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ON THE COMPLEMENTARITY BETWEEN LAW AND SOCIAL NORM: A MODEL ANALYSIS WITH SPECIAL REFERENCE TO THE LIABILITY RULE FOR TORT

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1. Introduction

There have been extensive and complicated debates on how the state law and social norm interact with each other. This argument dates back to Thomas Hobbes when he claimed in his famous passage that "To this warre of every man against every man…nothing can be unjust. The Notions of Right and Wrong, Justice and Injustice have no place. Where there is no common power, there is no law; where no Law, no Injustice…."[1] After the advent of Hobbes, John Locke made a counter-argument to the effect that the state of nature has its own order that he calls the Natural Law. Then, David Hume went one step further and argued that the pre-legal rules of justice are justifiable as establishing the common good among people.[2] Contrary to the Hobbesian view, Locke and Hume found that the law does not establish a new legal rule from scratch, but that it supersedes the pre-legal norm.[3] In their view, the spontaneous order theory of the law that is prominent in the Chicago-school, which asserts that decentralized social forces play a crucial role in shaping the social order, seems to have already been set forth.[4]

Issues in the above theory that remain obscure are regarding how the law and the social norm interact with each other in the legalized modern society, whether the law completely replaces the pre-existing social norm or they coexist, and whether their interaction achieves an efficient system of social rules or there is innate inefficiency.

A much more recent, yet no less important contribution by Ellickson (1991) has revealed that in many critical aspects, law is irrelevant for the protection of social order and is overridden by the social norm in the settlement of dispute over the protection of legal right within a close-knit society. Another fundamental contribution by Macaulay

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[1] Hobbes (1651, part 1, chapter 13).

[2] Locke (1690) asserted the existence of the Law of Nature and justified the property right as its fundamental pillar. Hume (1740, book 3, part 2, section 6) emphasized that the system of the rules of justice is not intended by the persons who invented them to serve as means for public benefit, but is in its result very beneficial for people in general.

[3] As this article discusses, their arguments were succeeded by Hart (1994) in the area of jurisprudence.

[4] The spontaneous order theory of law was most eloquently extended by Hayek (1960, 1973). See also Demsetz (1967) and Posner (1981, ch.5-8) for the study of the development of law and justice in the pre-legal society.

(1963) showed the same phenomenon particularly for the case of contract.

The purpose of this article is to provide an analytical model to clarify the interrelationship between the law and the social norm to provide some suggestions for the above problems. It aims to complement the research in Macaulay and Ellickson, which adopted a more empirically oriented approach.

The next section presents an analysis of our basic model, and section 3 discusses its legal and economic implications, where we show that in the basic model, non-cooperative interaction between the law and social norm attains efficiency and that they are perfect substitutes to each other. Section 4 considers the cases where social norm is determined on the basis of some misperceptions. In this model, we show the possibility that an inefficient social system may persist. Furthermore, we illustrate the possibility that law and social norm are complements to each other and that the existence of the government could be second-best. Finally, section 5 briefly concludes the study.

2. Basic Model

Our model is based on the description of the society adopted by the classical article of Coase (1960), where a nuisance dispute occurs and may be relieved by the court adopting either the establishment of a legal right or the assignment of the liability. We assume, for simplicity of the analysis, that the regulatory tool for recovering the efficient allocation of the activity is the strict liability rule to the injurers irrespective of whether it is a social norm or is promulgated as law.

This means that a substantive norm is assumed to be identical regardless of whether it is a social norm or a law. The remedial norm is definitely different depending on whether the rule is a law or a social norm.[5] If the rule is legal, we assume, again for simplicity, the public officer claims appropriate damages to injurers with the help of state force. When it is a social norm, this explicit exercise of state power is not allowed. Therefore, the remedial norms should also be informal, for example, gossips for the defective activities.[6]

Let us consider a society where the basic property right is established, and some activity causes harm to the established property right, for example, noise, danger to health, and intrusion of land. We suppose that the society comprises two types of various identical people: injurers and victims. Injurers engage in privately beneficial

[5] For a relevant distinction between the substantive norm and the remedial norm (and other kind of norms), see Ellickson (1991, ch.11-14).

[6] See Ellickson (1991, pp.211-221) for an informal enforcement of liability rule by non-legal social relationship.

activity, e.g., listening to music. We denote this activity as a, which provides benefit $b(a)$ to the injurer who enjoyed. This activity simultaneously causes harm, e.g., noise, to the victim, which costs $c(a)$. When engaging in their activity, the injurers are not conscious about this external cost, and they choose the level of activity neglecting this external cost $c(a)$. This means that the injurers choose an extremely high level of activity relative to the socially efficient level if there is no regulation either by law or social norm.

We conduct a standard partial-equilibrium analysis where the marginal utility of money is constant and the aggregate social surplus (or "wealth" in Richard Posner's term) indicates the level of social welfare in monetary terms. All the people belonging to the two parties are identical, and hence, the benefit of the representative injurer minus the cost incurred by the representative victim, $b(a) - c(a)$ shows social surplus.

