Some Doubts on the Property Rights Approach to Privatization: A Preliminary Note

Masuyuki Nishijima

Abstract

This paper examines Hart, Shleifer & Vishny (QJE 1997)’s specification of the threat point under private ownership. Their threat point, unilaterally determined by a party with the right to control all assets in production, cannot be justified by the existing theories of optimal threat. A pair of the separation strategy (the maximin strategy) is rather a natural candidate for the optimal threat in the spirit of cooperative games including Nash bargaining solution. In the case of public goods, bargaining emerges from skills specific to some elements in the relationship rather than to assets in production even if a private firm has the right to control all assets. In other cases, unilateral determination of the threat point implies ex post monopoly of the private firm after specific investments, in spite of ex ante competitive auction of the contract. The latter situation is contradictory to the necessary condition for success of privatization.

Key Words: Privatization, Incomplete Contract, Property Rights Approach, Threat Point in Bargaining, Relationship Specific Investments
1 Introduction

Privatization has been one of controversial topics for the past three decades. Starting from dividing and divesting natural monopoly firms to the general public to ”denationalization” of firms in the former socialist economies as well as strategic industry companies in developing countries, to contracting out of public services, market mechanism now covers significant part of the goods and services used to be provided directly by governments. The primary purpose of privatization is said to be to improve economic efficiency. However, recent empirical research does not necessarily confirm the intention of privatization policy. For example, Florio (2004), reviewing British privatization, points out that the results of empirical research are mixed rather than supporting privatization. Furthermore many economists, including those aggressive proposers of privatization, have emphasized that privatization per se does not improve efficiency and that it is necessary that competition exists and works well after privatization.¹

¹Some authors in OECD (2000) recommend that privatization and competition need to be pursued in tandem with appropriate regulatory policies. Andrew Shleifer, in Foreword of Chong & Lopez-de-Silanes (2005), says ”[I]n the case where privatizations failed, the problems appear to be linked to continued state involvement and regulation - - - improved corporate governance and regulatory environment are complementary to privatization.” Though Shleifer criticizes government intervention, what ”improved regulatory environment” means is surely competition after privatization. Joseph Stiglitz, in Foreword of Roland (2008), iterates Sappington & Stiglitz (1987)’s message that ”the only conditions under which privatization could be guaranteed to be an effective way of implementing social objectives are precisely the same conditions under which markets are Pareto efficient.”
This state of ambiguous results and missing theoretical elements suggests that it is worthwhile to examine an economic theory of privatization. This paper is such an attempt to investigate the underlying logic and presumptions of the representative theory, by focusing on the property rights approach to privatization. This approach emphasizes and presumes that allocation of the property rights affects payoffs of a threat point in bargaining after relationship-specific investments. This paper tries to clarify two logical implications of the property rights approach: either that allocation of the property right has no effect on the payoffs of the threat point or that ex post competition after relationship-specific investments is not guaranteed.

In this paper, I refer to privatization as the case of contracting out the public goods services. The reason why I restrict the word privatization to a narrow case is two fold. When it comes to privatization, it covers a variety of situation. In some cases such as privatization in the former socialist economies and developing countries, it seems obvious that privatization is preferred, since the targeted goods are private goods and government failures (due to corruption) are enormous. The reader, with these cases in mind, would be likely to reject any argument against privatization. In order to clearly state conditions for success or failure of privatization, we focus on more controversial cases in developed countries, especially contracting out of public services. The case of contracting out is on the increase and still contentious while many natural monopoly firms have been privatized. Furthermore, the typical case of privatization in the U.S. is contracting out of public services. (See Lopez-de-Silanes, Shleifer & Vishny (1997).) Thus we refer to the case of contracting out of public services as privatization.
The reason for limiting the analysis to the case of contracting out public goods services is that some theories of privatization are proposed to be able to apply to the case of public goods. It is commonplace in textbooks that public goods are non-excludable so that market fails to provide them. It seems new and provocative to propose that market (or a private firm) can provide for public goods through the form of contracting out. Thus we concentrate the analysis on the case of public goods services, though we refer to the cases of excludable goods and services when they are relevant.

Among the theories of privatization, we choose Hart, Shleifer & Vishny (1997) as the representative model to examine. As Sappington & Stiglitz (1987) point out, the benevolent planner of government theoretically (ideally) can achieve efficiency by auctioning off the right to produce the public goods service in question under complete contract. This leads some economists to employ an incomplete contract model. Among such economists, the above three authors have actively proposed privatization based on their property rights approach. Hart, Shleifer & Vishny (1997) makes a comparison of in-house provision by government with contracting-out, and applies its implications to one of the most inconceivable case of privatization, that is, prison. We will scrutinize Hart, Shleifer & Vishny (1997)’s model, looking into other related work by those and other authors if necessary.

