

**Is the Government Fiscally Blind?
An Empirical Examination of the Effect of the Compensation
Requirement on Eminent Domain Exercises[♦]**

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The principal justification for mandating compensation when land is taken for public uses is that it is necessary to cure government officials of a “fiscal illusion” problem. To date, however, this justification has never been empirically tested in the takings context. We took advantage of a unique feature of Israeli law which permits local government to expropriate up to 40% (by size) of any parcel without compensation, while since 2001 mandating full compensation for total takings of 100%, to test the fiscal illusion hypothesis. We collected data about all the takings in Tel Aviv between 1990 and 2014 (3,140 cases). We expected to see a disproportionately large share of takings around the 40% kink point. Surprisingly, our analysis revealed no discontinuity around the 40% mark; in fact, the rate of takings in the 25%-99% range was very low. The real discontinuity point was at 100%, where nearly a half of the takings were concentrated. Remarkably, the share of cases of total taking (taking share of 100%) was even greater after the law was changed (in 2001) to require full compensation. Our findings call into question the fiscal illusion hypothesis and lend qualified support to the hypothesis that in the takings context officials are largely motivated by actual needs and fairness considerations.

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1 Introduction

The power of eminent domain and its limits lie at the core of property law in the U.S. and elsewhere. While there is broad consensus as to the justification for the eminent domain power—namely, the need to overcome strategic bargaining problems such as holdouts—there is disagreement among scholars as to the rationale behind the compensation requirement that exists in virtually every legal system (Shavell 2004, p. 127; Kelly 2011).¹ Fairness oriented theorists justify the compensation requirement by reference to the Supreme Court’s decision in *Armstrong v. United States*, where the Court, per Justice Black, stated that “just compensation was designed to bar Government from forcing some people alone to bear public burdens which, in all fairness and justice, should be borne by the public as a whole” (364 U.S. 40, p. 49). Law and economics scholars, by contrast, have advanced a very different justification for the compensation requirement. By their lights, the just compensation requirement is necessary to cure a “fiscal illusion” problem that would otherwise afflict government officials. On this theory, government officials ignore costs that are not reflected in the budget.² Consequently, they will not take account of the costs their actions impose on private parties as long as

¹ For a recent critique of the efficiency of using eminent domain, see López and Clark (2013).

² The generic term “fiscal illusion” is used in the economic literature to denote several numbers of hypotheses (Dollery and Worthington 1999; Dell’Anno and Mourao 2012). It should be noted however that most of the existing research on fiscal illusion outside of the eminent domain context rests on the assumption that “politicians deceive citizens by denying or obscuring the social reality that these rulers know is actually happening” (p. 273). The fiscal illusion version referred to in the context of eminent domain, and therefore in our study, doesn’t assume that the government intentionally deceives its citizenry, rather that public officials themselves are, just as taxpayers, ignorant to unlisted costs.

those costs do not affect the budget. Government officials, who suffer from fiscal illusion, so the argument goes, would likely engage in inefficient exercises of eminent domain since they only see the public benefit of takings, while ignoring the cost to the condemnees. The imposition of a requirement to pay just compensation remediates the problem by incorporating the private cost of takings into the budget and forcing government officials to take full account of it.

Notwithstanding the strong scholarly rhetoric the fiscal illusion theory has never been empirically tested in the takings context. There is only one empirical study by Yun-chien Chang ([2009], and relatedly Chang 2011, p. 402) that examined the question whether government officials minimize compensation or maximize their political interest and found that political interests are of greater importance, as anticipated by Levinson (2000, 2005). No study sought to empirically test the question whether in the absence of a legal duty to compensate the government would exercise its eminent domain power excessively to the detriment of its citizenry. This Article seeks to fill the void by providing an empirical examination of how compensation rules affect eminent domain practices. We take the fiscal illusion as a null hypothesis, because it dominates the literature, despite that other voices were sound (Shavell 2004, p. 130; Rose-Ackerman 1988, p. 1706; Been and Beauvais 2003, pp. 92-93; Wyman 2007, pp. 259-60; Heller and Hills 2008, p. 1480). If we can find that this theory is probably not a good explanation for governmental behavior in this context, its importance will have to be reassessed (Epstein and Martin 2014, p. 155).

We took advantage of the particular design of the Israeli law pertaining to eminent domain compensation. Israeli property law provides a unique opportunity to empirically test the validity of the fiscal illusion theory due to the fact that local governments are allowed to expropriate up

to 40% (by size) of any parcel *without* paying compensation, when the land is taken by the zoning commission for certain types of local public uses, such as roads, parks, and public buildings. In other words, Israeli law gives the local government a call option on up to 40% of all private land at a perceived exercise price of zero (Wagner 1976).³ The local government must compensate only for takings that exceed this percentage. For example, when the government chooses to take 45% of a lot, it will be required to pay compensation for 5% (45%-40%) of the market value. To the best of our knowledge, a similar prerogative does not exist in any other state.⁴ What stands to justify this law is the assumption that the part not taken benefits from the public use.⁵ Partial compensations are, therefore, fair.

As of June 12, 2001, an exception was carved out for total takings, cases in which 100% of a parcel is being taken. According to an Israeli Supreme Court precedent from that point onwards the government is required to pay full compensation whenever it takes a parcel in its entirety (instead of only 60% as was the law until that point). This decision came as a total surprise, overturning previous rulings of the Court, even a few that were then just recently delivered, which explicitly allowed the government to deduct 40% even in cases of total taking.

³ Clearly, any taking, and any share of taking, involves administrative costs other than those required by compensation laws (Merrill 1986).

⁴ It does not imply, however, that other means to secure private participation in the supply of public needs are not utilized. See, generally, Alterman (2010, ch. 1-3).

⁵ If the value of the remainder, untaken, part of the lot was in fact decreased due to the partial taking, owners may petition the Minister of Interior to pay them additional, hardship compensations. However, hardship compensations for takings of the kind included in this study—for local, community-oriented purposes—are very rarely granted and if so, only in cases where special, personal, circumstances of the owner require so (based on literature review, cases law analysis, and interviews with land lawyers and experts).

The Israeli just compensation law creates therefore one large convex kink point around the 40% point where the deduction of compensation is fully phased-in and therefore the greatest amount of land can be extracted for the lowest amount of compensation. In addition, for the post 2001 takings there is a notch point at the 100% mark, because at that point an incremental change in the share of taking triggers a discrete change in the share of compensation (e.g., 59% of compensations when 99% of a lot is taken, whilst 100% compensations when 100% of a lot is taken). Hence, two different schedules apply before the notch and at the notch.

To test the fiscal illusion hypothesis we used an interrupted time-series quasi-experiment. We collected and coded data on all exercises of eminent domain for local uses by the City of Tel Aviv between 1990 and 2014. We were able to complete full data for 3,140 cases (97% of the general population) which compose our sample group. Following the logic of the fiscal illusion hypothesis, we expected to see correlation between compensation rules and governmental behavior (Saez 2010; Slemrod 2013). In particular, we expected to see for the post 2001 group, bunching just below the 100% notch point to avoid the loss of eligibility to the 40% exemption. In addition, we expected to see bunching around the 40% kink point. Considering concerns for potential litigation regarding the exact share of taking should draw the discontinuity points a bit to the left.

