Divergence in Pre-Electoral Campaign Promises with Post-Electoral Policy Bargaining*

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April 1, 2009

Abstract

This paper investigates a relationship between electoral outcomes and post-electoral political process. In particular, the present paper is interested in how electoral announcements by politicians or political parties will be shaped if they cannot commit to the policy to be implemented before the election, but know that they should bargain over the final policy after the election, based on their pre-electoral campaign promises. The central question is whether consideration for post-electoral bargaining would let the political parties make divergent promises or announcements, contrary to the prediction of the median voter theorem. One lesson to be learned is that politicians are neither fully committed to nor completely irresponsible for pre-electoral campaign promises.

*This paper is preliminary.

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1 Introduction

This paper investigates a relationship between electoral outcomes and post-electoral political process. In particular, the present paper is interested in how electoral announcements by politicians or political parties will be shaped if they cannot commit to the policy to be implemented before the election, but know that they should bargain over the final policy after the election, based on their pre-electoral campaign promises. The central question is whether consideration for post-electoral bargaining would let the political parties make divergent promises or announcements, contrary to the prediction of the median voter theorem. One lesson to be learned is that politicians are neither fully committed to nor completely irresponsible for pre-electoral campaign promises.

The median voter theorem is one of the most well-known results in political theory. The theorem is also a cornerstone on which a substantial body of research in political economy is grounded. In the Hotelling-Downs spatial model of political competition, an implication of the theorem from the perspective of political parties is that they will announce, before the election, the ideal point of the individual whose ideal point constitutes the median (with respect to a single-peaked ordering) of the set of ideal points (Austen-Smith and Banks [1]), if they can commit to the final policy prior to the election. A strategic version of the Hotelling-Downs model by Ledyard [4] nicely shows that the outcome predicted by the median voter theorem would maximize expected aggregate utility in the electorate.

However, there's also a criticism about the median voter theorem as unrealistic. Even if the theorem can be viewed as a natural consequence of an abstract and parsimonious modeling of political competition which doesn't assume a priori asymmetry in the part of political parties as well as voters, it is argued that the prediction of the theorem doesn't appear to be an empirically salient characteristic of many elections (Kartik and McAfee [3]). Roemer [6] argues that the Hotelling-Downs model lacks realism because if the parties indeed choose the same policy, then it is hard to understand how parties would finance themselves and what motivation would the rational citizen have to contribute to one party over another.

This paper tries to relax an assumption of the Hotelling-Downs model - that is, the final policy to be implemented is the one that is announced by the winner before the election. Rather, we will assume that the pre-electoral announcements serve only as a basis for the ensuing bargaining procedure through which the policy will be finalized. In this paper, we assume that the post-electoral bargaining proceeds with the winner's announced position as the status quo or the threat point. The reason why the winner engages in bargaining comes from the assumption that the loser can put some cost on the winner if the latter is not willing to participate in bargaining but implements his own announced policy.

For this, we can imagine how policies are determined by legislative process. A legislature is possibly composed of the winning as well as the opposing party, and the policy outcomes of the legislative process are often the products of compromise between both parties. In this situation, it's more plausible to think that the loser exercises some influence on the policy-making rather than that the winner is the sole determinant of the policy, which is substantiated by the assumption that the loser can obtain some compromise from the winner. The compromise or the cost to be imposed by the loser is probably a function of the vote shares received by him, or any other bargaining power of the loser vested by the electoral outcomes. For instance, the cost may represent a loss from the delay in policy-making when the losing party boycott the legislative process to finalize a policy.

This paper plans to show that political parties diverge in their pre-electoral announcements if they must consider a post-electoral compromise from their announced positions; that there exists a unique equilibrium in which parties' announcements are equally distanced from the median voter's ideal point; and that the final policy to be implemented is nevertheless the median point. Moreover, consideration for post-electoral bargaining may provide a justification for why people vote for losers. Since the vote share for the loser determines his bargaining power in the policy-making process, the voters whose ideal points are closer to the loser's announcements have an incentive to vote for the loser even if any individual voter's influence on the vote share is infinitesimal with a large electorate.

