An Economic Analysis of Compensation Paid In Government Expropriations

Geoffrey Cullwick

Queen's University
Kingston, Ontario, Canada

March 2014

An essay submitted to the Ontario Expropriation Association in consideration for the Student Bursary.

Contents

1   Introduction

1.1   Introduction

Expropriation is perhaps one of the strongest powers given to government in that it has the potential to undermine the security of private property rights. The protection of these private property rights by the government is necessary to ensure the stability necessary for economic growth.[1] That being said, in certain cases there is a need for the government to exercise its expropriation power in order to promote social welfare. This paper will examine the requirement that the government should provide compensation when it expropriates property. Currently in the United States, the obligation of the government to pay compensation is a constitutional requirement, while in Canada it is merely the function of statutory action. Due to the lack of entrenchment of the right to expropriation in the Canadian system, there has been much more academic debate regarding if and how compensation should be determined.[2] This essay will review the economic literature on when compensation should be paid and how much. Particular emphasis will be placed on showing how the controversial claim by *Blume, Rubinfeld, and Shapiro* that no compensation should be paid is not applicable to the reality of the expropriation system. In order to do this, literature which critiques and extends the non-compensation result will be analyzed. A second focus of the paper is to compare how the theory claims that the expropriation system will operate with how expropriations are managed in reality.

---

[1]Darren Acemoglu claims that: "There must be enforcement of property rights for a broad cross-section of society so that all individuals have an incentive to invest, innovate and take part in economic activity." Source: Darren Acemoglu, Simon Johnson & James Robinson, "Institutions as a Fundamental Cause of Long Run Growth" (2005) 386 Handbook of Economic Growth at 397.

[2]Alexander Alvaro explains that the reason for omitting property rights in the Canadian constitution was due to some provinces wishing to "...safeguard the supremacy of democratic institutions from the potential ramifications.." which would be threatened if it were to be included. Source: Alexandre Alvaro, "Why Property Rights Were Excluded from the Canadian Charter of Rights and Freedoms" (1991) 24 Canadian Journal of Political Science at 311.

The balance of the paper will be laid out as follows: Section 1 will provide a discussion about what an expropriation entails, and the statutory and constitutional protections for it. In Section 2, the arguments in the key paper by *Blume, Rubinfeld, and Shapiro* entitled "The Taking of Land: When Should Compensation be Paid" will be examined in detail (henceforth known as *BRS*) in order to show how the author's non-compensation result, while important, is not realistic when all facets of the market are considered.[3] In Section 3, various critiques and rebuttals to the *BRS* model will be discussed in order to further illuminate how the *BRS* non-compensation result is limited in its application based on the restrictive assumptions made. In order to compare how compensation is determined in practice compared to how it is in the theoretical models, in Section 4 the way in which the courts in Canada adjudicate compensation claims in practice will be discussed. In this section, particular emphasis will be on how data from 35 cases from Ontario and British Columbia can be used to estimate how the compensation paid for expropriations in reality differs from what is prescribed by the theoretical models. The cases will be used to investigate how much compensation is actually paid to property owners as well as the relationship between the assessments by the property owner and the government. It will be shown that in practice, higher valued properties receive a greater percentage of the market value claimed by the property owner.

1.2 What is an expropriation?

Expropriation[4] is the compulsory acquisition of property rights by government or its delegates pursuant to statutory powers without the consent of the owner of those

---

[3]Lawrence Blume, Daniel L. Rubinfeld & Perry Shapiro, "The Taking of Land: When Compensation Should Be Paid" (1984) 99 The Quarterly Journal of Economics 71 [*BRS*].

[4]Different terms for expropriation are used in countries in the common law world, such as compulsory purchase in the United Kingdom and New Zealand, and eminent domain in the United States. In this paper, 'expropriation' will be used as a substitute for all terms.

rights.[5] In its most ordinary sense, expropriation refers to an actual taking of title from the property owner by the government. However, in both law and theory this power has been extended to also include regulatory or *de facto* expropriations. In Canada, a *de facto* taking is "...an acquisition of a beneficial interest in the property or flowing from it, and removal of all reasonable uses of the property".[6] Although the government does not actually take the title to property, the results are practically equivalent. In theory we could also treat both as economically equivalent, assuming that there is only one economically efficient compensation rule used in practice.[7] However, *de facto* takings in Canada have a limited history and play a minimal role compared to physical expropriations. As such, the focus of this paper will be on direct expropriations and how to determine compensation in these instances. Further, the data obtained from cases from Ontario and British Columbia mainly focuses on direct expropriations of land where title is taken.

1.3 Government's Power to Expropriate and the Requirement to Pay Compensation

The history of compensation in regard to expropriations in Canada has had a long and somewhat convoluted evolution.[8] Following the *English Land Clause Act* of 1845, the "value to the owner" principle was initially adopted in Canada as the measure of compensation.[9] However, in 1949, the Supreme Court of Canada defined compensation as "...what would he, as a prudent man, at that moment, pay for the

---

[5]Eric Todd, *The Law of Expropriation and Compensation in Canada*, 2d ed (Toronto: Carswell, 1992) at 20.

[6]*Mariner Real Estate Ltd v Nova Scotia (Attorney General)* (1999), at para 716 , 177 DLR (4th) 696 (NSCA) [*Mariner*].

[7]Benjamin Hermalin, "An Economic Analysis of Takings" (1995) 11 Journal of Law, Economics, and Organization 65 [*Hermalin*].

[8]Jack Knetsch and Thomas Borcherding, "Expropriation of Private Property and the Basis for Compensation" (1979) The University of Toronto Law Journal 237 at 238 [*Knetsch*].

[9]*Land Clauses Consolidation Act 1845* (UK), c 18, s 8.

property rather than be ejected from it."[10] In the subsequent decades, the federal government as well as most provinces adopted legislation setting out the rules and guidance for expropriation procedures. These include the Canadian *Expropriation Act*[11] in 1985, and *Expropriation Act*[12] in Ontario in 1990.

In these acts, there exists a strict list of forms of compensation that property owners are entitled to. Specifically, the main statutory requirement is that the government should pay market value compensation when expropriating property.[13] Current law in Canada defines 'market value' as "...the amount that the land might be expected to realize if sold in the open market by a willing seller to a willing buyer."[14,15]

While the legislation, such as the *Expropriation Act* in Ontario offer a prescription for paying compensation, there is still considerable interpretation required by the courts in applying the legislative framework to cases. The degree of interpretation that the judiciary must apply is evident in how market value, a seemingly clear metric, is determined. In most cases in which determining market value is the element of the expropriation before the court, both the government and the property owner will produce appraisal evidence about how much they feel the property is worth. At this point, it is left to the presiding judge to determine what the appropriate market value will be. It is evident that while there exists certain rules and procedures to be followed in order to determine the amount of compensation to be paid to property owners, there is still room for interpretation on behalf of the judiciary. This is especially

---

[10] *Diggon-Hibben Ltd v The King*, [1949] SCR 712, 4 DLR 785.

[11] *Expropriation Act*, RSO 1990 c E-26.

[12] *Expropriation Act*, RSC 1985, c E-2.

[13] *Supra* note 11 at s 13 (2).

[14] *Ibid* at s 13(1).

[15] There are certain instances where property owners may be able to receive compensation above market value. Under the *Expropriations Act* in Ontario, property owners can make a claim for disturbance damages (direct damages to any remaining land belonging to the property owner resulting from the government project), injurious affection damages (damages for a decrease in value of the remaining land belonging to the property owner as a result of the government project), and relocation damages (damages which may result from the property owner being required to move to a different location). Source: *Ibid* at s 13(2).

evident when the dispute before the court is in regard to the determination of exactly how much the market value of a piece of property is. There are multiple ways in which the market value of a property can be calculated, and it is often left to the court to determine which approach produces the most accurate results.

There has been much economic and legal literature on how compensation should be determined. While this literature is primarily focused on the American system, as their constitution provides that 'just compensation' is to be paid to property owners when their property is expropriated, much of this analysis is relevant to the question of how compensation for the expropriation of property should be determined under Canadian law as well.[16]

2 Economic Analysis of the Compensation Requirement

Before the *Blume, Rubinfeld and Shapiro* model will be examined, it will be useful to consider why, in general, government pays compensation for the expropriation of property. It will be shown that while there is considerable debate in the economic community about whether compensation should be paid, it is settled law in Canada that it should be paid based primarily on market value. In the United States, the common view on justifying compensation for expropriation was espoused in *Armstrong v United States*: "the 5th amendment's [just compensation] guarantee...was designed to bar Government from forcing some people alone to bear the public burdens which, in all fairness and justice, should be borne by the public as a whole."[17] This is equally applicable to the system in Canada. Further, the requirement to pay compensation is also seen as a way to discipline government into efficient decision

---

[16] *US Const Amen V.*

[17] *Armstrong v United States* 364 US 40, 49 (1960).

making. If the government is able to expropriate property without having to pay compensation to property owners then it is an intuitively appealing argument that the government will expropriate more than is efficient and will not be consistent in its decision making. This inconsistency would lead to uncertainty among property owners and investors, undermining incentives for investment and ultimately economic growth and performance.

2.1 *Blume, Rubinfeld, and Shapiro*: The Case for No Compensation

The starting point for economic analysis of compensation in this paper is the seminal and controversial work by Blume, Rubinfeld, and Shapiro entitled "The Taking of Land: When Should Compensation be Paid" (henceforth known as *BRS*). The authors focus on the effect that a given compensation rule will have on consumer investment decisions. In their paper, the authors challenged conventional wisdom that compensation should be paid to victims of expropriation by claiming that zero compensation is the efficient rule.

In their core model, in which it is assumed that the government's[18] decision making is independent of the level investment on the land, the consumer is risk neutral, and there exists government moral hazard, there exists two pieces of land owned by one consumer (the property owner) and one firm operating on each piece of land.[19] They denote these two pieces of land Type 1 land, which is the subject of expropriation, and Type 2 land which is not the subject of expropriation. Each firm will produce a given consumption good on their land according to the production functions $f(x)$ for Type 1 land and $g(y)$ for Type 2 land, of which the production goods will be purchased by

---

[18]The term 'government' will be used in this paper to mean all expropriating bodies.

[19]*Supra* note 3 at 73.

the consumer. The consumer (who is also the property owner) will choose a level of investment in the Type 1 land knowing that there is a probability (α) that their land will be expropriated. If their property is expropriated, the investment in the property has no value to the owner.[20] In this model, capital investment is immobile, thus the market system is not complete. As such, solving the model will determine a 'second best' solution in light of the missing market for capital.[21]

We will first consider solving the problem from the perspective of the social planner. If the consumer is risk neutral, then the socially optimal level of investment on Type 1 and Type 2 land, given by x^* and y^*, is found by solving the following maximization equation for B, being the social benefit of the land:[22]

$$max \ (1 - \alpha)q_N + \alpha(q_T + B) \tag{1}$$

with respect to x,y and subject to the utility constraints when land is taken (q_T) and when is not taken (q_N):

$$
\begin{aligned}
q_N &= f(x) + g(x) \\
q_T &= g(y) \\
x + y &\leq 1
\end{aligned}
\tag{2}
$$

However, in order to solve for the optimal level of investment, we must re-write the problem in (1) as:

$$max \ S(x) = g(1 - x) + (1 - \alpha)f(x) + \alpha B \tag{3}$$

---

[20] *Ibid.*
[21] *Ibid* at 76.
[22] *Ibid.*

7

which solves to give the first-order condition:

$$(1 - \alpha)f'(x) - g'(1 - x) = 0 \tag{4}$$

This represents the optimal allocation of capital between Type 1 land and Type 2 land in light of the possibility of the Type 1 land being expropriated. However, the competitive allocation of capital investment between the two types of land is determined by considering the incentives of the consumers and the firms as reflected by the consumer's demand for the consumption good and the firm's demand for capital. Firstly, the incentives of the consumers will be considered. The consumers' demand function is given as the solution to:

$$max \ \alpha(q_T + B) + (1 - \alpha)q_N \tag{5}$$

with respect to q_T and q_N and subject to:

$$p_N q_N + p_T q_T \leq r + \pi \tag{6}$$

with p_N and p_T being the prices of the contingent claims, π being the sum of profits from the sale of the contingent claims based on the output of the two firms, and r being the rate of the return on the sale of a unit of capital. From equation (5) we can see that the consumer will maximize the sum of their profits in the likelihood that the Type 1 land is taken and if it is not taken. We can now consider the incentives for the firms.

The firms' profit maximization problems are given as follows, for $C(x)$ being the compensation schedule.

For Firm 1:

$$P_1 = (1 - p_T)f(x) + p_T C(x) - rx \tag{7}$$

For Firm 2:

$$P_2(1 - x) = g(1 - x) - r(1 - x) \tag{8}$$

Using the first-order conditions from three maximization equations (equations (1),(3), and (5)), the authors show that if the consumer is risk neutral, a lump-sum compensation schedule, or in particular, no compensation is efficient.[23] In the lump-sum compensation case, this is reflected by having $C'(x) = 0$ for all x and in the special case of no compensation it would be represented by $C(x) = 0$.[24] The authors acknowledge that while their result may be the economically efficient result, by law full compensation $(C(x) = f(x))$ is required to be paid.[25] As such, they then consider a model in which compensation paid is relative to the lost profits of the expropriated land (δ) and lost capital costs (γ).[26] More specifically, they consider a compensation scheme represented by:

$$C(x) = \delta(p_N f(x) - rx) + \gamma rx \tag{9}$$

They conclude that if the consumer is risk neutral then the only efficient compensation scheme is one in which compensation is purely based on lost profits and not capital costs $(\gamma = 0)$.[27] We can see that this measure of compensation is not based on the market value of the property in question. Full compensation, as defined in this model as the case in which both $\gamma = 1$ and $\delta = 1$, is inefficient as it leads to over-investment.

    BRS conclude with the following intuition for why full compensation in this case is

---

[23] A detailed proof of this conclusion is available at page 78 of *BRS*.

[24] *Supra* note 3 at 78.

[25] *Ibid* at 80.

[26] *Ibid.*

[27] A detailed proof is available at page 81 of *BRS*.

inefficient: if we were to fully compensate property owners for the investment on their land, then property owners would over-invest in the Type 1 land. Full compensation would provide full coverage insurance to the property owner in light of the risk of the expropriation, without having to pay an insurance premium.[28] Due to the lack of cost associated with the essentially free insurance provided by full compensation, the property owner does not have to account for the effect that the lost investment in their land if the property is expropriated would have on societal welfare.

2.2   *Blume, Rubinfeld, and Shapiro*: Model Extensions

BRS then relax the assumption that the government's project choice does not depend on the current use of the land. This makes their model more realistic, as it would seem intuitive that the government would consider characteristics of the land, such as level of investment, in making its expropriation decision. In the model, the firm operating on the Type 1 property will produce according to the production function *f(x)*.[29] It is assumed that if the consumer is risk neutral, if the land is taken, all capital investment is lost and that compensation schemes are limited to those in which the compensation paid is proportional to the forgone rents and capital, the government will undertake the project when $B > f(x)$ where B is the public benefit of the project.[30] We know that *f(x)* is dependant on the level of investment in the Type 1 land. To find the optimal level of x for the consumer, we can consider the government maximizing the social welfare, given as $S(x)$ with respect to x:

$$max\ S(x) = [f(x) + g(1 - x), (1 - \alpha)f(x) + g(1 - x) + \alpha B] \qquad (10)$$

[28] *Supra* note 3 at 81.
[29] *Ibid.*
[30] *Ibid* at 82.