The essence of Hart, Shleifer & Vishny (1997)’s model lies in their presumption that who has the right to control over assets in production affects the threat point payoffs in bargaining after relationship specific investments. Under the

\[ \text{footnote: Other economists who take an incomplete contract approach are Schmidt (1996) and Laffont & Tirole (1993).} \]
presumption, shares of bargaining are different between private and public ownerships, and so are the levels of relationship specific investments. This makes performance different, with more cost reduction and less quality improvement under private ownership.\(^3\)

My doubt comes from opaque specification of the threat point in Hart, Shleifer & Vishny (1997)’s model. In cooperative games such as Nash bargaining solution, the optimal threat strategy is regarded as a player’s maxi-min strategy, which can be brought by his separation from the relationship and by taking his best outside opportunity. The three authors seem to employ a different specification under private ownership, where government has eventually no bargaining power, since a private firm has the right to control both non-human and human assets, according to their presumption. I will point out that relationship specific investments may make human assets (or skills) specific to various elements in the relation such as customers, local geographical areas, and team members. When human assets are specific to at least one of these elements over which the property right to control cannot be exercised directly, a party without the property right to assets can be able to do harm to the other party by dissolving the relationship and thus have bargaining power. Therefore the payoffs of the threat point induced by the separation strategy are players’ best outside opportunities, which are independent of allocation of the property rights to productive assets. This implies that it may not matter who has the property right to control which assets.\(^4\)

\(^3\) The difference partly results from a problem of multi-task incentive (Holmstrom & Milgrom (1991)) ; too strong incentive to attach to cost reduction under private ownership.

\(^4\) Segal & Whinston (2000) show the same irrelevant result, assuming
If the three authors’ presumption was right and government had no bargaining power under private ownership, the government would never have any influence on the private firm within the contract after relationship specific investments, unless it exercises its authoritative power to intervene into (or regulate) the private firm. This implies that the government will lose power to control the private firm after relationship specific investments and let the private firm be eventually a monopoly of the public goods with subsidy. This situation is contradictory to the requirement for successful privatization of ex post competition after privatization. Therefore Hart, Shleifer & Vishny (1997)’s model ends up with either no difference of performance between the two types of ownership or ex post monopoly of the private firm. Whichever case happens, their model is far from justifying privatization and comparing private with public ownerships.

Hart, Shleifer & Vishny (1997)’s model introduces one more complication. The three authors assume that the government, under public ownership, can capture part of the benefit generated by (specific) investments even in the case of separation. This is the case where payoffs of their threat point depend on past investments, which are not completely specific. It is easily shown that this complication does not affect levels of specific investments and thus performance between private and public ownerships, once we formulate the threat point as the situation of outside opportunity brought about by separation from the relationship.

The structure of the paper is as follows. In the next section, we outline Hart, Shleifer & Vishny (1997)’s model and an exclusive contract in which a party can prevent the other party from trading with a third party outside the relation.
make sure their specification of the threat point in bargaining. In Section 3, we discuss how the optimal threat in bargaining is considered in the literature of game theory. We point out what elements other than assets in production know-hows and skills are specific to, briefly reviewing the literature of specific skills in Section 4. In Section 5, we try to clarify what is wrong with Hart, Shleifer & Vishny (1997)’s model, based on our arguments in the preceding sections. The last section concludes by pointing out the remaining problems and issues.

2 Threat Point of Hart, Shleifer & Vishny (1997)’s Model and Its Problems

We take Hart, Shleifer & Vishny (1997)’s model (hereafter abbreviated as HSV model) as the representative one of the property rights approach to privatization. The HSV model compares private ownership (government contracting-out to a private firm) with public ownership (in-house provision by government with its employee) under an incomplete contract situation, emphasizing on residual control rights over assets in production. Its application to prison is also extensively discussed. The paper was published after a series of papers and books on related issues of the property rights approach to firms and privatization. It is safe to say that the HSV model is the most appropriate one for examining how property rights would affect performance of private and public ownerships.

---

We will focus on how payoffs in the threat point are specified in the HSV model.

2.1 Outlines of HSV’s model

The basic setting of the HSV model, simplified for later expositions, is as follows. There are only two kinds of capital, human and physical ones, necessary for providing the service in question.\(^6\) A worker, government employee under public ownership or self-employed firm under private ownership,\(^7\) makes specific investments into both cost reduction and quality improvement. These investments are not verifiable so that they are not specified in a contract at the initial stage when the contract is signed. A bargaining over shares of the investment yield is inevitable between the worker and the government after the investments are sunk.\(^8\) The contract is agreed on in a competitive manner at the initial stage so that a transfer between the two parties makes a worker or a self-employed firm indifferent to his best outside opportunity. The worker and the self-employed firm are utility and

\(^6\)In this paper, I use capitals and assets exchangeably, depending on the contexts.