There are several models of divergent announcements in general elections. The early references of policy divergence are Calvert[2] and Wittman[7] who consider policy-motivated candidates. They found that the prediction of the median voter theorem is fairly robust unless they introduce uncertainty about the median voter's ideal point. Roemer[6] reconsiders the problem by thinking about various ways in which aggregate uncertainty might arise. Aggregate uncertainty in the outcome of voting does not disappear even if we assume a continuum of types because it basically represents shocks that correlate deviations by voters from rational behavior in the same direction. Recently, Kartik and McAfee[3] was able to explain policy divergence when politicians compete in 'character' as well as policies. In their model, if the politicians choose a position close to the median, then the competition in 'character' becomes fiercer, which prevents them from choosing any positions too close to the median.

Even if we have many theoretical models that explain divergence in policy announcements, the reason why we observe policy divergence boils down to uncertainty. Thus we don't have yet a good theoretical understanding why political parties differentiate with each other in the electoral stage. We also don't have a canonical model linking between the electoral stage and the post-electoral political process. The present literature of election and legislative bargaining has been developed separately, but there are only few papers that investigates their interrelationship. These can be a rationale for the present paper.

2 Model

The policy space is given by $X = [0, 1]$, the closed unit interval in $\mathbb{R}$.

Voters have single-peaked and symmetric utilities with each voter's ideal point denoted by θ. Voter's ideal point is assumed to follow a uniform distribution on X, hence the median voter's ideal point is $\frac{1}{2}$. We denote by F the uniform distribution of the voter's ideal point.

There are two political parties, denoted by A and B, whose utilities are also single-peaked and symmetric. We assume that both parties have distinct ideal points at the both extremes of the policy space; that is, party A's ideal point is 0 whereas party B's ideal point is 1. Parties' utilities are Euclidean;

$$v(x, \theta_j) = -|x - \theta_j|, \ j = A, B \tag{1}$$

where x is the policy outcome and θ_j is the ideal point of the party j.

Parties announce their electoral positions (x_A, x_B) and voters cast their ballots after observing these announcements. The election is decided by majority voting and the winner is denoted by $W(x_A, x_B) \in \{A, B\}$, or in short, by W. The final bargaining outcome is a function of the parties' announcements as well as the identity of the winner $x^*(x_A, x_B, W(x_A, x_B))$. The cost to be imposed by the loser is a function of the identity of the winner. In particular, the cost is a constant times the vote share of the loser:

$$c(W(x_A,x_B)) \equiv \begin{cases} k(1-\alpha) & \text{if } W(x_A,x_B)=A \\ k\alpha & \text{if } W(x_A,x_B)=B \end{cases} \tag{2}$$

where k is a fixed constant and α is the vote share for party A.

We employ the Nash bargaining procedure to model the post-electoral policy bargaining. The threat point for the winner is $v(x_W,\theta_W)-c(W)$, the utility at his announcement minus the cost, and that for the loser is $v(x_W,\theta_L)$, his utility at the winner's announcement. Here, $W\in\{A,B\}$ denotes the winner, as mentioned above, and $L\in\{A,B\}$ denotes the loser. The outcome to be determined by Nash bargaining is;

$$x^*(x_A,x_B,W(x_A,x_B))$$

$$= argmax\{ln[v(x,\theta_W)-v(x_W,\theta_W)+c(W)]+ln[v(x,\theta_L)-v(x_W,\theta_L)]\} \tag{3}$$

such that

$$x\in\{y\in[0,1]: v(y,\theta_W)-v(y_W,\theta_W)+c(W)\geq 0, v(y,\theta_L)-v(y_W,\theta_L)\geq 0\}$$

Given any announcements (x_A,x_B), voters cast their ballots anticipating (correctly) the winner as well as the bargaining outcome. Hence, for any announcements (x_A,x_B), $x_A^*\equiv x^*(x_A,x_B,A)$ is the final bargaining outcome if party A is chosen to be the winner and $x_B^*\equiv x^*(x_A,x_B,B)$ is the outcome if B is the winner. As far as the bargaining outcomes are concerned, there are two possibilities; namely, $x_A^*\leq x_B^*$ or $x_A^*>x_B^*$. A voter will vote for party j if her ideal point is closer to x_j^*, and hence, the vote share for party A is

$$\alpha \equiv \begin{cases} F(\frac{x_A^*+x_B^*}{2}) = \frac{x_A^*+x_B^*}{2} & \text{if } x_A^*\leq x_B^* \\ 1-F(\frac{x_A^*+x_B^*}{2}) = 1-\frac{x_A^*+x_B^*}{2} & \text{if } x_A^*>x_B^* \end{cases} \tag{4}$$