Since the choice to undertake the project or not is dependant on B - $f(x)$, we can see that a likely moral hazard problem will arise here. First, if it is socially optimal not to expropriate the land, then both no compensation ($\gamma = 0$ and $\delta = 0$) and full compensation ($\gamma = 1$ and $\delta = 1$) are efficient.[31] If the optimal government decision is to take the land, then there is an incentive for the consumer to over-invest in the land so as to increase the market value of their land, thus decreasing the probability that their land is taken. In order to combat this problem, *BRS* advocate using a comparison between the net benefits, B, and the opportunity cost of the taken land evaluated at the optimal investment in Type 1 land ($f(x^*)$). *BRS* further conclude that the expropriating body should base their decision making on the market value of the property without regard to the effect that expropriation has on the land's value.[32] The inclusion of market value as a metric for the government is of particular note here, as it opens the door to modifying the intuition behind the non-compensation result to situations in which paying zero compensation may not be efficient. *BRS* conclude that in this model, both no compensation and compensation based on market value are inefficient.[33] As such, an efficient outcome can be achieved with a form of lump-sum compensation.

BRS then consider how the model would be altered if the consumer were risk averse and there is no moral hazard problem. They determine that in this situation their conclusions remain the same as with a risk neutral consumer. The mathematical analysis is similar as above, however the consumers utility function was altered to be concave rather than being state contingent.[34] This distinction must be made because with a risk averse consumer the relationship between the likelihood of their

---

[31] A detailed proof is available at page 83 of *BRS*.
[32] *Ibid* at 85.
[33] *Ibid* at 86.
[34] *Ibid* at 87.

property being expropriated and their corresponding investment decisions must be continuous. This results in the conclusion that if there are markets for consumption in both possible states (if property is taken, and if property is not taken) then a given compensation rule is only efficient if $C'(x*) = 0$ where x^* is a given competitive allocation.[35] Further, lump sum compensation $(C = C^*/\alpha)$ is efficient but full compensation $(\gamma = 1$ and $\delta = 1)$ is not.[36] It would appear here that compensation can serve as insurance for the risk adverse consumers, but in fact BRS claim that the consumers will purchase insurance through other markets in order to satisfy the efficiency of their system.[37] This claim will be rebutted in a subsequent section.

The final extension made by BRS is how compensation is affected when governmental project decisions are subject to fiscal illusion. "Fiscal illusion" occurs when the government only considers the costs of its projects in terms of the actual money spent, and "[i]n the extreme case, only dollars actually paid enter as costs in the cost-benefit calculation".[38] More specifically, fiscal illusion refers to instances in which the government intends to act correctly in its decision to expropriate property or not, but makes mistakes. As such, compensation here can help lead to a first best allocation of project decisions. In this model, the social welfare function is the same as before, however the constraint of when the government will undertake the project is now given as:

$$B - C > \theta(f(x) - C) \tag{11}$$

Where C is some amount of compensation paid and θ is the level of fiscal illusion present $(0 < \theta < 1)$. With $\theta = 1$ there is no fiscal illusion and the project decision is made according to $B = f(x)$ as before where the risk neutral government's decision

[35] *Ibid.*

[36] *Ibid* at 88.

[37] *Ibid.*

[38] *Ibid.*

is dependant on the amount of investment on the land. If $\theta = 0$ then the project is undertaken when $B > C$, in which the government counts actual compensation paid as costs, but completely ignores any lost value of output from the Type 2 land. BRS conclude that neither full compensation nor zero compensation is efficient, as the optimum lies somewhere between the two extremes.[39]

In conclusion, the general claim that paying zero compensation is the efficient rule was a surprising and provocative claim. However, when the underlying assumptions behind this conclusion are modified, paying zero compensation becomes inefficient. Specifically, it was shown that when the government's expropriation decision is made based on the level of investment on the land, then both market value and zero compensation are inefficient, and that compensation should be based on a lump sum transfer. Further, when the consumer is risk averse as opposed to risk neutral, lump sum compensation is also the efficient solution. In the following section, it will be shown that by relaxing some of the assumptions made by BRS the zero compensation result also fails to hold under certain fairly realistic circumstances.

3   Criticisms of the BRS Model

While the BRS model was somewhat revolutionary in its conclusion that compensation should not be paid, it has not been without reproach. In this section, alternative models of expropriation will be examined in order to show how when the assumptions from the BRS model are altered, the non-compensation result does not accurately reflect reality.

---

[39] *Ibid* at 89.

3.1 Government Decision Making and Incentives

The first aspect of *BRS* that will be critiqued is their assumption that the choice to expropriate property should be made in terms of a private (ie: not public) decision. More specifically, in the *BRS* model the government acts in a similar fashion to a private actor in choosing an optimal solution to its maximization problem. Further, the particular characteristics of the government as a decision maker acting on behalf of its citizens are not incorporated in the *BRS* model. This is especially important as once the incentives and decision making processes are modified it can result in different efficient solutions for the government which may not mirror the results found by maximizing the welfare function. Fischel and Shapiro (*FS*) consider an alternative approach to the government's behaviour using a public choice model.[40] Their analysis simulates a convention where people will determine for themselves what rule for compensation would be implemented by the government in the future (from 0-100 per cent compensation) for a given piece of land. It is also important to note here that the participants in the convention will choose a compensation level prior to having knowledge about which properties are to be taken, and the particular characteristics of these properties. They conclude that the optimal compensation rule, derived from a Rawlsian public choice framework, is a positive level of compensation if the participants will act in a 'majoritarian', rather than a Pigouvian fashion (as in *BRS*).

In order to make a clear comparison with *BRS, FS* consider when paying zero compensation would be chosen by the participants in their constitutional conference. In their model, this will be determined by the type of government decision making that is imputed to the participants: majoritarian or Pigouvian. A Pigouvian government will maximize the social welfare function with respect to p, the likelihood the

---

[40]William A Fischel & Perry Shapiro, "A Constitutional Choice Model of Compensation for Takings" (1989) 115 at 116.

piece of land will be expropriated:

$$W(p) = NQ(Np) - Npf(x) \tag{12}$$

In this equation $W(p)$ is the value of the social welfare, N is the number of landowners, Q is the level of the public good, and $f(x)$ is the production function based of the level of investment, x. Differentiating the above social welfare function with respect to p gives the first order condition for government optimization:

$$NQ'(Np) = f(x) \tag{13}$$

From this equation we can see that the left hand side is simply the marginal benefit of taking more property for public use, and the right hand side is the marginal cost of an increase in amount of property taken. We can see that from equation (13) that the first order condition for the government's optimization function does not depend on s^*, the optimal level of compensation. This leads to the conclusion that if the government is Pigouvian, optimal compensation is zero compensation, that is $s = 0$.[41]

However, *FS* argue that giving the government Pigouvian behaviour is inappropriate, as the reason for including the 'just compensation' requirement in the Constitution was to "...curb the inclinations of political majorities to impose excessive burdens on politically isolated minorities", and that this effect cannot be captured in a Pigouvian setting.[42] In the majoritarian model, the government will choose to maximize the welfare of the majority of voters, giving no emphasis on the welfare of

---

[41] *Supra* note 40 at 121.
[42] *Ibid* at 122.

the minority. The majoritarian government's objective function is given as:

$$M(p) = Q(pN) - \left[\frac{p}{(1-p)}\right] sf(x) \tag{14}$$

When (14) is maximized with respect to p, the first order condition is:[43]

$$4NQ' - (1-p)^{-2}sf(x) = 0 \tag{15}$$

We can compare the first order condition result here directly to that under a Pigouvian government as in equation (13):

$$NQ'(Np) = f(x) \tag{16}$$

We can see that the optimal level of compensation, s, is explicitly included in the first order condition in the majoritarian model. As such, FS conclude that neither zero compensation nor full compensation is optimal. Zero compensation is not optimal since the members of the convention are aware that their calculated income after the expropriation rises with the level of compensation paid. However, the *ex ante* income of the participants reaches a maximum at some point less that full compensation.[44]

FS further state that the optimal compensation rule, with s being be some level between full compensation and zero compensation under a majoritarian government model, is similar to the BRS result within the scope of the fiscal illusion problem.[45] However, the way in which the BRS and FS determine this result is different. In BRS

---

[43] *Ibid.*

[44] *Ibid* at 123.

[45] *Ibid.*

it is assumed that the government intends to act correctly in making expropriation decisions but makes mistakes. In the majoritarian model as is shown here, expropriation decisions which are not made correctly (mainly properties which were taken which should not have been) are not the result of mistakes by the government but are made according to conscious government policies with the goal of gaining extra votes from the majority.[46] As such, a positive amount of compensation is necessary in order to offset the pressure from the majority and to promote overall social welfare rather than simply the welfare of one group. The intuition behind this is simple: if the government only cares about the majority of its citizens and is not required to pay compensation for expropriations, then the government will take too much property from those in the minority "...since the majority receives higher benefits with additional expropriation but does not have to pay for them."[47]

Nosal argued in his 2001 paper that even though FS prove that efficiency dictates that the government should pay some fraction of the market value as compensation, it is not an optimal solution as property owners will still over invest in their property.[48] In his model, Nosal assumes that a citizen which forms the government will take expropriation actions, acting as the government, in order to maximize their expected utility. His model specifically addresses his main criticism of FS: that government's do care about being elected so that they can exercise power. As such, government preferences should be defined over that goal rather than the payoff that a citizen in the majority receives. In order to address this issue, Nosal assumes that the individual who forms the government will not be making decisions for the benefit of the political

---

[46] *Ibid.*

[47] Ed Nosal & Ron Giammarino, "Loggers versus Campers: Compensation for the Taking of Property Rights" (2005) 21 Journal of Law, Economics, and Organization 433 [*Nosal and Giammarino*].

[48] Ed Nosal, "The Taking of Land: Market Value Compensation Should be Paid" (2001) 82 Journal of Public Economics 431.

majority (as in *FS*), but for themselves. He proposes that the optimal compensation solution would entail paying a property owner who is the victim of expropriation the average market value of all properties in society. In the sub-game perfect Nash equilibrium, all property owners will receive the actual market value of their property. This solution has as its goal to restore equality among property owners in society. This is achieved as a property owner will receive a payoff which is independent of whether or not their property is expropriated. This further implies that the government will end up making expropriation decisions which are in society's best interests. Once again, we can see that this mechanism has as its goal to re-establish equality among property owners, similar to the positive compensation plan from *FS* with one key difference: *Nosal* bases his compensation plan purely on the average market value of all properties in society whereas *FS* only consider the value of a single property.

An obvious drawback of *FS* model is that their conclusions are one dimensional in the sense that they limit their analysis to assuming that the government is a non-benevolent actor. In order to fully capture the effect of the government's incentives on the optimal compensation scheme, it would be necessary to conduct the analysis set out in *FS* from the perspectives that the government acts both benevolently and non-benevolently. In order to address this issue, Benjamin Hermalin formalized a model of compensation and expropriation which somewhat mirrors the fiscal illusion problem posited by *BRS*.[49] He determined that by tying compensation to society's benefit from the expropriation rather than what the property owner loses from the expropriation, we are able to successfully alleviate the problem caused by having a government act non-benevolently in regard to expropriating property from its citizens.[50] This reflects a fundamental difference between *Hermalin* and the previous models by *FS* and

---

[49] *Supra* note 7.
[50] *Ibid* at 66.

Nosal. In the former two models, the way in which the government was constrained was through paying compensation as a function of either only the property being expropriated, or all properties in the market. However *Hermalin* considers that the most efficient way to prevent the government from making expropriation decisions which are not for the benefit of society is to link compensation to society's benefit from expropriating the land.

The model is similar to *BRS* in that a risk adverse citizen invests in their property. The state can then take the property, in which case the owner would lose the benefit gained from the investment, and society gains the social benefit, s.[51] We can consider s either to be the harm to society if the owner uses their property (eg: pollution due to a procession plant operation) or the benefit to society if the government takes and use the property (eg: a hospital). The social welfare is maximized when $s > b$ (private benefit of the property when it is not expropriated).

Firstly, *Hermalin* assumes that the state acts to maximize social welfare, in that they are a benevolent actor. In the context of this model, it means that if the property owner does not already know the value of s, the state will truthfully report it to them. Under this assumption, *Hermalin* concludes that both full compensation and no compensation will not achieve efficiency as they will both lead to over-investment.[52] This somewhat mirrors the conclusion found by *BRS* under their fiscal illusion assumption and the general conclusion found by *FS*. As a solution to this problem, *Hermalin* proposes a system in which if the government wishes to expropriate property it will either have to pay the owner the social benefit of the land (s) or the property owner will have to pay the government s in order to keep the property. The utility maximization problem of the consumer is given by the following expression, for $F(s)$ being the probability that the social benefit is s or less, $F(0)$ being the probability that

---

[51] *Ibid* at 68.
[52] A full proof is available at page 70 of *Hermalin*.

society receives no benefit from the project, and $G(b; I)$ being the probability that the property owner's private benefit of the property should it not be expropriated is $\leq b$:[53]

$$max \int_0^B \left[bF(0) + \int_0^b (b-s)f(s)ds \right] g(b; I)db - I \qquad (17)$$

We can see that this is simply the expected social welfare under property investment, I.[54] An immediate problem of over-compensating the property owner becomes evident. If compensation for the property owner is based on the social benefit, then it is likely in many cases that the social benefit is significantly greater than the private value of the land. An example of this would be the expropriation of a family home for the purpose of constructing a hospital. The social value of the hospital is likely to be extremely large in comparison to the private benefit of the home, thus in order to restrict the compensation to be paid the state can impose an upper limit on the social benefit.[55]

In order to relax the assumption that the state acts benevolently, *Hermalin* assumes that the government will expropriate property if and only if the social benefit of the expropriation is greater than what they have to pay the property owner (when $s > p$ with p being the payment to property owner). We can distinguish this from the expropriation condition when the government acts benevolently, that the government will only take property if the social benefit of the expropriation is greater than the private benefit. We can see that the difference in approaches lies primarily in the fact that as a benevolent actor the government cares about the well-being of the property owner whereas when the government is non-benevolent they care more about financial efficiency.

The first best solution to the problem in this case will be determined by whether

---

[53] *Ibid* at 72.
[54] *Ibid* at 71.
[55] *Ibid.*

or not the government can be forced to reveal the social benefit to the property owner. If so, then the first best solution can be either method of compensation as determined above. If the government cannot be forced to reveal the social benefit from the project requiring the property, the same result does not hold and a more complicated mechanism will achieve the first best solution.[56] In this mechanism, the property owner will set a 'price' of their choosing for their property, β, for which the mechanism ensures that they attempt to set $\beta = b$, for b being the property owner's private benefit of their property. This is ensured by having $A(\beta)$ equal the state's expected surplus of it were to expropriate the property at price β. As such, the property owner is in effect capturing total social welfare through their choosing β.