We suppose that the enforcement of liability requires additional social cost, whether it is implemented through the community or the government. When liability is levied by the community or the government, we denote the level of liability damage per unit of activity as d^c and d^g respectively, and unit enforcement cost of levying damage as e^c and e^g. Thus, the social surplus including the enforcement cost is $b(a) - c(a) - e^c d^c a - e^g d^g a$.[7]

We suppose that both the community and the government try to maximize this surplus within the constraint they face with respect to the information available and the incentive of the injurers in adopting their levels of activity. This assumption is based on the wealth maximization hypothesis by Richard Posner.[8] The welfare maximization hypothesis for the working of social norm was presented by Ellickson (1991, ch.10), and its implications and limitations are extensively discussed. Some further implications and the relevancy of this assumption will be discussed in the next section.

The basic incentive constraint they face as to the choice of activity is that the injurers choose the level to equate the marginal benefit of the activity $b'(a)$ to the marginal damage cost $d^c + d^g$, i.e., $b'(a) = d^c + d^g$.

3. Socially Optimal Interaction between the Law and Social Norm

3.1 Analysis

[7] We assume that the damage levels levied by the community and the government are nonnegative, i.e., $d^c \geq 0, d^g \geq 0$. We also assume that $-1 < e^c - e^g < 1$, which means that the strategies of the community and the government, d^c and d^g are strategic substitutes of each other.

[8] See Posner (1981, ch.3) and Landes and Posner (1987, pp.1-24). As is well known, this hypothesis is criticized in many ways; however, we believe that it is useful as a first-order approximation to government behavior, at least in the case of tort law.

Let us proceed to analyze the basic model presented in the last section and deduce its consequences. In our model, two principals, namely, the community and the government, maximize social surplus with respect to their own policy tools d^c and d^g, with the incentive constraint of the injurers and the strategy of the other party as given. Therefore, the government chooses d^g to maximize

(1) $\quad b(a^*) - c(a^*) - e^c d^c a^* - e^g d^g a^*$

for a given d^c with the constraint

(2) $\quad b'(a^*) = d^c + d^g,$

and the community chooses d^c for a given d^g to maximize (1) subject to (2).

For the following analysis, we parameterize the model to derive explicit solutions. We suppose that $b(a) = \alpha ln a$ and $c(a) = \beta a$. From this parameterization, the constraint in (2) boils down to the explicit solution of a^* as $a^* = \frac{\alpha}{d^c + d^g}$. Substituting it into (1) and choosing d^g to maximize (1) given d^c, we can find the optimal strategy d^{g*} of the government. The first-order condition with respect to d^g can be solved as

(3) $$d^{g*} = \begin{cases} \beta + d^c(e^c - e^g - 1) & \text{if} \quad d^{g*} > 0, \\ 0 & \text{if} \quad d^{g*} > \beta + d^c(e^c - e^g - 1). \end{cases}$$

This first-order condition can be illustrated as a Nash response function in Fig 1a.

[Figure 1a about here]

Similarly, we can solve the maximization problem of the community and derive the first-order condition with respect to d^c given d^g as

(4) $$d^{c*} = \begin{cases} \beta + d^g(e^g - e^c - 1) & \text{if} \quad d^{c*} > 0, \\ 0 & \text{if} \quad d^{c*} > \beta + d^g(e^g - e^c - 1). \end{cases}$$

This condition is illustrated as a Nash response function in Fig. 1b.

[Figure 1b about here]

Now, let us superimpose the two Nash response functions and find the Nash equilibrium strategies (d^{g*}, d^{c*}) as an intersection of the two response functions. As Figure 2 shows, the equilibrium depends on the level of e^g and e^c.

[Figure 2a, 2b about here]

When $e^g > e^c$, $d^{g*} = 0$ and $d^{c*} = \beta$ is the Nash equilibrium, which means that the liability for the nuisance dispute is exclusively levied by the community, and the government refrains from the resolution of the disputes, as shown in Figure 2a. In contrast, when $e^g < e^c$ is satisfied, $d^{g*} = \beta$ and $d^{c*} = 0$, which means that liability to the nuisance is levied exclusively through the law, and social norm does not deter the nuisance at all. In the middle case where $e^g = e^c$, any combination of the liability

damages (d^{g*}, d^{c*}) that satisfies $d^g + d^c = \beta$ can be an equilibrium. Finally, it is obvious that all of these equilibria are Pareto efficient. Therefore, the interaction of the law and social norm in this basic model is socially optimal.

3.2 Interpretation

The implications of the analysis in the previous subsection are evident. When there is a difference in the enforcement cost for the two branches of the society, the community and the government, it is more efficient to use only one branch that can enforce the norm with cheaper cost, for controlling the order of the society.[9]

However, in the Nash equilibrium we analyzed, we assumed that both branches pursue independently to maximize social efficiency. With this assumption, the more efficient branch of the society provides more liability for the deterrence of harm given the strategy of the less efficient branch. Once the more efficient branch extends the level of liability, the less efficient branch decreases the level of liability to save its enforcement cost. This process continues until only the more efficient branch exclusively provides liability system. Therefore, social wealth maximization is attained in the Nash equilibrium.

