

# The Split Incentive Barrier: Theory or Practice in the Multifamily Sector?

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## ABSTRACT

Current program evaluation theory posits that the “split incentive barrier” discourages multifamily property managers/owners from improving the energy efficiency of their tenant units. The premise of this barrier is that although property managers/owners are responsible for facility improvements, they usually do not pay energy bills for the tenant spaces and therefore have no direct financial incentive to install more expensive energy-efficient measures.

However, a 2009 evaluation of the Southern California Edison Multifamily Energy Efficiency Rebate Program and a 2007 evaluation of the California statewide Multifamily Rebate Program found that very few multifamily property managers/owners identified this split incentive barrier as an impediment to energy-efficient improvements in their tenant units. These evaluations posed questions about multifamily barriers to energy efficiency to participating and non-participating multifamily property managers/owners, property managers/owners whose tenants pay their own energy bills, and installation contractors. The scarcity of evidence for split-incentive barriers from all these different multifamily market perspectives led evaluators to question the conventional wisdom that the split incentive was an important barrier for this sector. The fact that only a small percentage of program participants chose to have energy-efficient measures installed in their common areas only also raised doubts about the split incentive barrier.

The 2009 study also asked these property managers/owners why they installed energy-efficient equipment in their tenant units even though their tenants pay their own energy bills. Their most common response, by far, was that they thought that if their tenants could save money on energy costs, they would have more money left over for rent. Other reasons included improving tenant satisfaction and increasing property values by replacing old lighting fixtures.

These findings suggest that past theorists have misapplied the split incentive barrier in the multifamily context. By making energy-efficient improvements in their tenant units, property managers are acting in their own economic self interest.

## Introduction

This paper has the following structure:

- *A brief discussion of the prevalence of the split incentive barrier in multifamily program theory.*
- *A discussion of findings from our evaluation of the 2004-2005 California Statewide Multifamily Rebate Program:* This evaluation first caused us to question the importance of the split incentive barrier in the multifamily sector.
- *A discussion of findings from our evaluation of the 2006-2008 Multifamily Energy-Efficiency Rebate (MFEER) Program:* This evaluation provided us with additional evidence, based on more targeted questions, that the split incentive barrier was not an

important one for multifamily property owners and managers. This evaluation also provided us with some explanations as to why this barrier was not important.

- *A summary of the evidence:* This section summarizes the evidence from these two evaluations. In particular it shows that while there are plausible theories as to why the split incentive barrier might be underreported in these evaluations, these theories are not supported by the evidence. Finally this section summarizes the reasons why multifamily property managers/owners might support the installation of energy-efficient equipment in their tenant spaces despite the split incentive barrier.

## **The Prevalence of the Split Incentive Barrier in Multifamily Program Theory**

In the program evaluation literature the multifamily sector has often been cited as a good example of how the split incentive barrier can hinder the implementation of energy efficiency projects. For example, one influential paper on market barriers to energy efficiency – Golove, Eto 1996 – used the rental situation as its primary example of a misplaced or split incentive:

*Misplaced, or split, incentives are transactions or exchanges where the economic benefits of energy conservation do not accrue to the person who is trying to conserve. The terms have been used to describe certain classes of relationships, primarily in the real estate industry between landlords and tenants with respect to acquisition of energy-efficient equipment for rental property. When the tenant is responsible for the energy/utility bills, it is in the landlord's interest to provide least-first-cost equipment rather than more efficient equipment for a given level of desired service. There is little or no incentive for the landlord to increase his or her own expense to acquire efficient equipment (e.g., refrigerators, heaters, and light bulbs) because the landlord does not bear the burden of the operating costs and will not reap the benefits of reducing those costs.<sup>1</sup>*

In the program evaluation literature this concept is sometimes alternatively referred to as the “principal-agent problem.”<sup>2</sup> Some have claimed significant opportunities for energy savings are lost due to this principal-agent problem.<sup>3</sup>

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<sup>1</sup> William H. Golove and Joseph H. Eto; *Market Barriers to Energy Efficiency: A Critical Reappraisal of the Rationale for Public Policies to Promote Energy Efficiency*; Lawrence Berkeley National Laboratory, University of California, Berkeley, LBL-38059, UC-1322, March 1996, p. 9.