The bargaining outcomes resulting as the solution of the above Nash bargaining problem will also depend on the division of cases since the cost function, and hence, the objective function of the bargaining problem includes the expression for A's vote share. Specifically, if $x_A^*\leq x_B^*$, then the vote share for party A is $\alpha\equiv F(\frac{x_A^*+x_B^*}{2})$, where x_A^* is treated as a choice variable of the maximization problem when solving for A's bargaining outcome x_A^*, and x_B^* becomes a choice variable when solving for x_B^*. The resulting bargaining outcome for each winner is

$$x_A^* = \frac{4k(2+k)}{(4+3k)(4+k)} + \frac{2(2+k)}{4+3k}x_A - \frac{k}{4+3k}x_B \tag{5}$$

$$x_B^* = \frac{2(2+k)}{4+3k}x_B - \frac{k}{4+3k}x_A - \frac{2k^2}{(4+3k)(4+k)} \tag{6}$$

If $x_A^* > x_B^*$, then $\alpha \equiv 1 - F(\frac{x_A^*+x_B^*}{2})$ and

$$x_A^* = \frac{2(2-k)}{4-3k}x_A + \frac{k}{4-3k}x_B - \frac{2k^2}{(4-3k)(4-k)} \tag{7}$$

$$x_B^* = \frac{2(2-k)}{4-3k}x_B + \frac{k}{4-3k}x_A - \frac{4k(2-k)}{(4-3k)(4-k)} \tag{8}$$

As expected, each bargaining outcome depends on the parties' announcements (x_A, x_B). We can show that the above outcomes are all interior solutions as the objective functions take the value $-\infty$ at the boundary of the constraint sets over which maximization is taken. Also, each bargaining solution is unique since the corresponding objective function is strictly concave on the constraint set if we assume a uniform distribution of the voter's ideal points.

3 Equilibrium

Consider the announcements $(x_A, x_B) = (m_A, m_B)$, where

$$m_A \equiv \frac{1}{2} - \frac{k}{4+k} = \frac{4-k}{2(4+k)} \tag{9}$$

$$m_B \equiv \frac{1}{2} + \frac{k}{4+k} = \frac{4+3k}{2(4+k)} \tag{10}$$

(m_A, m_B) is the announcement that makes the bargaining outcome the median point($\frac{1}{2}$) regardless of who wins the election; i.e. $x_A^* = x_B^* = \frac{1}{2}$ at (m_A, m_B). Originally, the announcement (m_A, m_B) was a conjectured political equilibrium in our model of two-candidate election with bargaining.

It is unfortunate to find out that the present model doesn't have a pure-strategy equilibrium. Anyway, we will formulate the argument around the announcement (m_A, m_B) to prove non-existence of pure-strategy equilibrium in our model.

Proposition 1 *There doesn't exist a pure-strategy equilibrium in the model of election with bargaining.*

To prove the proposition, we need to divide the problem into several cases.

Case 1 *The announcement (m_A, m_B) is not an equilibrium.*

Proof. Given the announcement (m_A, m_B), we have

$$x_A^* = \frac{4k(2+k)}{(4+3k)(4+k)} + \frac{2(2+k)}{4+3k}m_A - \frac{k}{4+3k}m_B = \frac{1}{2} \tag{11}$$

$$x_B^* = \frac{2(2+k)}{4+3k}m_B - \frac{k}{4+3k}m_A - \frac{2k^2}{(4+3k)(4+k)} = \frac{1}{2} \tag{12}$$

Thus both A and B win with equal probability at the announcement (m_A, m_B), and the final policy outcome is the median point no matter who wins.

We only need to consider (possible) deviations by party B since the situations of party A and B are symmetric. Hence, it suffices to show that B has a profitable deviation at (m_A, m_B).