Which equilibrium is more relevant for our society? This surely depends on the relative amount of the enforcement costs e^g and e^c. One natural interpretation is that e^c is cheaper than e^g, since the enforcement by the community does not require a formal legal system, including, a judge and police. In this case, the community plays the role of controlling the order and the government refrains from the enforcement of formal law. It is this observation that Ellickson (1991) has found out within the close-knit society. According to him, many disputes within such a small community are resolved through the internal norm of the community itself without reference to the formal law or the help of the judiciary of the government.

For the classical thinkers of the government, such as Locke and Hume, the argument was the opposite. For them, it is the inefficiency and inadequacy of the informal social norm and its enforcement power for protecting the social order that called for the existence of the government and the law. Their argument was succeeded in the area of legal theory by the classical contribution by Hart (1994).

According to Hart, the law is defined as the union of primary and secondary rules (see Hart (1994, pp.79-99)). Here, the primary rules of obligation are those rules that are

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[9] If there is no difference, any combination of the enforcement by the two branches can be optimal. It is also obvious from the discussion below that social efficiency is attained at the Nash equilibrium in this case.

directly imposed on the citizens. A system of primary rules exists even in the pre-legal society and it could form a meaningful social order, but there are several inconveniences for the society that only adheres to primary rules. This is summarized by Hart in three points. The first aspect is uncertainty, which means that there is no procedure to resolve disputes when there arises a question as to what the rules are or the precise scope of some given rule. The second aspect is the static character, which means the lack of deliberately adapting to the rules according to changing circumstances. The third aspect is inefficiency, which means that there are no official agencies to enforce rules authoritatively and that the enforcements are left to the individuals affected or to the group at large (op. cit. pp.91-94). He argues that such problems of the pre-legal society are overcome by introducing three types of secondary rules that confer on individuals to make authoritative decisions (op. cit., pp.94-98)).

In our present context, the most relevant issue is the inefficiency of the society governed only by primary rules. In contrast to the previous argument, Hart argues that the world without any public organization for the enforcement of law is inefficient because in this world, many harmful activities are not deterred and disputes are left unresolved; this leads to substantial social cost that can be avoided by introducing the secondary rules of adjudication and establishing a public system of judiciary.[10] A simple way to reflect Hart's observation in our analysis is to assume that enforcement cost of the community is larger than that of the government, i.e., $e^g < e^c$. In this case, as our analysis shows, the pre-legal society is totally replaced with the legal world that incorporates the rule of adjudication by the state.

Summarizing the argument in this section, in our model where both the community and the government pursue efficient order independently, the resulting Nash equilibrium attains efficiency. In the equilibrium, either the government refrains from any legal regulations and the social order is totally controlled by community enforcement, or the informal regulations by the community is completely replaced with the legal regulation by the government depending on which system has a lower enforcement cost for adjudication. This means that there is no complementarity between the law and social norm, and they are perfect substitutes to each other.

4. The Sources of Inefficiency and Complementarity

The arguments in the previous section show that the optimal system of social regulation

[10] See Hart (1994, pp.93-94, 96-97). Locke (1690, chapter 9, paragraph 125) has already stated the following: "In the state of nature there wants a known and indifferent judge, with authority to determine all differences according to the established law."

uses only one mode of governance, depending on the relative cost-effectiveness of its enforcement. Once it is assumed that both community and the government try to maximize social wealth, the resulting non-cooperative Nash equilibrium is also optimal.

By relaxing the assumption of the rational wealth maximization by the community in this section, we illustrate the possibility of the existence of Nash equilibria that are not socially optimal when enforcement by the community is more cost-effective than that by the government. In this case, two interesting phenomena will occur. First, the introduction of the law by the state could improve or worsen social welfare. Second, there is a possibility of coexistence of both community norm and the law.

4.1 The Case where the Community Determines Social Norm without Considering its Effect on the Enforcement Cost of Law

In the model we analyzed in the last section, it was assumed that social norm is chosen to maximize social wealth. In particular, it was assumed that this optimization takes into account the effect of social norm on the enforcement cost of the law. Given that social norm is spontaneous and it is determined in a decentralized manner, this assumption may not be quite relevant in some situations. We assume in this subsection instead that social norm neglects its effect on the enforcement cost of the law. Therefore, social norm is now determined by the maximization of $b(a^*) - c(a^*) - e^c d^c a^*$ with respect to d^c, with the constraint in (2).

Adopting the same parametrization of the model in the previous section, the first-order condition is as follows:

$$(5)\quad d^{c*} = \begin{cases} \beta - d^g(e^c + 1) & \text{if} \quad d^{c*} > 0, \\ 0 & \text{if} \quad d^{c*} > \beta - d^g(e^c + 1). \end{cases}$$

Now superimposing the new Nash response function in (5) over the response function of the government in (3), we find a situation depicted in Figure 3 for the case $e^c < e^g$, i.e., enforcement by the community is more cost-effective than that by the government.

[Figure 3 about here]

As this figure shows, there are three Nash equilibria of the non-cooperative game. However, the equilibrium that uses both modes of governance d^c and d^g can be easily checked as being unstable. Therefore, the two equilibria that use one mode of governance to the level β are stable. It is obvious that the equilibrium that uses only d^c to that level is efficient, and therefore there is now a possibility that inefficient

equilibrium, which uses the law as the method of governance, survives.

