finding land and coming to an agreement with landholders are often too high. The cash settlement is efficient in the sense that it creates selection into land restitution so that only those with sufficiently high levels of skill in agriculture actually take land. Despite its efficiency as a policy mechanism, any such selection process is open to being manipulated by politically connected elites if their land and assets are at stake. Specifically, if delaying the time of land reform implementation leads to more claimants selecting out of land, there would be an incentive for landlords to delay the implementation of land reform. Moreover, cash payouts may not
But are these problems actually endogenous policy choices influenced by the politically powerful in order to suppress the implementation and success of land redistribution. This can have several economic inefficiencies that a model that only looks at the ideas separately would not be able to capture: (1) the siphoning of resources away from economic production to unproductive political lobbying efforts, and (2) the delay in transfer of land to potentially more productive smallholder farmers.\footnote{1}

Recently, there have been debates over whether to suspend the part of the South African Constitution that necessitates compensation for expropriated land. Compensation for land has always been decried by opponents of land reform of not reflecting the full value of the land in question. The need for minimum scale in an agricultural sector that often concentrates on ranching and beef production is crucial to the continued success of a competitive, export-oriented South African agricultural sector. This can be seen as a step away from being beholden to powerful parties, and being less dependent on courts and bureaucratic establishments that would delay the process of redistribution. But as we will see, a political move like this could only make the economic willingness to pay for fighting land reform would only increase, causing results that would lead to the opposite of a smoother reform.

The proponents of land reform, however, make the point that besides restitution for past wrongs, the agricultural sector is highly concentrated transferring land to low wealth households could help with alleviating rural poverty. But this could, in the eyes of the opponents, lead to food security issues as claimants of land reform would either concentrate on subsistence farming or be less productive than those that already operate on the land. What is not known, is the extent of these claimants to improve their skills and become more productive over time. Observing an initial drop in the production of these new farmers may not be an adequate means of evaluating the success of a land reform. In fact, there may be significant increases in production through time if farmers are provided with the means to acquire working capital and the time to hone their skills. Policies that provide these farmers with more opportunities to engage in the credit market, coupled with the added productivity can drive the long-run success of a redistributive land reform.

\footnote{Smallholder farmers may be more productive because of the heavily researched idea of the inverse farm size-productivity relationship [Carter(1984)].}

\footnote{be selecting those that are more productive. Since the land restitution program tends to settle claims that opted for cash first, those that receive land might actually just be more “patient,” in the sense that they want to receive land over a sense of justice as opposed to an incentive to produce ([Ntsebeza and Hall(2007)]).}
The above, however, only explains how claimants can be affected by their economic incentives of a policy that is already being passed. A crucial channel that is not discussed are the class interests inherent in passing or not passing a land reform. The decision to contribute to a policy is an inherently risky proposition. Since claimants have to make their decision to take part in restitution in an environment where it isn’t clear whether they will receive their land, the decision whether to invest in agriculture becomes a complicated one. Political contributions play a large role in this delay, as it may be in the best interest of large landowners to push the implementation of land reform as long as possible.

This paper presents a model of how economic access and wealth can translate to political preferences for policy outcomes. Political contributions have played a large role in all democracies, no less than in South Africa where lobbying groups representing the interests of land reform opponents invest money into delaying land reform.

1.1 South African Land Reform

The Native Lands Act of 1913 in South Africa was one law (among many) that institutionalized land expropriation from millions of non-white South Africans for eighty years. In 1993, with the abolition of Apartheid and the coming to power of the ANC (African National Congress), new laws were passed that attempted to right the wrongs of the past by redistributing land back to those people whose ancestors lost it. A promise was made that by 2004, 40% of the land would be redistributed back to injured parties. Currently, the record stands at 7.5%. South Africa’s history and experience with land reform has gone through several reincarnations in an effort to deal with this problem. Some land reforms attempted to create a competitive, non-white, landowning class to compete with the large export oriented agricultural market. Some were targeted at creating small, efficient family farms. But to deal with the problem of past oppressive expropriation directly, the Restitution of Land Rights Act of 1994 was passed. The basic premise was simple: let families and descendants make claims to land where their ancestors used to live, at which point the government would compensate the landowners for the land and then that land would be given to the claimants. A somewhat unique part of this law is that people could accept cash payments in lieu of land,
since they were no longer in agriculture as their ancestors were. Of all settled land claims, 75% have been settled in cash.

