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A Framework of Takings Compensation Assessment

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A FRAMEWORK OF TAKINGS COMPENSATION ASSESSMENT^{*}

Yun-chien Chang

ABSTRACT

In the debate on the most efficient standard of takings compensation, the takings literature focuses on property owners' incentives and government officials' incentives. I argue that assessment costs (which is often high) and assessment accuracy (which is not easily attained) should also be taken into account. How property value is assessed (the "assessment method") has a critical influence on assessment costs and assessment accuracy. The takings literature only distinguishes between owners' self-assessments and governmental assessments. The timing of an assessment, another important factor, has also been neglected. I propose a new framework of four prototypical assessment methods for appraising takings compensation, based on who assesses and at what time. I evaluate the merits and demerits of the four assessment methods in general, and the specific assessment models proposed by scholars and assessment regimes implemented in the U.S. and Taiwan in particular, concluding that none of them is likely to produce accurate assessments and assessment costs are higher than the models' proponents have claimed.

KEY WORDS

takings compensation, property value, assessment,
condemnation, *ex ante*, *ex post*, landowners

JEL Classification: K11

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I. INTRODUCTION

The current takings literature debates the standard of physical¹ takings compensation (economic value,² fair market value,³ or other standards⁴) and the effects of takings compensation (or the lack thereof) on incentives for both property owners and government officials.⁵ The literature implicitly assumes that the assessment of property value for takings compensation purposes is always accurate (or that accuracy is easily attained), and that the costs of assessing property value are negligible.⁶ In this Essay, I argue that assessment costs is usually much higher than scholars have estimated, and that it is very difficult to obtain accurate assessments of property value, no matter what assessment method is employed to appraise the economic value or fair market value of the condemned property.

Assessment accuracy and assessment costs are both necessary, yet long neglected, factors in determining which takings compensation standard is the most efficient. If assessments were always accurate, economic value compensation could give property

¹ This Essay focuses on physical takings. Regulatory takings are excluded. In the following, for the sake of brevity, I will use takings to represent physical takings.

² Judge Posner defined economic value as “how much someone is willing to pay for it or, if he has it already, how much money he demands for parting with it.” RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 12 (5th ed. 1998).

Different terms and descriptions have been used to refer to this concept. For example, Krier & Serkin use fair market value plus consumer surplus to represent economic value. See James E. Krier & Christopher Serkin, *Public Ruses*, 2004 MICH. ST. L. REV. 859, 866. Lee Anne Fennel uses the term “subjective value” instead of economic value, defining it as fair market value plus subjective premium. Lee Anne Fennel, *Taking Eminent Domain Apart*, 2004 MICH. ST. L. REV. 957, 963-65.

I choose to use market value and unique subjective value as the two components of economic value. See Lawrence Blume & Daniel L. Rubinfeld, *Compensation for Takings: An Economic Analysis*, 72 CAL. L. REV. 569, 619 (1984).

³ David Dana & Thomas Merrill has offered a good definition of “fair market value” as “the amount a willing buyer would pay a willing seller of the property, taking into account all possible uses to which the property might be put other than the use contemplated by the taker.” DAVID A. DANA & THOMAS W. MERRILL, *PROPERTY: TAKINGS* 169-70 (2002). Judge Posner defined market value as “not the value that every owner of property attaches to his property but merely the value that the marginal owner attaches to *his* property.” (Emphasis original.) *Coniston Corp. v. Village of Hoffman Estates*, 844 F.2d 461, 464 (7th Cir. 1988).

⁴ For example, scholars have proposed to add bonus to fair market value as takings compensation; some states have stipulated the bonus compensation. See the discussion and literature cited in Katrina Miriam Wyman, *The Measure of Just Compensation*, 41 U.C. DAVIS L. REV. 239, 256-57 (2007).

⁵ See, e.g., Daniel A. Farber, *Economic Analysis and Just Compensation*, 12 INT’L REV. L. & ECON. 125 (1992); Daniel A. Farber, *Public Choice and Just Compensation*, 9 CONST. COMMENT 279 (1992).

⁶ See, e.g., Thomas J. Miceli & Kathleen Segerson, *Takings*, in *ENCYCLOPEDIA OF LAW AND ECONOMICS* 328-57 (Boudewijn Bouckaert and Gerrit De Geest eds. 2000).

Frank Michelman’s path-breaking article is a notable exception. Michelman raised two concepts, “demoralization costs” and “settlement costs,” and compared them to decide whether to compensate. The settlement costs include what I call assessment costs. However, even Michelman did not discuss how large settlement costs are or how to measure them. See Frank Michelman, *Property, Utility, and Fairness: Comments on the Ethical Foundations of “Just Compensation” Law*, 80 HARV. L. REV. 1165, 1214-18 (1967). Neither do most other articles. But see Douglas Ayer, *Allocating the Costs of Determining “Just Compensation,”* 21 STAN. L. REV. 693, 698 (1969)(discussing the issue of assessment costs; calling such costs “determination costs”).

owners the right incentives to invest efficiently on their properties.⁷ However, if what property owners actually receive as compensation is much higher or lower than the true economic value, because of inaccurate property valuation, their incentives to invest will be sub-optimal. Additional costs (such as rent-seeking activities to avoid their properties being condemned), which are non-existent in the hypothetical always-accurate world, will also occur. If we assume a zero-assessment-cost world, given the fact that economic value can hardly be estimated accurately, fair market value compensation could be the best available option. But assessment costs are rarely negligible. Assessment costs of fair market value (especially in non-urban areas) could be so high that the total social costs of adopting fair market value compensation is higher than that of adopting economic value compensation.⁸

From the efficiency standpoint, which I hold throughout this Essay, property owners' incentives, government officials' incentives, assessment accuracy, and assessment costs are the four major concerns in determining which takings compensation standard is the most efficient. Prior literature's simplified models, incorporating only the first two concerns, are inadequate for making policy suggestions in the world where compensation assessments are usually inaccurate and high-cost. I will focus on discussing the latter two concerns because they are the research routes less traveled by. I will explain why assessments are usually inaccurate and expensive and how the choice of assessment methods influences assessment accuracy and assessment costs.

An assessment method is the set of procedures governing how a property value is assigned for takings compensation purposes. Most articles on takings implicitly assume that the government should perform the assessment.⁹ A few papers dispute the standard assumption, arguing that condemnees should assess property value for their takings compensation.¹⁰ But the government-condemnee dichotomy neglects another layer of this issue — *when* property value should be assessed for takings compensation.

I propose four prototypical assessment methods based on who assesses property

⁷ This is a debatable argument. I use it simply as an illustration of the effects of inaccuracy.

⁸ For example, if spending 1 million dollars can attain accurate fair market value compensation while spending 1 thousand dollars can attain 90% accurate economic value compensation, all things considered, the latter standard may be more efficient.

⁹ See, e.g., Lawrence Blume et al., *The Taking of Land: When Should Compensation Be Paid?*, 99 THE QUARTERLY JOURNAL OF ECONOMICS 71 (1984); Blume & Rubinfeld, *supra* note 2; Miceli & Segerson, *supra* note 6.

¹⁰ See Saul Levmore, *Self-assessed Valuation Systems for Tort and Other Law*, 68 VA. L. REV. 771, 771 (1982); Abraham Bell & Gideon Parchomovsky, *Taking Compensation Private*, 59 STAN. L. REV. 871, 895 (2007). Cf. Lee Anne Fennell, *Revealing Options*, 118 HARV. L. REV. 1399, 1406 (2005) (endorsing Levmore's proposal as eliciting "reasonably honest valuation statements").

value for takings compensation purposes and at what time. First, assessments can be done either by landowners or by non-landowners such as a condemnor agency, a professional appraiser, a court, or a jury. In addition, whoever assesses can either perform the assessment *ex ante* or *ex post*; that is, before or after the decisions to condemn properties are made. Therefore, the four prototypes of assessment methods are: *ex ante* assessment by landowners, *ex ante* assessment by non-landowners, *ex post* assessment by landowners, and *ex post* assessment by non-landowners. Table 1 exhibits the typology and lists in the cells scholars that have proposed the method and jurisdictions that have implemented it.

Table 1 Typology of Assessment Method and Its Proponents and Adopters

		Identity of the assessor	
		Landowners	Non-landowners (e.g., government)
Timing of assessment	<i>Ex ante</i>	Harberger (1965); Tideman (1969); Levmore (1982); Niou & Tan (1994); Bell & Parchomovsky (2005); Plassmann & Tideman (2008). New York City 1658; New Zealand 1891 – 1896; Taiwan 1954 – 1977; Columbia 1954, 1963.	Taiwan 1977 to date
	<i>Ex post</i>	Bell & Parchomovsky (2007)	American states; Levmore (1982); Tideman (1990).

Most (if not all) American states adopt *ex post* assessment by non-landowners. When a government plans to condemn specific properties, it commissions professional appraisers to assess them. Contemporary Taiwanese laws adopt *ex ante* assessment by non-landowners. Every year, local governments in Taiwan assign each land parcel an official assessment of its value. That land value is then used both to tax the land and to establish the compensation due for condemnations.

Saul Levmore proposed the *ex ante* assessment by landowners method, under which landowners periodically report their assessments on their land and are both taxed and (if condemnation occurs) compensated accordingly. In a recent article, Abraham Bell & Gideon Parchomovsky advocated a revised method of *ex post* assessment by landowners. In their design, when the government needs land, it asks landowners to report assessments and then decides whether to condemn the land or to leave the titles in landowners' hands and tax them according to the self-reported value.

I will evaluate the merits and demerits of these four prototypical assessment

methods based on assessment costs and assessment accuracy. I will also introduce, and provide critiques of, the assessment *models* (a specific assessment *method*) that have been proposed by scholars and assessment regimes that have been employed in the U.S. and Taiwan. I conclude that none of these models and regimes can guarantee accurate or low-cost assessments of property value for takings compensation purposes.

This Essay is structured as follows: Part II elaborates on the importance of assessment accuracy and assessment costs. Part III analyzes the impacts of the two parameters — who the assessors are and when the assessments are done — on assessments. Part IV through Part VII respectively analyzes whether the four assessment methods and several assessment models and regimes are accurate and low-cost. Part VIII concludes.

II. ASSESSMENT COSTS AND ASSESSMENT ACCURACY

In this Part, I elaborate on why assessment costs and assessment accuracy have to be taken into account in determining which takings compensation standard is the most efficient. Assessment costs are the resources expended in calculating the amount of takings compensation. The rationale for taking assessment costs into account is self-evident from the efficiency standpoint. Resource is limited. If money can be saved from assessing property value (an activity in ascertaining elusive, man-made information), it can be used more productively elsewhere (like producing more or better food for the poor). Assessment costs include, to name a few, costs of employing professional appraisers to assess land, costs of processing the self-assessments of landowners, costs of maintaining and monitoring a crew of government employees, and rent-seeking activities by charity institutions (more on this in Section V.D).

Assessment accuracy is defined as how close the assessed compensation is to the compensation standard. Accurate assessment assures that the condemnors and condemnees will behave in the way the compensation standard has intended.¹¹ To put it in another way, drawbacks of inaccurate assessments of takings compensation include: (1) systematic inaccurate compensation assessed by non-landowners induces landowners to over-invest or under-invest on their properties; (2) inaccurate under-compensation by the government incurs, in Frank Michelman's term,

¹¹ For a general discussion of the desirability of accuracy in legal adjudication, see Louis Kaplow, *The Value of Accuracy in Adjudication: An Economic Analysis*, 23 J. LEGAL STUD. 307 (1994).

See also RICHARD EPSTEIN, SUPREME NEGLECT: HOW TO REVIVE CONSTITUTIONAL PROTECTION FOR PRIVATE PROPERTY 89 (2008) (“Setting cash compensation correctly, moreover, is critical to the sound functioning of our condemnation system.”)