In this mechanism, regardless of whether or not the government actually expropriates the property or not, the government will be required to make a base transfer of some function $A(\beta)$.[57] As such, only β matters for the state's decision whether or not to take the property. The mechanism which will induce the citizen to invest efficiently and to choose an appropriate level of β is given by the following equation, where t is a non-negative constant which will be set to ensure that the government will expropriate property for which $s > 0$:

$$A(\beta) = \left[\int_{\beta}^{S} (s - \beta) f(s) ds \right] - t \qquad (18)$$

From the above equation, $A(\beta)$ represents the base transfer when it is efficient for the government to expropriate the property (ie: when the state's expected surplus from expropriating the land, $\int_{\beta}^{S} (s - \beta) f(s) ds$ is greater than zero). Further, it is clear that $A(\beta)$ will be less than zero for some values of β, thus requiring that the citizen pay the state in certain cases. We can see that this compensation mechanism

---

[56] *Ibid* at 74-75.
[57] *Ibid* at 75.

does not explicitly depend on the actual market value of the property. The property owner's choice of β is aimed to estimate their private benefit of their land, and may be determined by a metric other than market value. The possibility of property owners valuing their property in a manner which does not explicitly incorporate market value will be explored further in Section 4.3. In conclusion, *Hermalin* showed that if we consider that the government will act non-benevolently, we can still determine an efficient compensation solution. His model was notably different than those from *FS* and *Nosal* in that he claimed that efficiency required that compensation should be based not on the value of what the citizen loses, but on the value of what society gains. This could be achieved either by the property owner paying the government in order to maintain possession, or the government paying the property owner in order to expropriate their property.

Hermalin has claimed that his 'pay or be paid' mechanism if economically efficient regardless of which measure is adopted.[58] He claimed that on a basic level this problem simply mirrors the Coase theorem.[59] For empirical evidence of the equivalence of this method of dual compensation, *Knetsch and Sinden* conducted five tests with university students.[60] They were investigating the common presumption that "...aside from small differences due to income or wealth effects, estimates of value [of either paying or being paid] will be invariant between the two measures proposed by *Hermalin*."[61] The tests they performed involved either giving participants money for which they could buy an object or giving the participants the object and then offering them various amounts in exchange for it. The authors conclude that "...the value of entitlements may be substantially greater when measured in terms of compensation

---

[58] *Ibid* at 66.

[59] Ronald Coase, "The Problem of Social Cost" (1960) 3 Journal of Law and Economics 1.

[60] Jack Knetsch & J Sinden, "Willingness to Pay and Compensation Demanded: Experimental Evidence of an Unexpected Disparity in Measure of Value" (1984) 99 The Quarterly Journal of Economics 507 [*Knetsch*].

[61] *Ibid* at 507.

required than it is when measured in terms of willingness to pay".[62] They attribute the differences to various cognitive biases.[63] From this conclusion we can deduce that the mechanism proposed by *Hermalin* may not be as efficient as he believed. If property owners are likely to demand more compensation to allow their property to be taken than they would pay to keep their property, then an incentive is created for the government to make claims to expropriate more property than is efficient. It is important here to note that studies such as the one by Knetsch and Sinden have not been without criticism, as is especially evident by the study published by Plott and Zeiler, in which they identify many common research methodology errors in studies attempting to describe the gap between willingness to pay and willingness to accept.[64]

Another model which challenged *BRS's* assumptions regarding government action and decision making is that by *Nosal and Giamarino*.[65] In their model they start with the assumption that the government will explicitly prefer one group over another, rather than having Pigouvian type preferences as in *BRS*.[66]. The model previously discussed by *FS* referred to the government maximizing the interests of a given majority whereas *Nosal and Giamarino* only considered the interest of two distinct groups. *FS* concluded that a proportion of market value between zero and full compensation is necessary to achieve efficiency, whereas *Nosal and Giamarino* claim that they erroneously rule out forms of lump sum payments. The model from *Nosal and Giamarino* specifically questions two key assumptions made by *BRS*. The first is that there is no government moral hazard, and the second is that private investment

---

[62] *Ibid.*

[63] *Ibid* at 517.

[64] Charles Plott & Kathrym Zeiler. "The Willingness to Pay/Willingness to Accept Gap, the "Endowment Effect", Subject Misconceptions and Experimental Procedures for Eliciting Valuations" (2004) American Economic Review 1.

[65] *Supra* note 47.

[66] *Ibid* at 138.

has no social value if property is expropriated by the government.[67] Once *Nosal and Giamarino* allow for lump sum payments to serve as compensation, rather than simply a percentage of market value and relax the previously mentioned assumptions, they conclude that the optimal compensation rule will depend on market value.

In the model there are three agents: the logger (who wants to exploit the land), the camper (who wants to maintain the land as it is) and government who is concerned with the welfare of either the logger or the camper. As such, the government will maximize the following equation, with x being the level of investment (amount of tree planting in this case), τ being the the government takings rule, β being the external private benefit of keeping your property right, and π being the profit from being compensated for a loss of a property right :[68]

$$max\ G_\omega(\tau; x; K) = \omega\pi^l(x, \theta, \beta) + (1 - \omega)\pi^c(x, \theta, \beta) \tag{19}$$

subject to $\omega \in (0, 1)$ where ω reflects the preferences of the government ($\omega = 1$ if the government only cares about the welfare of the logger and $\omega = 0$ if the government only cares about the welfare of the camper). We can see from (19) that the two terms reflect the profits to the logger (π^l) and to the camper (π^c) respectively. *Nosal and Giamarino* consider a compensation rule in which compensation, K, is given as:

$$K(\theta s) = a + b\theta x \tag{20}$$

for which θ is the rate of productivity and a and b are constants. Under this formulation, market value would be determined as $b = 1$ and $a = 0$ whereas a lump-sum transfer would constitute $a > 0$ and $b = 1$. If it is assumed that there is no gov-

---

[67] *Ibid* at 137.
[68] *Ibid* at 141.

ernment moral hazard, the result is consistent with the *BRS* conclusion in that the first best solution can be achieved with compensation that is not dependant on the market value of the expropriated property. However, the conclusion that the first best solution is independent of market value differs from the *BRS* result in that it states that lump-sum compensation is possible and that optimally $a = 0$.

Nosal and Giamarino then consider how their conclusion would differ if the problem of government moral hazard is introduced. Here, it refers to the fact that the government's preferences will not echo that of the social planner. This fact implicitly captures the effect that government moral hazard has on the optimal compensation rule as in *BRS*, however the resulting implication for the optimal compensation rule is different. This is the case because here compensation will be depend of the market value of the property. More specifically, under this assumption and when the government only cares about the camper's welfare, the optimal amount of compensation will depend on market value ($b \neq 0$). If the government only cares about the logger's preferences than optimal compensation will be equal to the expected alternate private value, $E(\beta)$, or the market value, θx (with θ) being the productivity of the potential future output.[69] The authors conclude that since market value is optimal for some types of government preferences (when loggers are favoured) and has a low cost for other types of preferences (when campers are favoured), market value is the ideal measure of compensation.

3.1.1 Compensation Dependant on Use of Property

While the previous papers have primarily focused on how to model the government's behaviour, they do not consider the possibility that the government's expropriation actions may be disciplined by the use to which it plans on using property. *Krier and*

---

[69]*Ibid* at 149.

Serkin consider a model in which the level of compensation that should be paid is determined by the purpose or use the government is expropriating the property for.[70] It must first be noted that in the United States Constitution the phrase: "...unless for public use" attempts to limit expropriations to cases in which the government project would overall be welfare improving for society, whereas the same limit does not exist in Canadian legislation.[71] However in Canada, it would still be possible to distinguish different types of governmental uses of property in order to determine compensation even if the use is not a key element of the expropriation action.

The authors consider three categories of uses to which compensation they claim compensation should depend on. The first is a purely public use, such as the construction of a new highway or a hospital. In this situation compensation should depend simply on market value because the public project will implicitly provide some benefit to the property owner which makes up for the perceived under-compensation problem.[72] For example, if property is taken in order to construct a new hospital, it is likely that the property owner whose property is taken will receive some benefit from the hospital. The amount of the indirect gain to the property owner, while difficult to calculate, is claimed to somewhat compensate for market value under-compensating them. It must be noted here that it is viewed in much of the literature that fair market value does not fully compensate the property owner.[73] At the opposite end of the spectrum are purely private transfers or 'naked transfers'. In this category, *Krier and Serkin* recommend that a 'gain-based compensation' schedule be used. This would "...give condemnees awards based on the value their property would have had if they

---

[70] James Krier & Christopher Serkin, "Public Ruses" (2004) Michigan State Law Review 859 at 868 [*Krier and Serkin*].

[71] *Supra* note 12.

[72] *Krier and Serkin, supra* note 70 at 866.

[73] Katrina Wyman, "The Measure of Just Compensation" (2007) 17 New York University Law and Economics Working Papers 251 at 252 [*Wyman*].

had been able to hold out for the anticipated gains of the condemnation".[74] This does not attempt to put the property owners in the same place they would have been had there been no expropriation, but rather compensate them for the social value created by the project requiring expropriation. We can see the key distinction between this category and that of a purely private project in that the property owner whose property is expropriated for a purely private use will likely not receive any indirect benefit from the project. This is similar to the compensation program espoused by *Hermalin* except in this case it would be the private gain of another party as opposed to the public gain which is paid to the property owner. The last type of property use, 'public ruses', lie in the middle of the two extremes considered above. *Krier and Serkin* define 'public ruses' as uses to which property is transferred to private parties, but to which there may be"diffused economic benefits" to the transfer.[75] This may include the construction of a shopping centre. Under this type of use, the authors recommend "..valuing the condemned property using projections about the economic benefits of the government action instead of using the economic conditions as they actually exist at the time the government takes the property".[76]

From *Krier and Serkin* we can deduce that if the compensation to be paid to property owners is dependant on the use to which the government is putting the property, governments will be appropriately constrained and will make efficient expropriation decisions. This standard, while much simpler than many other models, has an obvious drawback in its applicability to the Canadian expropriation system. While having three distinct categories to which expropriation cases will fit creates a simple metric for compensation, it removes the necessity in having compensation being a continuous function from case to case. If the system from the United States

---

[74]*Supra* note 70 at 870.
[75]*Ibid* at 867.
[76]*Ibid* at 869.

is followed in Canada in having the court adjudicate the validity of the government's claimed use, than it is likely that courts will develop rules which will determine what uses fall under which category. On its face, this would seem to be a useful tool. However, in the United States, the case of *Kelo v City of New London* exemplified the fact that if the determination of what constitutes different types of uses for property is left to the judiciary then there will not be consensus and economic uncertainty will ensue.[77] As such, *Krier and Serkin's* metric is likely not easily implementable in its current form.

3.1.2 Utilitarian Perspective

Frank Michelman conceived of a different way of looking at the issue of when to pay compensation.[78] *Michelman* approaches the issue of how to characterize government from a utilitarian perspective with a Rawlsian fairness criterion. More specifically, he claims a utilitarian would consider three factors when deciding if compensation should be paid: efficiency costs or gains associated with the expropriation (the excess benefits produced by a government project over the losses which are inflicted by it, with the benefits measured as the amount the government would be willing to pay to expropriate the property, and the losses being measured as the amount the property owner would demand in order to agree to the expropriation) , demoralization costs if no compensation is paid (the amount required to offset the disutility of the property owners from not receiving compensation) , and settlement costs (the cost which would be required in order to reach a compensation settlement in order to avoid demoralization costs).[79] We can see that the components of *Michelman's* analysis go beyond simply finding the economically efficient compensation scheme and

---

[77] *Kelo v City of New London*, 545 US 469 (2005).

[78] Frank Michelman, "Property, Utility, and Fairness: Comments on the Ethical Foundations of "Just Compensation" Law" (1967) 80 Harvard Law Review 1165 [*Michelman*].

[79] *Ibid* at 1214.

consider what is fair or just. Most economic focus is placed on settlement costs, or transaction costs, which are the cost required in order to reach a settlement offer to avoid demoralization costs. *Michelman* then combines these three factors to what he calls a utilitarian filicific calculation.[80] A government with utilitarian preferences will undertake a given project if if the net benefit from the project would be greater than both settlement costs and demoralization costs: $(B - C) < min(D, S)$ (with $B =$ government benefits, $C =$ costs, $D =$ demoralization costs, $S =$ settlement costs).[81]

In regard to compensation, if settlement costs are lower than the demoralization costs then the government should pay compensation, where as if settlement costs are higher than demoralization costs compensation should not be paid.[82] This identity captures the fact that government should pay compensation to a property owner when the property owner will deem the compensation for their property as being a fair and equitable exchange. If the property owner believes that the exchange is not fair and equitable, than the demoralization costs are likely to be quite high. As such, the government should pay compensation when $(B - C) > S$ and if $S > D$, and should not pay compensation when $(B - C) > D$ and if $D > S$. *Michelman* further advances that if the net benefits from the project are positive and are greater than either S or D (or both) than the lesser of S or D should be paid by the government as compensation.

It is important here to note that while *Michelman's* utilitarian filicifc calculation is often referred to as an efficiency criterion, it does not imply that the government should make only Pareto-efficient decisions in when to expropriate property. We can see that if $(B - C) > D$ and $D < S$ property will be expropriated but it will be too costly to compensate the property owner.[83] As such, *Michelman's* criterion is a much

---

[80] *Ibid* at 1215.
[81] *FS, supra* note 40 at 279.
[82] *Ibid* at 280.
[83] *Ibid.*

more lenient standard than the strict Pareto efficiency required by *BRS*.

There are two commonly held critiques of *Michelman's* model. The first refers to how to classify the moral hazard problem from *BRS*. *FS* claim that the moral hazard problem described by *BRS* fits into the demoralization cost analysis rather than under settlement costs. The second critique is the use of a majoritarian model of governmental behaviour. Firstly, *Kaplow* has argued that demoralization costs end up mitigating against compensation rather than for it.[84]. As such, he claims that they should be be incorporated into the settlement costs analysis from *Michelman*. However, *Fischel and Shapiro* argue that the moral hazard problem should be incorporated into demoralization costs rather than in settlement costs.[85]. This is due to the fact that moral hazard arises because property owners expect that compensation will be paid. If there is a compensation scheme in place, people will have an extra incentive to claim losses associated with expropriations when they are not necessarily affected by the expropriation. This is essentially the moral hazard problem *BRS* considered, and would fit under demoralization costs. *BRS* would argue that people claiming to be victims of expropriation when they are not would in fact mitigate against compensating the actual victims in an expropriation, which is analogous to having high settlement costs work against compensation in *Michelman*.

The second critique of *Michelman's* model stems from his claim that the source of demoralization costs is the risk of "majoritarian exploitation".[86] He claims that there is a fundamental difference between how people feel about being exploited (if their property is taken) by majoritarian government as compared to their feelings towards random hazards. In a majoritarian government decisions to expropriate property are

---

[84]Louis Kaplow, "An Economic Analysis of Legal Transactions" (1986) 99 Harvard Law Review 511at 567. at 561.

[85]*Supra* note 40 at 284.

[86]*Supra* note 78 at 1216.

fundamentally made in order to please the majority. In comparison, *BRS* and *Kaplow* assume that the government follows a Pigouvian model of preferences. In *BRS* they assume that the government is a "...unimpeachable benefit-cost machine. It does not inquire about the distribution of benefits, nor can it be manipulated by any faction of those governed".[87] As such, there should be no distinction between majoritarian excess and random hazards. As such, in the scope of Pigouvian preferences, demoralization costs should always equal zero. *FS* believe that by giving the government Pigouvian preferences, *BRS* make the entire issue of when to pay compensation a moot point. According to *BRS*, due to the moral hazard problem, settlement costs are always greater than zero. As such, under *Michelman's* calculation, $S > D$ for all expropriation projects, so that compensation would never be required in a Pigouvian application of *Michelman's* model. *FS* conclude that a majoritarian model of government is better suited to capture the demoralization costs from *Michelman* than a Pigouvian model.

3.2 Market and Institutional Criticisms

In the core *BRS* model, the authors make assumptions regarding the market system and the institutional constraints in place. Notably, they omit the possibility that there exists a contingent claims market for capital and fail to take into consideration the impact that the judicial system has in determining compensation. When these assumptions are modified, the optimal compensation schedule will be shown to not follow the *BRS* non-compensation result, and in fact that compensation is necessary for economic efficiency.