The intuition is as follows. When the community chooses social norm without considering its effect on the law enforcement cost, its deterrence level decreases because the positive effect of the social norm to the law enforcement cost reduction owing to the decrease in activity is neglected. The decrease in the level of social norm is stronger when the level of d^g is high because the neglected effect of social norm on the reduction of law enforcement cost is larger when the deterrence level of the law is high.

It cannot be precisely determined as to which of the two equilibria is likely to realize. However, this result indicates that once the society is already legalized, it is unlikely that the social norm prevails and replaces the law in a decentralized manner even if it is a more efficient method of regulation.

4.2 The Case where the Community Underevaluates the Cost of Activity

It is likely that the community determines the level of social norm with some misperceptions of social parameters. Hart (1994, pp.92-93) defined this shortcoming of the social norm as the static character, which means the lack of deliberately adapting to the rules according to changing circumstances. For example, the parameter of the marginal social cost of activity β can change depending on the changing social situations. When β means the marginal social cost of the noisy activity, this β can quickly increase as the society becomes larger and more densely populated. However, it is quite reasonable to assume that the traditional social norm is determined on the basis of older information on the damage occurred by the noise, or it is resistant to the adjustment owing to its character as a traditional convention.

We now capture this misperception effect of the community by evaluating the level of true β as $\theta\beta$, $0 < \theta < 1$, where θ shows the parameter of the level on misperception by the community. With this change, the new maximization problem that the community faces is to choose d^c to maximize

$$b(a^*) - \theta c(a^*) - e^c d^c a^* - e^g d^g a^* \tag{6}$$

for a given d^g with the constraint in (2). Again, adopting the same parameterization with the previous cases, the first-order condition for the community is now summarized as

$$d^{c*} = \begin{cases} \theta\beta + d^g(e^g - e^c - 1) & \text{if} \quad d^{c*} > 0, \\ 0 & \text{if} \quad d^{c*} > \theta\beta + d^g(e^g - e^c - 1). \end{cases} \tag{7}$$

Superimposing the two Nash response functions (3) and (7) for the case $e^c < e^g$, we

see several possibilities for the Nash equilibrium. When θ is close to one, only the community norm is adopted for the social regulation and the efficiency of the equilibrium is preserved. When θ is close to zero so that the misperception of the community is very serious, $d^{g*} = \beta$ is chosen and only the legal regulation prevails. For a medium level of β, the equilibrium depicted in Figure 4 arises, i.e., two modes of social regulation, the law and social norm coexist.[11]

[Figure 4 about here]

The intuition behind the result is evident. When the community considerably under-evaluates the level of social cost of the nuisance, the level of liability imposed by the community is less than sufficient, and it is not optimal to depend on the community enforcement for controlling the activity, even if the enforcement cost by social norm is cheaper than the law. If the under-provision of the social norm is very conspicuous, the government chooses high liability for the harm and replaces the enforcement by the social norm completely. However, if this under-provision of informal liability is not sufficiently strong, the government chooses a mild level of legal liability, and uses both the law and the social norm in a complementary manner for the control of social order.

Ellickson (1991, p.249) hypothesized that members of close-knit groups employ and mix informal and legal systems of social control in a manner that minimizes members' total costs. This is what has happened in the present case. With regard to the administrative cost, it is socially best to use only the social norm for the control of the society. However, when there is a misperception within the provision of social norm, additional deadweight loss arises owing to the under-provision of liability damage for tort. If this under-provision is serious enough, the community adopts both the social norm and the law complementarily to minimize the total costs for the members, which in our case is the sum of the administrative cost and the deadweight loss owing to the incompleteness of the spontaneous liability system. Furthermore, it is even possible that only the legal liability system controls disexternalities without any inputs from social norm if the misperception for the provision of social norm is extremely serious.

5. Conclusion

This article presented a model analysis of the interaction between the law and social

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[11] Formally three cases can occur. First, when $\theta \geq \frac{1}{1+e^g-e^c}$, $d^c=\theta\beta$ and $d^g=0$, i.e., only social norm is used. Second, when $1+e^c-e^g<\theta<\frac{1}{1+e^g-e^c}$, $d^c>0$ and $d^g>0$, i.e., both the law and social norm are complementarily used for controlling the social order. Third, when $\theta \leq 1+e^c-e^g$, $d^c=0$ and $d^g=\beta$, i.e., only the law is used for the social control.

norm where the strict liability rule for tort can be levied either by the government or a community with different enforcement cost. When these two branches both act as rational welfare maximizers, the resulting non-cooperative Nash equilibrium is Pareto efficient. In contrast, if the community chooses social norm with misperceptions, inefficient Nash equilibrium might arise by the legal intervention of the government. In some other cases, there is a possibility that the introduction of the law could be second-best even if the enforcement cost using social norm is cheaper than that of the law.

While our model builds on several simplifications, the real interaction between the law and social norm is far more complex. This means that it should be a very proliferate area for future research in law and economics.[12] However, it appears that most studies in this area hitherto are chiefly either descriptive or empirical, and explicit model analyses are rather limited. We hope that our analytical research will provide some insight for encouraging further study in this area.