1.2 Claimants, Credit and Learning by Doing

Agricultural-specific skills can be thought of as the knowledge and experience that one accumulates through learning by doing. This is the idea that productivity increases through “on the job” experience [Arrow(1971)]. This provides a dynamic incentive for an agent to potentially take short-term losses in agriculture for a higher return in the future. Lack of credit access, however, can impede this dynamic incentive. As a result, it is important for land reforms to provide credit access that can cover setup costs of production.

1.3 Landowners and Delay as a Strategy

Landlords can influence their compensation for lost land, either through political influence or hold-up bargaining tactics, which can delay the implementation of a land reform. Its delay is due to the same mechanism as for claimants: their comparative advantage. Over time, if land reform is not implemented, the agricultural skill of claimants will decrease further and further, until agriculture is no longer profitable. At that point, claimants will choose to take the cash payout, which is funded by the government, and landlords will keep their land. There are large option values to delaying land reform for landlords, and any context in which landlords wield large political power needs to take this into account. The dynamics of power that the landlord class can exert is then important to understanding how best to design a land reform, especially if there are economic resources that disappear with the length of delay in implementation. This points to the fact that land reform needs to be modeled in a dynamic context, and not as a static or one-shot game.

In the context of South Africa, these option values are potentially very large, since the implementation of the Land Restitution Program has been taking such a long time. These hold-up and delay tactics can

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5Delay in implementation is not a novel topic, although it hasn’t been studied with as much depth as other topics in political economy or public economics. [Kitao(2016)] for instance, models the delay in policy reform to reduce public retirement benefits in Japan.
occur in several scenarios: in an inability to agree on a price for the land, through investment into lobbies, legislative earmarks that “take the teeth out” of land reform policy, or some combination of the three. A natural reaction to landlord delay has been to change the laws on compensation for expropriated land, and to allow the government to use eminent domain in order to get around these problems. In a broader welfare context, however, this can have unintended negative consequences, since the knowledge that the government can expropriate land without an explicit contract, leads to under-investment of land and lower agricultural productivity. In this case, the land reform will in fact take place sooner than under no eminent domain, but it will be at the cost of less productivity.

Making ex-ante concessions to future beneficiaries of land reform is not a new idea in the literature. Conning and Robinson (2007) for instance, show that the security of property rights can be preserved as the result of an ex-ante move by landowners at risk of losing their land at the expense of economic efficiency. Moreover economic efficiency is always at stake when there is a risk of expropriation. Jacoby et al. (2002) shows how an increasing risk of expropriation can actually lead to less productive use of land as there is a risk that it may be taken away in the future.

2 The Supply of Land and the Landlord Economy

There are landowning elites who now own the land and take part in agricultural production of cash crops that can be sold domestically or exported at world market prices. What would the optimal land reform be for them? That depends on the assumptions about the market structure of the factor markets. Many studies on land reform deal with land concentration and why that land concentration has come to be. Binswanger et al. (1995) One school of thought touts that it is due to technical efficiency and farm managers taking advantage of economies of scale and capital intensive technologies. In this case, land concentration is not a signal of any market distortion, but rather the opposite; it is the only way to survive in an incredibly competitive agricultural environment. The other school of thought deals with the fact that the land concentration is actually the outcome of inefficiently large agricultural enterprises distorting factor markets and in some cases taking advantage of local market power to distort both
the prevailing wage and rental rate of land [Conning(2001)]. In order to analyze land reform timing, these assumptions about the market structure is vital to understanding the economic facets of land reform as well as how they affect the claimant’s decision to enter the market, and ex-ante decisions about how much land to let the claimant lease in.