<sup>2</sup> See for example (Jaffe, Adam B., & Stavins, Robert N. (1994). “The Energy-efficiency Gap. What Does it Mean?” *Energy Policy*, 22(10), 804-811).

<sup>3</sup> See for example: Scott Murtishaw and Jayant Sathaya, *Quantifying the Effect of the Principal-Agent Problem on US Residential Energy Use*, Energy Analysis Department, Environmental Energy Technologies Division, Ernest Orlando Lawrence Berkeley National Laboratory, August 2006.

The split incentive barrier has long been a prominent feature of multifamily program theories. In fact, often when these program theories discuss the challenges faced by multifamily energy efficiency programs, the split incentive barrier is the only market barrier that is explicitly mentioned.<sup>4</sup>

## **Evidence from the Evaluation of the 2004-2005 California Statewide Multifamily Rebate Program**

In 2007 KEMA Inc. completed a process and impact evaluation of the 2004-2005 California Statewide Multifamily Rebate Program.<sup>5</sup> This evaluation first planted seeds of doubt in our minds as to whether the split incentive barrier was as important a barrier to the implementation of energy-efficient equipment in the multifamily sector as theory suggested.

The California Statewide Multifamily Rebate Program targets property owners and managers of multifamily complexes, including apartment buildings, mobile home parks and condominium complexes with common areas. Although the program does some limited marketing on its own, most of the participating projects come through the marketing efforts of a dedicated pool of installation contractors who have worked with the program for many years.

While the California Statewide Multifamily Rebate Program paid out rebates for 17 different energy-efficient measures, five measures accounted for the large majority of the net energy savings. Boilers, boiler controls, and programmable thermostats together accounted for 85 percent of the program's net gas savings. CFLs, programmable thermostats, and T8 lighting accounted for 94 of the program's net electric savings. Altogether the program achieved evaluated net savings of 33 million kilowatt hours, 5,390 kilowatts, and 627,125 therms.

Our evaluation of this program included surveys of:

- *Multifamily property managers and owners participating in the program:* Computer-Aided Telephone Interviews (CATI) were conducted in 2005 with 106 of the 2004 program participants and in 2006 with 150 of the 2005 program participants. Stratified random samples were used with stratifications based on utility service territory as well as the type of rebate energy-efficient equipment installed;
- *Non-participating property managers/owners:* CATI surveys were conducted in 2005 with 40 multifamily property managers and owners. Stratified random samples were used with stratifications based on the utility service territory.; and
- *Installation contractors participating in the program:* In-depth expert surveys were conducted with 28 installation contractors who participated in the Multifamily Rebate

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<sup>4</sup> See for example Pacific Gas and Electric, *2003 Energy Efficiency Programs Implementation Plan, Statewide Residential Retrofit, Multifamily Energy Efficiency Rebate*, June 2003, p. 2 or SCE Program Staff, Caroline Chen, Consultant & M&E Project Manager, Katherine Randazzo, KVD Research Consulting; *Multi-Family Energy Efficiency Rebate Program (MFEER), Program Logic Diagram, Program Theory, Potential Indicators and Success Criteria*; November 2007, p. 4.

<sup>5</sup> KEMA Inc.; *Evaluation of the 2004-2005 Statewide Multifamily Rebate Program, Final Report*; Program 1118-04, prepared for The California Public Utilities Commission, San Francisco, California; Pacific Gas & Electric Company, San Francisco, California; San Diego Gas & Electric Company, San Diego, California; Southern California Edison, Rosemead, California; March 16, 2007.

Program. The interviewers attempted to complete interviews with all the participating contractors (no sampling was used).