[12] See McAdams and Rasmusen (2007) for the most recent extensive survey of the development of research in this area.

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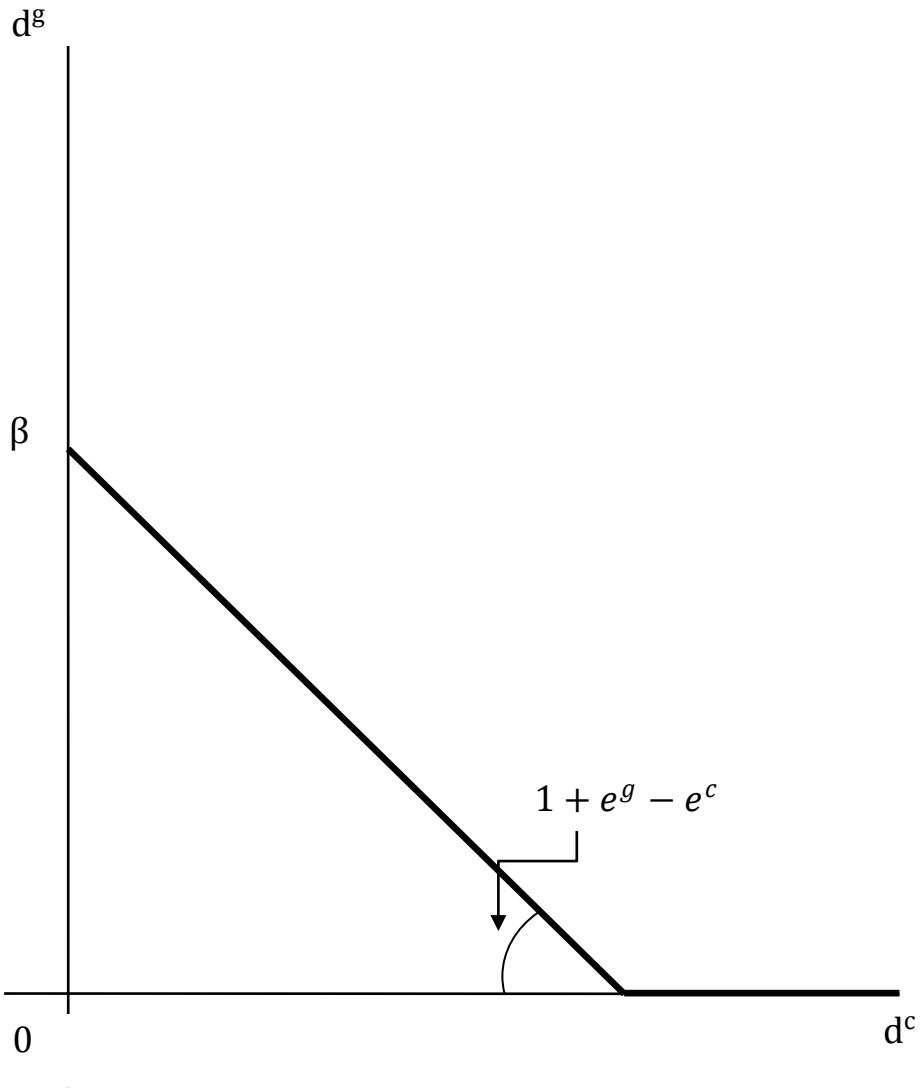