\(^7\)If the private firm has an employment relation with its workers, there will emerge a bargaining between the private firm’s manager and its workers after specific investments, in addition to bargaining between the government and the private firm. To avoid this complication, we interpret a private firm as self-employed one.

\(^8\)Actually the HSV model is not clear about whether these investments are sunk or not because the HSV model assumes a bargaining situation on one hand and allows the self-employed firm to re-adjust its quality investment in a bargaining stage on the other hand. However, we assume sunk investments. Otherwise we will not be able to assume a bargaining situation and to focus on how allocation of the property rights would affect bargaining outcomes.
profit maximizers, respectively. (The self-employed firm are not interested in quality since it is not written in the contract.) The government is a benevolent planner maximizing the difference between the benefit (including quality) from the service and its cost. Under private ownership, the self-employed firm has the right to control both his human and physical capitals. Under public ownership, the worker has the right to control his human capital, while the government has the right to control its physical capital.

The HSV model’s key assumption is that allocation of the right to control capitals (assets) affects payoffs in the case of bargaining breakdown. Since the HSV model assumes Nash bargaining solution to analyze bargaining outcomes, the threat (default) payoff levels are very crucial to their analysis. However, the HSV’s explanation seems opaque about how the threat point payoffs are derived. In reference to related papers with the same bargaining structure, I figure out how the threat point payoffs are specified in the HSV model as follows in the next subsection.

2.2 Threat Point Specification and Its Problems

There are two kinds of asymmetry between private and public ownerships. One is asymmetry on how the parties could bring about the threat point situation. Under private ownership, the self-employed firm is described as the only party that can unilaterally determine the threat point situation, as long as the other party keeps its reservation utility. This interpretation can be justified since (a) the HSV’s model allows the self-employed firm to re-adjust its quality investment as
it likes in their explanation of the threat and (b) Shleifer & Vishny (1994, p.1003) derives the threat point from a politician’s utility maximization subject to a manager’s reservation utility constraint in the case of the politician having control rights over all variables. This unilateral determination of the threat point comes from the observation in the case of firm integration that a firm with the property rights of all assets in production has unilateral and exclusive power to control both assets and flows of incomes as long as the other firm is guaranteed its reservation profit.\textsuperscript{9} Under public ownership, on the other hand, when the parties fail to agree, each party can separate from each other and take its outside opportunity. Because technological complementarity between human and physical capitals, the separation causes losses to both parties (compared with the yield under their cooperation), and determines the threat point payoffs in bargaining. The asymmetry of unilateral vs bilateral determination of the threat point is summarized as follows. Note that a party has eventually no bargaining power if the other party can unilaterally determine the threat point.

\textbf{(A1)} If a party has the property rights (control rights) over both human and physical capitals (as in the case of private

\textsuperscript{9}In the context of firm integration, Hart (1995, pp.35-38) \textit{exogenously assumes} a general functional form of the threat point payoffs that depend on allocation of the property rights, without further explanation. Hart & Moore (1990) also \textit{exogenously assume} that a characteristic function of any coalition depends on what assets the coalition can control. Hart (1995, p.43, footnote 20) seems to think that the no-trade payoffs (his threat point payoffs) are different from the outside opportunity payoffs. See De Meza & Lockwood (1998) for an alternative interpretation of the no-trade payoffs as their \textit{inside option} in the context of alternate-offer models. In their interpretation, bargaining surplus should have been just redefined since their \textit{given} threat point is changed by their inside option.
ownership), the other party has no bargaining power (and the first party has).

(A2) If either party has the property rights (control rights) over at least one capital (as in the case of public ownership), both parties have bargaining power.

The other asymmetry between two types of ownership is incomplete specificity of human capital assumed only in the case of public ownership. The party with the property right of physical capital can retain at least part of the yield from the investments without the other party’s cooperation, that is, even after the parties separate from each other. Since the government under public ownership can retain part of the yield of the investments by hiring other outside workers, this part of human capital must be general rather than specific. The asymmetry of incomplete specificity is summarized as follows.

(A3) Under public ownership, part of the yield of the investment into human capital comes from general skills and can be retained in the hand of the owner of physical capital (who has the right to control it) even after the contract relation is broken down and both parties are separated.

A few comments on the two kinds of asymmetry are in order. Unilateral determination of the threat point raises a serious problem. As in the above summary, the party without the control right over any capital (government under private ownership) has eventually no bargaining power because the party with the control right over all capitals can unilaterally push down the other party’s utility to its reservation level at the beginning of bargaining before negotiation. This im-
plies that there is no bargaining surplus that the parties can share.\textsuperscript{10} But the HSV assumes Nash bargaining solution and applies it to the unilaterally determined threat point under private ownership. I do not intend to blame the HSV for this inconsistency because we have neither convincing theory of optimal threat in bargaining nor concrete argument of the sources of bargaining power in the case of specific human capital. We will review and discuss these topics in the next two sections, respectively.