Surprisingly, our findings appear to call into question the fiscal illusion hypothesis in the context of takings. While 43% of the takings were in the 1% to 40% range we did not observe a discontinuity at or around the 40% kink point. In fact, there were relatively few takings of 35% to 45% (3% of the cases), so optimization error (including a preference to avoid takings that borders on 40% which might invite litigation) cannot be used to explain this finding (Chetty 2012). Most of the takings in the 1% to 40%

range were around 25% or less. In other words, no kink point was observed at the 40% share of taking. The only discontinuity point was at taking share of 100% (total takings), at which *nearly half* of the takings were concentrated. In only 15% of the cases the taking share was larger than 40% and smaller than 100%. Moreover, contrary to the prediction, the rate of total takings post the 2001 legal change was significantly higher, and thus there was no bunching to the left of the 100% notch point post 2001. The Supreme Court's decision that mandated full compensation for total takings had therefore *no observable effect* on the government's engagement in such takings.

The remainder of the paper unfolds in four parts. We open, in Section 2, with a short review of the theoretical justifications for eminent domain compensation, with a special emphasis on the fiscal illusion theory. Section 3 describes the research design and explains the Israeli law on just compensation. In Section 4, we introduce the specifics of the study settings and detail our findings. In Section 5, we discuss potential interpretations of our findings and point out at the limitations of the study. A short conclusion ensues.

2 Theoretical Justifications for Eminent Domain Compensation

While there exists a broad scholarly consensus that the power of eminent domain is necessary to overcome holdout problems that would otherwise thwart development projects, there is no similar scholarly convergence as to the justification underlying the just compensation requirement that is triggered by eminent domain exercises.

The Supreme Court and some legal scholars justify the compensation requirement on grounds of fairness. The justification is rooted

in notions of equality and it maintains that it is not fair that the costs of development and progress would fall on a handful of property owners whose land was condemned to enable the attainment of socially desirable goals. The gist of the fairness argument was captured by Justice Black in *Armstrong v. United States*, as quoted above.

Law and economics scholars, on the other hand, have come with a very different justification for the compensation requirement. They argue that the payment of just compensation is necessary to cure the government of the malady of fiscal illusion. Nevertheless, full compensation for property takings might lead property owners to over-investment in the improvement of their property, and to treat the government's duty to compensate as an insurance scheme (Blume, Rubinfeld, and Shapiro 1984; Blume and Rubinfeld 1984).

The correlation between eminent domain and landowners' behavior has been subject to ongoing theoretical and empirical studies (e.g., Miceli 2008; Shavell 2010; Pecorino 2011; Bar-Gill and Porat 2014). Since there is a sort of "trade-off" between governmental incentives and landowners' incentives (Miceli 2011, p. 95), it is important to consider the governmental side of the equation as well. This is the focus of the current paper.

The idea of fiscal illusion had been hypothesized long before it was applied to the compensation for governmental taking (McCulloch 1845). John Stuart Mill in his monumental monograph published in 1848 asserted that "[p]erhaps... the money which [the taxpayer] is required to pay directly out of his pocket is the only taxation which he is quite sure that he pays at all... If all taxes were direct, taxation would be much more perceived than at present; and there would be a security which now there is not, for

economy in the public expenditure.” (p. 237).⁶ Mill suggested that relatively “invisible” taxes cause taxpayers to underestimate the tax burden, and, as a result, the government is involved in “excessive” public expenditure (Sausgruber and Tyran 2005, pp. 39-40). It was, however, Nobel Laureate James Buchanan (1967) who had taken the pioneering path of exploring the effects of fiscal illusion on decision-makers’ behavior.

The roots of the fiscal illusion hypothesis as an explanation for taking compensations can be traced back to the 1960s. For example, Joseph Sax expressed in his 1964 piece the concern that the government’s power to set its goals and to take means for executing them might result in excessive zeal if compensation rule is not set. Likewise, Frank Michelman, in his landmark article on takings from 1967, suggested that payment of compensation might furnish a necessary assurance against capricious redistributions.⁷ Michelman, however, introduced the demoralization costs – the effect of uncompensated takings on individuals’ utilities and loss of future production – as an alternative, and even the main, explanation for the duty to compensate.

Despite early references, the term “fiscal illusion” was introduced in the context of taking only in 1984. Lawrence Blume and Daniel Rubinfeld (1984) alone, and together with Perry Shapiro (Blume, Rubinfeld and Shapiro 1984), noted that “[p]ublic investment choices are often made subject to a form of budgetary fiscal illusion in which only dollar outlays are included as costs in its benefit-cost calculation. Compensation will force the government to make correct project choices” (p. 72).

⁶ The term “fiscal illusion” was probably coined by an Italian scholar in a monograph which was never published in English (Puviani 1903).

⁷ For other early references to compensation as a mechanism to assure against inefficient governmental behavior, see Berger (1974); Johnson (1977).

Soon after Blume, Rubinfeld and Shapiro's work came out, the fiscal illusion justification for taking compensation gained prominence in the law and economics literature. In 1986 Louis Kaplow wrote that "[n]umerous commentators favor providing compensation for takings to alleviate fiscal illusion" (p. 567). Since then the fiscal illusion hypothesis has become a staple in standard legal accounts and law and economics articles on takings (e.g., Fischel and Shapiro 1988; Heller and Krier 1999; Dagan 2000; Fischel 2004a; Dana and Merrill 2002; Serkin 2005; Niemann and Shapiro 2010; Aisbett, Karp, and Mcusland 2010; Pecorino 2011; Cooter and Ulen 2012; Chang 2012; Göller and Hower 2014).

As Richard Posner (2011) wrote "[w]hat remains to justify the just compensation requirement today is that without it government would have an incentive to substitute land for cheaper inputs that were, however, more expensive to the government. . . . Of course, this assumes that the government makes its procurement decisions approximately as a private entrepreneur would do, that is, on the basis of private rather than social costs unless forced to take social costs into account. The assumption is realistic; government is sensitive to budgetary expense." (p. 73-74).

Similarly, Thomas Miceli (2004, p. 224) argues that in the absence of a compensation requirement or when the compensation mandated by the law is too low, the government "will likely take too much. . ." (see also Miceli 1997, p. 141). In his recent *Economic Theory of Eminent Domain*, Miceli (2011, p. 95) further states that: "[t]he assumption of a benevolent government that always acts to promote social welfare is perhaps overly naïve. More realist models suppose, instead, that the government acts in the interests of the majority of landowners, subject to budgetary constraints."

Based on the fiscal illusion theory, there should be a strong correlation between compensation rules and governmental takings behavior.

In other words, the extent of the duty to compensate should have an effect on the frequency of exercising the power of eminent domain in terms of the number of takings and the size of the land taken.

3 Research Design and the Israeli Just Compensation Doctrine

In the U.S., as well as in other Western countries, the government is required to pay compensation whenever it engages in a physical taking—large or small—of private land. The government is under a duty to compensate even if it takes only a fraction of a percentage of a particular parcel. No amount is considered *de minimis*.

The design of the U.S. compensation regime has two salutary effects when viewed through the lens of the fiscal illusion theory. First, it forces the government to take account of the cost its actions impose on private individuals. Second, it eliminates, to a large extent, the incentive of the government to act strategically in deciding what *percentage* (share) of the property to take. Given that there are no discontinuity points in the compensation the government must pay, government officials will be inclined, *ceteris paribus*, to take the efficient amount of private property—namely, the amount at which the marginal benefit to the government equals the marginal cost.