Let d_A^* and d_B^* denote the bargaining outcome for each winner induced by a deviation $\hat{x}_B$ by party B. Consider a deviation by B satisfying $\frac{16-8k+9k^2}{2(4-k)(4+k)} < \hat{x}_B < m_B$. In this case, we expect that $d_B^* < d_A^*$. Hence,

$$d_A^* = \frac{2(2-k)}{4-3k}m_A + \frac{k}{4-3k}\hat{x}_B - \frac{2k^2}{(4-3k)(4-k)} \tag{13}$$

$$d_B^* = \frac{2(2-k)}{4-3k}\hat{x}_B + \frac{k}{4-3k}m_A - \frac{4k(2-k)}{(4-3k)(4-k)} \tag{14}$$

Indeed, $\hat{x}_B < m_B$ implies $d_B^* < \frac{1}{2}$ and $\hat{x}_B > \frac{16-8k+9k^2}{2(4-k)(4+k)}$ implies $d_A^* > \frac{1}{2}$. Hence, if d_A^* is closer to the median than d_B^*, then A will be the winner after

B's deviation, but B will prefer this bargaining outcome d_A^* induced by his own deviation to the outcome at the original announcement which is the median.

A simple calculation shows that a deviation within the above range leads to;

$$\frac{4-k}{4+k} < d_A^* + d_B^* = \frac{16 - 24k - 3k^2}{2(4-3k)(4+k)} + \frac{4-k}{4-3k}\hat{x}_B < 1 \tag{15}$$

and the fact that $d_A^* + d_B^* < 1$ is equivalent to $d_A^* - \frac{1}{2} < \frac{1}{2} - d_B^*$. Since this tells us that d_A^* is closer to the median than d_B^*, the winner is A, $W(m_A, \hat{x}_B) = A$, at the deviated announcement. But since $d_A^* > \frac{1}{2}$, B prefers this outcome, as expected. Thus we conclude that any announcement $\hat{x}_B$ by B within the above range is a profitable deviation for party B. QED

Case 2 *(x_A, x_B), $x_A < m_A$ and $x_B > m_B$, is not an equilibrium announcement.*

Proof. Without loss of generality, we can assume that $m_A - x_A < x_B - m_B$, or equivalently, $x_A + x_B > m_A + m_B = 1$. This means the distance between A's announcement and m_A is smaller than that between B's announcement and m_B. We expect that the party j whose distance between x_j and m_j is smaller wins the election, since then j's bargaining outcome x_j^* will be closer to the median.

If $x_A < m_A$, $x_B > m_B$, and $x_A + x_B > 1$, then we have $x_A^* < \frac{1}{2} < x_B^*$ and $x_A^* + x_B^* > 1$, where the latter result is equivalent to $\frac{1}{2} - x_A^* < x_B^* - \frac{1}{2}$. Since we, as a consequence, have A's bargaining outcome being closer to the median than B's outcome, the winner is party A at the announcement (x_A, x_B), $W(x_A, x_B) = A$.

If party B deviates to $\hat{x}_B = m_B$, then $x_A < m_A$ and $x_B > m_B$ imply $d_A^* < \frac{1}{2} < d_B^*$ and $d_A^* + d_B^* < 1$, i.e. $d_B^* - \frac{1}{2} < \frac{1}{2} - d_A^*$. But this means the winner is B, $W(x_A, \hat{x}_B) = B$, after the deviation.

Since B prefers d_B^*, which is the outcome after the deviation, to x_A^*, the outcome at the original announcement, $\hat{x}_B = m_B$ is a profitable deviation for B.

When $x_A < m_A$ and $x_B > m_B$ with $m_A - x_A = x_B - m_B$, it is easy to see that $\hat{x}_B = m_B$ is again a profitable deviation for B. The case $m_A - x_A > x_B - m_B$ is symmetric. QED

Case 3 *(x_A, x_B), $x_A > m_A$ and $x_B > m_B$, is not an equilibrium announcement.*

Proof. We need basically to think about two cases; $x_B - x_A > m_B - m_A$ and $x_B - x_A < m_B - m_A$.

If $x_B - x_A > m_B - m_A$, then $x_A^* < x_B^*$. We again need to consider two possibilities.

If $x_B \leq \frac{2(2+k)}{k} x_A - \frac{16-5k^2}{2k(4+k)}$, then $\frac{1}{2} \leq x_A^* < x_B^*$ so that $W(x_A, x_B) = A$. In this case, if A deviates to $\hat{x}_A = m_A$, then $d_A^* < \frac{1}{2} < d_B^*$ and $d_A^* + d_B^* > 1$ so that $W(\hat{x}_A, x_B) = A$ and thus $\hat{x}_A = m_A$ is a profitable deviation for A.