Incomplete specificity of human capital is itself not implausible. Implicit knowledge and knowhow of workers are in some cases imbedded in the physical capitals such as machinery, say, in the form of modified specs as workers manage to operate it through trial and error. It will turn out that it is crucial whether or not incomplete specificity affects the threat point payoffs in the same way under both types of ownership when the contract is dissolved. When human capital is specific to physical capitals, incomplete specificity under private ownership is not relevant since the self-employed firm has the rights to control both human and physical capitals as the HSV presumes. As we will see, however, a variety of factors may cause human skills specific to a variety of things, not only to physical capitals. There might be the case where the separation would cause losses of the yield resulting from specific human capital for both parties under whichever ownership. In such a case, incomplete specificity affects the threat payoffs in the same way under both public and private ownerships. We will return to this issue in the final section.

\textsuperscript{10}This might be a reason why the HSV carefully uses a phrase "in the absence of renegotiation" (Italic original) instead of the threat point. But the HSV uses the same phrase in the case of public ownership where the threat point is determined bilaterally by the separation.
3 Optimal Threat of Bargaining in the Literature

The threat point has been assumed fixed or given in many bargaining theories since Nash (1950). In some contexts such as a bargaining between a seller and a buyer in a large marketplace, it is obvious what would happen if both parties did not agree on price; each would go to another trader. In other contexts such as wage bargaining between management and labor union, it really matters what strategy each player would take in disagreement, since there are many strategies available; for example, how long a strike (lock-out) to commit. Furthermore, it has been known since Nash (1953) that threat payoff levels crucially affect bargaining outcomes. We need the theory of optimal threat in bargaining. However, there are only some scattered arguments of optimal threat. In this section, we review these arguments according to Myerson (1991)’s brief explanation, and discuss what formulation we should take as the threat point of Nash bargaining solution.\(^{11}\)

\(^{11}\) Alternate-offer models of bargaining eventually assume away the problem of optimal threat into infinite future. Even if outside options are assumed available during their negotiation process, it does not mean analyzing optimal threats because an outside option works as a constraint on equilibrium paths if it affects bargaining outcomes. So we do not take a position to interpret Nash bargaining solution as a substitute for an alternate-offer game with outside options. Neither do we discuss the papers (Chiu (1998) and De Meza & Lockwood (1998) ) based on outside options as a constraint in alternate-offer models.
3.1 Three Theories of threat à la Myerson (1991)

Myerson (1991, pp.388-89) briefly discusses three theories of threat and disagreement in the underlying strategic form game $\Gamma$ (from which the feasible set of bargaining in the cooperative game is derived). We take strategy sets of the underlying game as broad as possible including separation and damage strategies, as long as they are physically possible. The first theory is to take a non-cooperative Nash equilibrium of $\Gamma$. The second is to take a pair of the min-max strategy. The third is to commit to a single strategy in $\Gamma$ before the cooperative game is played.

The first theory regards a game after disagreement as the same underlying strategic form game of bargaining (non-cooperative game) and applies Nash equilibrium to it. Ex post threat game should be treated as non-cooperative game since there is no room for cooperation after an impasse of bargaining. However, there are many Nash equilibria in this threat game, as in Nash’s demand game. Not only a pair of the separation strategy but also all Pareto-optimal and individually rational pairs of strategy are equilibria. Note that a pair of the separation strategy is equilibrium because it is optimal to separate and take the best outside opportunity as long as the other player takes the separation strategy. This theory seems useless because it does not pin down a unique thereat point.

The second theory also regards the game after disagreement in the same way as the first one and can be justified (perhaps) by analogy with a player’s minimax value as his reservation utility (individually rational payoff) in the Folk
Theorem. A player’s payoff is at least his minimax value in any equilibrium of the stage game and in any Nash equilibrium of the repeated game, regardless of the level of the discount factor. Though a pair of minimax strategy is unique, it might be difficult to justify as the optimal (rational) threat point in the context of non-cooperative games because it assumes too a pessimistic view of the opponent’s behavior.