“demoralization costs”;¹² (3) inaccurately-high compensation (assessed by either landowners or non-landowners) will eventually incur higher taxes (than accurate compensation) to defray the compensation expenses — taxes usually distort people’s incentives to work and create deadweight losses,¹³ so unnecessarily high taxes are undesirable; (4) landowners will invest in rent-seeking activities in order to procure insider knowledge so as to manipulate the property value reported or to lobby the government to condemn or not to condemn their properties; (5) if the government behaves like a profit-maximizing firm, as assumed by the fiscal illusion theory,¹⁴ inaccurate compensation will fail to make the government internalize the correct amount of social costs of takings.

Assessment accuracy is positively correlated with assessment costs.¹⁵ More accurate assessments can only be attained by spending more on assessments.¹⁶ Because assessment accuracy and assessment costs are both necessary factors in determining compensation standard, higher accuracy is not always more preferable to lower accuracy, if the cost of achieving the former is substantially higher than that of achieving the latter. In other words, 100% accuracy, even if attainable, is not necessarily the optimal level of accuracy.

III. THE IDENTITY OF ASSESSORS AND THE TIMING OF ASSESSMENT

This Part explores the effects of the two parameters — assessor identity and assessment timing — on assessment accuracy and assessment costs. I will elaborate first on the distinctions between landowners’ assessments and non-landowners’ assessments, and then on the differences between *ex ante* assessments and *ex post* assessments. I argue that differences in available information, incentives, and administrative costs justify my typology of four assessment methods.

¹² See Michelman, *supra* note 6, at 1214 (“Demoralization costs are defined as the total of (1) the dollar value necessary to offset dis-utilities which accrue to losers and their sympathizers specifically from the realization that no compensation is offered, and (2) the present capitalized dollar value of lost future production (reflecting either impaired incentives or social unrest) caused by demoralization of uncompensated losers, their sympathizers and other observers disturbed by the thought that they themselves may be subjected to similar treatment on some other occasion.”).

¹³ See, e.g., N. GREGORY MANKIW, *PRINCIPLES OF MICROECONOMICS* 168-69 (2nd ed. 2001).

¹⁴ See Vicki Been & Joel C. Beauvais, *The Global Fifth Amendment? NAFTA’s Investment Projections and the Misguided Quest for an International “Regulatory Takings” Doctrine*, 78 N.Y.U. L. REV. 30, 92 (2003).

¹⁵ The relationship between assessment costs and assessment accuracy should not be linear. The marginal increase in accuracy is large in the first several units of resources spent on assessments. After a certain point of accuracy, the marginal returns of assessment costs decrease sharply.

¹⁶ In his seminal paper on accuracy in adjudication, Louis Kaplow assumes that “more accuracy can be obtained only at a higher cost.” See Kaplow, *supra* note 11, at 308. See also Bell & Parchomovsky, *supra* note 10, at 874.

A. *Landowners vs. Non-landowners*

1. *Different Information*

The first difference between assessments by landowners and those by non-landowners is that landowners tend to use economic value for assessments, while non-landowners tend to use market value for assessments. Economic value, in this context, is property owners' willingness to accept,¹⁷ in other words, economic value equals market value plus the owners' surplus.¹⁸ This difference in assessment benchmark arises from the information available to the parties.

Landowners know best about the economic value of their land, for it is *their own* willingness to accept offers. Market value requires expertise about the real estate market, or at least the overall demand and supply of the neighboring comparable properties. For landowners, the information costs of knowing economic value of their land are lower than that of knowing market value. Thus, they are likely to employ economic value as benchmark for assessments, whatever the legally-required assessment standard is.

By contrast, non-landowners can hardly estimate the economic value of land because landowners' surplus is subjective.¹⁹ Market value is more ascertainable. Thus, even when asked to assess economic value, non-landowners would probably use market value as a starting point to estimate economic value.

2. *Different Incentives*

Landowners and non-landowners have different incentives in assessing. Landowners tend to exaggerate assessments while non-landowners do not necessarily under-assess or over-assess.²⁰ Landowners, who will receive the compensation, are self-interested and utility-maximizing according to standard economic theory. Their self-interest will cause them to exaggerate on their assessments for compensation as much as possible.²¹ Landowners may be checked by the fear of tax raise, for they know that if everyone exaggerates, they will ultimately have to pay more tax to defray

¹⁷ See POSNER, *supra* note 2, at 12.

¹⁸ See also articles cited in note 2.

¹⁹ See Michael Heller & Rick Hills, *Land Assembly Districts*, 121 HARV. L. REV. 1465, 1471 (2008).

²⁰ In this Essay, under- or over-assessment means below or above market value (when the government assesses) or economic value (when owners assess).

²¹ See Daniel B. Kelly, *The "Public Use" Requirement in Eminent Domain Law: A Rationale Based on Secret Purchases and Private Influence*, 92 CORNELL L. REV. 1, 26 (2006).

the high expense of compensation. But it is a typical prisoners' dilemma,²² whose probable result is every landowner still exaggerates.²³

But the conventional economic story may not be complete. Behavioral Law and Economics theory would contend that “[r]ather than being *homo economicus*, people may be *homo reciprocans*.”²⁴ People have desires to act fair, “even when it is against their financial self-interest and *no one will know*” (emphasis original),²⁵ so they may only exaggerate to the extent that the reported market value is equal to their true economic value, or they may not even exaggerate at all. Social norm theorists would argue as well that because people pursue esteem,²⁶ avoid shame,²⁷ or need to signal others (say, neighbors, in this context) that they are “good type,”²⁸ they will not exaggerate on property value to the extreme.

Though social norms or a sense of fairness²⁹ may counter the “bad” individual self-interest, it does not necessarily bring us to the ideal world. There are good norms as well as bad norms.³⁰ Bad norms may aggravate the exaggeration. Even if social norms or a sense of fairness in net could cancel the “bad” self-interest, there is no assurance that they will cancel out perfectly. Norms may be too weak; a sense of fairness may not permeate everyone’s mind.

The incentives of non-landowners are even more complex. Part of the reason is that non-landowners are not homogenous. Non-landowners could be a condemnor agency, the finance department (in charge of property tax assessments), a professional appraiser, a court, or a jury. A judge and a jury (member) may very well have different incentives. Furthermore, some of these types of non-landowners, for instance a condemnor agency, are not homogenous entities, either. The career-service

²² Every landowner would think that even if she does not exaggerate, others probably will, and the tax will still increase. Exaggerating will become a dominant strategy for every landowner.

²³ Thus, without legal restraints on assessments, because economic value is higher than market value, and it is highly unlikely that non-landowners will over-assess more than landowners exaggerate, assessments by landowners will be higher than those by non-landowners.

²⁴ Cass Sunstein, *Introduction*, in *BEHAVIORAL LAW & ECONOMICS* 8 (Cass R. Sunstein ed., 2000).

²⁵ Christine Jolls et al., *A Behavioral Law Approach to Law and Economics*, in *BEHAVIORAL LAW & ECONOMICS* 13, 23 (Cass R. Sunstein ed., 2000).

²⁶ See Richard H. McAdams, *The Origin, Development, and Regulation of Norms*, 96 *MICH. L. REV.* 338, 355-76 (1997).

²⁷ See JON ELSTER, *ALCHEMIES OF THE MIND: RATIONALITY AND THE EMOTIONS* 145-46 (1999).

²⁸ See generally ERIC A. POSNER, *LAW AND SOCIAL NORM* (2000).

²⁹ Sense of fairness can be categorized in what Jolls et. al. termed “bounded self-interest.” See Christine Jolls et al., *supra* note 25, at 16.

I distinguish a social norm of fairness and a sense of fairness on the ground that a social norm is enforced by peer groups while a sense of fairness is enforced by people themselves. Only the latter can harness private information, which will make huge difference, as the analysis in V.A will show.

³⁰ For bad norms, see, e.g., ROBERT C. ELLICKSON, *ORDER WITHOUT LAW: HOW NEIGHBORS SETTLE DISPUTES* 169, 206, 249 (1991); Robert Ellickson, *The Market for Social Norm*, 3 *AMERICAN LAW AND ECONOMICS REVIEW* 1, 31-32 (2001).

government employees and the politically-appointed agency head may have different goals in mind. All non-landowners, however, do have one thing in common — they are compensation payers but they do not pay personally. To simplify the discussions in this Essay, I focus on government officials and independent appraisers as assessors, because they are almost always the first (and often the only) non-landowner/assessors in the eminent domain process.

There are several possible behavioral models of government employees³¹ and appraisers that predict different results. For example, were government employees in charge of the assessments, they may cut compensation to reduce budgetary pressure,³² they may be captured, pressured by special interest groups, or forced to follow what elected politicians demand,³³ they may work hard to meet the compensation standard,³⁴ or they may choose assessment methods so as to minimize workload.³⁵

If appraisers are assigned the task of assessment, they may sacrifice some accuracy of assessment to save workload;³⁶ they may deliberately inflate assessments to reduce the chance that their assessments will be challenged in court, where they will face cross-examination.³⁷ Competition for appraisal commissions from the government may induce appraisers to try to deliver what they think is the

³¹ See a general discussion in KENNETH A. SHEPSON & MARK S. BONCHEK, *ANALYZING POLITICS: RATIONALITY, BEHAVIOR, AND INSTITUTIONS* 346-55 (1997).

³² The fiscal illusion theory *implicitly* argues that government officials aim to minimize takings compensation. For how to interpret the fiscal illusion theory's claims, see Yun-chien Chang, *Empire Building and Fiscal Illusion? An Empirical Study of Government Official Behaviors in Takings* (working paper, 2008), available at <http://ssrn.com/author=951382>. The takings literature on fiscal illusion theory includes, e.g., William A. Fischel, *Takings and Public Choice: The Persuasion of Price*, in 2 THE ENCYCLOPEDIA OF PUBLIC CHOICE 549 (Charles Rowley ed. 2002); Hanoeh Dagan, *Just Compensation, Incentives, and Social Meanings*, 99 MICH. L. REV. 134, 138 (2000); Abraham Bell & Gideon Parchomovsky, *Givings*, 111 YALE L.J. 547, 580 (2001); Abraham Bell & Gideon Parchomovsky, *A Theory of Property*, 90 CORNELL L. REV. 531, 605 n.386 (2005). See also ROBERT C. ELLICKSON & VICKI L. BEEN, *LAND USE CONTROLS* 149 (3rd ed. 2005) for a list of cases and papers that supports this stance.

³³ Daryl Levinson has argued that government officials pursue political interests. See Daryl J. Levinson, *Empire-Building Government in Constitutional Law*, 118 HARV. L. REV. 915 (2005); Daryl J. Levinson, *Making Government Pay: Markets, Politics, and the Allocation of Constitutional Costs*, 67 U. CHI. L. REV. 345, 357 (2000).

³⁴ The government officials would have this desirable attitude especially when they identify themselves with the normative standard of takings compensation. Scholars have argued that ideology also drives government officials. See DANIEL A. FARBER & PHILIP P. FRICKEY, *LAW AND PUBLIC CHOICE: A CRITICAL INTRODUCTION* 27 (1991).

³⁵ Levinson has also argued that government officials may pursue their own independent interests. See Daryl J. Levinson, *Empire-Building Government in Constitutional Law*, 118 HARV. L. REV. 915, 916 (2005).

³⁶ See, e.g. STEVEN SHAVELL, *FOUNDATIONS OF ECONOMIC ANALYSIS OF LAW* 129-30 (2004); Michael S. Johnson, *Assessor Behavior in the Presence of Regulatory Constraints*, 55 S. ECON. J. 880, 881 (1989).

³⁷ See Curtis J. Burger & Patrick J. Rohan, *The Nassau County Study: An Empirical Look Into the Practices of Condemnation*, 67 COLUM. L. REV. 430, 443 (1967)(arguing that in the case of Nassau county, the deliberate inflation thesis does not hold).

government's preferred assessments.³⁸ An appraiser may assess conservatively in difficult cases, because they do not want to lose their designations or reputations because of extreme assessments. The list of incentives can go on.