Figure 1a

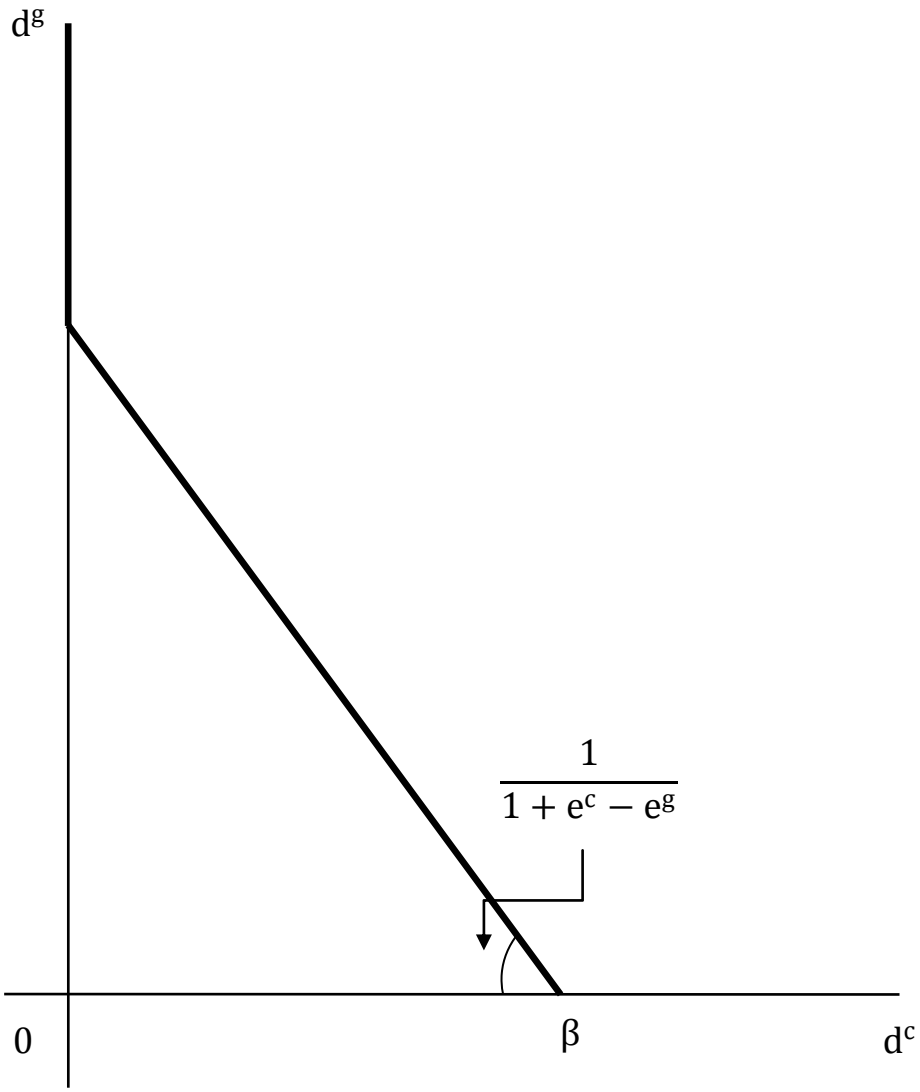

Figure 1b

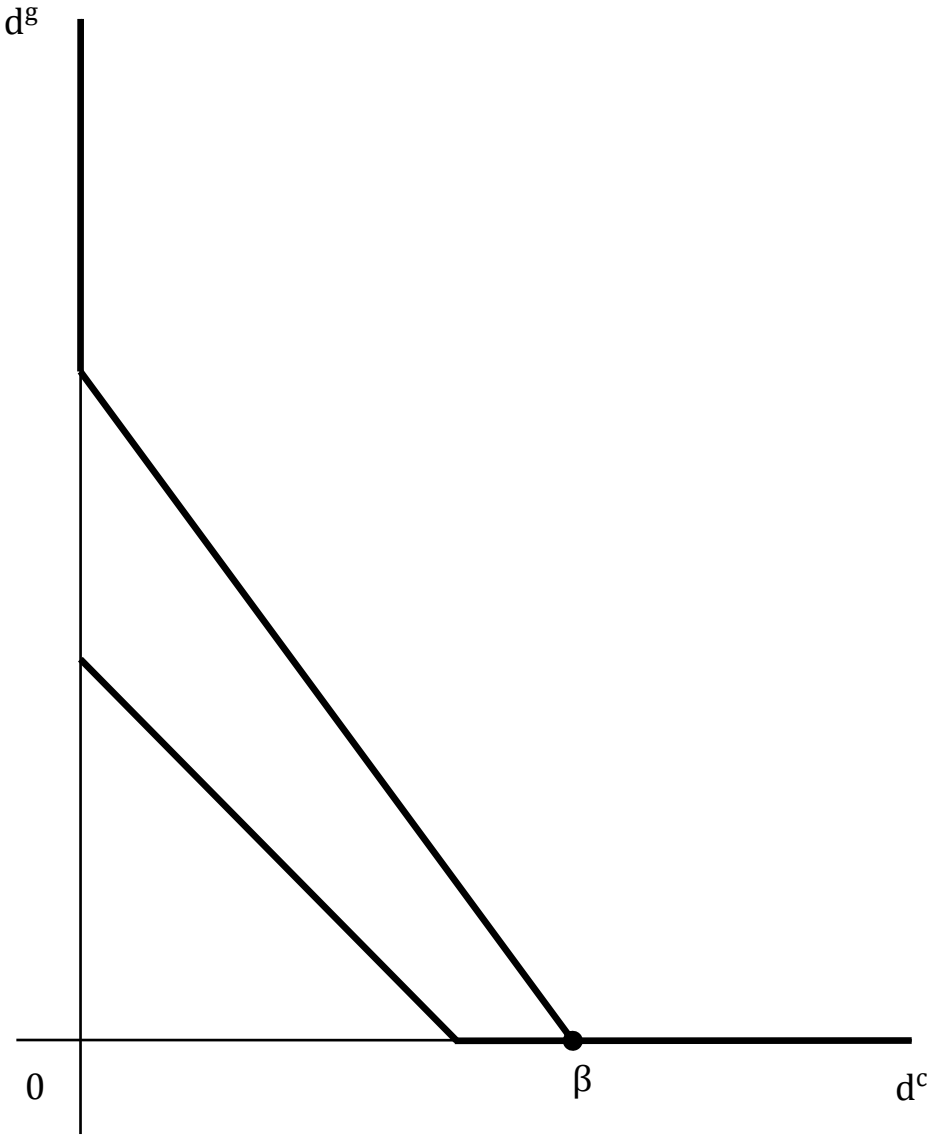