The third theory originates from Nash (1953)’s optimal threat theory. He assumes that each player commits to choose a particular strategy in the underlying strategic form game and that the pair of these strategies are automatically implemented whenever bargaining breaks down. This ex ante commitment allows Nash to be able to solve the optimal threat game in a noncooperative way, based on the backward induction, using the reduced payoffs that are functions of the committed threat strategies. A labor union may commit itself to going on a strike in case of disagreement with management through a collective decision at its members’ meeting in advance. However, it is not always the case that each player can make a commitment to a particular strategy as the threat one before bargaining starts. It seems to me difficult to conceive a commitment device in the contracts in question. Applicability of the threat theory of ex ante commitment is limited.

\[A player’s minimax value in the Folk Theorem is defined as the lowest payoff his opponents can hold him to by any choice of their strategies, provided that the player correctly foresees a combination of his opponents’ strategies and plays a best response to it.\]
3.2 Maximin Strategy as a Threat à la Luce & Raiffa (1957)

There is the fourth theory of optimal threat in addition to the above three theories. Luce & Raiffa (1957, p.118) proposes a player’s maximin strategy as his optimal threat, in the spirit of cooperative games. The characteristic function (classical one) of a coalition in cooperative games is defined as the coalition’s maximin value derived from the underlying non-cooperative strategic form game. In the case of two-person cooperative games, the characteristic function of one-person coalition is the payoff he could guarantee himself if the other player takes her strategy minimizing his payoff, that is, the maximin value. It is natural in cooperative games to interpret the disagreement situation in two-person bargaining as the situation where a coalition is divided into individual one-person coalitions. Since Nash bargaining solution is a cooperative game solution, a pair of maximin strategy as the threat point is consistent with the solution. It is safe to say that the maximin strategy is a candidate for the optimal threat strategy when Nash bargaining solution (or any of other cooperative solutions) is adopted.

3.3 The Separation Strategy as the Optimal Threat

None of the above theories is completely satisfactory. Nonetheless, none of them derives the HSV’s unilateral determination of the threat point under private ownership because the above theories suppose bilateral determination of the threat. On the other hand, whatever theory we adopt, a pair of the separation strategy is not only a Nash equilibrium in the ex
post threat game as well as in the ex ante commitment game but also a pair of the minimax strategy as well as a pair of maximin strategy. It is optimal for a player to commit to the separation strategy if his opponent commits to the separation strategy because he could not get more than his best outside opportunity. It is a best response for a player to take the separation strategy and secure his best outside opportunity if his opponent chooses a strategy doing excessive damage to him. It would maximize a player’s payoff to take the separation strategy if the other player chose a strategy lowering his payoff down below his best outside opportunity. A pair of the separation strategy seems natural as the threat point in the bargaining situations, as long as each party can take the separation strategy in the case of disagreement.

From the viewpoint of optimal threat in bargaining, I suspect that HSV’s unilateral determination of the threat point under private ownership is an appropriate formulation of the situation in question. On the other hand, the HSV’s assertion appears plausible at first glance that the self-employed firm has the right to control all capitals (assets) so that the government has no control (bargaining) power. I will discuss in the next section that there are some cases of specific human capital in which the government under private ownership could have bargaining power through exercising the separation strategy in case of disagreement.
4 Relationship Specificity and Bargaining Power

The concept of relationship specific assets originates from Becker (1975)’s firm specific human capital. Training (investment in human capital) that increases productivity more in firms providing it than in other firms is called firm specific training (Becker (1975, p. 26)). Skills acquired through such training are called firm specific skills and workers accumulating such skills firm specific human capital. If either firm specific workers leave their firm or the firm layoff these workers, both will lose a higher joint yield of specific investment than the yield they would earn otherwise (with other workers or other firms). This is the reason why bargaining arises from the relationship specific assets.\(^{13}\) In this section, by discussing where specificity comes from and to what element skills (or assets) are specific, we will show that bargaining can emerge between the parties even if one of them has the right to control all assets in production.

4.1 Skills Specific to Elements Other Than Assets in Production

There are several kinds of causes of firm specific skills, though Becker (1975, p. 26) says that much of on-the-job training is more or less firm specific.\(^{14}\) Conditions of product and labor markets may create a situation in which Becker’s definition

\(^{13}\)This also alludes to a wrong specification of unilateral determination of the threat point under private ownership in the HSV’s model.

\(^{14}\)We exclude a ”friction” in transaction such as hiring costs from the possible causes of specific skills. Furthermore the following argument
is satisfied, without any technological complementarity nor on-the-job training. If a firm is a monopoly in its industry, any skill used only in the industry is specific to the firm. Much of military training of astronauts, fighter pilots, and missile men fall into this category. If a firm is only one in serving a geographically local area and its labor market is geographically separated, any skill specific to the industry the firm belongs to turns out to be specific to the firm. When an employer or firm is in a position of monopoly or monopsony, any industry specific skill can be firm specific.

The relationship specificity in the literature other than labor economics results from the technology necessary for specialization or product differentiation. This case appears in the form of technological complementarity between assets in production. General Motors developed the cars that are fitted to the bodies supplied by Fisher Body, while Fisher Body made its assembly lines specialize in GM’s cars. A railroad connecting between an inland coal mine and a port is specific to both the mine and the railroad, though this case is referred to site specificity (Joskow (1987)) because the assets in question are technologically attached to specific sites. In these examples, assets are specific to each other (or indirectly through a third element such as sites).