3 Preliminaries

in order to understand the how a land reform will create political incentives for different agents in the economy, it will be necessary to see how the economy functions before the onset of a land reform. The main questions that this will elucidate are:

1. How is the rental rate of land in the economy determined, and how does the assumption of market structure affect the claimant’s incentives for taking part in agriculture without a land reform?

2. How does learning affect the dynamic incentives in the economy?

3. How does the initial skill distribution affect the economic equilibrium?

The model presented below will show how wealth generated in the agricultural sector has direct implications for the amount of political power that can be used in order to pass a policy. We assume here that voting is not the most important factor in making policy decisions, but rather the contributions that can be made in favor of a particular policy being passed. But as contributions are a function of economic performance, the outcome of the political process will be based on the strategic decisions made in the economic sector.

Figure 1 shows an overview of the timeline of the model. The economy starts by having landowners and claimants make production decisions using their available resources. The claimant also has a choice of not taking part in agriculture at all; opting to only take part in the labor market as a worker on the landowner’s farm. In between the first production period and the contributions period, an announcement of a land reform is made. The reform will be redistributive of land, taking land from the landowner and giving it to the claimant. If the reform is passed, then similar to the Land Restitution Act in South Africa, claimants
have the ability to take a cash settlement and forego getting land, or they can wait a period (discounted by a
discount factor) and receive some fraction of the landowner’s land. The landowner gets some compensation
for this, but it need not be the market price of land.

The next period, the contributions period, is a contributions game where each agent can use their available
resources from the production period to contribute money to a political party that represents their interests.
The amount they can use is constrained by the amount of money that they made in the first production
period. When an equilibrium is found, leading to land reform being passed or not passed, there is a second
production period, and both agents take part in producing again, given the results of the contributions game.

3.1 The Production Period

Suppose that there are two types of agents in an economy in a two-period model with some discount factor
$\beta$. There is the landowner who owns land stock $\bar{h}$, and the a set of claimants who do not have any assets,
but are endowed with some agricultural specific entrepreneurial ability, $z$, which is distributed by with some
probability distribution. The claimant can set up an agricultural enterprise by renting in land from the
landowner as well as potentially working on the landowner’s farm for a wage $w$. Both types of agents have the same constant returns to scale production technology, $f(l, h)$, which takes $l$ labor and $h$ land inputs.

The claimant can choose to forego agricultural production outright and only work on the landowner’s farm. The claimant can also benefit from skill development if they choose to produce in the first period. Since working in agriculture can lead to a “learning by doing” effect, the claimant will produce $z_1 f(h, l)$ in the first period and $z_2 f(h, l)$ in the second period, where $z_1 < 1 < z_2$. The claimant is, however, constrained by a working capital constraint that is dependent on any labor income that is made as well as the credit that they have access to. In this case, the claimant in the first period can borrow on future earnings in the second period to finance first period production. The limited access to credit is summarized by the parameter $\alpha$.

The claimant’s problem can then be summarized as follows:

$$V^P = \max_{l_1, h_1, l_2, h_2, C_l} \pi_1^P + \beta E(\pi_2^P)$$

s.t.

$$w_1 l_1 + r_1 h_1 \leq B - C_l$$

$$w_2 l_2 + r_2 h_2 \leq P_{LR}(C_L, C_N) r_2 \gamma h$$

$$B \equiv \alpha E(\pi_2^P)$$

$$\pi_1^P = \mathbb{1}(Produce)_1 (z_1 f(l_1, h_1) - w_1 l_1 - r_1 h_1) - C_l$$

$$E(\pi_2^P) = \mathbb{1}(Produce)_2 (z_2 f(l_2, h_2) - w_2 l_2 - r_2 h_2) + P_{LR}(C_L, C_N) r_2 \gamma h$$