In conclusion, non-landowners do not necessarily have incentives to reduce the compensation by as much as possible. How non-landowners will actually assess depends on the relative strength of different incentives in a particular context.

3. *Different Administrative Costs*

Generally speaking (*not* holding the level of assessment accuracy constant), requiring landowners to report economic value is administratively cheaper than requiring non-landowners to assess market value, for landowners need not do many investigations and calculations to know their own economic value. Requiring non-landowners to assess market value is further cheaper than requiring landowners to report market value, for non-landowners usually have expertise or at least economy of scale in assessing market value. The most expensive is requiring non-landowners to assess economic value, for they can at most guess.

B. *Ex Ante vs. Ex Post*

1. *Different Information*

Ex post assessments could be more accurate because of more information. Compensation laws usually indemnify landowners for the property value at the time of condemnation. Market value fluctuates from time to time, so the nearer the assessment date is to the condemnation date, all other things being equal, the more accurate the assessment is. Because *ex post* assessments are typically closer to the date of condemnation, they tend to be more accurate. Moreover, after the date of condemnation (*ex post* assessments could be done after land parcels are condemned³⁹), assessing a market value of a land parcel is no longer predicting future market value but verifying past market value—the latter is more accurate.⁴⁰

Economic value also changes over time; therefore, the above analysis also applies — the nearer the assessment date is to the condemnation date, the more

³⁸ See S. Alan Aycock & Roy Black, *Special Master Bias in Eminent Domain Cases*, 33 REAL ESTATE ISSUES 53, 53-54 (2008).

³⁹ Indeed, *ex post* assessments are frequently done after land parcels are condemned. Take New York City for example, takings compensations are usually determined in a post-condemnation settlements. See Yun-chien Chang, *An Empirical Study of Compensation Paid in Eminent Domain Settlements: New York City 1990 – 2002* (working paper, 2008), available at <http://ssrn.com/abstract=1120072>.

⁴⁰ Note that accurate assessments are not necessarily lower or higher than inaccurate ones.

accurate the estimation of future economic value becomes. When *ex post* assessments are conducted after the time of condemnation, an appraisal of her property value is verification of a past economic value, which is more accurate than an *ex ante* forecast of future economic value.

2. *Different Incentives*

Ex ante assessments could be more disinterested than *ex post* assessments owing to different incentives provided by legal mechanisms. *Ex ante* assessments are made when condemnation plans are not certain, or when there is no condemnation plan at all,⁴¹ while *ex post* assessments are done after specific land parcels are targeted to be condemned or have been condemned.

Many legal mechanisms are available *ex ante* to make assessors more disinterested or assess more accurately. *Ex ante* assessments could be audited or used to tax assessors, to name a few. But there is hardly any effective incentive scheme to affect *ex post* assessments, for *ex post* assessors are rather sure about the costs and benefits of over-assessment and under-assessment, because they are soon to either condemn the land or have their land condemned.

3. *Different Administrative Costs*

If only the administrative costs of assessing takings compensation count, *ex post* assessment methods will be cheaper than *ex ante* ones, for under the latter methods, all land parcels have to be assessed periodically, while under the former methods, only the few condemned land parcels have to be assessed once and for all. However, taking into account the need to appraise property value for property tax purposes, *ex post* assessment methods will not necessarily be administratively cheaper. *Ex ante* assessments could be the tax base of the property tax,⁴² thus saving the costs of appraising property value again, while under *ex post* assessment methods, governments have to appraise every land parcel for tax purposes, in addition to compensation assessments.

According to the above analysis, assessment by landowners and non-landowners, before and after the condemnation decision will influence the cost and accuracy of the

⁴¹ I do *not* claim that assessors know nothing about the possible condemnation or that assessors will assume the probability of condemnation to be zero.

⁴² Of course, governments can choose to assess property value twice and use one assessment for tax purposes and the other for compensation purposes. In Taiwan after 1977, there are two official property values, constituting the tax bases of two different land taxes.

assessed compensation. Their difference will be more distinct if we combine the two parameters into four types of assessment methods—*ex ante* assessment by landowners, *ex ante* assessment by non-landowners, *ex post* assessment by landowners, and *ex post* assessment by non-landowners. I will explore them respectively in Part IV through Part VII.

Note that although the four prototypical assessment methods can be used to assess economic value, fair market value, or any other standard, I limit the discussions to the first two compensation standards, because economic value and fair market value are focal points and popular among takings scholars.⁴³ Additionally, I assume in the following Parts that landowner-assessment method aims to award economic value compensations, while non-landowner-assessment aims to give market value compensations, for landowners' assessments of market value and non-landowners' assessments of economic value are too costly and inaccurate to be a sensible policy goal.

IV. EX ANTE ASSESSMENT BY LANDOWNERS

Ex ante assessment by landowners is not a brand new proposal. It has been implemented in New York City in 1658 (then called New Amsterdam, governed by Dutch),⁴⁴ New Zealand between 1891 and 1896,⁴⁵ Taiwan between 1954 and 1977,⁴⁶ and Columbia in 1954 and 1963.⁴⁷ In modern U.S., the idea seems to originate with a Chicago economist, Arnold C. Harberger, in a conference in Chile in 1962.⁴⁸ In the

⁴³ Other amount of compensation, say, somewhere between economic value and market value, might be efficient. However, analyzing the accuracy of non-focal-point compensation standards will be too complicated for this Essay.

⁴⁴ See Florenz Plassmann & T. Nicolaus Tideman, *Accurate Valuation in the Absence of Markets*, 36 PUB. FIN. REV. 334, 355 (2008). Plassmann & Tideman also assert that India, Korea, and Spain have implemented such method, but they do not provide any citation to the source.

Judge Posner list Ancient Greek as adopting this method in his law and economics textbook. See POSNER, *supra* note 2, at 64-65 n.3.

⁴⁵ See Peter F. Colwell, *Privatization of Assessment, Zoning, and Eminent Domain*, 4 ORER LETTER 1, 2 (1990), available at <http://www.business.uiuc.edu/orer/V4-2-1.pdf>; Richard Bird, *Put up or Shut up: Self-assessment and Asymmetric Information*, J. POL'Y ANALYSIS MGMT 618, 619 (1986).

⁴⁶ No literature has documented Taiwan's regime correctly. See, e.g., Colwell, *supra* note 45, at 6-7. In another paper, I describe Taiwan's self-assessment regime and empirically examine Taiwanese landowners' assessment behaviors. See Yun-chien Chang, *Self-Assessment of Takings Compensation: An Empirical Study* (working paper, 2008), available at <http://ssrn.com/author=951382>.

⁴⁷ See Bird, *supra* note 45 at 619.

Interestingly, some municipalities in contemporary Columbia still use self-assessments of property value for Unified Property Tax. But it is unclear whether they also use the self-assessments for takings compensation. See Natalia Aristizabal, *Land Taxes in Colombia*, in LAND TAXATION IN PRACTICE: SELECTED CASE STUDIES (Richard Bird and Enid Slack eds., 2002), available at <http://www1.worldbank.org/publicsector/decentralization/June2003Seminar/Columbia.pdf>.

⁴⁸ See Arnold C. Harberger, *Issues of Tax Reform for Latin America*, in FISCAL POLICY FOR ECONOMIC GROWTH IN LATIN AMERICA 119-20 (1965).

legal academy, it was first proposed in Saul Levmore's seminal article in 1982.⁴⁹ Recently, scholars like Lee Anne Fennell⁵⁰ and Abraham Bell & Gideon Parchomovsky⁵¹ continue to refine this method. This Part starts with the discussions of Levmore's forced buy and forced sale models and then turns to discuss several mathematical models proposed by economists. I will conclude that no models, when implemented in the real world, can induce accurate self-assessments from landowners.

A. *Saul Levmore's Models*

Levmore discussed the applicability of a "self-assessed valuation system" (his term for "*ex ante* assessment by landowners") in three areas—property tax assessments, tort damage determination, and corporate stock valuation. In the context of property tax assessments, Levmore recognized that landowners have incentives to under-assess rather than over-assess (as in the context of takings compensation assessments). He thus proposed a penalty system of forced sales. "The self-assessed amounts are publicized and any buyer who is willing to pay that amount to the owner/self-assessor is entitled to the property."⁵² If the government wants to condemn the property, it pays the self-assessed assessment.⁵³

To avoid the uneasiness brought by forced sale, Levmore proposed an alternative method—a "competitive assessment system," in which professional assessors assess the land. Landowners can choose to be taxed according to the highest assessment or sell the land to any professional assessor at her assessed price. This could be called a forced buy model. A professional assessor's reward is a share in the increased tax payment if her assessment is the highest and the landowner chooses to pay tax. As for

⁴⁹ See Levmore, *supra* note 10.

⁵⁰ See Fennell, *supra* note 10.

⁵¹ See Abraham Bell & Gideon Parchomovsky, *Bargaining for Taking Compensation* (Bar Ilan Univ. Pub Law Working Paper No. 12-05, 2005), available at http://papers.ssrn.com/paper.taf?abstract_id=806164.

Note that Bell & Parchomovsky has revised and renamed this article into *Taking Compensation Private*, cited in note 10. Their model in the published version is no longer a pure form of the *ex ante* assessment by landowners method. However, Bell & Parchomovsky's two models are similar except the design of the governmental option to back off condemnation. Thus, my critique on Bell & Parchomovsky's new model is mostly applicable to the similar designs in the originally proposed *ex ante* model and I will not repeat the analysis in this Part. For discussions of Bell & Parchomovsky's original *ex ante* model, see Chang, *supra* note 46.

⁵² Levmore, *supra* note 10, at 779.

⁵³ *Id.* at 789.

Recently, Lee Anne Fennell, in proposing a new entitlement form — entitlements subject to self-made options (ESSMOs) — to supplement property rules and liability rules, drew on Levmore's arguments concerning the part of forced sale model, when she discusses how ESSMOs would work in the context of property tax and condemnation compensation. See Fennell, *supra* note 10, at 1442-43. Fennell has used takings compensation as an example of where self-assessments may not work. See *id.* at 1419. Fennell, however, casts doubt on only *ex post* self-assessing, while her framework could also apply to *ex ante* self-assessing.

takings compensation, the professional assessment value can only serve as evidence for court in determining the value of the condemned properties; thus “the need for institutional assessment remains.”⁵⁴

Strictly speaking, the forced buy model is actually an *ex post* assessment by non-landowners model, because only after the government decides to condemn the land does it ascertain the amount of compensation. The *ex ante* professional assessments, in Levmore’s design, are not binding, merely suggestive, so this competitive assessment system should not be categorized as an *ex ante* assessment model. In addition, landowners do not report their self-assessments; in this paper’s term, thus, the model is not assessment by landowners, either—Levmore opposed this argument.⁵⁵ Levmore has also mentioned in passing that competitive assessment system can be combined with self-assessments.⁵⁶ However, as long as the self-assessments are not binding, the assessment method still does not belong to the self-assessment method family.

B. Critique of Levmore’s Model

1. Forced Sale Model Does Not Guarantee Accuracy

The most fundamental demerit, in both models, is that Levmore failed to prove that the two models could induce accurate assessments.⁵⁷ I first discuss the forced sale model. Consider this illustration: Jane’s economic value on her property is 100 dollars. The tax rate, discounted to now, is t . In a forced sale system, Jane will report X dollars as her assessment to maximize her gain. The probability of her being forced to sell her land is $p(X)$, a decreasing function of X . tX will be the tax Jane has to pay; $p(X)(X-100)$ is her gain or loss when forced to sell. For simplicity’s sake, I assume that Jane’s economic value is constant, and there is no moving cost. Jane will maximize her expected gain:

$$g(X)=100(1-p(X)) + p(X)(X-100) - tX$$

⁵⁴ Levmore, *supra* note 10, at 790.