Relationships between a worker and his customers easily become firm specific as long as both the worker and his customers stay and transact in the firm. This is especially the case when provided services are personalized. Trust is developed between a physician and his patients and facilitates medical treatments, though medical records are available to

---

does not exhaust all causes of firm specific skills. I discuss only relevant ones to the later arguments.
other physicians. A similar relationship may develop between a hospital and primary care physicians who refer patients to the hospital. Rehabilitation of inmates would be effective only when trust is established between a counselor and her inmates. Part of skills and ability to provide high quality of service are specific to "customers" (patients, primary care doctors, and inmates, respectively).

Whenever cooperation among workers is necessary for high quality services, skills developed there involve elements specific to particular workers there. Order in a prison would be able to be maintained not only by a relationship between guards and inmates but also by a teamwork among the guards.

Some skills are specific to a particular geographical area where the service is provided. An experienced bus driver in a big city is familiar to bus routes and traffic conditions so that he can safely operate a bus service on time. Military exercises conducted surrounding the territory make soldiers’ combat ability or knowhow specific to a particular geographical area around the territory.

In some cases, skills are specific to assets in production in a particular firm. In other cases, skills are specific to something else in the relationship such as customers or geographical areas. Furthermore firm specificity may result from a de facto monopolistic market condition. Note that actual skills specific to a particular firm may be brought by a combination of these different causes. For example, the relationship specificity accruing from rehabilitation of maximum-security inmates and order in their prison are reinforced by the prison’s specialization in maximum-security inmates because there is usually only one prison of maximum-security inmates in a
4.2 Bargaining emerges from Specificity to Elements other than Assets in the Relationship

We have illustrated some cases in which skills are specific to some elements other than assets in production. It follows from this observation that bargaining can emerge between the parties even if one of them has the right to control all assets in production. In other words, the government could have bargaining power by exercising the separation strategy, even under the private ownership where the self-employed firm has the right to control both human and physical capitals, contrary to the presumption of the HSV’s model. This suggests that the threat point brought about by the separation strategy may make no difference between private and public ownerships, which denies the essential point of the property rights approach. This is because a party’s best outside opportunity (the opportunity cost of its all assets as general capitals, which is evaluated through their competitive markets) is independent of how property rights are allocated in the firm. Let us investigate robustness of the HSV’s presumption in more detail in the next section.

\footnote{The contents of prison services vary from country to country. So I ignore an oversea opportunity for private prison firms to operate internationally, though there are a few companies doing businesses beyond the borders.}
5 How Robust is Hart, Shleifer & Vishny (1997)’s Model?

We have so far shown in the preceding sections (1) that a pair of the separation strategy is a natural candidate for the optimal threat point when Nash bargaining solution is applied and (2) that even under private ownership of the HSV’s model, bargaining can arise from the fact that human skills are specific to some other elements than assets in production. In this section, we examine under exactly what conditions bargaining would emerge under private ownership of the HSV’s model. We also discuss what would happen if the government had no bargaining power under private ownership as HSV presumes, since the HSV’s unilateral determination of the threat point implies that no bargaining would take place in contrary to the HSV’s model. From these arguments we draw implications for the HSV’ model as a theory of privatization.

In order to examine whether or not the government would have bargaining power under private ownership, we strategically assume that the government never exercises its mighty legal power to hurt the self-employed firm by revoking licenses, restricting operations and so on (within the extent of bureaucratic discretion). Otherwise the government will be able to have bargaining power against the firm irrespective of allocation of property rights. In other words, we assume that the government honors the incomplete contract and acts within it.
5.1 The Case of Public Goods with Specificity to Elements other than Assets in the Relationship

We first focus on the case of public goods as a candidate for the situation where specificity to something other than assets in production leads to bargaining even under private ownership. When public goods are contracted out, we had better keep in mind two important features from the viewpoint of whether bargaining would occur or not. First, the government is a monopoly of the public goods and a monopsony of its contracting-out in a local or national area. Second, a private firm cannot provide the public goods without government subsidy through the contracting-out because of non-excludability of public goods.

Suppose that skills are specific to customers or a particular geographical area in the contracting-out of the public goods. When the relationship is dissolved, the self-employed firm cannot bring its customers together to go to another government contract-out. This is because most customers live in the jurisdiction where the self-employed firm could be no longer allowed to operate and nor be able to earn positive profits without government subsidy. Since the self-employed firm’s best outside opportunity is to win a contract and provide the public goods in another area or to engage in providing a private (or excludable) goods, the firm’s skills specific to the geographical area would be no longer useful. For exam-

---

16Besley & Ghatak (2001) consider ownership issues for public goods, looking at the demand side effects of non-excludability and non-rivalry on their disagreement payoffs. We focus on the supply side effects of public goods characteristics on how much profit a private firm could earn in case of an impasse.
ple, the number and composition of inmates in a prison are under control of government. Mercenaries having fought in Afghanistan are less effective in Haiti. Government has bargaining power in the contracting-out of public goods if skills are specific to something other than assets in production.