The Israeli compensation regime is radically different. In 1936, the days of the British Mandate, the law empowered the local government to take up to 25% of any parcel without paying compensation if the land is taken for local roads, playgrounds, and play fields.⁸ In 1965 the

⁸ Town Planning Ordinance, 1936 (Isr.), S27. This power was later on extend to expropriations of the central government as well. Land (Acquisition for Public Purposes) Ordinance, 1943 (Isr.), S20. Earlier versions of these ordinances, from

uncompensated share was enlarged to 40% and was extended for other public purposes: parks, sports and recreation, education, culture, religion, and health. The compensation requirement comes into play only as of the forty first percent taken and, even then, it is applied only on the margin: that is, if the government takes 41% of a certain parcel, it will have to pay compensation for 1% of the property's market value.⁹ The justification that was advanced for this rule is that, in general, the public use to which the taken property is used enhances the value of nearby properties, including that of the remaining portion of the taken property. And, moreover, that it is fair to require that every property-owner to shoulder some of the burden implicated by the provision of public amenities to the community.

In an unexpected landmark decision from 2001, the Israeli Supreme Court, deviated from past precedents,¹⁰ and ruled that in cases of total taking, in which the government condemns 100% of a parcel, full compensation would be awarded to condemnees and the government would not be able to avail itself of the standard 40% deduction.¹¹

This legal change provides us a natural opportunity to examine how public officials react to different compensation laws. The Court's ruling occurred as a truly exogenous event, which its timing and occurrence wasn't coincident with longitudinal patterns in the use of eminent domain. In

1921 and 1926, respectively, included even more restrictive powers in this regard. In fact, the Mandate law maintained a previous Ottoman law from 1891, according to which 25% of an undeveloped parcel are not compensated when the purpose of taking is road paving (Goadby and Doukhan 1935, pp. 315, 332).

⁹ Planning and Building Law, 5725-1965 (Isr.), S190(a)(1) and Land (Acquisition for Public Purposes) Ordinance, S20.

¹⁰ CA 377/79 Pfizer v. Ramat Gan Planning and Building Commission 35(3) PD 645 [1981] (Isr.).

¹¹ CA 5546/97 Kiryat Ata Planning and Building Commission v. Holzman 55(4) PD 629 [June 2001] (Isr.), *translated in* http://elyon1.court.gov.il/files_eng/97/460/055/106/97055460.106.pdf.

addition the legal change could not have been anticipated by the relevant governmental actors.¹² Where the treatment is applied randomly, not as a policy response to trends in levels of activity, and without relation to the prior state of affair of the dependent variable “the correlation between pretest scores and exposure to treatment is zero” (Campbell and Ross 1968, p. 40). Despite that in such cases it is reasonable to interpret trends prior to the introduction of the legal change as evidence to their casual impact (Gerring and McDermott 2007, p. 694), caution should be exercised when inferring causality due to our inability to produce sufficient control.

Given that the legal change was uniformly implemented in all cities in Israel, there is no possibility to have a proper control group, even not a nonequivalent one. Similar remote states are not available. As Campbell and Ross put it: “for matters of either weather or culture, adjacency and similarity are apt to be strongly associated” (id, p. 46). Specifically to our case, the pretreatment state of affairs is unique to the studied group. For these reasons we cannot test causality but rather describe the results, test whether the legal change is associated with changes in the taking share, and suggest this case-study only as a prediction (Privitera 2014, p. 272).

The logic of the fiscal illusion argument, which emphasizes direct out-of-budget costs as meaningfully different than other costs of governmental behavior, would suggest that fiscally afflicted government officials would respond to the Israeli particular compensation regime in two distinct ways. First, they would tend to disproportionately engage in takings

¹² In December 1999, for instance, the Supreme Court recited *Pfizer* as the prevailing doctrine (CA 6663/93 Zaig v. Rishon Le’Zion Planning and Building Commission 55(1) PD 49 [1999] (Isr.)). In an article published in 1985, Rachelle Alterman criticized the *Pfizer* doctrine. So did Daphna Lewinsohn-Zamir in 1994, and Hanoch Dagan in 1997. However, these critiques were totally ignored by the courts but until the *Holzman* case (this is based on citations analysis of court decisions for the years 1985 to 2001).

of 40% or just under 40% as doing so gives them the highest payoff at the least cost. Given that the perceived cost (in terms of compensation) remains fixed at \$0 between 1% and 40%, if government officials are assumed to behave as self-interest maximizing rational actors, they should also elect to take 40% and not any lesser share. For any taking, and for every taking share which is not required for public uses, there are costs. Such are due process costs (Merrill 1986), loss of property tax, and costs for managing unneeded properties. These costs are deemphasized or overlooked by fiscal illusion's proponents.

Second, and more importantly, an anticipated effect of the Israeli compensation regime is that since the year 2001 Israeli local government officials should have shied away whenever possible from total takings, as these impose a disproportionately high cost on the public fisc. This is so for the simple reason that any taking of 41% to 99% of a lot imposes on the government a cost (in terms of compensation) that can be assumed to increase linearly, on average, at a steady rate proportionately to the benefit the government receives. A taking of 100%, however, raises government expenses by a very large amount as it deprives the government of its ability to refrain from compensating for the first 40% taken relative to taking of 99% or any lesser share (which is higher than 40%). Hence, one would expect to see disproportionately smaller shares of total takings (taking share of 100%) after 2001. We can also assume that a purely strategic behavior on part of the government, such as the taking of exactly 99%, might be invalidated by the courts as unfair.¹³ Considering also optimization error, the effect of the 2001 legal change should be observed around taking share

¹³ According to the Attorney General of Israel's instructions from 2003, where the remainder part of a taken land in partial takings is of only a few percentage points away of the size of the entire lot, full compensations should be paid.

of 90% or below.

Israeli law, therefore, contains two *potential* discontinuity points. The first one is at or around the 40th percentile point and the second is around the 100 percentile point, for a pre and post 2001 comparison.

Against this legal backdrop, we set out to test the hypothesis that after 2001 the share of cases of total taking (taking share of 100%) would be relatively smaller than in the pre-2001 period; that the rate of cases between 41%-90% would be larger, and that the 100% point or around it should appear as a notch point after 2001. In addition, we tested whether there are any cases in the range of 1%-35%, and whether there is a clear discontinuity kink point at 40% or around it, and a “hole” of no cases to the right of this point.

4 Methodology and Empirical Findings

4.1 Methodology

In Israel, in order to take private property for local uses, a city must first enact a zoning map (or amendment to it) which designates the land for public uses, and then comply with the dictates of takings law. In large cities like Tel Aviv the local planning and building commission is comprised of all the members of the city council, headed by the Mayor, so there is a high degree of correlation and unity of interests between the planning body and the elected local government, specifically the Mayor. Municipal elections, for Mayor and the City Council, and, in fact, for a seat at the Zoning Commission, were held in 1993 and every five year thereafter.¹⁴

¹⁴ In 1993 Mayor Milo was elected to replace Mayor Chich after 20 years in office; in 1998 Mayor Huldai replaced Mayor Milo, and ever since then Huldai

The Zoning Commission has responsibilities for both approving the designation of a certain lot for public uses and for the succeeding taking. The central government or any other agencies are not involved at any rate in the decision to take. In all cases included in this study, compensations were paid out of a specific allocation in the City's budget. Here again, compensations are financed and paid without any involvement of the central government or any other agency.¹⁵

At any time after a zoning map was amended, designating property for public uses, the Commission may publish a public notice declaring its intent to take private property, and demanding immediate transfer of possession. In most of the cases these public notices contain information about the size of the parcel and the taking size. The procedures required for taking are independent of the amount or share of land taken in each case: for under than 40% or above this threshold the procedure for taking is the same.