⁵⁵ *See id.* at 785 n.43 (“This system is still in the self-assessment family in the sense that if a competitive assessor ‘bids’ for the property at some price greater than the current valuation amount, the property owner must consider this internal valuation and decide whether to force a purchase to begin to pay taxes based on the new, higher assessment.”).

In this paper’s term, because landowners never report their own evaluation, it is not self-assessment (or assessment by landowners), no matter how close the professional assessments might be to landowners’ own assessments or whether landowners have a chance to accept non-landowners’ assessments.

⁵⁶ *See id.* at 784 n.43.

⁵⁷ Levmore claims that under his model landowners’ self-assessments will be accurate (*see id.* at 779) or approximately accurate (*see id.* at 782).

To claim that the forced sale model could induce accurate assessments, Levmore would have to prove that Jane will choose $X=100$. But there is no obvious reason why $X=100$ will maximize Jane's gain and thus she will do so.⁵⁸ The optimal X , as far as Jane is concerned, will be influenced by several factors: how high is the forced sale probability, $p(X)$; how reported assessment, X , affects $p(X)$; how much tax, tX , has to be paid.

Because Jane only knows her own economic value but does not know how others value her land, she could hardly know $p(X)$ and the relationship between $p(X)$ and X . Tax payment, to be exact, is also a function of $p(X)$, because the longer Jane can hold the title, the more times Jane has to pay property taxes, and because the length of Jane's ownership is influenced by how Jane's self-assessed value affects the probability of forced sales. Consequently, Jane can only guess tX , too, because Jane hardly knows $p(X)$. It is unclear, therefore, why it is in Jane's best interest to report $X=100$.⁵⁹

Assume that all the law wants is to induce accurate assessments and it sets the tax rate to attain this goal. It is obvious that the information costs are very high. Even if some tax rates⁶⁰ could induce Jane to reveal her true economic value at time T , from which Jane's economic value could be different at time $T+1$, because of market or non-market conditions — for example, in a differentiated neighborhood, landowners' economic value could be a function of the value and characteristics of neighboring properties and the composition of the residents.⁶¹ Thus, the tax rate for Jane has to be adjusted from time to time.

More importantly, the tax rate that induces Jane to report honestly does *not* simultaneously induce other landowners to report accurate assessments. First of all, market condition for each land is different. $P(X)$ varies. Some land parcels are more likely to be involuntarily sold or condemned than others (for instance, cheap, vacant land is more likely to be condemned). Furthermore, landowners could be risk-averse, risk-neutral, or risk-loving. Therefore, the optimal tax rate for every landowner is

⁵⁸ Further assume that Jane is the one who value the property most in the market, so no one is willing to pay more than 100 for the property. In other words, if $X \geq 100$, $p(X)=0$. In this case, Jane is better off reporting $X=100$ than reporting $X > 100$, because $100-100t$ is larger than, say, $100-110t$.

However, Jane could be better off reporting $X < 100$. For example, if Jane reports $X=90$, as long as $[100(1-p(X))+p(X)(90-100)-90t]$ is larger than $[100-100t]$, that is, $t > 11p(X)$, Jane would better report $X=90$ instead of reporting $X=100$.

⁵⁹ Because we do not know how $p(X)$ looks like, differentiating $g(X)$ does not give us an mathematical guidance as to whether Jane maximize her welfare by reporting $X=100$.

⁶⁰ I state "some" tax rates because there may be more than one solutions, or because people do not exactly know $p(X)$ and $X=100$ is a focal point, tax rate of, say, 7% and 7.5% may both induce Jane to report $X=100$.

⁶¹ I owe this point to Prof. Dan Rubinfeld.

different.

The government might tailor the tax rate for each landowner, but it is not only politically difficult (because different tax rates for each taxpayer, if not progressive, could be deemed unequal by the general public and the legislators) but also insurmountably costly, because it is impossible for the government to gather all the necessary information mentioned above.

The only alternative left for the law to influence $g(X)$ is to manipulate the condemnation rate to affect $p(X)$. But it is only more costly and unfeasible than tailoring tax rate for every landowner, because the government will have to actually condemn properties just to give property owners the right incentive, not for any public “use.”

Overall, this stylized example shows that it is highly unlikely that Jane and other landowners will be induced to report X equals to their real economic value. It is hard to predict whether X will be larger or smaller than the economic value, or how close it will be. Neither can we be sure which tax rate could, on average, induce the most accurate economic value.

2. *Forced Buy Model Does Not Guarantee Accuracy*

As for the forced buy model,⁶² consider another illustration: Appraiser Jill is considering how to assess Blackacre. The current property tax assessment of Blackacre is 200 dollars. The tax rate is 10%. If Jill assesses the land as worthy of Y dollars, there is a chance, $p(Y)$, that the owner of Blackacre will force her to buy. If the owner chooses to be taxed, there is a chance, $q(Y)$, that Jill offers the government the highest assessment and can share, say, 20% of the increased tax revenue. Being forced to buy (and sell) Blackacre will incur a loss of 30 dollars.⁶³ Therefore, Jill will maximize

$$g(Y) = (Y - 200) \cdot (1 - p(Y)) \cdot q(Y) \cdot 10\% \cdot 20\% - 30 \cdot p(Y)$$

How Jill will assess is hard to predict. Jill does not know the economic value of the owner of Blackacre; thus, she can not accurately estimate $p(Y)$. Jill does not know (though less clueless) how her competitor will assess Blackacre; thus, she can not

⁶² As I have argued, Levmore’s forced buy model does not belong to the *ex ante* assessment by landowners method. But to compare and contrast Levmore’s two models, I still discuss the forced buy model here.

⁶³ For simplicity’s sake, I assume that appraisers can always sell (or make use of the land in other ways) what they are forced to buy, but they will suffer from a net loss of 30 dollars. A different assumption (such as appraisers can make a fortune by being forced to buy) does not change my conclusion that Jill is not able to assess accurately.

accurately estimate $q(Y)$. Although the government can adjust tax rate, tax share rate, and even tax assessments, it has no information about $p(Y)$ and $q(Y)$, either. Thus, the government will not know how to adjust those variables in its control to induce appraisers to assess accurately.

I doubt that enough appraisers will stay in this risky business. Even if they do, this model is implemented and some data accumulate over time, appraisers' assessments on most land parcels will neither converge to landowners' economic value nor approximate market value, property tax assessments, or any other standard. Those assessments would just serve the appraisers' best interests.⁶⁴

3. *Both Models Are Not Cheap*

Levmore's models are subject not only to criticisms for inaccuracy but also to those for high assessment costs.⁶⁵ The forced sale model can be low-cost only if landowners simply report their economic value honestly. A slight mistake in self-assessments, however, may lead to involuntary sale which costs landowners a lot. To avoid forced sale, a landowner would probably like to know the market value of her property and her neighbors' properties, in order to evaluate the chance of forced sale, before submitting a deliberate self-assessment to the government. Because landowners are not experts in properties' market value, they would hire professional appraisers to assess for them. The total assessment costs could be higher under this forced sale model than under a government-assessment model. The average cost an appraiser incurs in assessing for a landowner is higher than or equal to that for the government, because the government enjoys the economy of scale in commissioning appraisers and because appraisers enjoy the economy of scale in assessing a whole neighborhood at the same time, which is more likely when working for the government.

A counter-argument could be as follow: Only marginal owners (whose economic value approximate market value) need professional help,⁶⁶ because the chance of their self-assessments' falling into others' range of willingness to pay is higher. Although the average cost of working for individual landowners is higher, not all

⁶⁴ For other criticisms of the forced buy model, see Stewart E. Sterk & Mitchell L. Engler, *Property Tax Reassessment: Who Needs It?*, 81 NOTRE DAME L. REV. 1037, 1088-91 (2006).

⁶⁵ Besides, if a forced sale system results in several rounds of forced sales between several parties, the "transaction" costs also accumulate.

⁶⁶ If marginal owners are more likely to be poor, the forced sale system financially burdens the poor more than the rich. See Daniel M. Holland & William M. Vaughn, *An Evaluation of Self-Assessment under a Property Tax*, in *THE PROPERTY TAX AND ITS ADMINISTRATION* 87 (Arthur D. Lynn, Jr. ed., 1969).

landowners need the consultation of professional appraiser. Therefore, the total assessment costs under the forced sale model can still be lower than that under a government-assessment model. This counter-argument fails to consider the fact that landowners do not know whether they are marginal owners or not before they consult with professional appraisers about the market value of their own properties. Thus, most, if not all, landowners still have to commission appraisers. Additionally, because both market value and economic value change over time, landowners have to consult with professional appraisers every time they are required to report assessments. In conclusion, cost-saving of the forced sale model is spurious.⁶⁷

Forced buy model would be costly, too. Though probably not many professional appraisers can afford to participate in the competitive assessment system, those who participate will be forced to buy real properties in order to induce them to submit the “correct” appraisals. The transaction expenses of these involuntary real estate deals are quite high. Furthermore, these appraisals are just a benchmark for takings compensation; the government still has to spend resources assessing the property once again for compensation purposes.

In sum, in the forced sale model, the self-reported X dollars will be the compensation condemnors pay. But X is unlikely to be either the economic value of landowners or the market value. The total social costs of pursuing accurate X are high. In the forced buy model, Y is only a reference price for condemnors or courts, but the unpredictable Y does not contribute to achieving accurate compensation. The high costs of Y, then, seem hardly justified. Levmore’s models are unlikely to achieve accurate compensation, because none of the law-makers, landowners, and appraisers has enough information and the right incentive to facilitate or produce accurate assessments of takings compensation.

C. *Niou & Tan’s Model and My Critiques*

Dr. Sun Yat-sen, the National Father of Taiwan,⁶⁸ proposed a self-assessment model one hundred years ago,⁶⁹ which shaped Taiwan’s assessment regime between 1954 and 1977. Emerson M.S. Niou & Guofu Tan’s models, discussed below, are

⁶⁷ See *id.* at 79, 87, 99.

⁶⁸ Dr. Sun, is also widely respected in China because he led the revolution against the Qing Dynasty in the beginning of the twentieth century.

⁶⁹ For a brief introduction of Dr. Sun’s proposal, see Emerson M.S. Niou & Guofu Tan, *An Analysis of Dr. Sun Yat-sen’s Self-assessment Scheme for Land Taxation*, 78 PUB. CHOICE 103, 104-05 (1994).

conceptualized after Dr. Sun's proposal, with some adjustments in model settings.⁷⁰

In the first, ideal model, Niou & Tan assume that the government knows the exact land value, concluding that landowners will *always* under-assess.⁷¹ The intuition is that if landowners report self-assessments at land value (say, 10,000 dollars), they keep the land but have to pay some amount of taxes, say 100 dollars. But if landowners report the self-assessments as 10,000 dollars minus 1 dollar, the government has to condemn the land and compensate landowners with 9,999 dollars, which is higher than the land value less the tax payment (10,000-100=9,900 dollars).

It is unclear whether the "land value" in Niou & Tan's analysis means market value or economic value. The only way for their "always under-assessment" conclusion to hold is to assume that land value equals market value equals economic value. If Niou & Tan's land value means market value, and economic value is higher than, or equal to, market value, their conclusion does not hold. Landowners make assessment decisions based on their economic value. Their gains from condemnation are 9,999 dollars. This should be compared to the economic value less the tax payment. If landowners' economic value is higher than 9,999 dollars plus the 100 dollars tax payment — say, 11,000 dollars — it is in these landowners' interests to keep the title. They will report exactly the market value to keep their titles and minimize the tax payments. Therefore, landowners do not always assess at below market value, though they do not always assess exactly, either.⁷²

Niou & Tan's land value should not mean economic value. It is impossible for the government to know the landowners' exact economic value. If the government does know, I wonder why any self-assessment is needed; the government can just go on to tax and compensate accordingly the known economic value of land.