It is clear from *BRS* that all markets within the model are not complete. More specifically, capital investment on the Type 1 and Type 2 land is immobile, and a

---

[87] *Supra* note 40 at 285.

market for state-contingent (if property is taken and if property is not taken) capital does not exist. If these limitations did not exist, the the authors claim that any compensation schedule not based on a lump-sum transfer would be Pareto inefficient and would distort the relative prices of capital and the consumption good resulting in an inefficient allocation of resources.[88] In contrast, *Burrows* in his 1991 paper considers a system in which there is full interaction and interdependence between the public and private market decisions.[89] In his model, the government is considering g number of projects which each require the same number of plots of land. The government will derive $B(g)$ benefit from g projects. $B(g)$ will depend also on the amount of investment on the lands, k.[90]

In a no compensation system, *Burrows* shows that zero compensation will lead to an inefficiently low project cost level, a high number of projects undertaken, and low levels of capital investment. Specifically in regard to his model, there is a overuse of resources in the public sector which corresponds to a underuse of resources in the private sector.[91] This reflects the key difference between *Burrow's* analysis and that of *BRS*. *BRS* restrict their analysis in a zero compensation world to only the decision by the private sector. They looked at the governmental decision in terms of one project rather than a group of projects of which some will be undertaken. *Burrows* specifically mentions that it is the lack of interaction between g (number of projects) and k (level of capital investment) in the *BRS* model which allows the implications of zero compensation scheme to be negligible.[92]

In a scheme in which compensation must be paid, *Burrows* concludes that at the equilibrium levels of capital investment and project quantity, compensation for

---

[88]*BRS, supra* note 3 at 75.

[89]Paul Burrows, "Compensation for Compulsory Acquisition" (1991) 67 Land Economics 49 [*Burrows*].

[90]*Ibid.*

[91]*Ibid* at 55.

[92]*Ibid* at 56.

the opportunity cost not only corresponds to efficiency in the public and private sector, but that compensation is necessary for that efficiency. The conditions for compensation to achieve this efficiency are given as follows, for D^*/l being the optimal compensation per plot, P^* is the optimal price paid per plot, and k being the level of capital investment on a given plot:

$$
\begin{aligned}
\frac{D^*}{l} &= P_g^* \\
\frac{\partial D^*}{\partial k} &= 0
\end{aligned}
\tag{21}
$$

Further, we can see that each property investor sees the market value based compensation amount as parametric in D^* since D^*/l is independent of how much they will invest in their property. From this we can deduce the earlier conclusion that exact compensation for the lost property evaluated at the optimal level of plots expropriated, g^* and the optimal level of investment on these plots, k^* is not only efficient, but it is required to achieve that efficiency.

The *BRS* model, while comprehensive in its argument for market efficiency, does not explicitly acknowledge the impact that the expropriation process, and specifically the judicial process has on optimal compensation schemes. *Eposto* considers a political decision model in which he assumes the political body is trying to maximize profit in order to obtain non-monetary goals (such as voter favour).[93] His model puts a particular emphasis on the role that litigation costs will play in determining the appropriate compensation system. The political decision maker will maximize their expected profit, given by solving the following equation with respect to Q_T (the optimal level of expropriation). Some key variables are as follows: ρ is the likelihood that the landowner will challenge an aspect of the expropriation, θ_o is the initial offer

[93]Fred Eposto, "The Political Economy of Taking and Just Compensation" (1996) 89 Public Choice 267 at 270 [*Eposto*].

by the government, L_G is the litigation costs for the government, S is the pre-trial settlement price, and a, b, and c being non-negative constants. [94]

$$max\ E(\pi) = b(aQ_t - cQ_T^2) - ((1 - \rho)\theta_o + \rho(S + L_G))\, Q_T \tag{22}$$

We can see that this equation is simply revenue minus expected cost, or $R - E(C)$, with revenue equalling the first term and expected cost equally the second term. Equation (22) solves to give:

$$
\begin{aligned}
Q_T^\star &= \frac{ba - \theta_o}{2bc}, & \text{if } \rho = 0 \\
Q_T^\star &= \frac{ba - \theta_o}{2bc} - \left[\frac{S + L_G - \theta_o}{2bc}\right]\rho, & \text{if } \rho > 0
\end{aligned}
\tag{23}
$$

We can see from equation (23) that the level of expropriation is inversely related to the likelihood of legal action, ρ (such as challenging an aspect of the expropriation such as the compensation offered).[95] We can see that this is the case because Q_T^* is greater when the property owner is unlikely to challenge the expropriation decision ($\rho = 0$ in (18)) than when they are certain to do so ($\rho = 1$ in (18)). A corollary to this is that the property owner is less likely to have their land taken when they are able to signal that they would instigate legal action. We can see that the change in the level of the taking with respect to the level of settlement or litigation costs (as shown here) is given as:[96]

$$\frac{\partial Q_T}{\partial L_G} = -\frac{\rho}{2bc} \tag{24}$$

It is evident that this is negative. As such the weight of litigation costs on the level of expropriation is directly related to the likelihood the property owner will

---

[94] *Ibid* at 270-272.
[95] *Ibid.*
[96] *Ibid* at 273.

34

instigate legal action.[97] It is important here to note that *Eposto* is considering his model in light of the American civil court system, meaning that in general each side pays their own legal fees. However, in Canada, for the most part the losing side is required to pay the legal fees of the winning party. More specifically, Section 32(1) of the *Expropriations Act* in Ontario provides that where the amount of compensation granted to the property owner represents 85 per cent or more of the government's offer, the court may make an award for costs to the property owner.[98] In different terms, equation (24) implies that the government is less likely to expropriate the property owner's land if the property owner can signal to the government that they would like to challenge the expropriation in court. *Eposto* does not consider what form compensation should take to produce efficient levels of takings. However, he concludes from his model that the 'just compensation' requirement will force the government to choose the socially optimal level of expropriation when the social profit from the expropriation is equal to the political gain from it, and when the government fully internalizes the costs of the expropriation.[99]

Eposto also addresses two aspects of the *BRS* model: risk aversion in property owners and fiscal illusion. In regard to the first, *Burrows* concludes that a risk averse property owner would be more likely to accept a settlement for compensation which precludes the signalling option mentioned above as a way for the property owner to affect the level of taking of their land.[100] As such, having settlement costs below the marginal social cost will raise the level of taking above the efficient level.

---

[97] *Ibid.*

[98] *Supra* note 11.

[99] *Ibid* at 274.

[100] *Ibid* at 276.

3.3 Incomplete Market for Insurance

Another example of how the market regarding expropriations is not complete in the BRS model is the lack of insurance market for expropriations. As such, government provided insurance may offer a practical alternative to the private market in the form of compensation for expropriations. BRS claimed that their result of having lump-sum compensation as efficient and full compensation as inefficient does not further this point because they claim that property owners will be purchasing consumption insurance in contingent claims markets.[101] As a rebuttal to this, Blume and Rubinfeld (BR) in a subsequent paper argue that since a complete private market for expropriation insurance for property owners does not exist, the government should be responsible for providing insurance to property owners. The next logical question is what form should the insurance take? If the government were to directly sell insurance to the property owners in a similar fashion as a insurance broker, it would be providing insurance to victims of its own actions, which would only exacerbate the moral hazard problem.[102] To this point, we can see how the government may then choose properties to expropriate based on whether or not the property owner has purchased insurance. As such, BR advocate that compensation should be regarded as insurance. However, BR do not advocate that compensation should be paid to all victims of expropriation. They claim that courts in deciding compensation should differentiate the compensation given to property owners based on their individual risk preferences. The rule espoused by BR is that only those property owners who have not had a chance to reduce their risk of expropriation should be compensated.[103] Property owners can reduce their risk by purchasing insurance in the private market

---

[101] *Supra* note 3 at 88.

[102] Lawrence Blume and Daniel Rubinfeld, "Compensation for Takings: An Economic Analysis" (1984) 72 California Law Review 569 [BR].

[103] *Ibid* at 606.

or by spreading the risk across contingent contracts. They further suggest that richer people are more likely to be able to afford private insurance, and as such it is possible that only the poor should be paid compensation for expropriation.[104]

The only remaining question is of what form should the compensation take. *BR* first suggest that if full market value is to be paid to property owners as compensation then the familiar over-investment result from *BRS* would occur. Property owners would have no incentive to invest the socially optimal amount in their property, as they would be fully compensated for it upon expropriation. As such, *BR* claim that full market value is an inappropriate measure of compensation.[105] *BR* advocate two possible solutions to this problem. The first is to measure compensation based purely on the value of the land as it would have been developed had the government not been required to pay any compensation.[106] However, this poses an obvious measurement problem in that it would be a difficult hypothetical exercise to determine market value. The second proposed solution is to base compensation on the amount a property owner would pay the government to avoid the expropriation. This is somewhat analogous to the mechanism proposed by *Hermalin*. This solution appears to be the most accurate measure of what compensation it would take to put the property owner in the position they were in before. However, both solutions as proposed by *BR* have as their most obvious difficulty calculating the actual amount. As such, *BR* conclude that full market value likely serves as an appropriate compromise, however it represents a second-best solution.

In conclusion, *BRS* advocated that the government should pay zero compensation to property owners in order to encourage efficient investment on their land. However,

---

[104] *Ibid.*

[105] *Ibid* at 618.

[106] *Ibid* at 619.

this result was not without major criticism. It has been shown that when various assumptions from *BRS* are relaxed and altered the optimal and efficient compensation system does not necessarily follow the zero compensation rule. We can group the conclusions from these alternative models into two particular categories: those which advocate that compensation should be based on a function of market value, and those that do not. In the first category, *Fischel and Shapiro* determined that if the government acts in a majoritarian manner, a positive amount of compensation (measured by a proportion of market value) will be the efficient compensation plan. *Nosal's* model furthered this claim, by advocating that property owners be compensated with the average market value of all properties in society. Finally, *Nosal and Giamarino* concluded that if the government exclusively cares about the property rights of one group over another than compensation should directly depend on market value. In contrast with these models, *Hermalin* advocated that compensation be directly tied to the benefit society obtains from the expropriated property. While the models in which compensation is tied to a measure other than market value, such as *Hermalin*, may more fully compensate the property owner, they are much more difficult to implement in practice. It is evident then that while compensation based on market value may not be the first best solution, it reflects a system which is easily calculable and implementable. This claim will be further explored in Section 5. In the following section, models of expropriation will considered in which an element of *BRS* is furthered to show that market value compensation has broad applications.

4 *BRS* Model Extensions

In addition to the arguments which explicitly attempt to rebut an aspect of the BRS model, there are numerous others which extend the basic model to include additional

characteristics of the market or the actors.

4.1 Investment Affecting Property Value

The first extension that will be considered is the model of *Innes*, in which the capital investment by the property owner can affect the 'quality' of the property once it is taken.[107] It is worth mentioning that *Innes'* model is directed primarily at regulatory or *de facto* expropriations, but the concepts of his model are equally applicable here. In the model, investment is not measured by the amount or quantity of investment on one individual parcel of land as in *BRS*, but by the number of parcels in which there is investment before the taking may occur. In his mode, property owners can choose to develop their property either before an expropriation decision has been made, or after the decision has been made but before the actual taking.[108] The investment by the property owner on their land creates a negative externality or, equivalently, a public benefit from expropriating the property and placing it in public use will be created. An example of the first effect would be if a property owner developed the shoreline of a lake, thus obscuring the view for nearby residents, and an example for the second effect would be turning private property into a park. A corollary of *Innes'* claim that property investment can negatively affect the value of the land after the expropriation occurs that is not explicitly considered by *Innes* is the possibility that investing in your own property will have spill-over effects on neighbouring property. This would factor in as an extra cost the government would have to consider in its social welfare calculations. *Sax* outlines three types of spill-over effects which could be found here.[109] The first is investment which would result in a physical limitation of the use of neighbouring property, such as damming a river which would flood nearby

---

[107]Robert Innes, "Takings, Compensation, and Equal Treatment for Owners of Developed and Undeveloped Property" (1997) 40 Journal of Law and Economics 403 [*Innes*].

[108]*Ibid* at 407.

[109]Joseph Sax, "Takings, Private Property and Public Rights" (1971) 81 Yale LJ 149 [*Sax*].

land.[110] The second type is when the use of investment in a shared resource for my gain would restrict your use such as constructing a fence. The last type of spill-over effect is indirect, in that it does not directly affect the land.[111] An example of this could be the construction of a large sign which obscures the skyline for neighbouring property owners.

Under a program of full compensation, *Innes'* concludes that full compensation would create an incentive to over-invest in the land.[112] This is because the property owner would be provided with compensation equal to the full amount of economic benefits that they would enjoy in the absence of an expropriation. *Innes* concludes that in order to to have efficient investment by the landowners, there must be an "equal treatment standard" in regard to compensation for owners of developed and undeveloped land.[113] The criterion for property owners is given when they develop efficiently before the expropriation is declared and when their payoffs after expropriation reflect the equivalent social value of development in regard to external damage.[114] This is exemplified by the following identity, with P_U and P_D being the payoffs for owners of undeveloped and developed land respectively. q represents the increase in economic value to society at time 2 that results from the a marginal increase in the quantity of property developed at time 1.

$$P_U - P_D = marginal\ social\ benefit\ of\ developed\ land\ at\ time\ 2 = q \qquad (25)$$

This identity defines *Innes'* equal treatment standard in that it equates the net private benefits of having one parcel of land developed with the net social benefit of having that parcel developed. More specifically, the equal compensation standard

---

[110] *Ibid* at 161.
[111] *Ibid* at 162.
[112] *Innes, supra* note 107.
[113] *Ibid* at 414.
[114] *Ibid.*

that will be provided to owners of developed and undeveloped land will equal the private value of the developed land (the value of the land to the property owner if the land is not expropriated) plus any costs required to restore the land to a state in which it is available for public use. This amount of compensation will be higher than the full value compensation for undeveloped land. According to *Innes*, this compensation plan would counter the incentive to over invest in property created by a full compensation plan.[115] It is in the extra costs required to be paid to the owner of developed property in order to make the property usable for its designated public use to which *Sax's* spill-over effects would apply. This is best illuminated through the following example. Suppose a property owner decided to invest by building a damn in a river on their property. Further suppose that this damn caused the property owner's neighbour's land to become less profitable for agriculture. If the government was planning on expropriating both the primary property owner's land as well as the neighbouring land, they would be required to compensate the property owner for the cost of remedying the damage caused by the damn. *Innes* concludes that it is not compensation itself that is necessary for efficiency, but that property owners of developed and undeveloped land be treater equally. Under such a program, the relative values of property across both types are maintained under expropriation.

4.2   Imperfect Information

Up until this point, in models such as *BRS* and *Hermalin* in which the value of the property in its private use was a relevant aspect of the government's expropriation decision, it has been assumed that the government has had complete knowledge of these values. This, however, is not always a realistic assumption. *Shavell* incorporated the government having imperfect information regarding property owners' private valua-

---

[115]*Ibid* at 416.

tions of their land into his model.[116] In it he compares the system of purchase with that of expropriation. It is easy to see that in a open purchase market the government will only purchase a piece of property if its offer is high enough that the property owner will accept it.[117] This constitutes a 'market test' that does not exist in the case of expropriation. When the government does not have full knowledge of the property owner's valuation of their property, it is possible then that the government may expropriate property in which the social benefit or value of the land is less than the private value, which would constitute an economically inefficient transfer.[118] *Shavell* attempts to address this concern by incorporating uncertainty into the traditional expropriation model.