We used an interrupted time-series quasi-experiment to test our hypothesis. The data collected includes all taking notices for local purposes which were signed and published in public records between January 1, 1990 and December 31, 2014 by the Tel Aviv Planning and Building Commission. We were able to complete full data for 97% of the entire population. Throughout the examined period there were no changes in record keeping. In total there are 488 notices.¹⁶ These notices contain 3,140

was elected.

¹⁵ Because the City pays compensations out of its own budget (and not out of central government's grants) we should not be bothered by the problem reported by Fischel (2004b), where earmarked Federal and State money distorted condemnation decisions in Poletown, Detroit.

¹⁶ As a quality check we collected another set of condemnation notices. These notices are published when the local government desires to transfer full ownership of the taken land, typically for land registration purposes. Between 1990 and 2014 there were 359 such notices, which included 1,791 observations which matched our

takings, which refer to 449 development projects.¹⁷ The specific public purpose for which the land is taken (e.g., road, park, etc.) appears in 725 (23%) of the cases in our dataset.

We begin with a general description of the levels of taking activity, and turn to test the implications of the 2001 legal change.¹⁸ Our main dependent variable is Total Taking (taking share of 100%), which is tested per discrete taking observation as well as for per project as the unit of observation. While we observe differences among the pre legal change group and the post group, we also describe patterns in specific years. We use parcel size, taking size (amount of land taken), taking share, and pre/post treatment, as measures per unit of observation. We also use additional datasets on activity levels of new constructions in Tel Aviv, and compensation paid out of the City's budget.

4.2 Levels of Takings Activity

As shown in Figure 1 the number of takings varies from year to year without any visible trend. The year of 1995 witnessed the peak with a total of 822 (26%) takings observations. Otherwise, the annual average is 126

dataset. Only in rare cases there was a change in the taken size upon completing the formal procedure, indicating consistency throughout the process. Obviously, total takings are more likely to appear in the subset of cases in which the government registers title to the taken parcel. This subset shows that for the larger takings per parcel in the main data set, it is possible to match most of those records with a separate set of records, and it thus provides an assurance about the quality of the records used in the main findings.

¹⁷ If with regards to a certain project more than one notice was published within no more than a year, we referred to it as one project, which is the case for a couple of dozens of notices.

¹⁸ We took the date of the Court's decision as the time-resolution (June 12, 2001) (see Wagenar and Komro 2011). In 2001, there was one taking observation past that date which was attributed to the post legal change group.

while the minimum was 7 takings observations per annum. Breaking down the observations pre and post 2001, the picture is rather balanced with respect to the number of observations. 1,716 (55%) discrete takings observations came prior to the legal change and 1,424 (45%) observations came after that date (clustered into projects, the pre change group refers to 223 [50%] development projects, while the post 2001 one refers to 226 [50%] projects). Figure 1 also summarizes the amount of land taken each year. We see that the variables are rather stationary, apart for two years – 1995 and 2010, and that there is a correlation between the two series ($r=0.93$, $p<0.001$).

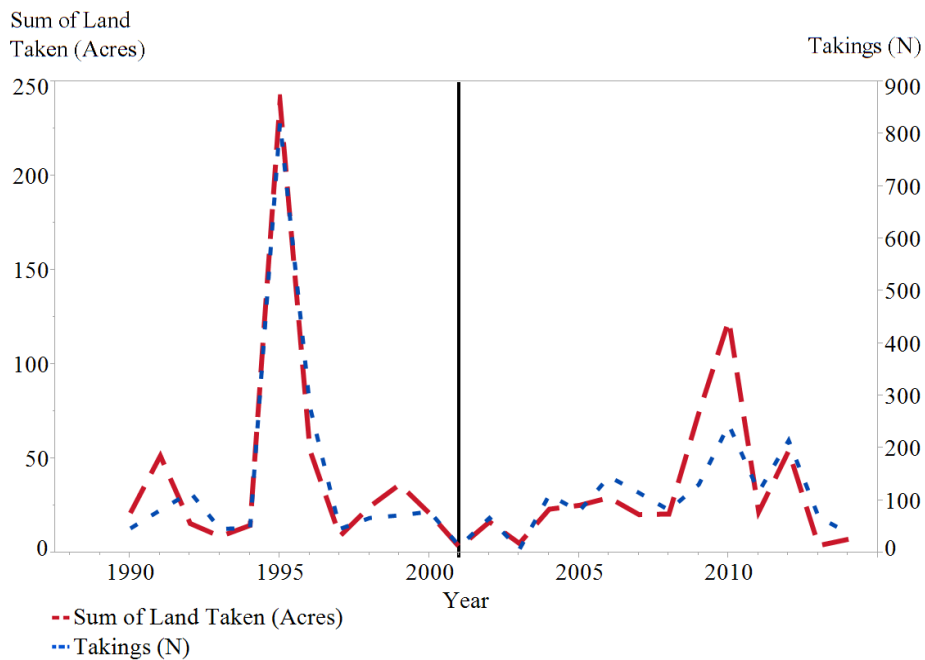


Figure 1: Number of Takings per Year; Amount of Land Taken per Year (Acres)

Since for both series no significant autocorrelation was detected we could conduct a t test to examine the change between the periods. Table 1 shows that there is no significant change in the annual measures pre/post the

legal change in terms of the amount of land taken and the number of takings.

Table 1: Amount of Land Taken and the Number of Takings per Year Pre and Post the Legal Change

	Legal Change	Number of Years	Mean	SD	t ratio	Pvalue
Amount of Land Taken per Year (Acres)	Pre	12	41.68	64.41	-0.43	0.67
	Post	13	32.76	33.54		
Takings per Year (N)	Pre	12	143.08	224.19	-0.5	0.63
	Post	13	109.46	65.87		

4.3 Taking Share per Each Taking

We turn now to inspect the main variable of taking share, measured by the size of taking relative to the size of the parcel. Figure 2 provides a histogram of the share of taking for the entire sample (25 years) which can be characterized as bimodal with high frequency towards the ends of the range. It is clear that there is only one breaking point along the range, at a taking share of 100%. For 1,324 (42%) observations total taking was declared. Partial taking of 40% of a parcel or less was declared for 1,357 (43%) observations, leaving only 459 (15%) observations in the 41%-99% range. There are 95 (3%) observations at taking share of 35%-45%. In other words, the most frequent share of taking is either high (100%) or low, of 40% or less. Medium shares of takings are rather rare. It seems as if there is a tendency for total taking once the passing of 40% of the parcel.

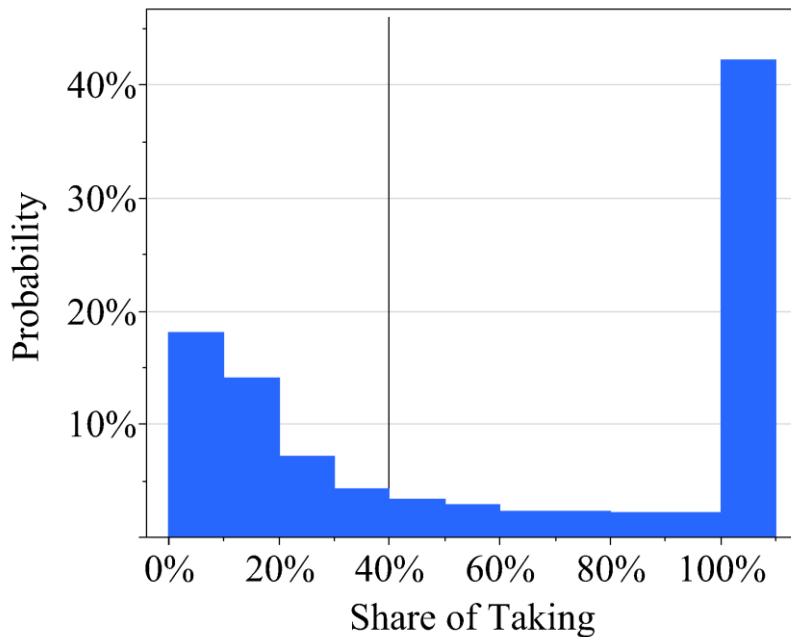


Figure 2: Distribution of Share of Taking – 1990-2014 (N=3,140)

These findings are inconsistent with the expectation that there would be almost no cases between 1% and 35%, and that there would be a clear kink point where a large portion of the takings would bunch around 40%. We also note that there is a moderate correlation between the parcel size and the taking size (see Appendix).