$$z_2 = z_1 + \mathbb{1}(Produce)_1 T$$

(1)

where $\gamma$ is the percentage of land redistributed to the claimant in the case of land reform, $E(\pi_2^P)$ are expected profits in the second production period, $P_{LR}$ is the probability of land reform taking place, and $C_L$ are contributions made for land reform, respectively. Equation 1 defines the dynamics of skill and shows
that \( z_2 = z_1 + S \) conditional on producing in the first period. The claimant makes both period’s decisions at the beginning of period 1 and therefore takes into account the income stream from making each kind of occupational choice, mainly: (1) producing in both periods, (2) only earning a wage in one of the two periods and producing in the other, or (3) not producing in any of the periods. Depending on the beliefs that claimants have about whether land reform will pass, this will affect what they will choose to do. The most important factor that might influence the agent that is pertinent to the model: the degree to which the credit constraint binds for the claimant. As the overwhelming majority of claimants choose a cash option for the land reform, it is important to note that this need not be due to a lack of comparative advantage in agriculture, but rather that claimants are constrained in their ability to join agriculture. Because of this, however, there is a lost potential in the fact that if they don’t develop their skills which can both benefit them individually, and the economy as a whole. Also notice that although the wage rate stays constant across periods (as a simplification), the rental rate changes from period to period due to the market power that is exerted by the landowner. The landowner will take the credit constraint into account when choosing a rental rate for the claimant.

If the claimant decides to not take part in agriculture and just makes a wage, as there is not labor-leisure problem, they will decide to expend all their labor and make some amount of money \( S \). As there are two scenarios in which the claimant can make a production decision, there are 4 occupational choice decisions.

### 3.1.1 Occupational Choice of the Claimant

As described above, there are four occupational choice scenarios for the claimant. However, it can be shown that certain scenarios can never be chosen, given particular levels of the outside option \( S \). What’s important to consider here are not absolute levels of \( S \), but how the choice of staying out of agriculture will affect future profits, i.e. that not producing in period 1 will bar the claimant from having an increase in ability in period 2. In period 2, however, there is no such dynamic element to choosing to produce, so there is only

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6This is not to say that there aren’t other factors that would influence this choice. For instance the relative input intensity of labor would make also be important in this determination, but is not crucial to the model. One might also say that managerial ability should have an effect on this decision; the multiplicative nature of managerial ability explicitly rules this out. This is done on purpose so as to highlight the role of credit constraints.
a current period occupational choice (are agricultural profits, in period 2 bigger than the outside option?).

To begin, let us show what it means for an occupation stream to be more optimal than another. There are two conditions for this, summarized in the following Proposition:

**Proposition 3.1.** Let $P_i$ be the choice to produce in period $i$ and $N_i$ be the choice not to produce and receive $S$ in period $i$. Let $h$ be the function defining the pay of a choice. Then an occupational choice stream $\{A_1, A_2\}$ is more optimal than another, $\{B_1, B_2\}$, where $A_i, B_i \in \{P_i, N_i\}$ if:

1. $h(A_2) \geq h(B_2)$
2. $h(B_1) - h(A_1) \leq \beta(h(A_2) - h(B_2))$

Condition 2 also implies that if $h(A_1) \geq h(B_1)$, the conditional is always satisfied. But if, however, a choice in the first period is not higher than the other choice in the current period, then it can still be chosen if it bring higher future profits that outweigh that loss. The result of this is that two occupational choices turn out not to be dominated by the other two.

Proposition 3.1 gives the conditions for how the outside options affects the production decision of the claimant. There are then several levels of $S$ that determine the decision that the claimant will make.