Table 1 shows the distributions of property sizes of the respondents to the property manager/owner surveys that were conducted for this evaluation. The table compares these property size distributions with those of a California multifamily market baseline survey conducted in 2000. Fifty-five percent of the 2004 participants and 52 percent of the 2005 participants own their properties (as opposed to just managing them).

**Table 1. Distribution of Survey Respondents by Property Size**

Units per Apartment Building	Multifamily Properties Participating in 2004 Program (n = 106) <sup>1</sup>	Multifamily Properties Participating in 2005 Program (n = 150) <sup>2</sup>	Nonparticipating Multifamily Properties (n = 40) <sup>3</sup>	Market Baseline Multifamily Properties (n = 540) <sup>4</sup>
100 or fewer	46%	68%	61%	57%
101 to 250	43%	23%	15%	25%
Over 250	9%	7%	18%	18%
Don't Know	1%	1%	8%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Note: Total may not exactly equal 100% due to rounding. <sup>1</sup> KEMA survey conducted in August 2005. <sup>2</sup> KEMA survey conducted in June 2006. <sup>3</sup> KEMA survey conducted in July 2005. <sup>4</sup> ADM survey conducted in January 2000.

In these surveys KEMA asked a number of questions related to possible barriers to energy-efficiency in the multifamily sector. For example, in a 2005 survey we asked property managers and owners who had participated in the 2004 California Multifamily Rebate Program why they had not implemented on their own the energy-efficiency measures that had been rebated by this program. We asked them to identify both primary and secondary reasons. Table 2 shows that the inability to identify energy-efficient measures was by far the most-cited of the primary reasons and it was also the most-cited secondary reason. None of the multifamily property managers/owners cited reasons – such as the tenants paying their own energy bills, or their inability to benefit directly from their energy-efficiency investments – that might be interpreted as direct evidence of the split-incentive barrier. However, we realized it was possible that some evidence of the split incentive barrier might be concealed within other barriers cited – such as “financial limitations” or “lack of time/not a priority.”

**Table 2. Reasons for Not Implementing EE Measures -- 2004 Participants**

Reason	% of Respondents Citing It As Primary Reason (n = 106)	% of Respondents Citing It As Secondary Reason (n = 87)
Unaware of/unable to identify measures	43%	20%
Financial limitations	16%	8%
Lack of time/not a priority	9%	3%
New to building	5%	5%
Replacing on an as-needed basis	3%	7%
Timing wasn't right	3%	6%
It was unnecessary	3%	2%
Lack of savings-cost or energy--information	2%	7%
No other reasons	---	32%
Don't know	18%	14%

Note: The survey questions were: “What is the primary reason why you or your company had not made these energy efficiency improvements on its own before becoming involved with the 2004 <UTILITY NAME> multifamily rebate program?” and then “What are other reasons why you or your company had not made these energy efficiency improvements on its own before becoming involved with program?” Respondents were not prompted for answers, but surveyors had a list of pre-coded responses to choose from that match the categories in this table. The total in the second column exceeds 100% because multiple responses were allowed. The data source is a KEMA survey conducted in August 2005.

In 2006 we surveyed a subgroup of multifamily property managers who had participated in the 2005 California Multifamily Rebate Program. This subgroup included property managers who had been previously aware of the energy-efficient technology that had been installed through the program, but who had no experience with that technology in one of their properties prior to their joining the program. Table 3 shows that among this subgroup there was some evidence of the split incentive barrier – some cited “tenants pay their own energy bills” as a barrier to action – but it was very limited, only eight percent of respondents.