In order to see if there is any indication for adapting the taking share to the changes in the compensation criteria we next inspect the distribution of the share of taking over time. The 2001 legal change triggers the hypothesis that we should find a smaller share of cases of total takings post 2001 (a notch point around the 90% mark). Figure 3 provides an overlay of the cumulative distribution function of the share of taking for the observations divided by their takings date, pre or post 2001. From this graph it seems as though there is no substantial change in the shape or the position of the curves. This comparison refutes our hypothesis on its two predictions

– that the share of total takings would be reduced post 2001 and that the share of takings in the range of 41% to 90% would be larger.

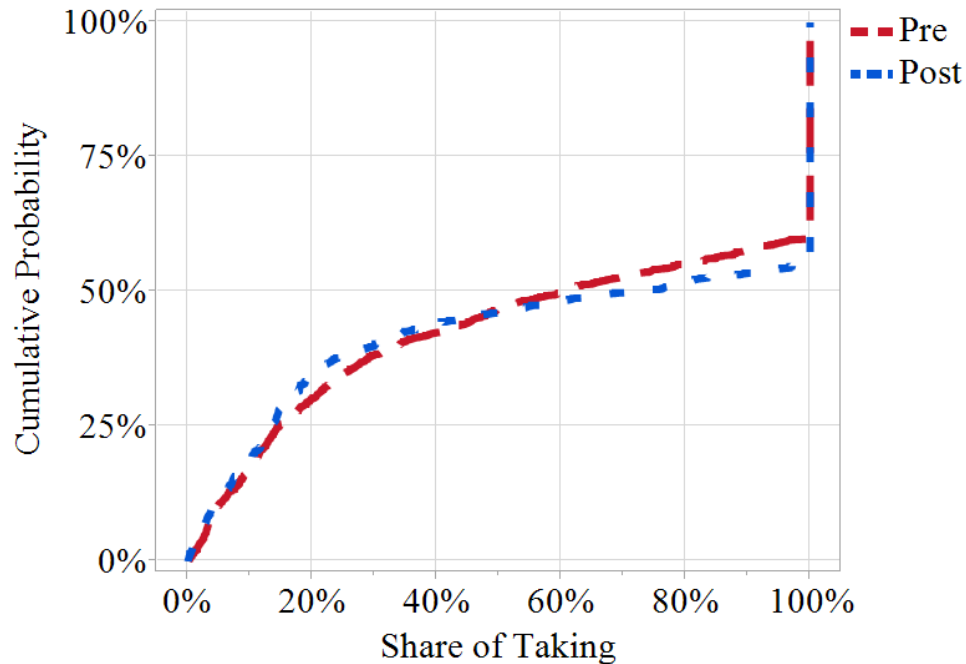


Figure 3: Share of Taking Pre (N= 1,716) and Post 2001 (N=1,424) – Cumulative Distribution

Considering the patterns of taking share, this variable can be best characterized as an ordinal categorical one. The first category contains all the takings of less or equal to 40%, a top category for total takings and a mid-range category for the rest. Figure 4 provides the breakdown of the taking categories pre and post 2001 indicating a significant difference between the periods ($\chi^2_{(2, 3,140)} = 23.92, p < 0.001$). The direction of the change is opposite to the prediction: the share of total takings is higher in the post 2001 group, at the expense of the mid-range category.¹⁹

¹⁹ Considering the possibility that a transition period might have influenced our results, we tested the data without observations created between 2001 and 2003 (N=87, 2.77% of the entire sample). We found that the difference between the

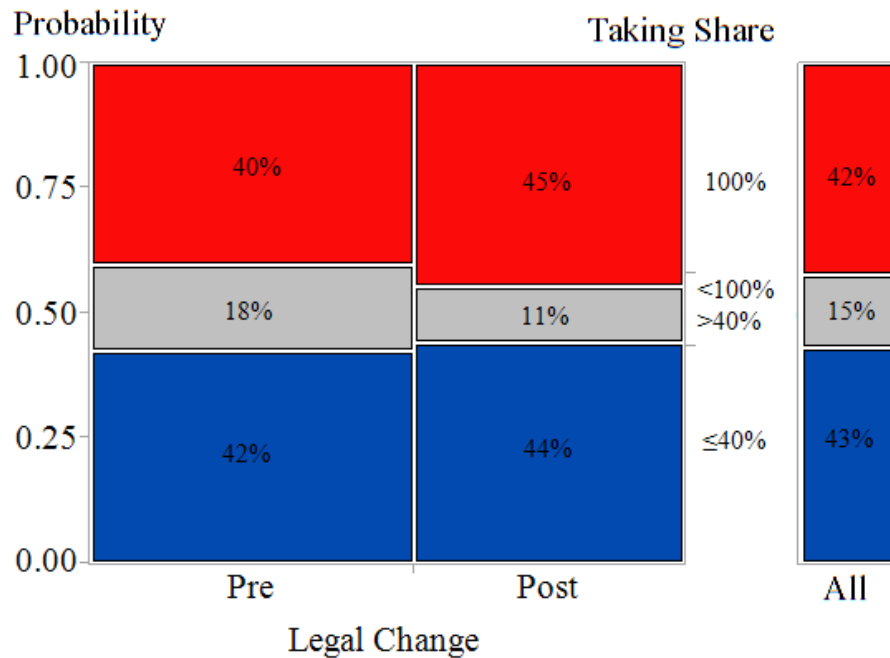


Figure 4: Composition of Taking Share by Legal Change: Pre (N=1,716) v. Post 2001 (N=1,424), ($\chi^2_{(2, 3,140)} = 23.92, p < 0.001$)

In order to examine whether the probability for total takings grew over the years and whether it changed after the legal change, a multiple logistic regression was estimated. The dependent variable is 1 for Total Taking and null otherwise. The independent variables are Year, Parcel Size (in square feet), a dummy for the Legal Change, and a dummy for Election Year. Table 2 shows the parameter estimates of the model in which the Year and Parcel Size were centered and also interacted with Legal Change.

As can be seen, the coefficient for year is positive indicating that the share of total takings was growing over the years before the legal change. Therefore, without the legal change, in a “business as usual” scenario, we would have expected to see this trend to just continue. Furthermore, the

groups is similar ($\chi^2_{(2, 3,053)} = 30.06, p < 0.001$) with a similar distribution.

interaction coefficient between year and legal change is also positive indicating that post 2001 the propensity for total takings grew faster over the years. The coefficient of legal change itself is negative, which indicates that at the year 2002 there was a discontinuity of the probability for total takings in comparison to the trend line of the pre period.