This argument, however, does not necessarily go well in the case of excludable goods. The self-employed firm could provide the same goods and services as a private firm in the same jurisdiction to which its customers and community-related elements are specific. The positive profit thus earned may not be lower than the profit under the contracting-out. For example, a hospital, separating from the contracting-out, could keep its customers together with their list and operate successfully as a private hospital in the same region. A bus company, retaining its drivers familiar to routs and traffic conditions with the right to operate these routs, could continue to operate in the same area as profitably as before, after breaking the contracting-out. In these cases, the separation strategy triggered by the government is not effective at all as a threat in bargaining.

If skills are specific to assets in production but nothing else, the government has no bargaining power whether or not goods are excludable, as we interpreted the case of private ownership in the HSV’s model. In summary, when skills are specific to something not under control of the self-employed firm in the case of contracting out of public goods, the government has bargaining power through exercising its separation strategy in case of disagreement. In other cases, the govern-

---

17 The difference of profit might be large enough to make the separation strategy effective as a threat one. We ignore this possibility in order to make our argument clear and simpler.
ment has no bargaining power.

5.2 Ex Post Monopoly under Private Ownership

Unilateral determination of the threat point under private ownership in the HSV’s model implies that the government has no bargaining power, as we interpreted in the preceding sections. However, HSV applies Nash bargaining solution to the threat point unilaterally determined by the self-employed firm. This appears inconsistent. Exactly what would happen in this case?

The government is assumed to act within the incomplete contract with the self-employed firm. Since the contract is incomplete, many important items are not written. Whenever an unwritten issue happens, the self-employed firm has the right to decide about it because of his property right to control all assets in production. This implies that the government has eventually no measure to control and even affect behavior of the self-employed firm, as time goes on after the contract. Quality, non-contractible item, will be down to the level where the government would be indifferent between the self-employed firm and a potential entrant. The self-employed firm will charge higher prices if they (or price formula) are not specified in a (long run) contract due to uncertainty in the future. Unless an effective regulation on behavior of the self-employed firm is enacted before the contract, the self-employed firm will have a broad range of discretion over its action, and become a de facto monopoly in providing the goods in question. This feature is reinforced by increasing returns to scale because the government can-
not ensure ex post competition after specific investments by allowing more than one private firm to engage in providing the goods in question.

It is difficult for governments to prepare effective regulation before contracting out a public service because the governments do not know exactly what would happen in the virgin contract-out.\(^{18}\) Privatization may end up with ex post monopoly if the government has no bargaining power as the HSV presumes, despite of ex ante competitive auction of the contract-out.

5.3 Negative Implications for a Theory of Privatization

We have derived two issues of criticism against the HSV’s unilateral determination of the threat point. (1) In the case of public goods, if skills are specific to elements other than assets in the relationship, bargaining emerges because the government can have bargaining power by exercising the separation strategy as a threat. (2) In other cases, private ownership of the contract-out implies ex post monopoly of the private firm.

If the former happens, bargaining will take place under the same condition under whichever ownership, as long as the levels of specific investments are the same. This is be-

\(^{18}\) HSV does not think that the government can avoid the ex post monopoly situation through government regulation since Hart (2003, p.C70) says that privatization (contract out) is different from monopoly under effective regulation. He is opaque about what the difference is.
cause the separation strategy guarantees each party his best outside opportunity payoff, which is independent of how the property rights are allocated.\textsuperscript{19} It is easy to show that the levels of specific investments are the same under both types of ownership if the threat payoffs of bargaining are independent of who has the property right of which assets in production.\textsuperscript{20} In this case, the property rights approach to privatization makes no difference between private and public ownerships.

If the latter happens, inconsistency occurs. Ex post competition after privatization is now understood as a necessary condition for better performance of the contracting-out firm. The ex post monopoly under the contract-out turns out to be contradictory to this necessary condition for successful privatization. This might explain why only a few private companies under the contract-out exist internationally in the fields of water supply and private prison. An incumbent firm has advantage to potential entrants in the presence of specific investments. Once a small number of firms win many contracts of public service initially, these firms are likely to stay in the contracts.