**Table 3. Reasons for Not Implementing EE Measures -- 2005 Participants**

Reason	2005 Participants With Previous Awareness But No Previous Experience with the Rebated Technology (n = 48)
Financial limitations	21%
Unaware of/unable to identify measures	13%
Already did all cost-effective energy efficient improvements	8%
Tenants pay their own utility bills	8%
Replacing on an as-needed basis	6%
Lack of energy savings/cost information	6%
Timing wasn't right	4%
It was unnecessary	4%
Other reasons*	6%
Don't know	27%

Note: The survey question was: “How come your company had not installed the < MEASURE TYPE> on its own before becoming involved with the 2005 <UTILITY NAME> multifamily rebate program?” Respondents were not prompted for answers, but surveyors had a list of pre-coded responses to choose from that match the categories in this table. All the response categories listed were pre-coded for the survey by the evaluators. \*Other reasons included lack of maintenance staff to install measures, concerns about unreliable EE equipment, and concern about unreliable energy savings information. Total exceeds 100 percent because respondents were allowed to cite multiple reasons. The data source is a KEMA survey conducted in June 2006.

One possible explanation for these responses is that some of these multifamily property managers/owners do pay for some of their tenants’ energy costs. Yet even when we focused only on multifamily property managers/owners who said that their tenants paid all or some of their own energy bills, and when we asked these property managers/owners directly about the split incentive issue, the evidence did not point to this being a strong barrier. When asked how important the fact that their tenants paid their own energy bills was as a reason for them delaying energy-efficient improvements in their buildings, only 18 percent of these property managers/owners said it was extremely important and only a third gave it a rating of 4 or 5 on a five-point importance scale.<sup>6</sup>

Another possible explanation for the infrequent mention of the split-incentive barrier is because these multifamily property managers/owners participated in the 2004-2005 California Multifamily Rebate Program, they might be more energy-conscious or more tenant-friendly than the typical multifamily property manager/owner. However, when we surveyed California multifamily property managers/owners who had not participated in the Multifamily Rebate Program we also found it difficult to find evidence of the split-incentive barriers. KEMA asked the nonparticipating multifamily property managers/owners who had expressed interest in the energy-efficient measures rebated by the program what would prevent them from implementing these measures once they had the information they needed about the program, the rebates, and the installation contractors. Table 4 shows that the two most-cited barriers were the need to get

<sup>6</sup> In addition 18 percent gave ratings of “3”, five percent gave ratings of “2”, 23 percent gave rating of 1 (“not at all important”), and 22 percent did not know or refused to answer.

higher-level approval for the projects and lack of capital. The fact that their tenants paid their own energy bill was only cited as a barrier by a small percentage of these nonparticipants.

**Table 4. Barriers Remaining for Interested Nonparticipating Multifamily Property Managers/Owners After Having All Needed Program, Rebate, and Contractor Information**

Remaining barriers to EE implementation after have needed information	% of Interested Nonparticipants (n = 32)
Have to get higher-level approval	31%
Lack of capital	16%
Too busy/ can't find the time	9%
High cost of EE equipment	9%
Other barriers (tenant pays energy bill, lack of knowledge of EE options, payback periods too long)	9%
No other barriers	1%
Don't know	25%

Note: The survey question was: “If you were provided with the information you need about the program, the rebates, or installation contractors, would there be anything else preventing you from getting this energy efficient equipment installed? If so, what?” Respondents were not prompted for answers but surveyors had a list of pre-coded responses to choose from. These included all those that appear in the table except “have to get higher-level approval” which was post-coded after originally appearing in the “other reasons” category. The data source is a KEMA survey conducted in July 2005.

Still another possible explanation for why multifamily property managers/owners were not citing the split incentive barriers was some sort of “social desirability” bias. For example, some multifamily property managers might not want to cite this as a reason because it might make them appear selfish and not tenant-friendly or even not environmentally-friendly. Yet we also asked installation contractors who participated in the California Multifamily Rebate Program what were the main reasons why multifamily property managers/owners do not implement energy-efficient measures on their own. Since the contractors were giving their opinions on the motivations of others, they would not be subject to this social desirability bias. Yet even when this potential for bias was eliminated, only four percent of the contractors cited “owner/manager not paying for tenant energy costs” as a reason why multifamily property managers/owners were not implementing energy-efficient measures on their own (Table 5).