When looking closely at the years 2001, 2002, 2003, we see that these years contain very small numbers of takings (13, 67, 7, respectively, with an average of 29 per year while the general average is 126). These numbers might indicate a short-term reaction to the shock created by the legal change, which can be traced back to minimal levels of activity both in terms of the number of takings per year and the share of taking share of 100% (in 2001 taking share of 100% includes 15% of the takings; in 2002: 28%, and in 2003 none of the 7 cases was of 100% taking share). However, these numbers might also be explained by other factors, for instance, when looking at the numbers of all the new constructions starts in Tel Aviv for those years we also see minimal levels of activity for that period (see Appendix).

For parcel size, we notice that its coefficient is negative indicating a diminishing propensity for total takings as the parcel grows. In addition, the negative sign of its interaction with the legal change indicates that in the post period the slope is even steeper.

The negative coefficient for election years indicates that controlling for all other variables in the model the probability for a total taking in an election year is lower.

Table 2: Regression Analysis for Total Takings by Year, Parcel Size and Legal Change

Term	B	Exp (B)	SE	χ^2	Pvalue
Intercept	-151.113		46.525	10.55	0.0012
Year	0.076	1.079	0.023	10.52	0.0012
Parcel Size	-4.97E-06	1.000	1.00E-06	24.5	<.0001
Legal Change	-1.460	0.232	0.215	45.96	<.0001
Year * Legal Change	0.081	1.084	0.030	7.34	0.0068
Parcel Size * Legal Change	-4.58E-06	0.9999	0.000	6.48	0.0109
Election Year	-0.504	0.604	0.141	12.74	0.0004

N = 3,140
McFadden's $R^2 = 0.05$
for log odds of Total/Less than total

With regards to the effect of election year on the share of total taking, we observed more closely the activity per year. In some of the election years (1998, 2003) the share of 100% takings was relatively small (when compared to 1-2 years around it), while in other years (1993, 2008, 2013) the share of 100% takings was similar or higher to that of 1-2 years around it (see Figure 5). Note that in 2003 there were only 7 cases, and 1998 belongs to the pre legal change period.

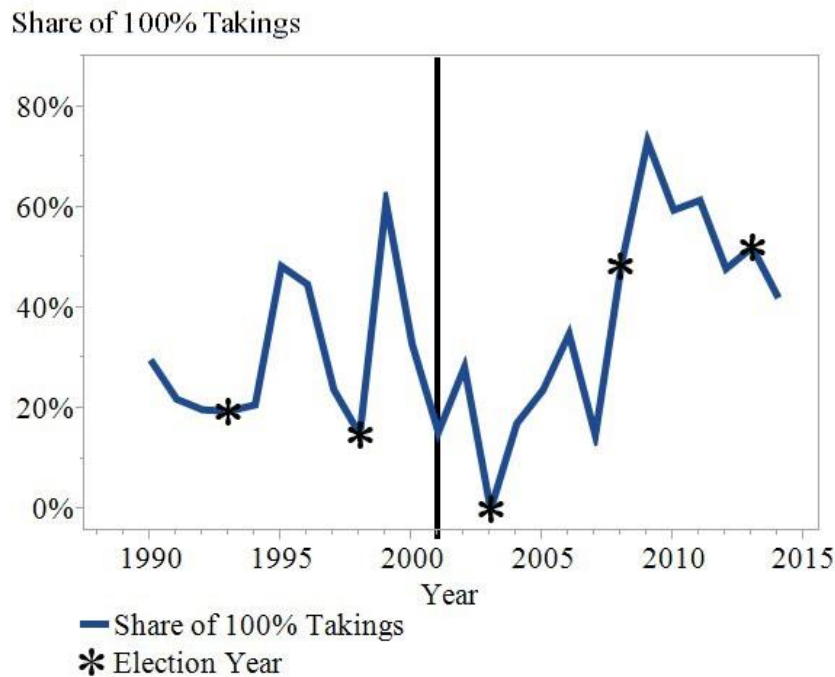


Figure 5: Share of Total Takings per Year 1990-2014

4.4 Taking Share per Project

Another way to examine the effects of the legal change considers whether post 2001 takings were less aggressive (i.e., more limited in their scope) as a result of budgetary concerns due to the legal change. To test that we compared for the pre/post legal change the average number of projects per year, and the intensity of the projects by measuring the average number of takings per project, the average taking size per project, the amount of land taken per project, and the share of total takings per project. Despite some differences between the groups, none of these were significant. Notably, with respect to the share of total takings per project remained exactly the same for the pre and post groups (see Table 3).

Table 3: Pre vs. Post 2001 Comparison per Project

	Legal change	N	Mean	Std Dev	T ratio	Pvalue
Number of projects per year	Pre	12	18.58	10.48	-0.33	0.75
	Post	13	17.38	7.58		
Mean takings per project	Pre	223	7.7	19.8	-0.9	0.36
	Post	226	6.3	11.92		
Mean taking size per project	Pre	223	20,062.3	46,478.7	-0.15	0.87
	Post	226	19,347.5	49,337.1		
Amount of land taken per project	Pre	223	97,697	560,896	-0.39	0.69
	Post	226	82,098	193,849		
Share of total takings per project	Pre	223	0.37	0.44	0.15	0.87
	Post	226	0.37	0.45		

We regressed Share of Total Takings for each project against the Year, a dummy for the Legal Change, and Election Year. Table 4 provides the parameter estimates in which the Year was centered and interacted with Legal Change. As can be seen the coefficient of Year is insignificant indicating no trend over the years before the legal change in the share of total takings per project. For the post 2001 period the slope is estimated by the sum of Year and Year*Legal Change coefficients in the table, which is $B=0.025$, $SE=0.009$, $p=0.006$. Therefore, we conclude that for the post legal change period the share of total takings per project is growing over the years. The coefficient for legal change is significantly negative indicating that in 2002 there was a drop in the share of total takings. As discussed previously the years 2001-2003 exhibit minimal level of activity. That is true also in terms of projects as the unit of observation (in 2001 there were 6 (1.2%) projects, in 2002 – 16 (3.4%) projects and in 2003 only 4 (0.08%)). The coefficient of election year is insignificant.

Table 4: Regression Analysis for the Share of Total Takings per Project by Year and Legal Change

Term	B	SE	t Ratio	Pvalue
Intercept	-25.084	19.155	-1.31	0.191
Legal Change	-0.228	0.094	-2.43	0.0155
Year	0.013	0.010	1.33	0.1845
Year*Legal Change	0.012	0.013	0.93	0.3503
Election Year	-0.078	0.061	-1.29	0.1979

N = 449
R² = .023

4.5 Compensation Paid Out of the Budget

As was already noted, taking compensations in our case study are paid out of a specific allocation in the City's budget. We compiled an additional dataset of the total amount of compensation paid each year out of the City's budget, using the annual financial reports of the City. Over the examined period there were no dramatic budgetary changes, even in election years; only incremental additions were observed. A strong correlation was found between annual compensation and share of compensation out of the budget, indicating budgetary flexibility to increased levels of compensation (see Appendix).

From the following graph it can be observed that there is no correlation between the amount of land taken and the amount of compensation paid that year. The election years 1998 and 2013 exhibit high compensation levels.