Niou & Tan then relax the assumption that the government knows the exact land value; instead, the government merely has an estimate of the land value and makes condemnation or tax decisions accordingly. They conclude that "the chance that the landowner reports the truth is close to zero."⁷³

Niou & Tan finally proposed a complicated model that they claim to always induce truth-telling.⁷⁴ In this model, the government initially has an estimate of land

⁷⁰ Niou & Tan's model assumes that the government condemns *every* piece of land whose self-assessed value is below "land value," whereas Dr. Sun's proposal merely gives the government the discretion to condemn such land.

⁷¹ See *id.* at 105-06.

⁷² Those whose economic value is smaller than 10,099 dollars will, instead, assess at below market value.

⁷³ See *id.* at 108.

⁷⁴ See *id.* at 109-12.

value but can ascertain the exact land value by auditing. If landowners' reported assessments are higher than the government's estimation, landowners pay taxes according to their self-assessments. Suppose that self-assessments are lower than the government's estimation, the government does an audit. If the self-assessments are proved to be above land value, landowners pay taxes according to land value. Were self-assessments lower than land value but higher than a pre-specified cut-off value, the government condemns the land at self-assessments, but landowners still have to pay taxes and fines. If self-assessments are lower than the cut-off value, the government condemns the land at self-assessments.

The key problem of this model is, as the authors themselves concede, what drives the conclusion is the important assumption that "the true value of land is verifiable and can be learned by the government through auditing at certain costs."⁷⁵ Suppose that land value means economic value. Niou & Tan assumed away the major hurdle of a self-assessment method—none other than landowners themselves know the exact economic value of the properties. Such unrealistic assumption will render their model impracticable in the real world.⁷⁶

Suppose that land value means market value here. Market value of every land could be identifiable. But the above model can not induce landowners to reveal the true economic value if all the government knows is market value, because the elusive part of economic value — the unique subjective value — is still unbeknownst to the government; if there is no way to ascertain the economic value and punish owners for not telling the truth, self-interested owners will not tell the truth. Furthermore, if Niou & Tan aims to induce landowners to report accurate market value, why use a self-assessment model with an audit? It is cheaper to use the assessment by non-landowners method.

D. Tideman's Three Models and My Critiques

T. Nicolaus Tideman has contributed to the discussions of self-assessments through three papers written in the past forty years. In his 1969 University of Chicago doctoral dissertation, using mathematical models, he first argued that a property owner reports her self-assessment such that the probability of forced sales⁷⁷ equals the tax rate divided by her "risk factor."⁷⁸ A risk factor, defined a little unclearly, is "a

⁷⁵ *Id.* at 113.

⁷⁶ See Plassmann & Tideman, *supra* note 44, at 344-45.

⁷⁷ In this model, like in Levmore's forced sale model, any individual (including the government) can buy a property at its self-assessed value.

⁷⁸ See T. Nicolaus Tideman, Three Approaches to Improving Urban Land Use 64 (May 22, 1969)

factor by which to multiply uncertain wealth changes in order to obtain their utility values.”⁷⁹ A risk factor can also be understood as a ratio of “utility value” to “actuarial value.”⁸⁰ Tideman concluded that “it would be possible” to deduce the true economic value from the self-assessed value, if a government knows (1) a property’s probability of forced sale at its self-assessed value; (2) the elasticity of that probability;⁸¹ (3) the risk factor.⁸²

A government in reality, however, will have a hard time calculating the true economic value. The political difficulty of implementing the forced sale regime aside, first of all, landowners have to report self-assessments in the way Tideman models them. That is, each landowner has to have a good sense of the murky risk factor and her property’s forced-sale probabilities at various possible self-assessed values. Landowners also have to recognize that it is rational for them to manipulate self-assessments so that the probability of forced sales equals to the tax rate divided by the risk factor.

Moreover, even if a government can estimate the probabilities of forced sales by statistical analysis of comparable properties, as Tideman suggested,⁸³ it is arguably impossible for the government to know each landowner’s subjective elasticity and risk factor. If the government can acquire the information, why would it not get landowners’ economic value directly?

Interestingly, Tideman, in his 1990 paper, proposed a “competitive assessment process,” which (coincidentally) shares the same name and similar features as Levmore’s forced buy model;⁸⁴ Levmore’s paper was not cited, though.⁸⁵ Tideman’s design allows anyone to become an assessor, as long as she “would post an interest-bearing bond” and “specify a function describing land rents per square foot within a convex domain of her choosing, provided that the domain contained at least, say, 200 sites.”⁸⁶ The assessment of land will be the highest assessment, and the assessor who comes up with it will be rewarded a certain percentage of the land

(unpublished Ph.D. dissertation, University of Chicago) (on file with author).

⁷⁹ *Id.* at 62.

⁸⁰ *See id.* It is unclear what utility value means, but it is clearly not economic value (which Tideman called internal value) or market value. Note that Tideman analogizes from the insurance context, stating that many people are willing to pay more than actuarial value to prevent unlikely, large losses. That “more than actuarial value” is called utility value.

⁸¹ This elasticity means the *change* of an owner’s subjective estimate of the forced-sale probability over a certain period of time. *See id.* at 63-64.

⁸² *See id.* at 68.

⁸³ *See id.*

⁸⁴ *See* T. Nicolaus Tideman, *Integrating Land-value Taxation with the Internalization of Spatial Externalities*, 66 LAND ECON. 341 (1990).

⁸⁵ Like Levmore’s model, this competitive assessment method is not an *ex ante* self-assessment method. I discuss the method here for convenience’s sake.

⁸⁶ *Id.* at 343.

value.⁸⁷ The government will take away the bond of those assessors who assess land value too low.⁸⁸

Using a mathematical model,⁸⁹ Tideman claimed that his design can “yield a very close approximation to actual rental value” of land.⁹⁰ Tideman defined the “rental value” of land as “the greatest price that a person would be willing to pay for a site for that year.”⁹¹ That is, the economic value of land for one year. The problem of this design, similar to that of Levmore’s, is that even if the model gives the non-landowner/assessors perfect incentives to assess property value, at best, the assessed value approximates market value. The assessed value is unlikely to approximate economic value, which only landowners themselves know.

In a recent paper, Florenz Plassmann & Tideman directly dealt with takings compensation assessments. Plassmann & Tideman argued that an independent appraiser can at best assess market value of properties,⁹² not owners’ subjective valuation (economic value, in my term).⁹³ Plassmann & Tideman demonstrated that landowners have incentives to report self-assessments equal to their true economic value, if (1) landowners are *not* risk-loving; (2) the government and landowners share the *same* belief of the condemnation probability⁹⁴ at *every* assessed value; (3) the “valuation tax” rate equals the condemnation probability.⁹⁵

Plassmann & Tideman’s model works in the following way: In the beginning, the government honestly tells property owners how the condemnation probability varies with different self-assessment values.⁹⁶ Property owners then report their self-assessments and pay their valuation tax,⁹⁷ whose tax rate is equal to the condemnation probability. The government must use a stochastic mechanism to condemn properties and pay self-assessments as compensation,⁹⁸ so that the

⁸⁷ *Id.*

⁸⁸ *Id.*

⁸⁹ *Id.* at 344-47.

⁹⁰ *Id.* at 344.

⁹¹ *Id.* at 342.

⁹² This point echoes my point that both Tideman (1990)’s and Levmore’s competitive assessment model are not able to produce accurate economic value assessments.

⁹³ See Plassmann & Tideman, *supra* note 44, at 335.

⁹⁴ The $p(x)$ in Plassmann & Tideman’s model is not just condemnation probability, but any possibility that the landowners will lose the utilities of the properties. As Plassmann & Tideman argue, owners may lose the properties due to natural disasters or human actions, but the probability of those events are unlikely to correlate with owners self-assessed value, x . See *id.* at 356 n.8.

To simplify the discussions, I called $p(x)$ the condemnation probability. See *id.* at 345. Because the government can control $p(x)$ only through eminent domain, condemnation probability should be a fair characterization.

⁹⁵ See *id.* at 346, 356.

⁹⁶ See *id.* at 351-52.

⁹⁷ See *id.* at 352.

⁹⁸ See *id.* at 352.

announced condemnation probability is the actual condemnation probability.⁹⁹ The government can only sell those randomly-condemned properties to people other than the original owners, because if selling back to original owners is allowed, property owners will not have incentives to self-assess accurately (requiring the government to sell to others, however, forces the government to incur a loss).¹⁰⁰ The above stochastic condemnation is just to maintain property owners' incentives to self-assess accurately. When the government actually needs properties, it condemns them and compensates their owners with self-assessments.¹⁰¹

Because a valuation tax is not a property tax, and it is levied only to maintain the right incentives for property owners to report accurately, the government will thus "randomly divide property owners into groups" and pay back the valuation "tax revenues from each group among the members of a different group," so that the expected valuation tax burden of the average property owners is zero.¹⁰² To levy property taxes, "the government can estimate each property's taxable value from the self-assessed values of all surrounding comparable properties."¹⁰³ A property owner's self-assessment will not be used in calculating his property tax owed.¹⁰⁴

My criticisms are as follows: First of all, Plassmann & Tideman's mathematical model, which proves that self-assessing at economic value maximizes owners' utilities, does not correspond to the legal regime they describes in words. For their mathematical proof to hold, the valuation tax rate must equal the (total) condemnation probability,¹⁰⁵ which should be the sum of the stochastic condemnation probability and the probability of condemning properties for public use (hereinafter "public-use condemnation probability"), because both stochastic condemnation probability and public-use condemnation probability are a function of owners' self-assessed property value.¹⁰⁶ In their non-mathematic description of the proposal, however, the condemnation probability equals to the stochastic condemnation probability only;¹⁰⁷ therefore, the (total) condemnation probability is higher than the valuation tax rate.

⁹⁹ *See id.* at 348.

¹⁰⁰ *See id.* at 353.

¹⁰¹ *See id.* at 352.

¹⁰² *Id.* at 347.

¹⁰³ *Id.* at 353.

¹⁰⁴ *See id.*

¹⁰⁵ *See id.* at 345.

¹⁰⁶ Property owners' decisions to self-assess property value are influenced by how the self-assessed value affects their chance of losing the property to eminent domain actions. Given that the government condemns land for public use at the price of self-assessment and that landowners know that the public-use condemnation probability is a function of their own self-assessment, landowners will take into account the risk of public-use condemnation when self-assessing. Therefore, for Plassmann & Tideman's model to be consistent, public-use condemnation probability must be included in the total condemnation probability.

¹⁰⁷ *See id.* at 348.

Landowners, consequently, do not necessarily self-assess honestly.

One may contend that the valuation tax rate can be increased to equal the total condemnation probability.¹⁰⁸ I argue that because public-use condemnation probability can not exist under current takings laws, total condemnation probability can not be determined; thus, valuation tax rate can not be set to induce owners to report economic value honestly. For the government, specifying the stochastic condemnation probability at each possible self-assessed value for each land parcel is possible (though extremely costly) only because the stochastic condemnation probability can be “arbitrary”¹⁰⁹ and free of legal restraints.

However, condemnation for public use is not, and can not be, determined arbitrarily; rather, it is subject to various legal restraints (most prominently, due process requirement) set by the federal and state constitutions and laws. The government is not allowed to assign condemnation probabilities to each property and use the probability schedule to determine which properties to condemn for public use.¹¹⁰ Thus, valuation tax rate, which has to be set in the early stage of Plassmann & Tideman’s model, can not be set equal to the total condemnation probability, because public-use condemnation probability is not available. Plassmann & Tideman’s model thus can not function.

Plassmann & Tideman has suggested, in an extended application of the model in which all persons (not just the government) are allowed to buy property at the self-assessed value, that valuation tax rate can be set higher than the likely “private condemnation probability”; at the end of the period, if private buyers do not purchase enough properties, the government use the stochastic mechanism to acquire the necessary number of properties, so that the actual condemnation probability equals to the valuation tax rate.¹¹¹ One may contend that a similar design could be used to solve the problem incurred by the non-existence of public-use condemnation probability. That is, the government can set valuation tax rate high enough so that at the end of a period the government can use the stochastic condemnation mechanism to fill up the condemnation gap left by insufficient number of public-use condemnation. This is, however, a conceptual cul-de-sac.