In *Shavell's* model the government is deciding whether to expropriate an acre of land it values s and to which the property owner values it v. The government does not know v but knows the probability density $f(v)$. Firstly, *Shavell* claims that it will be first best for the government to only obtain a given piece of property (either through purchase or expropriation) if and only if $s > v$. As such, if the government expropriates the land the overall social welfare will be $s - cE(v)$, because it will be required to pay the property owner the expected value of of the acre, $E(v)$. Under the policy of purchase, the government initially makes an offer, x, to the property owner which is accepted if $v < x$. In deciding whether to make an offer for purchase to the property owner or to take the property through the power of expropriation, the government will maximize the social welfare function $(W(x))$ under purchase with

[116]Steven Shavell, "Eminent Domain versus Government Purchase of Land Given Imperfect Information about Owners' Valuations" (2010) 53 Journal of Law and Economics 1 [*Shavell*].

[117]*Ibid* at 2.

[118]*Ibid.*

respect to x, with c being the social cost per dollar of government funds:[119]

$$max \; W(x) = F(x)(s - cx) + \int_x^\infty vf(v)dv \qquad (26)$$

Solving this equation leads to the following conclusion. Under expropriation the property will only be taken if the social value of the land is sufficiently high, or if and only if $s > (1 + c)E(v)$.[120] If this inequality does not hold, then purchase will be more efficient than expropriation. Under a policy of purchase, the optimal offer made to the property owner, x^*, will be less than the social value of the land and will satisfy the following identity: $x = [s - cF(x)/f(x)]/(1 + c)$. While the previous two equalities give the necessary conditions for taking the land, they do not tell us which is preferable absolutely. If $s < (1 + c)E(v)$, or that under expropriation the land would not be taken, purchase is preferable to expropriation. In the alternative, *Shavell* further concludes that purchase of the property is preferable to expropriation when c is low and expropriation is preferable to purchase when s is sufficiently low. To the first point, when c is sufficiently low, the advantage gained by property owners through the market test (in which property owners with a high v will likely be able to keep their land) is more important than the social cost of the land. This distinction can be made much more clear if we consider the case when $c = 0$. In that case, social welfare under purchase will be higher than that under expropriation by the amount $\int_s^\infty vf(v)dv$. *Shavell* then concludes that social welfare under purchase must be higher than under expropriation for a low value of c as social welfare is continuous in c.[121] However, expropriation is more socially desirable than purchase when s is high. This is easy to see, as the higher s is the more extreme the initial condition for the government obtaining land becomes (the government should obtain the land

---

[119] *Ibid* at 7.
[120] *Ibid*.
[121] *Ibid* at 9.

when $s > v$).

Shavell's model does not explicitly outline what form compensation should take. However, we can infer that if purchase is the efficient way of obtaining the property from its owner, then the government will be required to 'compensate' the property owner by paying them x. If expropriation is the efficient solution then *Shavell* states that the government will be required to pay the property owner 'fair compensation' which is quantified as being $E(v)$, or the expected value of the owner's valuation of their property. He concedes that in practicality, market price is usually used to determine 'fair compensation', which likely will be smaller than v. This point is not addressed further by *Shavell*. While it is somewhat limiting to his analysis not to have a direct method of calculating v, his conditions for when purchase and expropriation should be used to obtain property, when used in conjunction with an established measure of compensation gives the overall expropriation analysis a much more comprehensive solution.

4.3   Compensation from the Owners' Perspective

The *BRS* model, and all previous analysis has focused on achieving an efficient solution to the compensation problem from the perspective of maximizing social welfare. More specifically they have focused on the effect that different compensation schemes have on property investment and how they create efficient incentives for expropriation decisions. What these models do not explicitly consider is the adequacy (rather than efficiency) of different compensation schemes from the perspective of the property owner. In its most basic form, compensation for expropriations has as its goal to make the property owner whole again.[122] Determining what constitutes making someone 'whole' is not a straightforward exercise. In much of the literature, and in

---

[122] *Wyman, supra* note 73 at 249.

the following section, what makes someone whole is paying them enough compensation to allow them to feel subjectively indifferent to their losses.

The original determinant of compensation to be paid to the property owner by the government in Canada was once the 'value to the owner' principle.[123] The original aim of using the 'value to the owner' standard was to put the owner back in their original state of economic well being.[124] This would seem to capture the subjective valuation property owners may attach to their property. However, this subjective element is not easily measurable and would not reflect a common payment system from property to property. As such we now use 'market value' as the primary determinant of compensation. In *National Capital Commission v Hobbs* the Supreme Court of Canada explained that to prove a special value above market value as compensation, "...the owner must adduce the facts necessary to prove this value, which must be such that it can be measured in terms of money...There must be proof that the land had special advantages that gave it a special economic value for the expropriated party".[125] This can be seen as a attempt to cover the difference between market value and the subjective value of people's property. This difference would be clear in a situation such as if a property owner used their property for the production of a good which could only be produced in that location. In this case there would be a clear valuation above simple market value which would cover the economic advantage gained by the property. In the Canadian *Expropriations Act*, under Section 26.3, the owner of a property can make a claim for any economic advantage which may arise out of ownership.[126] While this is not explicitly allowing for the subjective elements of a property to be compensated for, it does allow for some compensation above market

---

[123] *Knetsch, supra* note 8 at 238.
[124] *Ibid.*
[125] *National Capital Commission v Hobbs*, [1970] SCR 337 at para 8, 10 DLR (3d) 11.
[126] *Supra* note 12.

value.

4.3.1   Subjective versus Objective Measure

It is well established that paying market value as compensation does not fully compensate the owner.[127] *Wyman* in her 2007 paper attempts to determine a method of quantifying the subjective elements of a person's property in order to promote a more objective form of analysis which would more fully compensate the property owner. Her main argument is that we should leave victims of expropriation objectively rather than subjectively indifferent to the taking. It is important to note that *Wyman* considers fair market value to be a proxy for a subjective measure of compensation. This is the case because in determining what a property owner will accept from a willing buyer, they will consider their individual preferences over a number of personal factors. As such, the majority of previous analysis in this paper fits in under *Wyman's* definition of a subjective measure of compensation. *Wyman* mentions two main advantages of using a subjective measure of compensation. Firstly, it respects individual preferences. This ensures that the state remains impartial to one individual's preferences compared to another.[128] This point is furthered by *Radin's* view that property is necessary for self actualization.[129] The second benefit of a subjective measure is that it is easier to implement and administer than an objective measure.[130] This is because creating a system of objective measures would entail implementing an administrative or judicial process to quantify individual preferences. Despite these advantages, *Wyman* claims that a purely subjective measure of compensation is ineffective in ensuring property owners are fully compensated. She advocates that

---

[127] *Wyman, supra* note 73 at 263.

[128] *Ibid* at 264.

[129] Margaret Jane Radin, *Reinterpreting Property* (London: The University of Chicago Press, 1993) at 32 [*Radin*].

[130] *Wyman, supra* note 73 at 265.

compensation should objectively compensate the property owner for the subjective elements of their property.

We can now turn to the structure of *Wyman's* proposed objective measure of compensation. Under a subjective measure, a property owner is made whole if they are indifferent to the expropriation, whereas under her objective measure, "...whether a takee has been made whole is determined by reference to the considered judgements of others about what makes a person whole".[131] The key element of this definition is that the an objective criterion for determining an individual's well-being is independent of the individual's personal tastes. This is distinguishable from market value as it was defined by *Wyman* above because it is purely an extrinsic determination of value, whereas market value is determined by the valuations by the property owner *and* external factors. From this definition the main problem with the model becomes evident: establishing what others think makes someone whole is not a simple or straightforward exercise. That being said, *Wyman* proposes three ways in which an objective measure of compensation can be implemented into the existing legal framework.

The first way that an objective measure can be implemented is to have a single payment be made of a standard amount to all property owners who are the victims of expropriation.[132] This would be analogous to having a lump sum payment system, similar to that espoused by *BRS*. In this type of system, compensation is not a factor of the individual characteristics of the property, such as size and location.

The second way we could implement an objective measure of compensation would be to establish a schedule of payments through legislation. This method would require classifying all types of losses from the property owners. The subjective attitudes that the property owners have in regard to these types of losses would have to be quan-

---

[131] *Ibid* at 274.
[132] *Ibid* at 277.

tified objectively in order to be compensated for. An example of this could be that property owners are given a standard percentage premium of market value for each year of occupation.

Lastly, we could calculate compensation based on a "case by case" method, similar to the current method used in Canada to determine compensation for partial expropriations (ie: when only a portion of the total property is expropriated).[133] In applying this to *Wyman's* subjective measure, we would first have to attempt to asses the degree to which each victim of expropriation enjoyed the particular aspects of their property before and after the expropriation. Secondly, the government would be required to compensate the property owner the amount necessary to enjoy those aspects to the same degree after the expropriation.[134]

Shifting to an objective measure would not only alter the government's decisions in terms of compensation, but would also alter their decision making process in regard to whether the expropriation should take place.[135] We can now consider *Wyman's* model in light of certain conclusions from *BRS*. Firstly, in regard to the decision making by the government, the decision regarding which properties to expropriate will be influenced by the compensation government has to pay.[136] From the *BRS* model we know that when the expropriation decision is dependant on investment either no or full compensation will be efficient.[137] We can see that if full compensation is adopted as the efficient rule then the amount of compensation paid to two property owners with similar properties which have different valuations of their properties will be different. As such, it is likely that in deciding which property to expropriate (assuming

---

[133]In the partial expropriation system in Canada, and specifically in Ontario, the government is required to pay the property owner the difference between the market value of the property before the expropriation and the market value of the remaining land after the expropriation. Source: *Expropriations Act, supra* note 8 at s 14.

[134]*Wyman, supra* note 73 at 280.

[135]*Ibid* at 282.

[136]*BRS, supra* note 3 at 83.

[137]*Ibid* at 82.

both are viable options) the government will choose that which is valued less in order to pay less compensation.

Secondly, we can consider the impact the change in the compensation standard would have on the investment decision by the individuals prior to the expropriation decision. *Wyman* claims that an implication of the objective measure would be that some property owners would be more adversely affected by it over a subjective measure compared to other property owners.[138] This is because there will be differences in how one property owners value their property compared to another. A property owner who has lower valuations of their property will be more likely to have their property expropriated (as was explained above) which would cause the property owners to have less incentive to invest in properties that they believe could be the subject of expropriation in the future.[139]

4.3.2 Evidence of Subjective versus Objective Measures of Value

Nadler and Diamond performed experiments to attempt to explain people's subjective valuations of their property.[140]. Their study consists of asking participants how much money they would be required to be paid to them in order to fully compensate them for the expropriation of their property given certain factors. *Nadler and Diamond* consider primarily whether the length of occupation of a property and the use to which their property will be assigned after its taken affects the payment required to fully compensate the property owner.[141] This study illuminates by *Krier and Serkin* regarding property use after the expropriation. Another subjective factor is the duration of occupation by the property owner. The authors concluded that the duration

---

[138] *Wyman, supra* note 73 at 283.

[139] *Ibid.*

[140] Shari Diamond & Janice Nadler, "Eminent Domain and the Psychology of Property Rights: Proposed Use, Subjective Attachment, and Taker Identity" (2008) 5 Journal of Empirical Legal Studies 713 [*Nadler and Diamond*].

[141] *Ibid* at 725.

of occupation was positively correlated with level of compensation demanded. For the claim that the use of the property could influence the compensation that was required to be paid, *Nadler and Diamond's* results somewhat mirror *Krier and Serkins'*: individuals would require less compensation in cases in which their property was taken for purely public uses. The example of a children's hospital is explicitly mentioned.[142] In terms of *Krier and Serkin's* 'public ruses' category, the conclusion is similar in that greater payment is required to fully compensate the property owner. However, this conclusion here is not made for the same reason was espoused by *Krier and Serkin*. In the experiments here, the victims of expropriation will be relocated to another property in the same general area, and as such will reap the indirect benefits (of a shopping centre for example) to the same degree as everyone else whose property has not been expropriated.

In the experiments conducted by *Nadler and Diamond*, there was not a consensus to how people valued different aspects of property. This suggests the fact that there exists variations in people's subjective valuations of property, giving credence to the claim that a subjective measure will inconsistently compensate property owners.

While it is clear that people value their property in most cases above the market value, as if they did not it is likely that they would have put the property on the market already, it is not clear why that is the case. *Radin* attempted to make this connection clear in her essay "Property and Personhood", where she advances a different normative perspective on the value of property to individuals. To do so, she explicitly connected ownership of property to self-actualization of the individual.[143] *Radin's* theory is based on the claim that the value of some types of property is not connected to quantitative measures such as market value. In order to make the

---

[142] *Ibid* at 743.

[143] *Radin, supra* note 129.

distinction between property she differentiates between personal property and fungible property to show when compensation should be paid and whe it should not be. Personal property is property which has a heightened personal significance, thus is bound up with the person and cannot be replaced. This could include a wedding ring, or in the case of expropriations, a family home. Fungible property on the other hand is property which can be replaced and does not hold significant personal importance beyond its actual value, such as money. She commonly associates these types of property with 'fetishism' and further claims that the relationships that people have to these types of property do not constitute 'healthy' relationships.[144] As such, these types of property when lost are not worthy of the same degree of compensation. She claims that current expropriation procedure in the United States, in rewarding property owners for object loss, corresponds with her personhood perspective. We can consider object loss to be the overall effect that losing property has on an individual, rather than simply the dollar value of the lost property. She further claims that some types of property do not deserve compensation as they are not "bound up in the person" to the same degree as those deserving compensation for object loss.

An obvious problem with using the condition that property must be "bound up in the person" to deserve compensation is the property is taken is that it is not a simple exercise to determine if the condition is met. In light of this issue, *Radin* advocates using a continuous scale between property that is wholly irreplaceable and property which is easily replaceable.[145] In the scope of expropriation cases for family homes, she claims that a family home would fit towards to the irreplaceable end of the spectrum from both a normative sense (that this is not fetishistic) and a positive sense (people are bound up with their home). While this test appears to be quite straightforward, it would likely be difficult to implement in practice. The degree to

---

[144] *Ibid.*

[145] *Ibid* at 987.

which property is bound up with the person is an entirely subjective measure and so it would be hard to implement this consistently. This metric would also create a moral hazard problem, in that determining what degree property is bound up with the person is primarily up to the individual themselves.

In response to the conclusion that subjective valuations of property poses a problem for assessing compensation, and specifically the moral hazard problem created from individuals determining for the government the degree to which their property is bound up with them in order to determine compensation as in *Radin, Bell and Parchomovsky* develop a model which addresses this concern.[146] They develop a model where the property owner sets the value of their property themselves after the decision to expropriate the property has been made[147] The government can either take the property by paying this amount as compensation, or can not take it. If the property is not taken the self-assessed value will become the basis for property taxes in the future. If the property owner in the future were to sell the property for less than their self-assessed amount, they would be required to pay the government the difference between these two levels. This model would explicitly address *Wyman's* claim regarding property owners not being compensated for their consumer surplus. In this model, property owners can use whatever measurement method they would like to determined their value which has a benefit the ability for them to quantify their subjective valuation.

For an example of this type of compensation scheme used in practice, we can consider the study by *Chang* in which she used data from a statutory program in Taiwan from 1954 to 1977.[148] In this program, landowners were given an official assessment

---

[146]Abraham Bell & Gideon Parchomovsky, "Taking Compensation Private" (2007) 59 Stan L Rev 871 [*Bell and Parchomovsky*].