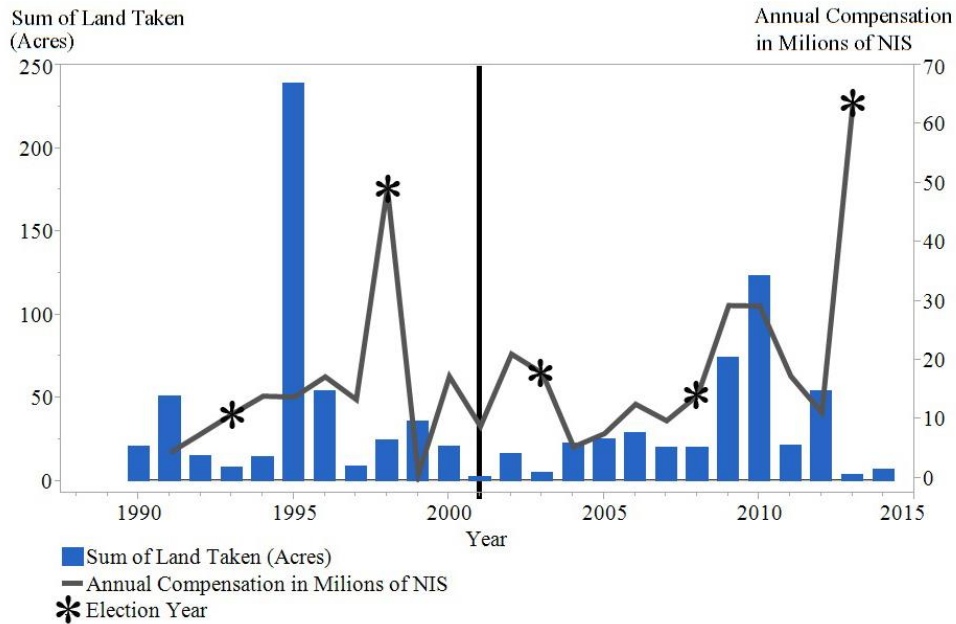


Figure 6: Amount of Land Taken, Compensation Paid (nominal values), per Year

When implementing time lag of 3 years between the date of taking and timing of the actual compensation payments, a positive correlation ($r=0.72$, $p<0.001$) is observed. This correlation is wholly attributed to the high levels of taking activity in 1995 and 2010, which are followed by high levels of compensations three years later, respectively. Excluding these two years the estimate drops ($r=-0.07$, $p=76$) and no significant correlation can be found between the annual amounts of land taken and total amounts of compensation payments at any other time lags.

4.6 Public Uses

With respect to a portion (725 takings) of the entire sample the specific public use for which the land was taken was identified in the taking notice. For 308 (42%) of the cases, the identified purpose was for local

roads, while the rest of the cases the property was taken for other local public purposes (mainly open public spaces, public buildings, parking, or combinations of these purposes with or without roads), which we regarded indistinctively. Figure 7 presents the partition of public uses by taking share.

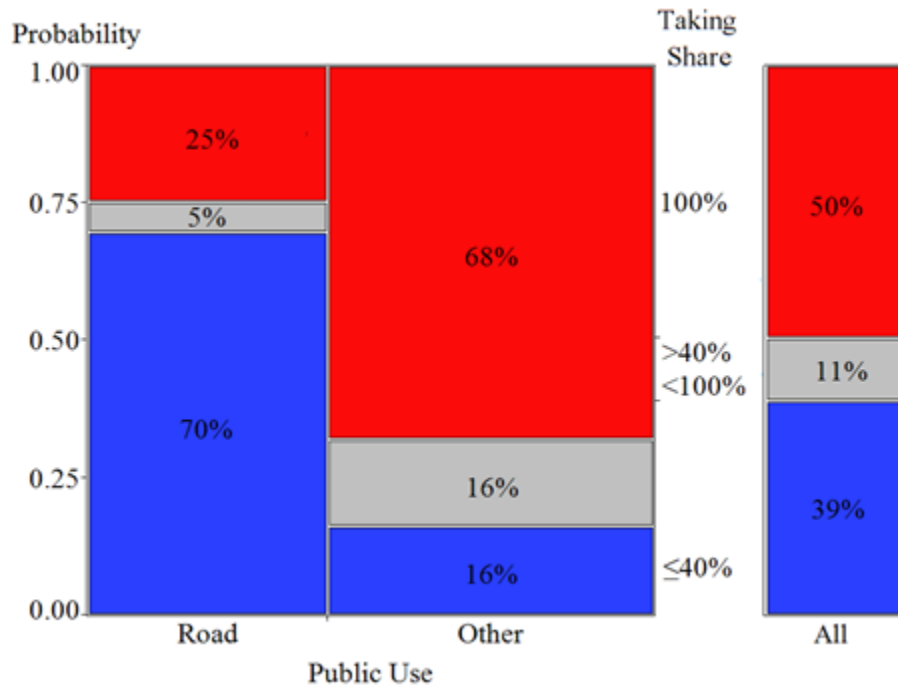


Figure 7: Composition of Taking Share by Public Use: Roads (N=308) v. Other (N=417) ($\chi^2(2, 725) = 221.7, p<0.001$)

A chi-square test of independence was performed to examine the relation between public use and share of taking. The relationship between these variables was significant ($\chi^2(2, 725) = 221.72, p<0.001$). Taking shares for roads were more likely to be smaller than other uses and were most probably below 25%.

5 Analysis

Our data reveals a discontinuity point at a taking share of 100% (total takings), at which *nearly half* of the takings were concentrated. There was no observable preference for avoiding total takings after the 2001 legal change, despite the fact that from that date the government must pay full compensation when a parcel is taken as a whole. In other words, there is bunching at a taking share of 100% before 2001 and after that point. While the government maintained the levels of taking activity unchanged over the years, post 2001 there was no shift from total taking toward partial taking of 90% of a parcel or any other percentile point. This is whether using discrete takings as the observation unit or development project. The bunching at the taking share of 100% is not correlated with the notch created by the new compensation rule.

Due to the methodological limitations on a quasi-experiment of this type, where the pretreatment state of affairs is unique to the studied group and the treatment (legal change) was implemented uniformly to all equivalent or semi-equivalent groups, we have no control group. We cannot rule out the possibility that the share of total takings cases would have increased even more sharply absent the 2001 legal change, and thus that the legal change did have an effect on taking practices. Nonetheless, we note that the legal change was exogenously imposed by the Supreme Court without any advance signs or warnings, and it should not be perceived as a short-term shock because it has an ongoing influence on each and every taking post 2001. Furthermore, the pretreatment assessments provide us with a means to project the level and slope of posttreatment measures, assuming that the legal change did not happen (Thyer 2012, p. 109). When employing this approach, we find that in comparison to the pre legal change period the propensity for total takings grew faster over the years post the

legal change. This finding is supported by the per project perspective: while the pre group indicates no trend with regard to total takings, the post group shows a positive trend over the years.

The legal change itself is correlated with a drop in the share of total takings. However, the years 2001 (which refers mostly to the pre the legal change), 2002, and 2003, exhibit low levels of activity which might affect the sampling and be explained by changes in the real estate market for those years, which exhibited low levels of new construction activity in general.²⁰

Compensations for taking, paid directly out of the City budget, enjoy a budgetary flexibility to increased levels of compensation. Election years did not seem to have a clear effect on total taking activity. A positive correlation was observed between the amount of land taken and the amount of compensated land taken when implementing time lag of 3 years between the date of taking and timing of the actual compensation payments. This correlation is wholly attributed to the high levels of taking activity in 1995 and 2010, which are followed by high levels of compensations three years later, respectively.