Figure 2a: $e^g > e^c$

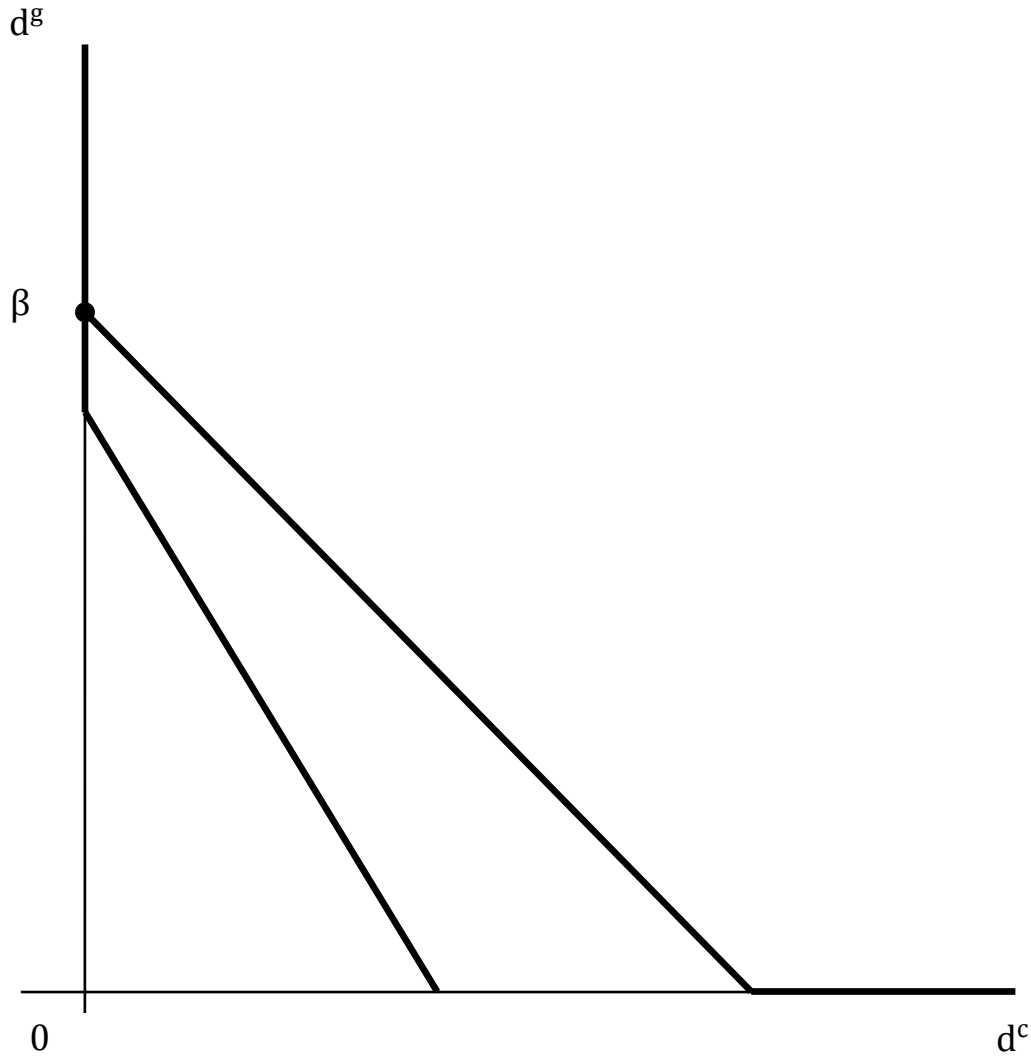

Figure 2b: $e^g < e^c$