¹⁰⁸ Or the government can be forbidden to condemn properties at the self-assessed value and *cannot* even take the self-assessed value into account when determining condemnation. But if both property tax and takings compensation are not determined by self-assessed value, what is the merit of implementing the self-assessment regime?

¹⁰⁹ *See id.*

¹¹⁰ If Plassmann & Tideman’s stochastic condemnation probability mechanism can not pass the constitutional muster (I believe it will be declared unconstitutional), Plassmann & Tideman’s whole model then is impracticable.

¹¹¹ *See id.* at 352.

To implement this design, one has to know the public-use condemnation probability and compute the difference between it and the valuation tax rate. The public-use condemnation probability required by Plassmann & Tideman's model is not simply a probability of being condemned for public use, but a probability of being condemned for public use at a certain property value; furthermore, the property value has to be the *sole basis* of condemnation decisions so that the model can induce owners to honestly report the property value. In reality, however, condemnation for public use is not a probabilistic decision solely based on property value, but a legal decision that also takes into account many public policy concerns. The government can not condemn a property simply because it is a bargain. Sometimes the government has to condemn a property, even if it is expensive, to complete an important project. In short, even if the government could estimate its probability of condemning properties, it can not single out its probability of condemning properties solely based on their value.¹¹²

To maintain other features of Plassmann & Tideman's design is no less administratively expensive — Valuation taxes have to be levied and re-distributed;¹¹³ properties have to be stochastically condemned and re-sold.¹¹⁴ In addition, in the post-*Kelo*¹¹⁵ era, when states have moved toward limiting the use of eminent domain power for “economic use” projects,¹¹⁶ it is politically impossible for governments to randomly take land just to give landowners incentives to self-assess accurately, not to mention that the government will incur financial losses by doing so.

In sum, Plassmann & Tideman's model will overload any government with information-gathering and information-processing requirements. It even requires the government to compute probabilities that are conceptually non-existent. The model is administrative expensive and fiscally costly. The model will face legal and political hurdles that can be too difficult to overcome. Plassmann & Tideman's model, therefore, is inconsistent in theory and impractical in reality.

¹¹² In mathematics, the probability of condemning properties for public use is $p(x, y, z, a, b, c)$, while the probability necessary for Plassmann & Tideman's model takes the form of $p(x)$. My argument is that there is no way to ascertain $p(x)$, even if the government knows $p(x, y, z, a, b, c)$.

¹¹³ Although the expected valuation tax payment is zero, some property owners will have windfall gains and others will suffer from “windfall losses.” There might be a fairness problem.

¹¹⁴ Plassmann & Tideman's model also requires that the non-original owners can not sell the properties back to the original owners for some time. *See id.* at 353. This results in inefficient resource allocation, because the non-original owners, who do not value the property the most, get the title.

¹¹⁵ *Kelo v. City of New London*, 545 U.S. 469 (2005).

¹¹⁶ *See* Patricia E. Salkin, *Eminent Domain Legislation Post-Kelo: A State of the States*, 36 ENVTL. L. REPORTER 10864, 10867-68 (2006).

V. *EX POST* ASSESSMENT BY LANDOWNERS

The *ex post* assessment by landowners method requires that the condemnors pay the price the landowners demand after the condemnation decision has been made. It is the most favorable method to landowners. Lee Ann Fennell has argued in passing that this mechanism will fail.¹¹⁷ No country seems to adopt this method.¹¹⁸ Its unpopularity can be attributed to the fact that landowners have stronger incentives to exaggerate than non-landowners do and that the legal tools available *ex post* to counter the incentives to exaggerate are fewer than those available *ex ante*.

Section A explores whether any legal mechanism can induce accurate assessments under the pure form of *ex post* assessment by landowners method. I also discuss the effects of social norms and a sense of fairness on self-assessment. Section B introduces a revised *ex post* assessment by landowners method where governments can decide not to condemn land after landowners report self-assessments. This revised method is compared with the *ex ante* assessment by landowners method and the pure-form method discussed in Section A. Section C outlines a specific revised model proposed by Bell & Parchomovsky. My critique of their model appears in Section D.

A. *The Pure Form Without Government Back-off Option*

Tax is the first legal mechanism that most people think of to constrain exaggerated self-assessments. In an *ex post* assessment by landowner regime, if the government can not change its mind about condemning after landowners report self-assessments, tax is ineffective in countering landowners' incentives to exaggerate. If the tax rate on the land's value is less than 100%, the landowners could report any amount of land value whose after-tax compensation is satisfactory for her. If the tax rate equals 100%, landowners have no incentive to assess accurately, because any gain is taxed away. If it is higher than 100%, landowners would just give up the title. Thus, in any case, taxing self-assessments either does not affect landowners'

¹¹⁷ See Fennell, *supra* note 10, at 1419.

¹¹⁸ Prof. AJ van der Walt, in his comparative analysis of constitutional property clauses, looked into the stipulations in Australia, Austria, Canada, Germany, Guyana, India, Ireland, Jamaica, Japan, Malaysia, Mauritius, Namibia, South Africa, Switzerland, Trinidad and Tobago, United States of America, and Zimbabwe. In my reading, none of them seems to adopt *ex post* assessment by landowners. In fact, because most of them specifically use market value as a benchmark for compensation (some countries do not have a clear benchmark), my guess is they adopt assessment by non-landowners. However, a few of them, like Zimbabwe, Jamaica, and Ireland, authorize laws to stipulate how to compensate landowners; Prof. van der Walt does not look into those detailed stipulations. See AJ VAN DER WALT, CONSTITUTIONAL PROPERTY CLAUSE: A COMPARATIVE ANALYSIS 58-60, 81-82, 92, 114-16, 150-51, 183, 219-21, 240-41, 253-54, 262-63, 273, 304-05, 315-16, 343-48, 372-73, 394-95, 440-41, 489-92 (1999).

assessments or perverts their assessments; it does not facilitate accurate assessments.

Auditing (randomly or not) by the government and punishing those who exaggerate could be a possible legal tool. But this would be substituting the *ex post* assessment by non-landowners method for the *ex post* assessment by landowners method, because the prerequisite of auditing is benchmark assessments from sources other than the landowners. Moreover, because economic value is known to none but landowners themselves, a fair audit would not be plausible. Other than taxes and audits, I can think of no legal mechanism that could be effective.

Legal mechanisms are not the only way to address the problem of exaggerated self-assessments. Social norms might help. But social norms work like the *ex post* government audits. Both can not harness private information and thus will have to evaluate self-assessments based on market value. Furthermore, for such a social norm to emerge and sustain, people would have to know many land parcels' market value and be willing to sanction the landowners for exaggerating. That seems unlikely.

But even if there is such a social norm, it would not induce unexaggerated assessments. Because market value changes frequently and people do not pay too much attention to a land parcel in which they will not invest, it is reasonable to assume that the condemnee will not be punished by social norms unless she exaggerates the value by a considerable amount. That leaves landowners free to exaggerate with impunity, as long as they stay below the triggering point. The punishment by social norms¹¹⁹ could also be so small that it is worthy for landowners to exaggerate above the triggering point any way.

The last alternative to smoke out the real economic value is a sense of fairness, by which I mean landowners believe that exaggerating is wrong and thus will not do so. Inculcating such a sense of fairness is obviously difficult. The costs of creating it are arguably higher than that of a government auditing system. If a sense of fairness already exists, that is fine; if not, it is not cost-justified to create it.

To sum up this Section, I argue that when the government can not back off from condemnation after knowing condemnees' self-assessments, there is no effective way to curb landowners from exaggerating the economic value of land.

¹¹⁹ I keep using the term social norm punishment though social norms can function as a subsidy to fair people instead of a punishment to unfair people. But the loss of an opportunity to earn a subsidy from social norm is of course included in the opportunity cost in over-assessing.

B. *The Revised Method with Government Back-off Option*

1. *Position in the Typology*

The pure form of the *ex post* method could be revised to grant the government an option to give up condemning the property and to tax the property according to the landowner's reported valuation thereafter. Abraham Bell & Gideon Parchomovsky propose such a model,¹²⁰ which I discuss in the next two sections.

This revised method can be categorized as a revised *ex post* assessment by landowner method because landowners report their assessed value after the "preliminary" decision to condemn, which the government may renege. This revised method, however, can also be categorized as a revised *ex ante* assessment by landowners method, because the "final" decision to condemn the land comes after the landowners report their assessments.

Or this revised method can be called a hybrid of both methods, because it would approximate either method in different model specifications. Namely, the revised method is closer to the *ex post* end of the spectrum when the government is unlikely to renege the preliminary condemnation decision; it approaches the *ex ante* end when the preliminary condemnation decisions are reversed frequently. I discuss the revised method under the rubric of the *ex post* assessment just for the convenience of discussions. In the following I compare this method with the pure form of the *ex ante* assessment method by landowners and the pure form of the *ex post* assessment method by landowners.

2. *Comparisons with Other Pure Methods*

First, the pure *ex ante* method requires periodic self-assessments, which are usually used to calculate *both* tax payments and condemnation compensation (if condemnation ever happens), while the pure *ex post* method asks landowners to report assessments when a condemnation is under way and uses the self-assessments *only* in condemnation compensation. The revised method, in contrast, demands landowners' self-assessments when there is a proposed condemnation project and use the self-assessments in *either* levying tax *or* paying compensation.

It is obvious that self-assessments in the pure *ex post* method will be higher than those in the revised model, because the possibility of using self-assessments to tax is higher in the latter. However, self-assessments in the pure *ex ante* method are not

¹²⁰ See Bell & Parchomovsky, *supra* note 10, at 891-95.

necessarily lower than those in the revised model. On the one hand, as long as governments cannot propose condemnations at will just to boost up self-assessed property value,¹²¹ so as to increase tax revenues, the probability of continuing to condemn a specific land parcel (in the revised method) will be higher than the probability of deciding to condemn a specific land parcel (in the pure *ex ante* method), so landowners in the revised method would be induced to assess property value higher, relative to what they would do in the pure *ex ante* method.

On the other hand, if landowners in the revised method assess too high and the governments decide not to condemn, the high self-assessments will probably be the tax base for the rest of landowners' lives, while in the pure *ex ante* method landowners could adjust assessments periodically. The expected costs of over-assessing are higher in the revised method.¹²² On net, it is unclear whether the revised method or the pure *ex ante* method will produce higher self-assessments.

Second, in the revised method, landowners could gather information about the maximum price condemnors are willing to accept. Condemnor agencies may be required to produce environmental impact statements and cost-benefit analysis, from which landowners could know the governmental estimation of the social benefits brought by the condemnation project. Consequently, landowners can better estimate the reservation price of condemnors.

To reduce governmental abuse on the option to renege condemning, there would be some administrative guidelines limiting government officials' discretion. For those landowners who have access to such information (statements, analyses, or guidelines), the revised method is more like the pure *ex post* method, because they can take advantage of the information to exaggerate self-assessments to the extent that the governments are still willing to condemn. However, for those landowners who do not have insider information, the revised method is more like the pure *ex ante* method because condemnation is uncertain and landowners are induced to report a more balanced assessment.

¹²¹ This is the restraint that Bell & Parchomovsky proposes. *See id.* at 900-01.

Property value can be boosted up by condemnation proposal, because the status quo is property owners pay taxes according to the current assessed value, which is usually lower than fair market value (as for the status quo, *see id.* at 893). When the government notifies the possible condemnation to property owners, in order to receive compensation higher than the tax assessment (which is less than their economic value), owners will report a property value that is higher than the tax assessment, taking into account the probability that the governments may back off. Property value is thus boosted up. Of course, if the government also bluffs, owners will not fall into the trap of reporting a much higher property value only to be taxes. But if the government only uses this trick infrequently, it can increase the property tax due on some properties that it has no intention to condemn at all.