To conclude, it seems as if the 2001 Israeli Supreme Court decision that mandated full compensation for total takings had no meaningful observable effect on eminent domain practices. There are no meaningful differences between the rate of 100% taking share before and after 2001, even though the government had to pay *full* (i.e., 100%) for total takings after 2001, while before the legal change it had to pay only *partial compensation* (i.e., 60%) for total takings.

²⁰ In the aforementioned years there was a recession following the bursting of the dot.com bubble, the peace process between Israel and its Arab neighbors collapsed, violent conflicts swept through the West Bank, and there were multiple terror attacks in Israel, including in Tel Aviv.

The fact that we observed bunching at 100% at a similar (and even greater) magnitude after the legal change does not necessarily stand in direct opposition to the fiscal illusion hypothesis. However, it suggests that other limitations on governmental power can bring about the same result that the compensation requirement is set out to achieve, as anticipated by Merrill's (1986) discussion of the "due process" costs of eminent domain. Israeli property and administrative law impose a large set of constraints on government officials than is reflected in compensation rules. First, the government always needs to act fairly and in good faith. As a consequence, the government cannot leave a token interest in the hands of private property owners just to avoid paying them full compensation. Such attempts will be thwarted by the courts, which may cause expensive delays in development projects. Hence the government cannot bypass payment of full compensation unless it has a genuine reason to take just below 100%. The burden of proof in such cases will be on the government and it will be substantial. This, too, increase the administrative, due process, costs. Viewed within the broader legal and regulatory context, it is not entirely surprising that we did not see a change in the rate of total takings post 2001. Moreover, we found that it is smaller parcels that tend to be taken in their entirety. For small parcels, a taking of more than 40% and less than 100% might result in the creation of excessively small, and, thus, unusable, tracts of land. In such cases, the law allows the owner to file a suit demanding that the government would take the parcel as a whole (Alterman 1985, p. 224). However, the Israeli Supreme Court gave a very restrictive interpretation to this rule, rendering it almost impractical. The Court rejected all suits brought based on this rule, even where the remainder part was of no more than 10% of the parcel (i.e., a taking of 90%), as long as the remainder is of a certain minimum size (Lewinsohn-Zamir 1999, p. 378; AAP 4955/07

Ra'nana Planning and Building Commission v. Torah and Avuda Fund (2010) [Isr.]). It seems that the City itself realized that very small leftover tracts of land, that cannot be efficiently developed, create an urban planning problem of unusable lots. This might explain the fact that smaller parcels tend to be taken in their entirety. It is also clear that in some cases properties cannot be divisible without rendering the whole purpose of the taking irrelevant (for instance, a lot in the middle of a planned park). And indeed, our sample shows that for public uses other than roads – such as public parks – the tendency is to acquire the lot in its entirety. We could have therefore anticipated that there would be bunching at the 100% share of taking before, as well as after, the 2001 legal change.

We suggest that if the government was really (or mainly) affected by fiscal illusion, we would have seen a tendency, even a minor one, toward smaller shares of total takings in the post 2001 era. The incentive to bunch to the left of the notch post 2001 should be a strong one, given its impact (Ramnath 2013). Yet, such a tendency was not observed at all.

Overtime, there was a small share of takings of 41% to 99%. There were relatively few (95) takings, where the share of taking was between 35% and 45%, which amounts to only 3% of all takings. Thus, the government does not always take exactly 40% of the lot. In fact within the under 40% category, 4 out of 5 takings were of 25% or less, far below what could have been explained by due process costs.²¹ There appears to be a tendency to engage in a total taking unless for cases of share of taking below 25%. This finding contradicts the prediction that the law will lead to

²¹ If the government takes from a certain parcel more than once, the 40% rule applies to the aggregated size of taking. One could argue that the government could split its takings from a certain parcel so only the overall share of the taking should be counted. However, we found that only in 125 (4%) out of 2,998 parcels there was more than one taking event per parcel.

an excessive share of takings of 40% even when only smaller shares are required to satisfy public needs (Alterman 1985, pp. 216-20).

It is suggested that the paucity of takings of 25% to 99% is due to different reasons that are wholly independent of the duty to compensate, such as pure planning reasons and public use needs. For instance, in developed areas where there is a need to expand a road, the government would only take the maximum amount of any built lot that would not require the destruction of existing buildings or houses.²² Our sample of cases in which the public use was identified supports this assertion: the public use (local roads or any other public use) is strongly correlated to the share of taking. A more detailed analysis is required in order to correlate between the taking share and characteristics of the land cover, the prospected uses of the taken land, the location of the taken land with respect to other parcels which are being expropriated, etc.

Moreover, and particularly with respect to the question why the government takes 25% when it can take up to 40% of a lot without any compensation to the owner, attention should be given the other costs associated with taking land when it is not actually required for a specific public use, such as the cost of maintaining unneeded land, the loss of property tax, and the destruction of value from non-appropriated fragments of parcels. Another cost is due process. Any taking that borders on 40% will invite litigation. A governmental agency may prefer to avoid litigation by choosing a taking percentage that steers clear of the 40% kink. Additionally, for each taking, there must be a transparent public procedure in which

²² Compare with Kades (2008, p. *9) who claimed that “In more densely populated states, new road routes will traverse occupied parcels with greater frequency. In less populated states, new roads more likely will go over farmland and other less intense uses.”

officials are required to justify their actions. These indirect costs suggest that we ought to adopt a broader understanding of the costs faced by the government officials in eminent domain cases than the fiscal illusion theory predicts.

The main limitation of this study is that we do not have any real data on the “demand” for takings by the authorities. The distributions we plot show that the city sometimes requires small taking and many other times larger ones. Our rejoinder is that if this is true, then the hypothesis that budgetary concerns are the only force that shapes government decision-making is indeed refuted by our data. Specifically, our findings refute the claim that without mandatory compensation, government officials will be oblivious to the private cost of their actions and will take the maximum percentage of every lot that they can possibly take without paying compensation.

We are unable to say whether the takings we studied were in fact efficient; our data did not allow us to do so. Even if one assumes a benevolent government, it doesn’t mean of course that it acts efficiently. We have not tested whether the uses to which the taken properties were put are more valuable than the private uses. These questions are beyond the scope of this project.

A final possible interpretation of our findings is that takings compensation comes from the public fisc. After all, government officials do not use their own money to compensate private property owners for the loss of their land. As agents, who transact with “other people’s money,” government officials are at liberty to promote other interests, such as political support. This explanation finds corroboration in Yun-chien Chang (2009) who also found that political considerations play important role in decision-makers determinations of how much compensation to pay.

Conclusion

Our study gives reason to reopen the conversation about the fiscal illusion hypothesis in the context of takings. It calls into question the hypothesis that government officials act as narrow self-interest maximizers motivated exclusively by budgetary constraints when exercising their power of eminent domain and lends qualified support to the hypothesis that government officials are largely motivated by actual needs and fairness considerations when they take private property or by other non-budgetary motivations.

Based on our findings, future studies of fiscal illusion should proceed in two directions. First, they should try to identify the forces that shape government decisionmaking in the takings context. Second and equally importantly, there is a need to test the fiscal illusion hypothesis in other, related, contexts as well. Steven Shavell (2004, p. 130), one of the few law and economics scholars who expressed skepticism about the fiscal illusion theory as an explanation for the compensation requirement, queried why it is that the fiscal illusion problem afflicts government officials in the takings context, but not in other cases. Our study suggests that the fiscal illusion theory, notwithstanding its theoretical elegance, exerts a much smaller effect on the behavior of government officials than previously hypothesized, even in the takings context. It, therefore, raises the possibility that the seeming anomaly noted by Shavell is actually not a real one.

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