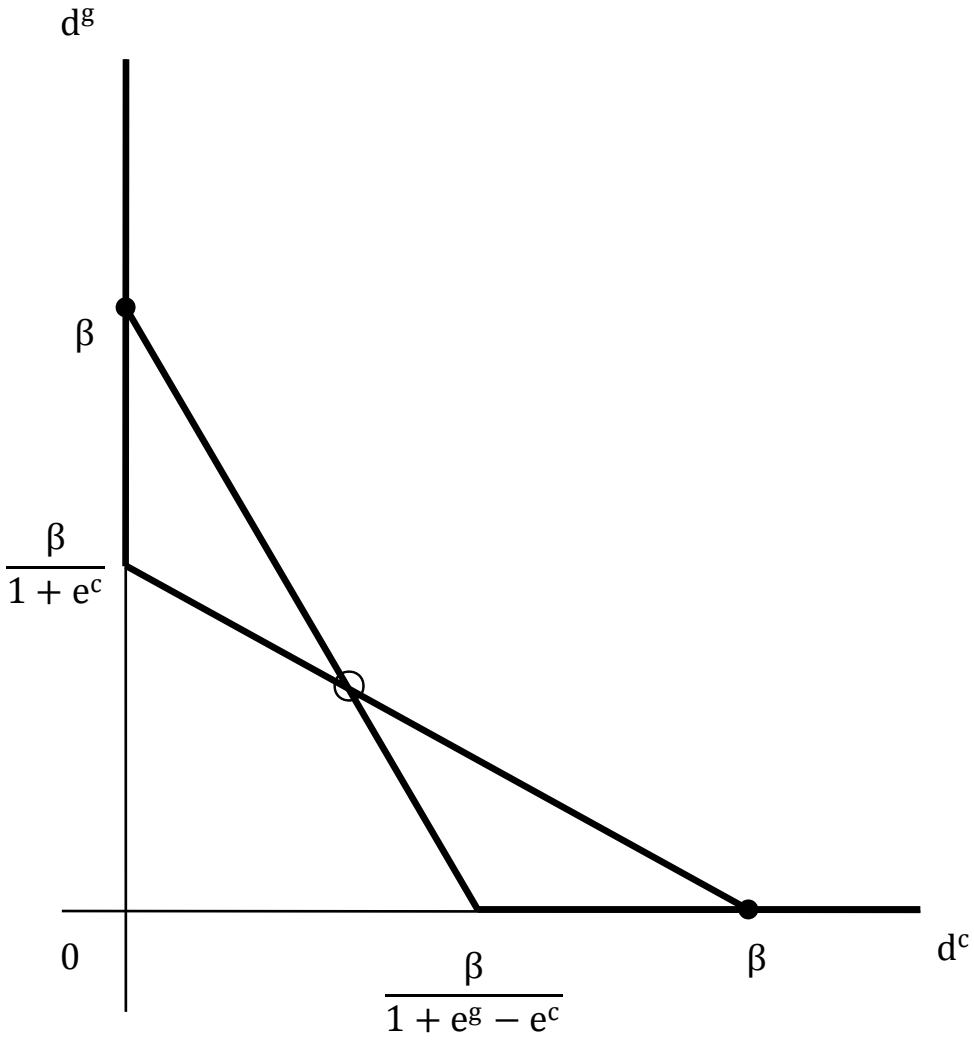

Figure 3

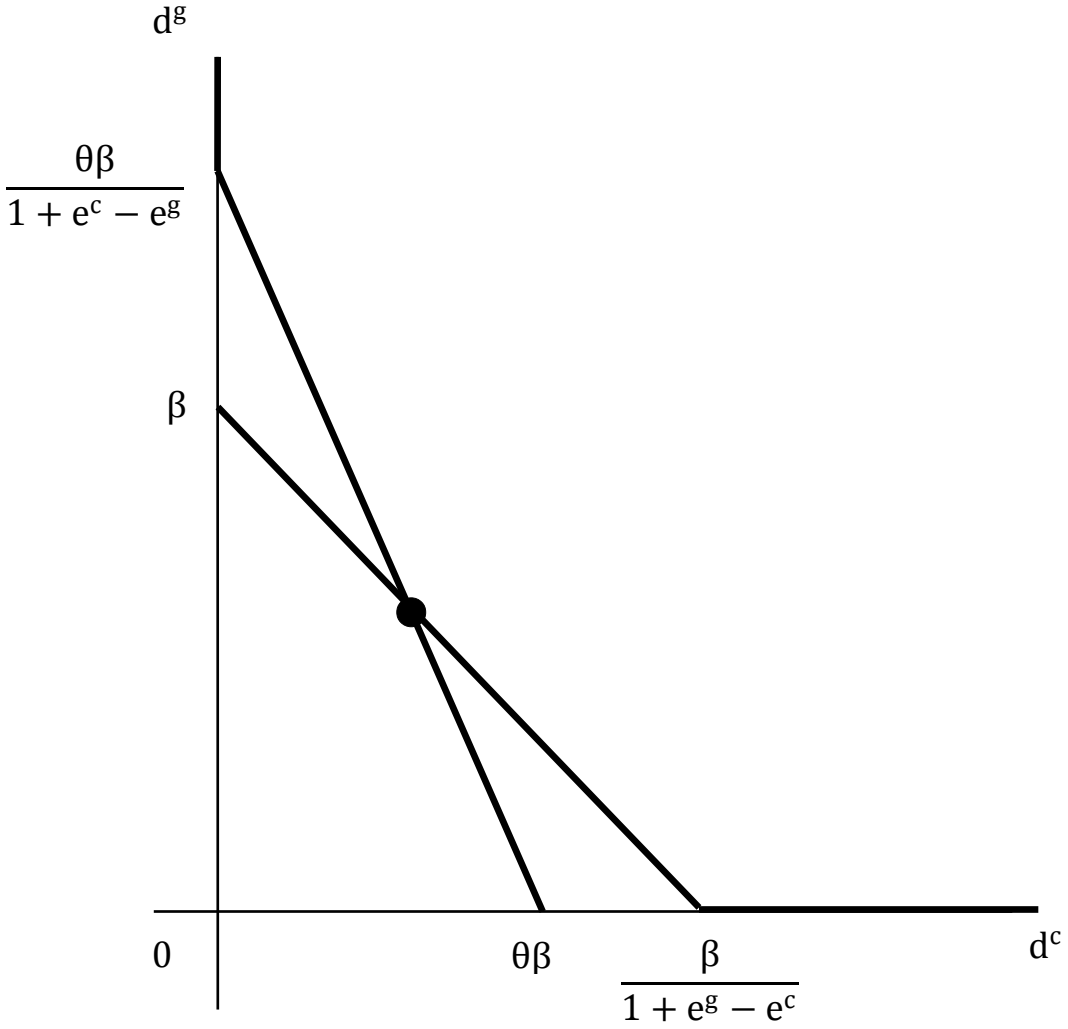

Figure 4