If $x_B > \frac{2(2+k)}{k} x_A - \frac{16-5k^2}{2k(4+k)}$, then $x_A^* < \frac{1}{2} < x_B^*$ and $x_A^* + x_B^* > 1$ so that $W(x_A, x_B) = A$. In this case, if A again deviates to $\hat{x}_A = m_A$, then $d_A^* < \frac{1}{2} < d_B^*$ so that $W(\hat{x}_A, x_B) = A$. But $d_A^* < x_B^*$, so $\hat{x}_A = m_A$ is a profitable deviation for A.

Next, in case $x_B - x_A < m_B - m_A$, we have $x_B^* < x_A^*$. There are also two possibilities.

If $x_A \leq \frac{16-5k^2}{2k(4-k)} - \frac{2(2-k)}{k} x_B$, then $x_B^* \leq \frac{1}{2} < x_A^*$ and $x_A^* + x_B^* > 1$ so that $W(x_A, x_B) = B$. If B's deviation is such that $x_A + \frac{2k}{4+k} < \hat{x}_B < \frac{2(2+k)}{k} x_A - \frac{16-5k^2}{2k(4+k)}$, then $\frac{1}{2} < d_A^* < d_B^*$ so that $W(x_A, \hat{x}_B) = A$ and thus $\hat{x}_B$ is a profitable deviation for B.

If $x_A > \frac{16-5k^2}{2k(4-k)} - \frac{2(2-k)}{k} x_B$, then $\frac{1}{2} < x_B^* < x_A^*$ so that $W(x_A, x_B) = B$. If A deviates to $\hat{x}_A \in (1 - x_B, m_A)$, then $d_A^* < \frac{1}{2} < d_B^*$ and $d_A^* + d_B^* > 1$ so that $W(\hat{x}_A, x_B) = A$, and thus $\hat{x}_A$ is a profitable deviation for A. QED

Case 4 *(x_A, x_B), $x_A < m_A$ and $x_B < m_B$, is not an equilibrium announcement.*

Proof. This case is entirely symmetric with Case 3. QED

Case 5 *(x_A, x_B), $x_A > m_A$ and $x_B < m_B$, is not an equilibrium announcement.*

Proof. We can assume without loss of generality that $x_A + x_B < 1$ to have $x_B^* < x_A^*$.

If $x_B \geq \frac{16-16k+7k^2}{2k(4-k)} - \frac{2(2-k)}{k}x_A$, then $x_B^* < \frac{1}{2} \leq x_A^*$ and $x_A^* + x_B^* < 1$ so that $W(x_A, x_B) = A$. If A's deviation is such that $\frac{2(2+k)}{k}x_B - \frac{16+16k+7k^2}{2k(4+k)} < \hat{x}_A < x_B - \frac{2k}{4+k}$, then $d_A^* < d_B^* < \frac{1}{2}$ so that $W(\hat{x}_A, x_B) = B$, and thus $\hat{x}_A$ is a profitable deviation for A.

If $x_B < \frac{16-16k+7k^2}{2k(4-k)} - \frac{2(2-k)}{k}x_A$, then $x_B^* < x_A^* < \frac{1}{2}$ so that $W(x_A, x_B) = A$. If A deviates to $\hat{x}_A = m_A$, then $d_B^* < d_A^* < x_A^* < \frac{1}{2}$ so that $W(\hat{x}_A, x_B) = A$, and thus, $\hat{x}_A = m_A$ is a profitable deviation for A. QED

4 Discussion

Resorting to the existence theorem of Nash equilibrium, we may argue that there exists a mixed-strategy equilibrium in our model of political competition with policy bargaining. However, the main goal of the paper is to show that political parties do choose different positions as their pre-electoral announcements, if they need to consider the possibility of compromise after they win the election. Hence, the non-existence of a pure-strategy equilibrium is unsatisfactory for our present purpose.

This problem can be overcome by specifying an alternative form of the cost function to be imposed by the loser upon the winner's reluctance to engage in the post-electoral bargaining. For example, if we assume a constant cost k regardless of the loser's vote share, then it can be shown that $(x_A, x_B) = (\frac{1}{2} - \frac{k}{2}, \frac{1}{2} + \frac{k}{2})$ is the unique equilibrium announcement. With this announcement, we again have the final bargaining outcome at the median point regardless of who wins the election. However, a problem of this specification is that if the announcements of the two parties are too close, then the winner is forced to compromise more toward the loser's ideal point than what is announced by the loser. A realistic model would have bargaining outcomes always lie between the actual announcements.