**Table 5. Participating Contractor Assessment of Barriers to EE Implementation by Multifamily Property Managers/Owners**

<b>Main reasons why property managers/ owners not implementing EE measures on their own</b>	<b>% of contractor respondents (n = 28)</b>
Lack of maintenance staff, installation expertise	36%
Too busy	32%
Financial constraints	21%
Lack of knowledge of EE measures	21%
Unawareness of MFEER Program	18%
Contractors can do it faster	7%
Owner/ manager not paying for tenant energy costs	4%
Don't know/ Refused	4%

Note: The survey question was: “What do you think are the main reasons why multifamily property owners and managers do not implement these energy-efficient measures on their own?” The question was open-ended with no pre-coded responses. These open-ended responses were then categorized as they appear in the table. The total in the second column exceeds 100% because multiple responses were allowed. The data source is a KEMA survey conducted in May-July 2005.

The scarcity of evidence for split-incentive barriers from all these different multifamily market perspectives made us question the conventional wisdom that the split incentive was an important barrier for this sector. One of the evaluation report’s findings read: “The contractor survey data also supports the property manager/owner data in finding that, despite program theory, the fact that many property managers/owners do not pay for tenant energy costs – the split incentive barrier -- is not considered a major barrier by market participants.”

### **Evidence from the Evaluation of the 2006-2008 SCE Multifamily Energy-Efficiency Rebate (MFEER) Program**

The evaluation of the 2004-2005 California Multifamily Rebate Program had given us many reasons for doubting the conventional wisdom that the split-incentive barrier was an important barrier to energy efficiency in the multifamily sector. In 2009 we completed a process evaluation of Southern California Edison’s (SCE’s) 2006-2008 Multifamily Energy Efficiency Rebate (MFEER) Program.<sup>7</sup> This program was very similar in design to the 2004-2005 California Statewide Multifamily Rebate Program that was summarized previously.<sup>8</sup> There was a higher proportion of managers/owners of smaller multifamily properties among the 2006-2008 program participants compared to the 2004-2005 participants. The evaluation attributed this to an expansion of program eligibility rules and some program saturation among the large properties.

<sup>7</sup> KEMA Inc.; *Process Evaluation of Southern California Edison’s 2006-2008 Multifamily Energy Efficiency Rebate (MFEER) Program, Final Report (Report ID: SCE0279)*; prepared for Southern California Edison; November 30, 2009.

<sup>8</sup> A few notable ways that the 2006-2008 program differed from the 2004-2005 version included 1) expanded eligibility rules that allowed properties of 2-4 units to participate for the first time (previously only properties of 5 units or greater could participate) and 2) programmable thermostats were no longer eligible for program rebates.



The information in this paper from the evaluation of SCE's 2006-2008 MFEER program primarily comes from a survey of 200 participating multifamily property managers/owners. This evaluation confirmed many of the findings from our evaluation of the 2004-2005 program that the split incentive barrier was not a significant one. For example, once again we asked participating multifamily property managers/owners whose tenants paid their own energy bills how important this was as a reason why they had not made these energy efficiency improvements earlier. Only 28 percent of the 2006-2008 respondents said it was an important factor (4 or 5 on the 5-point importance scale). When we asked participating contractors why multifamily property owners and managers do not implement energy-efficient measures on their own, once again only a small percentage mentioned split incentive barriers.

In the SCE evaluation we also tried new and different ways to test the strength of the split incentive barrier. We asked the 2006-2008 participants whose tenants paid their own energy bills how much they agreed with the statement: "Since our tenants pay their own energy bills, there is no reason for our company to install energy-efficient equipment in the tenant units". They were told to use a five-point scale where five equaled "strongly agree" and one equaled "strongly disagree." Over half (53%) strongly disagreed with this statement and only 14 percent strongly agreed with this statement.<sup>9</sup> Although this question is likely subject to the social desirability bias discussed previously, **Figure 1** shows that the large majority of respondents disagreed with this statement and over half strongly disagreed with this statement.