Whichever case happens, the HSV’s model is far from jus-

\textsuperscript{19}Strictly speaking, this is true only when the skills specific to elements other than assets in the relation is the only specific skill. When there are other skills specific to only assets in production in addition to the skills specific to elements other than assets, a party with the right to control all assets in production can retain the yield from skills specific to these assets even after the separation. This brings about a difference of the threat payoffs, depending on how the property rights are allocated. This situation corresponds to the case where specific investments affect a party’s best outside opportunity payoff, i.e., what Segal & Whinston (2000) call external investments.

\textsuperscript{20}This is because bargaining shares are the same function of the specific investment levels under both private and public ownerships.
ifying the property rights approach as a theory of privatization.

6 Concluding Remarks

The property rights approach to privatization represented by the HSV’s model presumes that allocation of the right to control assets in production affects the threat point payoffs in bargaining after specific investments in the incomplete contract setting. The HSV’s model supposes unilateral determination of the threat point by a party who possesses all assets in production under private ownership. This formulation of the threat point, however, cannot be justified by the existing theories of optimal threat. Furthermore, in the spirit of cooperative games where Nash bargaining solution is one of them, a pair of the maximin strategy has been used as the threat point. A pair of the separation strategy is a natural candidate for the optimal threat because it is compatible with all the existing theories of the optimal threat, including the maximin strategy theory, in the context of the HSV’s model.

Once the separation strategy is accepted as the optimal threat, in the case of public goods, bargaining emerges from the fact that skills are specific to some elements in the relationship rather than assets in production, even if a private firm has the right to control all assets under private ownership. Since the separation strategy guarantees each party his best outside opportunity independent of allocation of the property rights in the relationship, we end up with no difference of specific investment levels between private and public ownerships. In such a case, the HSV’s model cannot com-
pare private with public ownerships. In other cases, unilat-
eral determination of the threat point by a private firm
under private ownership within the incomplete contract im-
plies that the government has eventually no power to regulate
behavior of the private firm after specific investments. This
situation is equivalent to allowing the private firm to be ex
post monopoly, in spite of ex ante competitive auction of the
contract-out. Ex post monopoly after privatization is contra-
dictory to the necessary condition for successful privatization
of ex post competition. Whichever case happens, the HSV’s
model is far from satisfactory for a theory of privatization.

Some remarks and comments are in order. The other
asymmetry of the threat payoff specification in the HSV’s
model is no longer a problem once the separation is accepted
as the optimal threat strategy. Though incomplete specific-
licity appears in the form of the threat payoffs dependent on
specific investment levels under both private and public own-
erships, the way they depend is the same between the two
types of ownership. This is because the additional yield of
incomplete specific investments captured by a party after the
separation comes from general skills and thus is evaluated
as the opportunity cost of the assets through their compet-
itive markets. This implies that bargaining shares are the
same function of specific investment levels under both types
of ownership.\textsuperscript{21} Incomplete specificity brings about no differ-
ence of performance between the two types of ownership.

Our criticism only applies to the property rights approach
to privatization. It does not apply to analysis of firm inte-
gration. There it is technological complementarity between

\textsuperscript{21}The functional forms are different from those in the case of complete
specificity discussed in the preceding sections.
assets in production that causes bargaining with the threat triggered by separation. There emerges no bargaining if one party has the right to control (the property right to) all assets in production, and inefficiency from the hold-up problem can be avoided.

Hart (1995, p.57) eventually defines the property right as broad as possible including any tangible assets such as customer lists and the right to operate on particular routes as well as intangible assets such as brands and reputation. His definition of the property right appears to limit or exclude the possibility of bargaining resulting from specificity to elements other than assets in the relationship in the case of public goods. However, applicability of his broadly defined property rights seems limited. In actuality, laws do not always cover intangible assets as the objective of the property rights (perhaps because of high implementation cost). Governments do not delegate to a private firm some rights to control important items such as the number and composition of inmates. The right to operate a bus service on particular routes may be retained in a local government’s hand even in the contract with a private bus company. Even if a company has a list of customers, it does not necessarily mean that the company can exclusively control behavior of these customers. The broad definition of the property rights is not acceptable as a positive theory on the basis of which we should construct a model of privatization to compare private with public ownerships. Note that we will end up with ex post monopoly even if we allow for the broad definition of the property rights.

We have made no legal argument on the property rights approach in this paper. The common law, including the property rights law, is designed so as to enhance economic
efficiency, according to Posner (1998, p.27). It is a commonplace that there are many countries where the continental law is applied and that the common law is different from the continental law in terms of how to understand and interpret the property rights. We should be careful not to jump to the property rights approach (to privatization) proposed by HSV when it is applied to any country other than the Common Wealth and the United States. Legal analysis of the property rights approach to privatization is beyond the scope of this paper.

References


De Meza, D. & B. Lockwood (1998) ”Does Asset Ownership always motivate Managers? Outside Options and the


Joskow, P. L. (1987) ”Contract Duration and Relation-