A simplest model that substantiates this realism is the one in which the cost is given by the distance between the announcements of both parties. In this model, we retain all the assumptions of our previous model except for the specification of the cost, which is given by $c(x_A, x_B) \equiv |x_A - x_B|$. Hence, the cost to be imposed by the loser is given by how far the announcements of both parties are distanced. In this case, the bargaining outcome doesn't depend on the identity of the winner and is given by

$$x^* \equiv argmax_{x \in [x_A, x_B]}[ln(x - x_A) + ln(x_B - x)] = \frac{x_A + x_B}{2} \qquad (16)$$

This formula for bargaining outcome is based on the assumption that A's announcement is always less than or equal to B's announcement, i.e. $x_A \leq x_B$. We don't need to take into account such announcements (x_A, x_B) where $x_A > x_B$ by strict dominance argument. Again, we have an interior solution which is unique, since the objective takes $-\infty$ at the boundaries and is strictly concave. If this is the case, then the unique equilibrium announcement is the one in which each party announce his ideal point, and hence, we have the full divergence of announced policies in equilibrium. We again have the equilibrium bargaining outcome at the median point.

Proposition 2 *If* $c(x_A, x_B) = |x_A - x_B|$, *then the unique equilibrium announcement is* $(x_A, x_B) = (0, 1)$ *and the resulting bargained policy is* $x^* = \frac{1}{2}$.

Proof. Given $x_B = 1$, A just lets $x^*(\hat{x}_A, x_B) > \frac{1}{2}$ by announcing $\hat{x}_A > 0$ and becomes worse off. B has also a similar incentive. Thus $(x_A, x_B) = (0, 1)$ is indeed an equilibrium.

Following the above argument, we focus on the announcements (x_A, x_B) with $x_A \leq x_B$.

If $x_A \leq x_B \leq \frac{1}{2}$ or $\frac{1}{2} \leq x_A \leq x_B$, then it is always profitable for B or A to deviate to some $\hat{x}_B > \frac{1}{2}$ or $\hat{x}_A < \frac{1}{2}$, respectively.

If $x_A \leq \frac{1}{2} \leq x_B$, we have basically two cases; either x_A and x_B are equally distanced from the median or one of them is closer to the median. If they are equally distanced but $(x_A, x_B) \neq (0, 1)$, then one party can gain by deviating toward his ideal point. If x_A is, for example, closer to the median than x_B, then $x^* = \frac{x_A + x_B}{2} > \frac{1}{2}$, so A has an incentive to deviate toward his ideal point $\theta_A = 0$. QED

Even if we have the full divergence in announced policies with this specification of the cost, the model is in some sense unrealistic, since the bargaining outcome is always chosen to be the midpoint of the announcements, regardless of any bargaining power vested by the election.

We can alternatively think about a model where the cost is specified in such a way that the resulting bargaining outcome is a convex combination of the announcements with the weights being the vote shares obtained in the election; i.e. $x^* = \alpha x_A + (1-\alpha)x_B$, where α is the vote share for A. In a sense, this alternative model can be viewed as a generalization of the previous one where the bargaining outcome is given by the midpoint of the announcements.

In this model, we expect that the winner is the one whose announcement is closer to the median, and hence, specify the cost as follows;

$$c(x_A, x_B) \equiv \begin{cases} \frac{1-\alpha}{2}(x_B - x_A) & \text{if } |x_A - \frac{1}{2}| \leq |x_B - \frac{1}{2}| \\ \frac{\alpha}{2}(x_B - x_A) & \text{if } |x_A - \frac{1}{2}| > |x_B - \frac{1}{2}| \end{cases} \tag{17}$$

This will lead to the desired bargaining outcome $x^* = \alpha x_A + (1-\alpha)x_B$ that reflects the relative bargaining power of both winner and loser. It seems that the prediction of the previous model is fairly robust under this alternative specification. In other words, the conjectured equilibrium is the same and given by $(x_A, x_B) = (0, 1)$, the proof of which is reserved for future work.

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