### 3.1.2 First Order Conditions

As there are four scenarios, there are four sets of first order conditions. Suppose first that the claimant doesn’t produce in either period. Then the first order conditions are:

$$
(C_L) \frac{\partial P_{LR}}{\partial C_L} = \frac{1 + \lambda}{(\beta + \lambda \alpha) \gamma h} \frac{1 + \lambda}{\lambda [C_L - B]}
$$

Suppose that the claimant doesn’t produce in the first period and produces in the second period.
\[
(l_2) \quad z_1 \frac{\partial f}{\partial l_2} = \frac{w_2(\beta + \lambda\alpha + \mu)}{\beta + \lambda\alpha}
\]

(3)

\[
(h_2) \quad z_1 \frac{\partial f}{\partial h_2} = \frac{r_2(\beta + \lambda\alpha + \mu)}{\beta + \lambda\alpha}
\]

(4)

\[
(C_L) \quad \frac{\partial P_{LR}}{\partial C_L} = \frac{1 + \lambda}{(\beta + \lambda\alpha + \mu)r_2\gamma h}
\]

\[
\lambda [C_L - B]
\]

(5)

\[
\mu [wl_2 + rh_2 - P_{LR}(C_L, C_N)r_2\gamma h] = 0
\]

Now suppose the claimant produces in the first period and doesn’t produce in the second period.

\[
(l_1) \quad z_1 \frac{\partial f}{\partial l_1} = (1 + \lambda)w_1
\]

(6)

\[
(h_1) \quad z_1 \frac{\partial f}{\partial h_1} = (1 + \lambda)r_1
\]

(7)

\[
(C_L) \quad \frac{\partial P_{LR}}{\partial C_L} = \frac{1 + \lambda}{(\beta + \lambda\alpha)r_2\gamma h}
\]

\[
\lambda [C_L - B]
\]

(8)

Suppose that the claimant decides to produce in both periods. The first order conditions are then:
\begin{align*}
(\text{l}_1) \quad z_1 \frac{\partial f}{\partial l_1} &= (1 + \lambda)w_1 \quad (9) \\
(\text{h}_1) \quad z_1 \frac{\partial f}{\partial h_1} &= (1 + \lambda)r_1 \quad (10) \\
(\text{l}_2) \quad z_2 \frac{\partial f}{\partial l_2} &= \frac{w_2(\beta + \lambda \alpha + \mu)}{\beta + \lambda \alpha} \quad (11) \\
(\text{h}_2) \quad z_2 \frac{\partial f}{\partial h_2} &= \frac{r_2(\beta + \lambda \alpha + \mu)}{\beta + \lambda \alpha} \quad (12) \\
(C_L) \quad \frac{\partial P_{LR}}{\partial C_L} &= \frac{1 + \lambda}{(\beta + \lambda \alpha + \mu)r_2 \gamma \bar{h}} \quad (13) \\
\lambda [wl_1 + rh_1 + C_L - B] &= 0 \quad (14) \\
\mu [wl_2 + rh_2 - P_{LR}(C_L, C_N)r_2 \gamma \bar{h}] &= 0 \quad (15)
\end{align*}

### 3.1.3 The Landlord Problem

The landlord owns the land and depending on the result of the land reform, they risk losing $\gamma \bar{h}$ of land. Contrary to the claimant, however, the landlord produces and does not have an outside opportunity. Depending on the market structure, the landlord will either take the rental rate of land as given, or will have local market power in the renting out of their land. In the case of competition, the rental rate will be determined by equilibrium conditions of both agents maximizing profits, and appropriate market clearing conditions.