¹²² Note that, in the revised method and the pure *ex ante* method, tax *does* reduce (though does not eliminate) peoples' incentives to exaggerate. It is opposite to the conclusion I reached when discussing the pure *ex post* method in Section V.A.

To sum up, as for the accuracy of the assessments, how the revised model performs largely depends on how much information landowners have. Surely, the revised method is not worse than the pure *ex post* method. But the revised method does not necessarily produce more accurate assessments than the pure *ex ante* method.

As for the assessment costs, the revised method is more expensive than the pure *ex post* method, for the latter has a simpler procedure. In terms of assessing takings compensation alone, the revised method is less costly than the pure *ex ante* method, because it does not require every landowner to report value periodically. Property tax has to be assessed some way, however.

In the pure *ex ante* model, the assessments serve both the function of tax standard and compensation standard, thus saving the costs of assessing for tax purposes, while, in the revised model, for those land parcels that do not have self-reported value yet (read, most land parcels), the government has to spend additional resources on assessing for tax purposes. Taking those costs as a whole, the pure *ex ante* method is arguably the cheapest, because every land parcel is assessed once in a tax period at most.

C. Bell & Parchomovsky's Model

Bell & Parchomovsky's article, the first to address self-assessments of takings compensations directly, proposes the revised *ex post* method.¹²³ I introduce their model in this Section and provide critiques in the following Section.

Bell & Parchomovsky proposed that compensation should be paid according to the self-assessed value. To inhibit landowners' inclination to over-assess, the governments reserve the option to stop condemning the land.¹²⁴ If landowners keep their titles, for their life time, the property cannot be sold for less than the self-assessed value. If the property is transferred for less than that price, the owner will have to pay to "the government a fee equal to the difference between the sale price and the self-reported value."¹²⁵

Furthermore, the self-assessed value will be the benchmark for property tax. To be more exact, the property tax that the government collects will still be levied

¹²³ See Bell & Parchomovsky, *supra* note 10.

¹²⁴ See *id.* at 892.

¹²⁵ See *id.*, at 893.

according to the traditional government-assessed value.¹²⁶ But landowners have to pay an extra amount of property tax, not to the government, but to a charity institution of their own choice.¹²⁷ This extra property tax is calculated by:

$(\text{self-assessed value} - \text{market value}) * (\text{government-assessed value} / \text{market value}) * \text{tax rate}$

D. Critiques of Bell & Parchomovsky's Model

1. The Tax Scheme

The complicated extra property tax scheme is costly and its merits are hard to understand. To implement the tax scheme, the governments have to do at least three things: recording landowners' self-assessed value; periodically assessing every land parcel's value for tax purposes; assessing market value of those land parcels which are subject to the extra property tax. Granted, recording self-assessments are not very costly in the computerized age, and assessing land for tax purposes is what the government has to do under the current regime. However, why are the assessments of market value necessary? They do not make landowners' self-assessments more accurate. They certainly increase the administrative costs.¹²⁸ Neither are they fairer or more just.

Bell & Parchomovsky worried that the government can abuse the discretion and declare condemnation just to boost up the self-assessments for taxing. Thus they “decoupl[e]’ the amount owners will pay from the amount the government will collect,”¹²⁹ and design the above tax scheme. But this tax scheme is not the only way to prevent governmental abuse. Neither is it the most cost-effective. The extra property tax can be re-designed to base on

$[(\text{self-assessed value} - \text{government-assessed value}) * \text{tax rate}]$.

Thus, the governments still receive the same amount of tax revenues but can get rid of the costs of assessing market value. The tax rate can be easily adjusted to make the two designs of the extra property tax schemes equally burdensome for landowners.

Furthermore, if governmental abuse can be curbed by other mechanisms, the assessment costs can be further reduced by using the self-assessed value to tax those

¹²⁶ See *id.*

¹²⁷ See *id.* at 893-94, 901.

¹²⁸ Note that when Bell & Parchomovsky first proposed the self-assessment mechanism, they stressed that this system “substantially reduces administrative costs.” See Abraham Bell & Gideon Parchomovsky, *Takings Reassessed*, 87 VA. L. REV. 277, 316 (2001).

¹²⁹ See Bell & Parchomovsky, *supra* note 10, at 900-01.

land parcels which the governments have planned to condemn but eventually given up doing so.¹³⁰ This design can save the expenses of periodic governmental assessment of those land parcels for tax purposes.

To maintain the contributions to charity institutions, as Bell & Parchomovsky proposed, it is much less costly to carve out a specific share of the total tax revenue (calculated simply by landowners' economic value times the tax rate). However, this contribution design neither increases the accuracy of assessments nor decreases the assessment costs. Rather, it induces cheating and rent-seeking.¹³¹

2. *The Life-time Sale Restraint*

Bell & Parchomovsky also proposed that for landowners' life time they can not sell land at prices lower than the self-assessed value. The costs of tracking and comparing the sale prices and the self-assessed value may not be prohibitively high. But this rule is not as effective in inducing accurate assessments as it seems. For homeowners who will not sell their properties, this rule does not affect their behaviors.¹³²

For landowners who would sell, they may think that it is worthy of taking the risk of over-assessment, because the real estate market is very volatile — if the real estate market turns hot or landowners are lucky enough, landowners could sell their properties at above the reported exaggerated assessments and get away with the punishment fee.¹³³ The design of penalty fees does not necessarily lead to accurate self-assessments.

3. *The Government Back-off Option*

Bell & Parchomovsky did not specify how the government should decide

¹³⁰ Granted, there might be fairness concern in taxing some landowners by their self-assessments and others by the governmental assessments.

Bell & Parchomovsky stated that “[o]rdinarily, property taxes are set according to a value assessed by a government assessor, and have no connection with other values that might be assigned to the property by other government bodies. We do not propose changing this basic fact.” *Id.*, at 893. But they do not explain why they are not willing to change this fact and follow Levmore’s models.

¹³¹ It is imaginable that such charity institutions will burgeon because of the chance to grab a piece of the tax pie. At least some of them will pay reciprocally to those donating them or even only benefit those people. If the government would only transfer these taxes to “prestigious” institutions or even choose institutions for taxpayers, it can be predicted that lobbies, rent-seeking, capturing, or even bribery from such charity institutions would ensue, in order to become authorized charity institutions.

¹³² Bell & Parchomovsky admitted this point in the paper. *See id.*, at 897.

¹³³ This mechanism also punishes honest, unlucky landowners whose land’s economic value falls under the original value after reporting self-assessments.

whether to renege on condemnation or not. Because the only thing the government does not know before asking property owners to name the property value is the property value itself, the government should only be able to renege on condemnation only when the self-assessed value is too high. This very design, however, would lead to inaccurate assessments. The key point is that governments can only compare self-assessed value with market value (rather than economic value) to determine whether the former is too high. Governments probably are restrained by administrative guidelines that limit their discretion. Such guidelines will be based on market value (such as “always stop condemning the land if the self-assessed value is higher than 120% of market value”).¹³⁴

For marginal landowners whose economic value approximates market value, such guidelines do not curtail their welfare, but only limit the extent to which they can exaggerate. But for landowners whose economic value is more than, say, 120% of market value, in the short run, even if they report their true economic value, they will never be compensated with their self-assessments (because governments will decide not to condemn); however, they will always have to pay high taxes based on their economic value. In the long run, landowners may realize that reporting their assessments honestly bring only high taxes, so they choose to report a value that is slightly higher than the guidelines’ upper limit of compensation price, so that their land will not be condemned and their tax burdens are lower. In other words, intra-marginal landowners will tend to under-assess, not assess accurately.

4. *The Overall Merits of the Model*

Bell & Parchomovsky’s model, considered as a whole, is not as low-cost as they claimed. Additionally, the model is unlikely to produce accurate assessments. A rational landowner, in addition to the incentives discussed above, would also take into account, among other things, the possibility of a tax rate adjustment; fluctuations of market value and economic value; the probability that she will be offered condemnation again and thus have the chance to re-assess; and for how long she will pay taxes. There is no reason to believe that landowners will maximize their welfare by reporting their true economic value.

Some may contend that facing such uncertainty, landowners will follow the rule of thumb. Yet it is unclear whether the rule of thumb is to report economic value, market value, or current tax assessments. Though I agree that economic value, market

¹³⁴ Even if there is no guideline to limit government officials’ discretion, they still have to rely on market value to make condemnation decisions.

value, and tax assessments are three possible starting points for landowners' assessments, landowners would still adjust the benchmark assessments. For instance, when landowners perceive that the government is urgently in need of their land, they over-assess. Every landowner has different considerations and every condemnation is more or less different. It is highly likely that Bell & Parchomovsky's model would yield an inaccurate assessment in many, if not all, cases.

Finally, Bell & Parchomovsky's model may lead to constant over-compensation in certain contexts. For instance, in the case of urban renewal projects or infrastructure construction projects, governments have to condemn whole blighted neighborhoods or strips of niche land parcels, in order to effectively revitalize the community or build a linear highway. Back-off options are not useful in these circumstances. Once property owners realize that such projects are under way, they do not even have to hold-up. Rather, they can just name a high price and reap the windfall gain.

VI. *EX ANTE* ASSESSMENT BY NON-LANDOWNERS

Ex ante assessment by non-landowners is not implausible. In fact, this is the method employed by contemporary Taiwan laws. The first sub-section sketches Taiwan's legal regime to exemplify this method. The second sub-section analyzes the advantages and disadvantages of this method on a more general level.

A. *Application in Taiwan*

Every January first, local governments in Taiwan assign value, called Announced Current Land Value (ACLV), for all land parcels in their jurisdictions. To determine the value, local government employees¹³⁵ first investigate real sale prices of some land parcels and make necessary price adjustments. Then, according to the sale price data in hand, a local government divides its jurisdiction into "land value districts"¹³⁶ so that each district is geographically adjacent and consists of land parcels whose prices are similar. A preliminary "district land value" would be the median price of the

¹³⁵ Local governments in Taiwan include two special cities (Taipei City and Kaoshiung City), eighteen counties, and five county-equivalent cities. Local governments in Taiwan are much more populous than those in the U.S. On average, a local jurisdiction in Taiwan has around 1 million residents.

Local government employees in charge of assessing have to pass the "land use specialty" exam when being hired into the public sector.

¹³⁶ There is neither requirement of how large a district should be, nor requirement of equal size. For example, in 2002, Taipei City, which is as large as 261,029,000m² (24,250,411 square feet), is divided into 415,631 pieces of land. And there are 2,743 land value districts (on average, 8,841 square feet per district).

actual (but adjusted) transaction prices in the district.

Local governments then send the preliminary district land value to the jurisdiction's Land Evaluation Committee for review.¹³⁷ The Committee has very large discretion to adjust the preliminary district land value. Notified the final district land value by the Committee, government employees apply the district land value to all land parcels in the district, unless the land parcels are adjacent to busy streets—in this case, the land value is adjusted upwards by a set formula.¹³⁸ Hence, though every land parcel has its own ACLV, in a district, many land parcels' ACLV is equal to the final district land value.

ACLV, *ex ante* assessment by the government, is used as the benchmark for not only takings compensation payment but also the tax base of "land value increment tax."¹³⁹ It is not surprising that in Taiwan the *ex ante* assessments of land value serve a double duty. First of all, the administrative costs of governmental assessments are not negligible, and most land parcels assessed will not be condemned. If the assessments have no other use, it would hardly be cost-justified to adopt *ex ante* assessments by the government.