Another way to try to measure the importance of the split-incentive barrier is to look at the actions of the multifamily property managers/owners rather than just their self-reported motivations or barriers. In theory, if the split-incentive barrier was very strong, then most multifamily property managers/owners would be installing energy-efficient measures in their common areas only, since these are usually the areas where they pay the energy costs. Yet our evaluations found that very few of the participating multifamily property managers/owners chose to only install program-rebated energy-efficient measures in their common areas. In the California Statewide Multifamily Rebate Program only 15 percent of the 2004 participants and 11 percent of the 2005 participants said that they only installed program-rebated energy-efficient measures in their common areas. Only eight percent of the participants in the 2006-2008 SCE MFEER program said that they did so.

Yet despite all this evidence to the contrary, on the surface the theory of the split-incentive still seems to make sense. Why would the property managers/owners pay for energy-efficiency improvements that they would not benefit directly from?

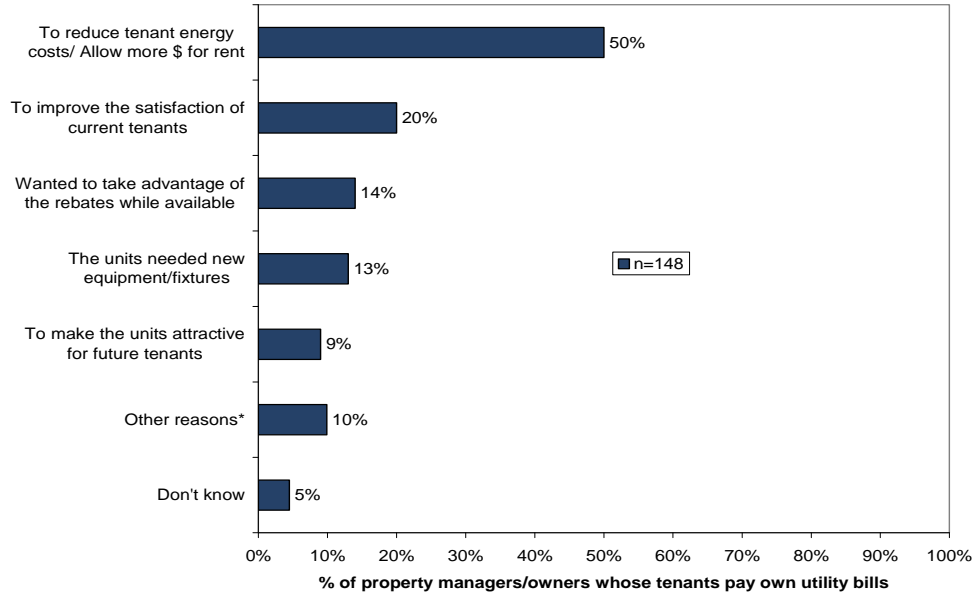
The answer came from our evaluation of the SCE 2006-2008 MFEER Program. We asked the multifamily property managers/owners participating in this program: "Since your tenants pay their own utility bills, why did you decide to install energy-efficient equipment in the tenant units?" The most-cited reason – cited by half the respondents – was that they wanted to reduce the energy costs of their tenants (Figure 1). Some of these respondents noted that by reducing their tenant's energy costs, this would allow these tenants more money to meet their rent payments. Other reasons included improving the satisfaction of their current tenants, wanting to take advantage of the rebates while they were available, and their units needing new equipment or fixtures. These findings suggest that past theorists have misapplied the split

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<sup>9</sup> In addition, nine percent gave ratings of "2," nine percent gave ratings of "3", nine percent gave ratings of "4" and six percent said they did not know or refused to answer.

incentive barrier in the multifamily context. By making energy-efficient improvements in their tenant units, property managers are acting in their own economic self interest.