In the case, the landlord’s problem is:

\begin{align*}
V^R &= \max_{t_1, t_2, h_1, h_2, C_N} \quad f(t_1, h_1) - wt_1 - r_1 h_1 + r \bar{h} - C_N \quad (16) \\
+ \beta \left[ f(t_2, h_2) - w_2 t_2 - r_2 h_2 + (1 - \gamma) \bar{h} + P_{NLR}(C_N, C_L) \gamma r_2 \gamma \bar{h} \right] \quad (17)
\end{align*}
The first order conditions are then:

\[(l_1) \quad z_1 \frac{\partial f}{\partial l_1} = w_1 \quad (18)\]
\[(h_1) \quad z_1 \frac{\partial f}{\partial h_1} = r_1 \quad (19)\]
\[(l_2) \quad \frac{\partial f}{\partial l_2} = w_2 \quad (20)\]
\[(h_2) \quad \frac{\partial f}{\partial h_2} = r_2 \quad (21)\]
\[(C_L) \quad \frac{\partial P_{LR}}{\partial C_L} = \frac{1}{\beta r_2 \bar{h}} \quad (22)\]

If the landowner has local market power, they can distort the rental rate of land and charge a markup. As in [Conning(2001)], the landowner takes the marginal product of land of the claimant and uses it in their program. The difference in this case, is that the credit constraint limits the landowner from being able to charge too high of a markup in the first period, as too high of rental rate will cause the credit constraint of the claimant to bind.

Then the landlord’s problem is:

\[
V^R = \max_{t_1, h_1, t_2, h_2} \quad f(t_1, h_1) - wt_1 - r_1 h_1 + r \bar{h} - C_N \\
+ \beta \left[ f(t_2, h_2) - w_2 t_2 - r_2 h_2 + (1 - \gamma) \bar{h} + P_{NLR}(C_N, C_L) \gamma r_2 \bar{h} \right] \quad \text{s.t.} \\
\]
\[
r_1 = \begin{cases} 
  z_1 \frac{\partial f}{\partial h_1} & \text{if } r_1 \leq r^*(h, \lambda, z_1) \\
  \infty & \text{if } r_1 > r^*(h, \lambda, z_1) 
\end{cases} \quad (23)
\]
\[
r_2 = z_2 \frac{\partial f}{\partial h_2} \quad (24)
\]
The derivation of \( r^*(h) \) follows directly from constant returns to scale and constraint 9, the credit constraint.

To see this, observe that the partial derivatives of the production function are homogeneous of degree 0 and therefore \( \frac{\partial f}{\partial h_1}(l_1, h_1) = \frac{\partial f}{\partial h_1}(\frac{l_1}{h_1}, 1) \). Suppose we define a function \( g(\frac{l_1}{h_1}) = \frac{\partial f}{\partial h_1}(\frac{l_1}{h_1}, 1) \). By constraint 5:

\[
g(\frac{l_1}{h_1}) = r_1 \frac{1 + \lambda}{z_1}.
\]

It can be shown that \( g \) has an inverse, \( k \). Then \( \frac{l_1}{h_1} = k(r_1 \frac{1 + \lambda}{z_1}) \). Plugging this expression and the fact that the labor resource constraint binds, into equation 9 yields:

\[
\begin{align*}
rh_1 + 2wk(r_1 \frac{1 + \lambda}{z_1})h_1 &= B + w\bar{L}.
\end{align*}
\]

which defines some function \( r^*(h_1, \lambda, z_1) \). This function defines the degree of constrainedness of the claimant and the point at which the claimant would leave the rental market. The landowner then has an incentive not to violate that constraint for the claimant as it is more profitable to rent out land at perhaps a lower markup but so that the claimant can afford it, than not to sell it to them at all. In fact, it may be that with a strong enough belief of the land reform passing, the landowner would lease out land to the claimant at a lower price so as to lower the willingness to pay of the claimant in the contributions game.

### 3.2 The Contributions Game

After first period earnings are realized, claimants and landowners play a political contributions game where they can contribute up to their earnings made in the first production period in order to pass the policy they support. The problem for the claimant is:

\[
\begin{align*}
\text{max}_{C_L} & \quad P_{LR}(C_L, C_N) & \quad (25) \\
\text{s.t.} & \quad C_L \leq \pi_1^P & \quad (26) \\
\end{align*}
\]
where \( \frac{\partial P_L}{\partial C_L} \geq 0, \frac{\partial P_N}{\partial C_N} \leq 0 \). There is an analogous problem for the landowner. Each agent’s constraint will only bind in the case where their willingness to pay for their policy exceeds their earnings in the first period. But since production is constant returns to scale, profits for each agent will be 0 and willingness to pay will depend only on initial wealth. In this case, the landowner will only have the value of their land, \( r \bar{h} \), and the claimant will only have \( wt + B - F \).\(^7\) In order to compute willingness to pay, it is necessary to know outcomes in the case of land reform passing and not passing. This will be dependent on the second production period.