[147]*Ibid* 875.

[148]Yun-chien Chang, "Self-Assessment of Taking Compensation: An Empirical Study" (2008) 140

of their land and then were allowed to submit a self assessed value afterwards which would determine compensation if the property was expropriated. If no self-assessed value was submitted, the official assessment was used to determine compensation. *Chang* concluded that landowners self-assessed values were lower than their own economic value and, therefore, inaccurate.[149] This is because the self assessed value $\leq$ official assessed value $<$ market value $\leq$ economic value.[150] Specifically, *Chang* found that more than two thirds of property owners had self-assessed values below the official assessment.[151] We can conclude that Taiwanese property owners were more concerned with lowering their taxes than ensuring high compensation for themselves should their property be expropriated. This conclusion was likely assisted by the fact that the likelihood of a given piece of property being expropriated was relatively low.

Chang's results appear to contradict the conclusions made by *Bell and Parchomovsky*. Firstly, *Bell and Parchomovsky* claimed that their self-assessment model will induce accurate assessments. As previously mentioned, *Chang* found that on average property owners' self-assessments were lower than the economic value of their property which clearly contradicts *Bell and Parchomovsky's* conclusion. However, there is a key distinction between the Taiwanese model and that proposed by *Bell and Parchomovsky.* In Taiwan, all property owners were required to submit a self-assessed value for their property by a common date before any expropriation decision was to be made, whereas in the *Bell and Parchomovsky* model the self-assessment by the property owners only occurred after the property owner was informed that their property was to be expropriated. It is likely that in Taiwan when property owners were making their self-assessment decisions without the threat of their property being expropriated looming over them, and as such they would not have an incen-

New York University Law and Economics Working Papers 1 [*Chang*].

[149] *Ibid* at 5.
[150] *Ibid* at 11.
[151] *Ibid* at 5.

tive to over-state their valuation in order to possibly deter an expropriation from occurring. It is clear that *Chang's* conclusions do not disprove those from *Bell and Parchomovsky*, but do show that a self-assessment mechanism will not always return an accurate measure of value. The results from *Chang* may be explained by the attitudes of the Taiwanese people toward taxes at the time, or simply their individual preferences.

It is clear that the questions of when and how much compensation should be paid to property owners in expropriations does not end with attempting to incentivize efficient outcomes. In fact, when we take the individual's perspective into account to compensate for subjective loss and to attempt to ensure "fairness" for property owners, the optimal compensation plan is found by considering a much more complex social welfare analysis than initially considered. Further, when additional characteristics of the expropriation system are included in models, the answers to these questions stray further away from the original socially optimal solutions developed in Sections 1 and 2. It was found that when the property owner can affect the quality of the property through their investment, the optimal compensation plan was to compensate owners of developed and undeveloped land equally, regardless of the compensation schedule used. This type of solution, when used in conjunction with a socially efficient solution from Sections 2 and 3 (ie: a lump-sum compensation plan) offers a more comprehensive solution to the expropriation problem than either model does on its own. The second extra condition that was considered was when the government did not have full information about property owner's private valuations of their land. It was concluded in this case that if it was efficient for the government to take the property through expropriation, then compensation in the form of the expected value of the property owner's valuation. It was then considered how the compensation sys-

tem would be altered if social welfare includes the perspective of the property owner. It was found that a possible solution is to allow property owners to self-assess their property's value in order to allow compensation to capture their subjective valuation. These examples highlight the key function of models which address additional characteristics of the expropriation system: that when they are used in conjunction with models which primarily address the questions of when and how much compensation should be paid, they offer a more complete solution.

From the models previously discussed, it can be in general concluded that the models suggest that while it is fraught with faults and in general under-compensates the property owner, some form of compensation based on market value is the most effective compromise in reality.

5   Court Adjudicated Compensation

Most of the discussion thus far has focused on theoretical models regarding if and when compensation should be paid. However, in reality compensation is primarily based on market value. The following section will consider the link between how compensation is paid in expropriations in the Canadian legal system and the theoretical framework previously discussed.

In essentially all jurisdictions in Canada there exists a procedure for appealing government expropriations. In Ontario, if no agreement is reached initially than either the expropriating body or the property owner can request a hearing with the Ontario Municipal Board. Appeals from this Board are then directed to the Divisional Court where progression will follow the usual path through the system. In Ontario, the expropriating body is required to pay market value as compensation, which is "...the amount that the land might be expected to realize if sold on the open

market by a willing seller to a willing buyer.".[152] There are other heads to which compensation may be paid, but they will not be the focus here.[153]

5.1 Theoretical Models of the Impact the Judicial Process Has in Determining Compensation

In the literature previously discussed, some portion of 'market value' was determined to be the appropriate measure of compensation under many sets of circumstances. Market value is usually defined by how much a willing buyer would accept from a willing seller on the open market. What is not addressed is what procedure is followed in order to determine it. In the majority of expropriation cases which reach the judicial system, the market value of the property is determined by the comparable sales approach. This entails considering property sales of similar properties in similar locations as substitutes to the property in question.

A key question is if the method of comparables sales economically efficient. *Burrows* investigates if using the method of comparables would eliminate the inefficiency problem of over-investment when compensation is paid.[154] He identifies three types of comparables sales plots. The first is when the comparable are identical in all respects to the property in question.[155] This is a rare situation, as the value of a property is likely to be affected by the threat of expropriation in a different way for unique properties. The second type of comparable is one in which the comparable is identical to the property in question except for the risk as to the taking. This would reflect the

---

[152] *Expropriations Act, supra* note 11.

[153] In partial expropriations (when only a portion of the total land is taken) in Ontario the "before and after" method is commonly used, in which compensation to be paid is the difference between the value of the land before the taking and the value after. Source: *Expropriation Act, supra* note 11 at s 14 (3), 27 (3).

[154] *Burrows, supra* note 89 at 61.

[155] *Ibid* at 61.

most accurate representation of market value if the goal is to asses the value of the property without the effect of the expropriation depressing its value. The last category is where the comparables are not identical and may vary based on size, location, and quality. Since appraisers may look primarily at the investment on the land, this could lead to over-investing by the property owner as they may attempt to distinguish their property through this investment. *Burrows* concludes that compensation based on comparables will come closest to reconciling the objective of an efficient compensation solution.[156] In a subsequent section case law will be used to illuminate the degree to which the comparable sales approach is actually used in Canada as opposed to other methods and how compensation awards vary based on the method used.

In order to determine the comparables to be used, the expropriating party and the property owner will usually hire their own appraisers to perform separate analyses as evidence before the tribunal or court. This system puts a significant burden on the appraiser.[157] It asks the appraiser to estimate market value for property under a free exchange when the exchange is not freely made at all. Further, for the most part appraisers are simply paid a set sum for their work and as such they have little incentive to perform a more complete analysis than they feel they are being paid for.[158] Disadvantages aside, the independent appraisal system is widely used in Ontario.[159]

It will be important to note that in the majority of the studies that follow, hedonic regressions were performed in order to compare the actual court ruled value of market value to that determined by the regression. Such an analysis is beyond the scope of

---

[156] *Ibid* at 62.

[157] David Farrier & Patrick McAuslan, "Compensation, Participation and the Compulsory Acquisition of 'Homes'" in JF Garner, ed, *Compensation for Compulsory Purchase* (London: The UK National Committee of Comparative Law 1975) at 60.

[158] *Chang, supra* note 148 at 41.

[159] Examples include: *Gillespie v Minister of Transportation*, 2007 ONCA 441, 92 LCR 218; *Metropolitan Toronto (Municipality) v Lowry*, [1961] SCR 733, 30 DLR (2d) 1; *Pollidor Holdings Ltd v Ontario* (1986), 17 OAC 197, 36 LCR 1.

this paper. However, useful conclusions can still be made in regard to comparing findings across studies.

The first study that will be considered is *Munch's* analysis of expropriations in Chicago from 1962 to 1970.[160] In order to determine if the values paid to property owners approximate market value, *Munch* considers a price determination model to estimate market value in which no distinction between compensation determined in court compared to compensation settled out of court is made. She estimates that the anticipation of the expropriation of a piece of property will depress its market value. Due to this, the optimal expenditures on court costs are not equal for the government and the property owner.[161] Her model, as well as her empirical data from expropriation cases in Chicago, conclude that low valued properties receive on average less than market value, and high valued properties receive on average more than market value.

We can now turn to explaining why this trend exists. *Munch* claims that the difference in awarded value for high and low valued properties can first be explained by the asymmetric optimal levels of expenditures on court costs between the government and the property owners.[162] The government will typically be constrained by the statutory limitations regarding spending on lawyers whereas the property owner will only face their own budget constraint. As such, the owners of higher valued properties would have an incentive to have high litigation costs, while lower valued properties would not have this same incentive. Further to the point that the government is limited by policy constraints in its spending power, the government's lawyers are likely paid on a salary basis. In lower valued properties the government lawyers are likely over-qualified and conversely are under-qualified in higher value cases.

---

[160]Patricia Munch, "An Economic Analysis of Eminent Domain" (1976) 84 Journal of Political Economy 473 [*Munch*].

[161]*Ibid* at 482.

[162]*Ibid.*

This proposal is furthered by the conclusions drawn by *Berger and Rohan* in their 1967 study of expropriations in Nassau County (New York City).[163] They concluded that the percentage of property owners who hired lawyers rose as the value of the land increased.[164] Specifically when the property was valued under $2,000 fewer than half of property owners would hire lawyers at all. The second explanation that *Munch* gives for this trend is the existence of economies of scale for the expropriating government.[165] This is for two reasons. Firstly, for the majority of properties that will go before the court, there will be precedent with properties of similar characteristics for the court to rely on in making its decision.[166] This is of greater advantage to the government as it is likely that they will hire the same lawyers and and the same appraisers for many cases, which furthers their relative advantage when pursuing many cases. Secondly, in most governmental expropriations the expropriating body will be putting together numerous plots in order to complete their project.

Putting these two explanations together, we can see that the court costs of the property owner (C^s) will likely be lesser than that of the government (C^b) on lower valued properties:[167]

$$
\begin{aligned}
C^b \quad &> \quad C^s \\
\frac{\partial C^b}{\partial P_m} \quad &< \quad \frac{\partial C^s}{\partial P_m}
\end{aligned}
\tag{27}
$$

given P_c and P_m as follows being the court ruled property value and the market value

$$
\begin{aligned}
P_c &= P_m - h^b(C^b + h^s(C^s) + v \\
P_v &= P_c - \tfrac{1}{2}[\Delta C^b - \Delta C^s]
\end{aligned}
\tag{28}
$$

---

[163]Curtis Berger and Patrick Rohan, "The Nassau County Study: An Empirical Look Into the Practices of Condemnation" (1967) 67 Columbia L Rev [*Berger and Rohan*].

[164]*Ibid.*

[165]*Supra* note 160 at 485.

[166]*Ibid.*

[167]*Ibid.*

This is further reflected by the second identity in (28) above for which h^s and h^b refer to the relationship between court spending and the likelihood of winning for the seller (property owner) and the buyer (the government). The change in the buyer's court costs with respect to the market value is less than that of the change in the seller's court costs with respect to the market value. This leads to the conclusion that the court award will be lower than the actual market value for lower valued properties. This is also represented by the following identity:

$$P_c < P_m \tag{29}$$

Putting the five equations together from (27) to (29) we can get the following:

$$\frac{dP_v}{dP_m} - \frac{dP_c}{dP_m} = \frac{1}{2}\left[\frac{dC^b}{dP_m} - \frac{dC^s}{dP_m}\right] < 0 \tag{30}$$

It is clear that the difference between the marginal change in the settlement value is greater than the marginal change in the court adjudicated value with respect to the market value. Future scholarship may be able to focus on the actual court costs paid by parties and its relationship to the court ruling on market value.

5.1.1 Government Mis-Assessing Property

We can see that since the court ruled market value is positively correlated to actual market value, there will be incentives for both parties to assess their property a certain way. If we assume from the *BRS* model that the government is Pigouvian in nature, than they should make accurate assessments of the property in order to maximize efficiency. However, if we consider models such as the majoritarian form of government behaviour, it is likely that the government will not always asses accurately. *Clauretie, Kuhn and Schwer (Clauretie et all)* attempt to investigate how

accurate appraisers are for the government by comparing their appraisals with market value, which they estimate by a hedonic regression.[168] They claim that well designed appraisals should result in a value which would occur in a market without the influence of expropriation. As such the governmental appraisal should not under or over compensate the property owner.[169] However, there are incentives for the government to both over-asses and under-asses. In terms of over-assessing, the government may do so in order to lower the chance that the property owner will challenge the expropriation in court.[170] Alternatively, the government may under-asses in order to attempt to save on the amount of compensation paid if the property owner were to accept their offer. However, the government would likely not severely under-asses, but may be able to get away with doing so by a small margin as the property owner is not likely to instigate legal action over a small difference.

From their data, the authors found overall that the government over appraised properties by 17% above market value. Further, *Berger and Rohan* found that 88.3% of pre-trial settlements resulted in less than the government's assessment with 29.3% of settlements being less than 70% of the government's mean appraisal value.[171] This was the case for two reasons. Firstly, the government assessments at the time and offer was made to the property owner were not initially divulged. Secondly, in the majority of cases, the government negotiator was directed to attempt to negotiate a settlement between 60% and 80% of the government's appraisal.[172] However, these conclusions from *Berger and Rohan* relate to out of court settlements. In cases that did go to court, their results varied much more widely. They found that the property

---

[168]Terrence Clauretie, William Kuhn and Keith Schwer, "Residential Properties Taken Under Eminent Domain: Do Government Appraisers Track Market Values?" (2004) 26 Journal of Real Estate Research 317 at 325 [*Clauretie et all*].

[169]*Ibid* at 317.

[170]*Ibid* at 318.

[171]*Berger and Rohan, supra* note 163 at 442.

[172]*Ibid* at 445.

owner received or bettered the lowest assessed value from the government (in Nassau County the government was required to obtain two separate assessments) at trial in 84.7% of cases.[173] They further conclude that "...the claimant who sought not a windfall but only a decent recovery was far likelier to achieve this from a court than from the County's negotiator".[174]

5.2   Compensation Paid in Practice

A comparison will now be made between the conclusions drawn from the cases found here and those made in literature regarding the impact the courts play in the expropriation system. In order to show how compensation is paid in practice, a comparison will be made between theoretical models which attempt to capture the actual expropriation system and how compensation is determined in the Canadian court system.

A search was performed on the Westlaw legal database for expropriation cases involving disputes over the determination of the market value of property to be paid as compensation to the property owner. The cases found were limited further by those occurring in Divisional, Superior, Appeal, and Supreme courts.[175] Upon an initial search, the majority of the cases found were located in Ontario and British Columbia. In order to focus the analysis to geographic areas of primarily urban settlement, the cases were further limited by restricting the search to those in and around Eastern Ontario and Southern British Columbia. In total, thirty-five cases were found with data on the year of the expropriation, the province in which the expropriation occurred, whether the property was located in a rural or urban setting, whether the government use of the property was public or private in nature, the

---

[173]*Ibid* at 450.

[174]*Ibid.*

[175]Hearings at boards, such as the Ontario Municipal Board were excluded in order to focus the analysis to the effect that the court system has in determining compensation. It is also important to note that by limiting the sample to expropriations which went to court, we are inviting there to be sample bias in making any conclusions.

claimed value of the property by the property owner, the offered value from the expropriating body, the ruled value by the Court, and the size of the property.[176] Summary statistics for selected variables are available below in Table 1 (a full list of all cases and their corresponding data is available in Table 2 found in the Appendix).