**Figure 1. Why 2006-2008 Participating Multifamily Property Managers/Owners Installed EE Equipment in Tenant Units Even Though Their Tenants Pay Their Own Utility Bills**



Note: Respondents were not prompted for answers but surveyors had a list of pre-coded responses to choose from. The total exceeds 100% because multiple responses were allowed. \*Other reasons included they got the energy efficiency improvements for free, they wanted to save energy, and they claimed not to have had energy efficiency improvements installed in the tenant units.

## Summary

It has become conventional wisdom to assume that the split incentive barrier is an important barrier to the implementation of energy efficiency in the multifamily sector. Yet numerous surveys of multifamily market actors in California – using both open-ended questions about barriers and questions that focus directly on the split-incentive barrier – have raised serious questions about its importance. While there are plausible theories as to why the split incentive barrier might be underreported in these surveys, these are not supported by the evidence, as Table 6 shows.

**Table 6. Examining Theories that Surveys May Underreport the Split Incentive Barrier**

Possible Reasons Why the Split-Incentive Barrier Might Be Underreported	Contrary Evidence
Some multifamily property managers/owners may pay their tenants' energy bills.	Even when multifamily property managers/owners who don't pay their tenants' energy bills were asked directly about the split incentive barrier, few said it was important.
Property managers/owners who participate in energy-efficiency rebate programs may be more energy-conscious or tenant-friendly than the typical multifamily property manager/owner.	Surveys of nonparticipating multifamily property managers found that very few mentioned the split incentive barrier.
Self-reported motivations or barriers are not always reliable.	In theory, if the split-incentive barrier was very strong, most multifamily property managers/owners would be installing energy-efficient measures in their common areas only, since these are usually the areas where they pay the energy costs. Yet only a small percentage do.
A social desirability bias may discourage multifamily property managers/owners from admitting the split-incentive barriers.	<p>o When installation contractors were asked why multifamily property managers/owners do not do more energy efficiency, very few mentioned the split incentive barriers. Since the installation contractors were asked to explain the actions of other market actors, a social desirability bias should not have influenced their responses.</p> <p>o Only a small percentage of program participants had energy-efficient measures installed in the common areas only. If the split-incentive barrier was a significant one and the survey respondents simply did not want to admit this (due to the social desirability bias), then this should have led to more common area installations and fewer tenant unit installations.</p>

A 2009 evaluation of the SCE Multifamily Energy-Efficiency Rebate program identified reasons why property managers/owners make energy-efficient investments in their tenant units. It asked these property managers/owners why they installed energy-efficient equipment in their tenant units even though their tenants pay their own energy bills. Their most common response, by far, was that they thought that if their tenants could save money on energy costs, they would have more money left over for rent. Other reasons included improving tenant satisfaction and increasing property values by replacing old lighting fixtures.

These findings suggest that past theorists have misapplied the split incentive barrier in the multifamily context. By making energy-efficient improvements in their tenant units, property managers are acting in their own economic self interest.

One implication of this is that multifamily programs could incorporate into their program marketing materials some of the motivations for tenant-unit improvements cited by participating property managers and owners in this paper. For example, they could develop their own pilot or case studies to demonstrate whether tenant default rates go down after energy-efficiency measures are installed. They could also put greater emphasis on the property improvement (e.g.

the replacement of old light fixtures) and tenant satisfaction benefits of energy-efficient installations in their marketing materials and messages. These marketing messages should have particular appeal in regions with very competitive rental markets.

The findings in this paper also indicate that there are opportunities for more research into whether energy efficiency improvements in tenant spaces actually reduce the incidence of tenants defaulting on their rent payments. Although our research indicated that many multifamily property managers and owners believe this, and this assumption appears reasonable considering that the discretionary income of most tenants is limited, we were unable to find any studies that have empirically demonstrated this. Such research would greatly aid general understanding of opportunities for energy-efficiency improvements in the multifamily sector. It would also be useful evidence for multifamily programs to cite in their marketing messages and materials.

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