The second production period can be one of two realizations: land reform is passed or it is not. If it is passed, then there are two outcomes: agents sort either by getting a cash payout that period, or waiting one period and getting land that they can use in the next period. If it is not passed, then agents are faced with the same decisions as in the first production period.\(^8\) Therefore willingness to pay (in discounted terms) for each agent will be:

\[
WTP_R = (\beta(1 - \gamma)r \bar{h} + C - F) - (\beta r \bar{h} - F) = \beta(\gamma r \bar{h} - C)
\]

\[
WTP_P = \beta(wt + \gamma r \bar{h} + B - F) - \beta(wt) = \beta(\gamma r \bar{h} + B - F)
\]

The reaction functions for one scenario are graphed in Figure 1. Each agent will match the contributions of the other, until they reach their willingness to pay; after this, it does not make sense to contribute anything at all, and the resulting contribution of the other player will be 0. Figure 1 assumes two things: that neither of the players’ earnings constraints bind, and that the landowner has a higher willingness to pay. The landowner will contribute the willingness to pay of the claimant, plus some \( \epsilon > 0 \) in order to get their policy (which is not to less the land reform pass). Two thing are of note here: for the landowner, the willingness to pay is a function of the compensation for land. A higher compensation would lower willingness to pay and make

\(^7\)If \( \alpha \) is low enough and makes \( B \leq F \), then the claimant will decide to produce at all and instead decide to be a wage laborer. Since the model ends at the second production period,

\(^8\)Anecdotal evidence on South African land reform suggests that landowners are not satisfied with the amount of compensation given to them by the government. In the case of the model, this would suggest that they receive less than the present discounted value of the market price of land. However, in the case of fixed costs, it may also be that taking away land can also stop the landowner from being able to produce outright as the residual land they have is not enough to meet minimum scale, and there is no remaining land that they can lease to produce at scale. In this case, we assume that landowners can still produce even after their land is taken, although the scale issue is something that I will return to in later work on this topic.
the landowner more indifferent to fighting against land reform. Currently the South African government is reviewing whether to change the constitution so that there can be expropriation without compensation \((C = 0)\), but from the model, we can see that although it would make the economic costs lower, this would only make it more *politically* difficult to implement land reform.

Also, notice that borrowing is a part of the claimant’s willingness to pay. Credit access increases the overall ability of a claimant to be successful in production as well as to reap the benefits of increasing ability through time. This shows that a possible other route to implementing land reform is allowing more credit access and promoting smallholder projects.
In short the solution to the contributions game is to pass land reform if $WTP_P > WTP_R$ with a contribution of $WTP_R$ and for land reform not to pass if $WTP_P < WTP_R$ with a contribution of $WTP_P$.

### 3.3 Conclusion

Land reform is a policy that needs to take both the political and economic aspects of the policy into account, which includes looking at how the two interact with each other. Much of the literature has looked at land reform as a policy that has the potential to improve rural livelihoods, but few papers have investigated how the political likelihood of a land reform passing can affect present incentives. Moreover the passing of a policy is itself an activity that requires economic resources, which are often diverted away from productive activities. It is unclear whether spending resources on winning a campaign is beneficial or efficient for the an economy, let alone one that is designed to give resources to those that can potentially bring it a positive outcome. Moreover, studies of land reforms have seldom looked at its dynamic effects and how it may take time to see the long-term benefits of a land reform, given short term losses of economic output and political favor.

### References