Table 1: Summary Statistics

	Year	Size	Rural (0)/	Public (1)/	Claimed	Offered ($)	Ruled ($)	Ruled/Acre
		(Acres)	Urban (1)	Public (0)	($)	($)	($)	($/acre)
Average	N/A	37.46	0.6	0.91	959,860	332,546	479,874	222,902
Median	1987	4.21	N/A	N/A	379,160	130,500	200,000	18,267

Some striking statistics are worth mentioning further. The average size of the property expropriated was 37.46 acres, whereas the median value was 4.21 acres. This reflects the fact that there is a wide distribution and variability in terms of how much the government expropriates. The average value for 'Rural/Urban' was 0.6, representing the fact that 60% of all expropriations occurred in urban areas. The average value for 'Public/Private' was 0.91, meaning that 91% of expropriations were for uses which were purely of a public nature.[177] The average market value claimed by property owners was $959,860 compared to the average market value claimed by the government of $332,546. Of note is that the average court ruled market value was $479,874, which represents on average 50% of the property owner's claimed market value and 144% of the governments claimed market value. We can compare these statistics to the median values in order to see the distribution of properties more clearly. The median property value claimed by the owners was $397,160, by the expropriating body was $130,500, and the court determined value was $200,000. We can see that the median court ruled value represents 53% of the property owner's claimed value and 153% of the government claimed value.

---

[176]The full sample of cases also includes the outlier of *Torvalley Development Limited v Metropolitan Toronto & Region Conservation Authority* (1999), 7 RPR (2d) 165, 61 DLR (4th) 172.

[177]'Public Use' includes uses such parks, sewage, highways and roads, and schools whereas 'private use' constitutes redevelopment.

A simple regression was run in order to estimate the effect that the various variables have on the court ruled value for compensation. More specifically, the claimed market value, the offered market value, the year of the case, the province, the size of the property and whether the property was located in an urban or rural area were regressed on the court ruled value. The full regression equation and results are available in Appendix 1. It must first be noted that the conclusions that will be drawn must be held in light of the fact that of the small sample size of only 35 observations. However it will still be assumed that the variables follow a normal distribution. It was determined that both the claimed value by the property owner and the offered value by the government are positively related to greater compensation ruled by the court (both statistics are significant at the 5% level). The year, province, use of the property, size of the property, and whether the property was in a rural or urban area were all also positively related to greater compensation ruled by the court, however all four effects were not significant at either the 5% or 1% levels.

Of particular note in regard to the data is the relationship between the property owner's claimed value, the government's offered value, and the value of the property as determined by the court. In the thirty-five cases found, there exists a strong positive correlation between the market value claimed by property owners and the value determined by the court, which is reflected by a correlation coefficient of 0.52.[178] This relationship is exemplified below in Figure 1.

---

[178]Which is statistically significant at the 5% level with $\rho = 0.0015$.

Figure 1: Relationship Between Court Ruled Value and Claimed Value
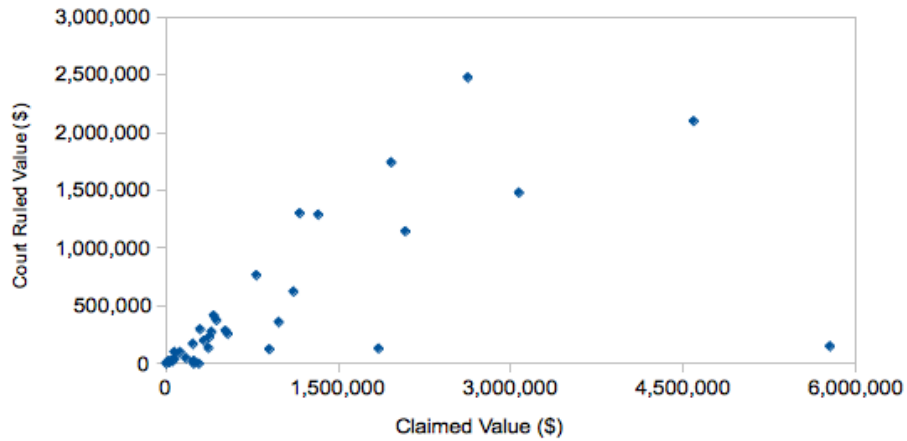
It is evident that the cases roughly follow the trend of higher valued properties from the property owner receiving higher amounts when ruled in court. The same relationship holds true for the relationship between the market value offered by the expropriating body and the court determined value, as is evident by a correlation coefficient of 0.81.[179] This relationship is shown below in Figure 2.

Figure 2: Relationship Between Court Ruled Value and Offered Value
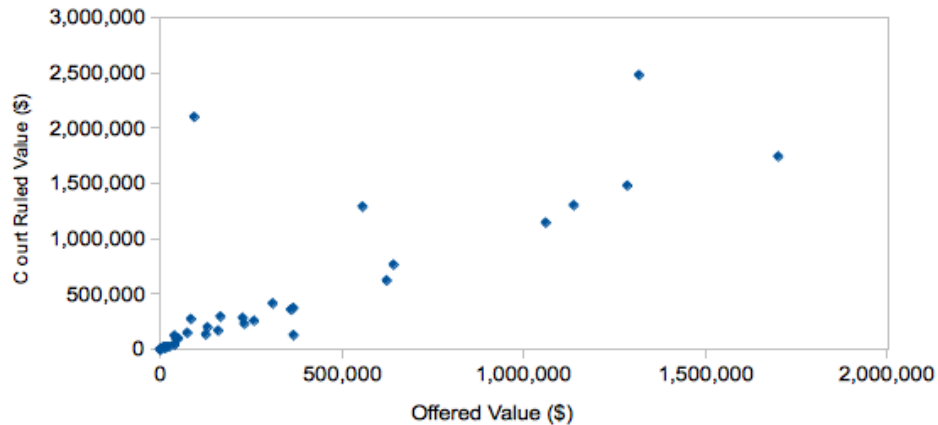
We can see that except for one notable outlier, the cases roughly follow the 45 degree

[179]Which is statistically significant at the 5% level with $\rho = 0.000$.

line from the origin, exemplifying the trend that properties in which the government offers a higher amount receive a higher amount in court. This supports *Munch's* proposition that higher valued properties receive a greater percentage of the actual market value than do lower valued properties. More specifically, she further claimed that low valued properties receive an amount of compensation less than actual market value, and higher valued properties receive more than actual market value.

As previously mentioned, in order to have an unbiased metric to use in comparisons with the court ruled value of compensation, *Munch* performed a hedonic regression in order to determine what she called 'actual market value'. This type of analysis was beyond the scope of this paper, so in order to draw conclusions from the Canadian data in a similar fashion as *Munch* did with the data from Chicago, the average value between the value claimed by the government and by the property owner was used as the metric for 'actual market value'. On its face it is clear that this is not a entirely reliable measure. This is particularly evident in cases in which the government valued the property at a nominal amount as they felt it had no value. Examples of this include *Toronto (City) v Bernardo*[180] and *GTE Sylvania Canada Limited v British Columbia Transit.*[181] However in the majority of cases, the average value claimed between the two parties will allow conclusions to be made in regard to the percent of the 'fair market value' that the court ruled compensation represents. First, we need to distinguish between high and how valued properties. The median value among the sample for the average value of the government's claimed value and the property owner's claimed value is $306,000 and will serve as the division between high and low valued properties. Based on this metric, 'low' valued properties received on average 65% of the average value in court, whereas 'high' valued properties received 78% of the average value in court. However, when the hypothesis was tested whether the

---

[180] (2004), 9 CELR (3d) 146, 1 MPLR (4th) 29.
[181] (2001), 53 BCLR (2d) 83, 45 LCR 18.

difference between the average value for the 'low' and 'high' samples was significantly different than zero, it was found to not be at the 5% or the 1% level (if we assumed that the two samples have unequal variances, with $t = 1.4545$). Had the difference in the means between the two samples been statistically significant, it would have supported *Munch's* finding that higher valued properties receive a higher percentage of 'actual market value' than do lower valued properties, but her claim that higher valued properties receive on average more than the 'actual market value' and lower valued properties receive less than it remains un-tested.

Some notable examples of properties from the Canadian cases in which Munch's theory that higher valued properties receive a greater percentage of 'fair market value' than do lower valued properties held particularly true are as follows. In the 1989 case of *Thunderbird Entertainment Limited v Greater Vancouver Transportation Authority*, *Thunderbird* claimed their property was appropriately valued at $1,325,000 whereas the expropriating body claimed it was worth $556,900.[182] Ultimately the court ruled with an amount closer to the value claimed by *Thunderbird* and awarded them $1,290,000. In all, the property owners received 97% of their claimed value. Conversely, in *British Columbia Corporation of Seventh-Day Adventist Church v British Columbia* the property owner claimed that the market value was $176,800, the province of British Columbia claimed it was $40,000, and the court determined it was $46,400.[183] The court award represents 26% of the market value claimed by the property owner. While these two examples on their own do not prove that higher valued properties receive a greater percentage of the actual market value than do lower valued ones, they are representative of the trend.

Another aspect of the cases which is of particular note is how accurately the gov-

---

[182] *Thunderbird Entertainment Limited v Greater Vancouver Transportation Authority*, 2011 BCSC 636, BCWLD 4816.

[183] *British Columbia Corporation of Seventh-Day Adventist Church v British Columbia* (1991) 46 LCR 254, 15 WAC 111.

ernment appraisers assessed properties. In expropriation cases the government clearly has a stronger bargaining position compared to the property owner. As such, it is possible that the government may abuse this power dichotomy in order to pay less compensation. Of those property owners who claimed market value of their property as 200% or greater than that claimed by the government, not a single property owner received an amount equal or greater to what they claimed. As opposed to this, of those property owners who claimed market value of their property between 100% and 200% of that claimed by the government, 33% were awarded at least the amount they claimed. This adds support for the proposition that modest claims above the government's assessed value are more likely to be successful in court than are attempts at wind-fall awards.

While the data from *Berger and Rohan* as well as that from *Clauretie et all* would support the hypothesis that the government will over-assess market value, possibly to avoid costly litigation costs, in only one case from those found in British Columbia and Ontario did the ruled value fall below the government's assessed value. However, it must be noted that all thirty-five cases in which data was obtained were cases which went to court. We can see from this that there will be an obvious sample selection bias in the data. This is especially true in the claim above that from the the court ruled value in almost all cases is above the government claimed value. In comparison with *Clauretie et al*, and in support of my conclusion, *Bell and Parchomovsky* found that the government will initially offer much less than market value in order to possibly take advantage of their relative superior bargaining position.[184] The asymmetric bargaining positions are likely a result of the government's access to more resources, and the natural risk aversion from property owners.

In the cases from Ontario and British Columbia, the average market value claimed

---

[184]*Supra* note 146 at 887-888.

by the government was \$351,225 while the average value determined by the court was \$498,553. This suggests that the government under-appraised properties on average by approximately 30%. The conclusion drawn from the Canadian data here opposes that found by *Clauretie et al*, and suggests the fact that in Ontario and British Columbia the government believes it can get away with under-assessing in order to reduce costs. From this we can deduce that either the government frequently makes mistakes in its assessments, which would support a 'fiscal illusion' type of behaviour from *BRS*, or that it intentionally under-assesses property in order to try to reduce costs, which would reflect a majoritarian type of government such as proposed by *Fischel and Shapiro*.

The last element of the data that will be discussed is the relationship between the use of the property after the expropriation and the compensation determined by the court. *Krier and Serkin* proposed that compensation should be determined based on the degree to which the the property is being used toward a public use. They identified three types of uses: purely public uses, public ruses, and purely private transfers. We will relate the use for which government expropriated property in the Canadian cases with the amount of compensation the property owner was paid.

Firstly, for properties which were determined to be of a purely public use, the average compensation awarded to the property owner from the court was \$81,445. The average compensation awarded by the court for cases falling under 'public ruses' was \$1,276,879.[185] Finally, the average compensation awarded by courts for purely private transfers was \$419,833. Under *Krier and Serkin's* classification system, the authors recommend that for purely public uses, as in the majority of the cases, pure market value should be used as compensation, as it is likely that the indirect benefit

---

[185]Under this classification system, only 1 case was deemed to fall under this category, *Gillespie v Ontario (Minister of Transportation)*, for which property was taken to build a paid parking.

the property owner will experience from the public project will make up for market value under-compensating them. We can see that this would hold true in the Canadian cases, as the uses to which the government is putting the property are for the construction of schools, roads, sewage, and parks, as reflected by a sightly low average compensation of $81,445 in comparison to the other categories. For 'public ruses', *Krier and Serkin* recommend that the property owner should be compensated based on the projected economic benefits of the project. In *Gillespie v Ontario (Minister of Transportation)* property was expropriated for the purpose of constructing a parking lot. If *Krier and Serkin's* metric was adopted, compensation paid to the property owner would potentially include a portion of the future profits from the parking lot whereas in reality, the property owner was awarded $623,121. Finally, under purely private transfers, *Krier and Serkin* advocate that compensation should be determined based on the private value of the land under the new project. In the cases from Canada, in which the government expropriated the land for redevelopment purposes, this would valuing the land at what the developers feel the property is worth to them. However, the average court ruled compensation was $419,833.

Comparing the average court ruled values under the three types of uses to how *Krier and Serkin* claim compensation to be determined does not offer a fully clear picture, as the courts were not required to determine compensation based on the proposed use of the land, and as such it must be noted that it is a hypothetical exercise to apply this classification into the compensation decision.

In conclusion, when expropriations are considered in reality, the conclusions we can draw from them in regard to the form compensation should take are different than that in a purely theoretical framework. In this preceding section, it was for the most part assumed that compensation should be dependant on some form of market value.

As such, the focus of the section was how exactly market value is determined, and how it relates to the actual compensation paid in practice. Firstly, it was established that the current system of determining market value in Canada, the method of comparables, while fraught with disadvantages, is the closest system to approximating market value. As opposed to this, *Munch* developed a 'price determination model' in order to approximate market value, to which she compared her results to empirical data on expropriations in Chicago. She concluded that higher valued properties received a higher percentage of actual market value than did lower valued properties. Lastly, *Clauretie et all* determined that there will be incentives for the government to both under and over-asses properties. In order to draw comparisons to these studies and expropriations in Canada, thirty-five cases from Ontario and British Columbia were considered. From these cases further support for *Munch's* conclusion was found, while the data did not fully contradict nor support the conclusions from *Clauretie et all*. We can see that in reality the exercise of determining compensation is not focused on what form compensation should take, but how to most accurately calculate the 'market value' of the property.

6 Conclusions

The analysis began with the initial conclusion from *Blume, Rubinfeld, and Shapiro* that compensation should not be paid to victims of expropriation so as to ensure economic efficiency. However, it was shown that that when some of the assumptions from the *BRS* model were relaxed the zero compensation result does not hold in many circumstances. Firstly, *Fischel and Shapiro* claimed that the government should not be given Pigouvian-type preferences but rather those of a majoritarian. In this model the optimum compensation system would compensate some amount between full and

zero compensation. In response to this, *Hermalin* proposed a system in which the property owner could either pay the government the social value of the land to keep their property, or be paid it to give it up. The next problem with the *BRS* model that was considered was the lack in interdependence between the capital and output markets. This was incorporated into *Burrows'* model which led to his conclusion that paying compensation is necessary in order to combat the deficiency in the market due to the opportunity cost of expropriation. However, in light of the practical difficulties of adopting measures of compensation other than those based on market value, it was adopted at an effective compromise.