Moreover, because the Taiwan laws tie tax revenue and compensation payment together, raising land value assessments (ACLV) increases not only the land value increment tax revenue but also the takings compensation payment. This design intends to curb the official assessors' inclination to under-assess land value, which they are more likely to do if their assessments are only used to determine takings compensation.¹⁴⁰

¹³⁷ Land Evaluation Committee consists of 17 people: the director is the city/county mayor; deputy director is city/county government secretariat; 5 government officials from different department; 1 local legislator; 1 land value expert; 1 "fair local person"; 7 representatives from different associations (like appraisers' association).

¹³⁸ The land value will not be adjusted because the building on the land is a single family housing or a multi-family housing, for presumably the value of housing has been reflected in the preliminary district land value.

¹³⁹ It is not a property tax. The property tax in Taiwan is called "land value tax," which is levied according to another governmental assessment, Publicly Announced Land Value (PALV), which is assessed in the same way as ACLV, but announced every three years. A land parcel's PALV is on average much lower than its ACLV in the same year. See Chang, *supra* note 46.

¹⁴⁰ I am not sure whether the tying of tax and compensation is a self-conscious design by the legislature. The original model proposed by Dr. Sun Yat-sen tie tax and compensation together purposely to give *landowners* incentives to strike a balance between over-assessment and under-assessment. Dr. Sun's idea was partially realized in the law in the 1950s. In 1977, Taiwan's assessment method was legally changed to *ex ante* assessment by non-landowners, and yet the tying design remained. From the legislative record in 1977, I see no discussion concerning the tying design.

B. *The Unlikelihood of Accurate Assessments*

Appealing as it seems, tying tax and compensation together may still fail to attain the goal of accurate assessments. Following the widely-accepted fiscal illusion theory, I assume that the government aims to minimize takings compensation (a budgetary outflow) and prefer to have more budgetary inflow.¹⁴¹ I also assume that assessors fully and only internalize the costs of compensation and the benefits of tax revenue in monetary terms. Using a stylized example, I will illustrate that even under these most favorable assumptions, a model which ties tax¹⁴² and compensations together is unlikely to produce accurate assessments. In such a model, assessors face:

$$\text{costs of condemnation} = \{ \sum p_i * A_i \}$$

$$\text{benefits of condemnation} = \{ \sum (1 - p_i) * A_i * t \}$$

where p_i represents the probability of condemnation of land i ; A_i represents the assessed value of land i ; t is the tax rate. The Σ sums up the costs and benefits of all land parcels.

An assessor, call her Joan, who internalizes the monetary costs and benefits, naturally aims to maximize net benefits (tax revenue minus takings compensation):

$$f(A_i) = \sum [(1 - p_i) * A_i * t - p_i * A_i]$$

Joan will find out that if $p_i < t/(t+1)$, $f(A_i)$ is always larger than 0; in this case, she will maximize $f(A_i)$ by increasing A_i as highly as possible.¹⁴³ If $p_i > t/(t+1)$, $f(A_i)$ is always smaller than 0. Hence, she will assess land i as low as possible to reduce loss. If $p_i = t/(t+1)$, $f(A_i) = 0$, so Joan is indifferent to any amount of assessment.

The tax rate (t) is known and given while the probability of condemnation (p_i) is usually uncertain. Sometimes Joan would perceive p_i as obviously larger or smaller than $t/(t+1)$ and over-assess or under-assess accordingly. Sometimes Joan does not know the relationship between p_i and $t/(t+1)$. In this case, the rule of thumb for her may be assuming that $p_i = t/(t+1)$. Then, as I just argued above, she is indifferent and still does not have incentives to assess accurately.

Some would contend that when Joan has nothing to maximize, she will simply assess accurately. But, first of all, where does the incentive to assess (every land

¹⁴¹ In another article, I argue that this assumption is implicitly adopted by the fiscal illusion theory. See Chang, *supra* note 32.

¹⁴² Taiwan's regime uses the land value increment tax instead of a property tax in the tying design. Discussing Taiwan's regime will be technically more complicated but lead to the same result. So I discuss the more stylized model.

¹⁴³ In this case, the government may even over-assess land parcels that it is not going to condemn while under-assess land parcels that it has planned to take soon.

parcel!) accurately come from? For Joan personally, assessing accurately is definitely more time-consuming than assessing inaccurately. Without further assumption (or, better, evidence) about Joan's preference, asserting that Joan will work harder for nothing is counter-intuitive.

Furthermore, how should the assessment method be designed so that Joan has nothing to maximize in the first place? To equate p_i with $t/(t+1)$ (or make assessors unsure which one is larger), the law would have to adjust either the tax rate or the probability of condemnation (for every land parcel!). But, as argued above, it is politically unfeasible and administratively very costly to adjust them only for the sake of getting accurate assessments.

Loosening the assumptions made above by the fiscal illusion theory and dealing with the complexities in reality, I argue that accurate assessments are even more difficult to arrive at. First, assessors may not internalize the monetary costs of paying compensation and the monetary benefits of receiving tax revenue. Because assessors do not personally pay compensation or receive tax revenue, neither of the above cost or benefit may affect their assessing decisions.¹⁴⁴ Their personal concerns, like reducing accuracy to alleviate workload (as discussed in Section III.A), may be more decisive.

Granted, assessors may partially internalize the above costs and benefits (because, say, too few tax revenues affect their bonus). But this does not ensure accurate assessments.¹⁴⁵ Furthermore, assessors may also internalize other types of costs and benefits (such as those brought by the public use of the condemned land), which only make accurate assessment more unlikely.

More fundamentally, as Daryl Levinson argued,¹⁴⁶ the assessors may perceive costs and benefits not in monetary units but *in political units*.¹⁴⁷ If the correlation coefficient of "political costs versus monetary costs" and the correlation coefficient of

¹⁴⁴ Even assume that the government as a whole does internalize costs if compensation is paid, assessors are not the government incarnate. They do not necessarily assess for the net benefits of the government as a whole.

¹⁴⁵ See Louis Kaplow, *An Economic Analysis of Legal Transitions*, 99 HARV. L. REV. 509, 568 (1986) ("To the extent that both discounted in roughly the same proportions, no bias should result.") (emphasis added).

¹⁴⁶ See, e.g., Daryl J. Levinson, *Empire-Building Government in Constitutional Law*, 118 HARV. L. REV. 915, 969-71 (2005); Daryl J. Levinson, *Making Government Pay: Markets, Politics, and the Allocation of Constitutional Costs*, 67 U. CHI. L. REV. 345, 350, 417 (2000).

¹⁴⁷ Assessors usually are not politicians, who perceive costs and benefits in political units, but assessors are overseen by politicians, so assessors may be required to perceive costs and benefits in political units.

“political benefits versus monetary benefits” do not approximate, tying tax and compensation together can not achieve its proclaimed goal of balancing assessments.¹⁴⁸

In sum, the tax-compensation tie, the major design of the *ex ante* assessment by non-landowners method, appealing as it seems, can hardly provide the correct incentives that will induce non-landowners/assessors to make accurate assessments, whether the government maximizes “monetary costs and benefits” or “political costs and benefits.”

VII. *EX POST* ASSESSMENT BY NON-LANDOWNERS

Ex post assessment by non-landowners is the method employed by most (if not all) American states. Take New York State as an example:¹⁴⁹ when the government needs a specific property but can not reach a voluntary deal with its owner, it condemns the property and asks a professional appraiser to assess the value of the property. Then the government offers the highest approved appraised value as compensation to the property owner. If the owner does not accept the offer as payment in full, the government negotiates a settlement with the owner. If negotiations fail, the court would adjudicate the amount of compensation due.¹⁵⁰

An *ex post* assessment by non-landowners model tends to be simpler than models designed according to other three types of assessment methods, as shown by the simplicity of the New York State regime. The simplicity is due to the unavailability of the ordinary incentive schemes.¹⁵¹ For example, the tax-compensation tie (imperfect as it is when employed *ex ante*) is not useful *ex post*, because the probability of condemnation has been known to be 100%, so government assessors recognize that the government has to pay takings compensation and will no longer receive tax

¹⁴⁸ For example, if political costs equal monetary costs while political benefits only translate into monetary benefits 50% of the time, assessors will take too few monetary benefits into account and do not produce the accurate assessments as tax-compensation bundle theorists expect.

¹⁴⁹ See N.Y. EM. DOM. PROC. LAW (McKinney 1977). For detailed descriptions of the New York regime, see Chang, *supra* note 39.

¹⁵⁰ One could argue that the New York regime is not an entirely pure type of *ex post* assessment by non-landowners, because when the compensation is determined in a settlement, property owners' *ex post* assessments could have influenced the amount of compensation. If the amount of compensation is determined by a judge, or the condemnee accepts the offer as payment in full, it is arguably a pure type.

¹⁵¹ Though incentive schemes may be unavailable, assessment accuracy could be increased by separation of power and broad participation in the procedure. Take New York City as an example, the city/condemnor will have appraisal reports from its Department of Citywide Administrative Services and at least one independent appraiser. The condemning agency, the law department, and the comptroller office will be involved in the settlement and litigation procedures. During the course of settlement and litigation, there will be inputs from condemnees' appraisers and expert witnesses. The possibility of court adjudications will keep the condemnor in check. See Chang, *supra* note 39.

payments from the condemned properties. There is nothing uncertain to balance the government assessors' incentives.

Furthermore, we can incorporate an option to back off condemnation into the *ex post* assessment by landowners method, but it is absurd to grant such an option to the government when the amount of compensation is determined by the government itself. Even if the government is required to commission independent appraisers to assess property value, like New York State is, the government can certainly ascertain property value before deciding whether to condemn. A back-off option neither enhances assessment accuracy nor induces responsible governance.

Auditing is possible, but not very meaningful. The audited assessments are also *ex post* non-landowner assessments. If it is done at the time of condemnation, the government can offer condemnees the average of all available assessments or offer them the "best" assessments. In addition, it seems impracticable to expect the government to audit the property value several years after the condemnation, not to mention that these years-later assessments are unlikely to be more accurate than the assessments done at the time of condemnation, because of available information.¹⁵²

As for assessment costs, an *ex post* assessment by non-landowners model, such as the New York State regime, will be more costly than *ex ante* models, because in the *ex post* models all properties have to be assessed once in a tax period and additional assessments are necessary for condemned properties, while condemned properties in the *ex ante* models using bundling mechanisms do not need to be assessed once again.

VIII. CONCLUSION

In this Essay, I argue that assessment costs and assessment accuracy are both necessary factors in determining which takings compensation standard is the most efficient. The four prototypical assessment methods, categorized based on the identity of assessors and the timing of assessments, have critical influences on assessment costs and assessment accuracy. I examine the assessment models proposed by scholars and assessment regimes implemented in the U.S. and Taiwan, concluding that theoretically none of them can induce accurate assessments of property value for physical takings compensation purposes and that the assessment costs of these models and regimes is often quite high.

¹⁵² See the general discussions *supra* III.B.1. To be more exact, I argue that the takings compensation assessed right after the time of condemnation would be more accurate than the audited compensation done several years after the time of condemnation, because some information may disappear as time goes by.

Which assessment method is the most accurate and low-cost? Theoretically, there is no clear answer. Assessment costs and assessment accuracy are context-dependent. One assessment method can spawn countless types of assessment models, in which assessment costs and assessment accuracy are not exactly the same. An assessment model, when implemented in different jurisdictions, may incur different amounts of assessment costs and produce assessment of different levels of accuracy, due to exogenous factors, such as social norm or sense of fairness. Therefore, assessment costs and assessment accuracy are empirical questions. In several succeeding papers, I will test the accuracy of three assessment regimes, each of which adopts a prototypical assessment method.¹⁵³ Ultimately, I will incorporate the research on assessment methods and their effects on assessment accuracy and assessment costs into the research on owners' incentives and government officials' incentives, in order to determine which takings compensation standard is the most efficient.

¹⁵³ See Chang, *supra* note 32 (an empirical piece on *ex ante* assessment by non-landowners); Chang, *supra* note 46 (an empirical piece on *ex ante* assessment by landowners); Chang, *supra* note 39 (an empirical piece on *ex post* assessment by non-landowners).