Different extensions to the *BRS* model were then considered in terms of how they would alter the compensation decision. Firstly, *BRS* limit the effect of investment on property to it being only having a positive or increasing effect on the property value. *Innes* considered a model in which the converse is true and came to the conclusion that if developed and undeveloped land is treated equally in terms of compensation, then the overall system will be efficient. Another assumption that *BRS* make is that the government has perfect information about property owner's private valuations of their property. *Shavell* relaxes this assumption and came up with a set of efficiency conditions for which the government should obtain the property on the open market or by expropriation.

It was then shown that by including how including how the property owner perceives the expropriation in the social welfare calculus can make the efficient solution much more comprehensive than simply considering general efficiency considerations. *Wyman* advocated for compensation to be measured as an objective measure rather than a subjective measure (to which she includes market value as compensation). *Bell and Parchomovsky* then claim that a self-assessing method of property valuation would implement *Wyman's* objective measure by allowing property owners to decide

the method in which they value different aspects of their property.It was concluded that when these additional models are used in conjunction with an existing compensation schedule other than zero compensation the compensation scheme is much more comprehensive and complete.

Lastly, how compensation is determined in the court system in practice was compared to how it is determined by the economic theory. It was shown in the paper by *Burrows* that the method of using comparables, while fraught with disadvantages, is still the most efficient way to value property. It was then discussed how in the study by *Munch* she found that higher valued properties received a greater proportion of their market value as compensation than did lower valued properties. In a sample of expropriation cases from Ontario and British Columbia this conclusion held to be true. In fact, a strong positive correlation was found between the market value claimed by property owners and the value determined by the court (correlation coefficient of 0.52). The same held true for the relationship between the market value claimed by the government and the court determined value (correlation coefficient of 0.81). It was then shown how from *Clauretie et all*, the government will have incentives to both over compensate and under compensate. *Berger and Rohan* found that the court ruled market value was less than the government's in 84.7% of all cases they surveyed. This was directly opposed by the data from Ontario and British Columbia as in only 1 case was the court ruled value less than that of the government's assessment. In fact, the government assessed value was less than that of the court ruled value on average by 30%.

We can conclude from the cases in Ontario and British Columbia that compensation is necessary to be paid in Canada. However, the government is under assessing property owner's land, and if it were not for the courts there would be the possibility

of an under-compensation problem in Canada. This may lead us to believe that the currently method of compensation is inherently flawed. It was concluded that while compensation based on market value is not without its faults it represents an effective compromise. If the focus in the future in the Canadian expropriation system in reference to compensation it to combat the under-assessment problem, than adopting a measure of compensation which combines the subjective element of property with the existing framework may be the most effective solution.

7 Appendix

Appendix 1: Regression Coefficients and Model Data

Ruled	Coefficient	Std. Error	t	$P > \lvert t \rvert$	95% Confidence Interval	
Year	8387.657	4675.042	1.79	0.084	-1204.736	17980.05
Province	306391.9	164794.6	1.86	0.074	-31738.74	644522.5
Claimed	0.1702991	0.0485843	3.51	0.002	0.0706124	0.2699857
Offered	0.9815952	0.1370626	7.13	0	0.6992579	1.263933
Size	-1235.649	882.2725	-1.4	0.173	-3045.923	574.6246
RuralUrban	36955.45	161655.6	0.23	0.821	-294734.4	368645.3
Use	138387.9	176218.9	0.79	0.439	-223183.5	499959.3
Cons	-1.70E+07	9348447	-1.81	0.081	-3.61E+007	2225387

Source	SS	df	MS		Number of obs	35
Model	1.17E+013	7	1.68E+012		$F(6,28)$	17.25
Residual	2.62E+012	27	9.71E+010		$Prob > F$	0
Total	1.43E+013	34	4.22E+011		R-squared	0.8173
					Adj R-squared	0.7699
					Root MSE	3.10E+005

Regression Equation

$$Ruled_i = \beta_1 Year_i + \beta_2 Province_i + \beta_3 Claimed_i + \beta_4 Offered_i + \beta_5 Size_i + \beta_6 Ruralurban_i + \beta_7 Use_i$$

Table 2: Expropriation Cases in Ontario and British Columbia

Case Name	Year	Province	Rural (0)/ Urban (1)	Claim ($)	Offered ($)	Ruled ($)	Size (Acres)	Public (1)/ Private (0)
Kim v Surrey (City)	2010	BC	0	1,960,000	1,699,840	1,742,400	1.0	1
Gillespie v Ontario (Min. Of Trans)	2007	Ontario	0	1,110,348	623,121	623,121	7.4	0.5
L'Abri B.C. Ltd. v Abbotsford School District No. 34	1994	BC	0	1,163,740	1,137,600	1,302,660	13.7	1
Met. Toronto v Lowry	1961	Ontario	1	439,950	366,625	375,424	29.3	1
Pollidor Holdings v Ontario	1982	Ontario	1	787,000	642,000	766,000	135.0	0
Cronish v Toronto (City)	1986	Ontario	1	416,000	310,000	416,000	1.1	0
Gray Coach Lines Ltd. V Hamilton (City)	1968	Ontario	1	104,226	77,500	77,500	0.4	0
Goodwin v Newmarket (Town)	1985	Ontario	1	25,000	17,677	25,000	0.4	0
U of T v Zeta Psi Elders Association	1966	Ontario	1	236,000	160,000	170,760	0.4	1
Suurd v Peterborough (City)	1982	Ontario	0	75,000	50,000	100,000	100.0	1
Tri-Lag Corp. v York Region District School Board	2004	Ontario	1	380,000	232,000	232,000	12.7	1
Partition Holdings Ltd. v Ontario	1984	Ontario	1	297,000	166,200	297,000	1.7	1
Teubner v Ontario (Ministry of Highways)	1965	Ontario	1	76,118	40,000	44,443	11.0	1
DKS & VW Venturers Corp. v Abbotsford School No. 34	2005	BC	0	2,082,500	1,060,359	1,145,008	9.1	1
747926 Ontario Ltd. v Wellington Board of Education	2001	Ontario	1	2,626,000	1,317,000	2,478,000	7.9	1
Shell Canada Ltd. v British Columbia Transit	2007	BC	1	538,000	258,645	258,645	0.8	1
Bersenas v Ontario	1984	Ontario	1	518,000	227,425	285,000	125.0	1
Thunderbird Entertainment Ltd. v GVTA	2011	BC	0	1,325,000	556,900	1,290,000	0.5	1
Sequoia Springs West Development Corp. v British Columbia	2003	BC	0	3,070,000	1,285,000	1,480,000	29.0	1
Heringa v Nanaimo (City)	2010	BC	0	3,300	1,350	2,225	0.3	1
Buerger v British Columbia Hydro & Power Authority	1983	BC	0	33,800	13,509	13,509	0.8	1
Devick v British Columbia	1998	BC	0	331,860	130,500	200,000	11.1	1
Farlinger Developments Ltd. v East York	1971	Ontario	1	982,000	360,000	360,000	6.5	1
Canadian Memorial Chriopatric College v Metropolitan Toronto	1968	Ontario	1	123,420	44,100	100,000	0.7	1
Shaw v British Columbia Hydro & Power Authority	1986	BC	1	369,420	125,780	135,500	246.3	1
BC Corp. of Seventh-Day Adventist Church v British Columbia	1991	BC	1	176,800	40,000	46,400	4.2	1
W. Harris & Co. v Met. Toronto (Municipality)	1968	Ontario	1	397,160	85,000	275,000	3.1	1
Rainbow Country Estates v Whistler	1987	BC	1	1,850,000	367,000	130,000	108.1	1
Lazarowich v Ontario (Minister of Highways)	1971	Ontario	1	60,000	10,000	24,000	1.8	1
Cocomile v Metro. Toronto	1968	Ontario	1	243,500	25,000	25,000	2.4	1
Morriss v British Columbia	2006	BC	0	900,000	40,000	125,000	228.6	1
Gadzala v Toronto (City)	2007	Ontario	1	4,590,000	94,000	2,100,000	2.8	1
Premanco Industries Ltd. v. British Columbia	2001	BC	0	5,775,000	75,000	150,000	205.0	1
Toronto (City) v Bernardo	2004	Ontario	1	242,000	1	1	2.8	1
GTE Sylvania Canada Ltd. V British Columbia Transit	1991	BC	0	286,970	1	1	0.3	1

8   Bibliography

<u>Case Law</u>

Armstrong v United States 364 US 40, 49 (1960).

British Columbia Corporation of Seventh-Day Adventist Church v British Columbia
(1991) 46 LCR 254, 15 WAC 111.

Coniston Corporation v Village of Hoffman Estates, 844 F2d 461, 464 (7th Cir 1988).

Diggon-Hibben Ltd v The King, [1949] SCR 712, 4 DLR 785.

Kelo v City of New London, 545 US 469 (2005).
Gillespie v Minister of Transportation, 2007 ONCA 441, 92 LCR 218.

GTE Sylvania Canada Limited v British Columbia Transit, (2001), 53 BCLR (2d) 83,
45 LCR 18.

Metropolitan Toronto (Municipality) v Lowry, [1961] SCR 733, 30 DLR (2d) 1.

Mariner Real Estate Ltd v Nova Scotia (Attorney General) (1999), 177 DLR (4th)
696 (NSCA)[*Mariner*].

National Capital Commission v Hobbs, [1970] SCR 337 at para 8, 10 DLR (3d) 11.

Pollidor Holdings Ltd v Ontario (1986), 17 OAC 197, 36 LCR 1.

Thunderbird Entertainment Limited v Greater Vancouver Transportation Authority,
2011 BCSC 636, BCWLD 4816.

Toronto (City) v Bernardo, (2004), 9 CELR (3d) 146, 1 MPLR (4th) 29.

Torvalley Development Limited v Metropolitan Toronto & Region Conservation Authority (1999), 7 RPR (2d) 165, 61 DLR (4th) 172.

<u>Legislation</u>

Expropriation Act, RSC 1985, c E-2.

Expropriation Act, RSO 1990 c E-26.

Land Acquisition Act 1969, Australia.

Land Clauses Consolidation Act 1845 (UK), c 18, s 8.

United States v 50 Acres, 469 US 24 (1984).

US Const amend V.

<div align="center">Secondary Sources</div>

Abraham Bell & Gideon Parchomovsky, "Taking Compensation Private (2007) 59 Stan L Rev 871 [*Bell and Parchomovsky*].

Alexandre Alvaro, "Why Property Rights Were Excluded from the Canadian Charter of Rights and Freedoms" (1991) 24 Canadian Journal of Political Science 311.

Benjamin Hermalin, "An Economic Analysis of Takings" (1995) 11 Journal of Law, Economics, and Organization 65 [*Hermalin*].

Charles Plott & Kathryn Zeiler. "The Willingness to Pay/Willingness to Accept Gap, the "Endowment Effect", Subject Misconceptions and Experimental Procedures for Eliciting Valuations" (2004) American Economic Review 1.

Curtis Berger & Patrick Rohan, "The Nassau County Study: An Empirical Look Into the Practices of Condemnation" (1967) 67 Columbia L Rev [*Berger and Rohan*].

Daniel Farber, "Economic Analysis of Just Compensation" (1992) 12 International Review of Law and Economics 125 at 138 [*Farber*].

Darren Acemoglu, Simon Johnson & James Robinson, "Institutions as a Fundamental Cause of Long Run Growth" (2005) 386 Handbook of Economic Growth 397.

David Farrier & Patrick McAuslan, "Compensation, Participation and the Compulsory Acquisition of 'Homes' " in JF Garner, ed, *Compensation for Compulsory Purchase* (London: The UK National Committee of Comparative Law 1975) at 60.

Ed Nosal, "The Taking of Land: Market Value Compensation Should be Paid" (2001) 82 Journal of Public Economics 431.

Ed Nosal & Ron Giammarino, "Loggers versus Campers: Compensation for the Taking of Property Rights" (2005) 21 Journal of Law, Economics, and Organization 433 [*Nosal and Giammarino*].

Eric Todd, *The Law of Expropriation and Compensation in Canada*, 2d ed (Toronto: Carswell, 1992).

Fred Eposto, "The Political Economy of Taking and Just Compensation" (1996) 89 Public Choice 267 at 270 [*Eposto*].

Frank Michelman, "Property, Utility, and Fairness: Comments on the Ethical Foundations of 'Just Compensation' Law" (1967) 80 Harvard Law Review 1165 [*Michelman*].

Jack Knetsch and Thomas Borcherding, "Expropriation of Private Property and the Basis for Compensation" (1979) The University of Toronto Law Journal 237 [*Knetsch*].

Jack Knetsch & J Sinden, "Willingness to Pay and Compensation Demanded: Experimental Evidence of an Unexpected Disparity in Measure of Value" (1984) 99 The Quarterly Journal of Economics 507 [*Knetsch*].

James Krier & Christopher Serkin, "Public Ruses" (2004) Michigan State Law Review 859 at 868 [*Krier and Serkin*].

Joseph Sax, "Takings, Private Property and Public Rights" (1971) 81 Yale LJ 149 [*Sax*].

Katrina Wyman, "The Measure of Just Compensation" (2007) Public Law and Legal Theory Research Paper Series 239 at 251.

Lawrence Blume, Daniel L. Rubinfeld & Perry Shapiro, "The Taking of Land: When Compen- sation Should Be Paid" (1984) 99 The Quarterly Journal of Economics [*BRS*].

Lawrence Blume & Daniel Rubinfeld, "Compensation for Takings: An Economic Analysis" (1984) 72 California Law Review 569 [*BR*].

Louis Kaplow, "An Economic Analysis of Legal Transactions" (1986) 99 Harvard Law Review 511 at 567.

Margaret Jane Radin, *Reinterpreting Property* (London: The University of Chicago Press, 1993) at 32 [*Radin*].

Patricia Munch, "An Economic Analysis of Eminent Domain" (1976) 84 Journal of Political Economy 473 [*Munch*].

Paul Burrows, "Compensation for Compulsory Acquisition" (1991) 67 Land Eco-

nomics 49 [*Burrows*].

Robert Innes, "Takings, Compensation, and Equal Treatment for Owners of Developed and Undeveloped Property" (1997) 40 Journal of Law and Economics 403 [*Innes*].

Robert Ellickson, "Alternatives to Zoning: Covenants, Nuisance Rules, and Fines as Land Use Controls" (1973) 40 U Chicago L Rev 681 [*Ellickson*].

Ronald Coase, "The Problem of Social Cost" (1960) 3 Journal of Law and Economics 1 [*Coase*].

Shari Diamond & Janice Nadler, "Eminent Domain and the Psychology of Property Rights: Proposed Use, Subjective Attachment, and Taker Identity" (2008) 5 Journal of Empirical Legal Studies 713 [*Nadler and Diamond*].

Steven Shavell, "Eminent Domain versus Government Purchase of Land Given Imperfect Information about Owners Valuations" (2010) 53 Journal of Law and Economics 1 [*Shavell*].

Terrence Clauretie, William Kuhn and Keith Schwer, "Residential Properties Taken Under Eminent Domain: Do Government Appraisers Track Market Values?" (2004) 26 Journal of Real Estate Research 317 at 325 [*Clauretie et all*].

William A Fischel & Perry Shapiro, "A Constitutional Choice Model of Compensation for Takings" (1989) 115 at 116.

Yun-chien Chang, "Self-Assessment of Taking Compensation: An Empirical Study" (2008) 140 New York University Law and Economics Working Papers 1 [*Chang*].