

Not All about the Money: The Role of Financial Information in Promoting Residential Rooftop Photovoltaics

Supplementary Material

S1. Survey Questionnaire

Table S1. Questionnaire layout

| Variable | Question | Possible answers | Source, type, and comments |
|--|--|---|--|
| Gender | Your gender? | Woman/ man/ no answer | Wolske et al (2017) Mandatory, single answer. Controlled |
| Age | How old are you? | 18-to-25/ 26-to-35/ 36-to-45/ 46-to-60/ above 60 | Wolske et al (2017) Mandatory, single answer. Controlled |
| Religion | What is your religion? | Jewish/ Muslim/ Christian/ Druse/ other | Mandatory, single answer. Controlled |
| <p>This questionnaire is part of research at the University of Haifa. The research deals with the intention to adopt photovoltaic systems on residents' roofs. For details, please contact... Your opinion is important to us!! We would be grateful if you would spend about half an hour answering the following questions. The questionnaire is anonymous and intended for research purposes only</p> | | | |
| | I authorize the use of my report for research purposes. I know that the identifying data will remain confidential and will be used by the researchers only for the purpose of the study itself | Confirm/ don't confirm | Mandatory, single answer. If confirmed – continue. |
| | Do you own one or more of the following properties? | <ol style="list-style-type: none"> 1. A private house (for example: a cottage, a two-family house, or a villa) 2. I own an apartment on the top floor with a roof 3. I own an apartment without a roof 4. I own a commercial building / warehouse with a roof 5. None of the above | Filter question. Continue only if selected 1,2 or 4. |
| | Do you have a photovoltaic solar system for generating electricity | Yes/ no | Filter question. Continue only if selected "yes". |

| | | | |
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| | (not a solar heater) on the roof of the house? | | |
| Urban | I live in... | A city/ other | |
| Roof type | The type of your roof: | Tiles/ flat concrete/ floored/ other | At least one |
| Roof usage | How do you use your roof? | Don't use/ devices (water heaters, air conditioners, hang laundry etc.)/ storage/ leisure/ gardening | At least one |
| WTA bid | | 10/ 50/ 100/ 150/ 200 thousands ILS | Random system variable |
| WTA | Think about the uses you make of the roof today. Would you agree to get today {WTA bid} ILS, in exchange that your roof will be occupied for the next 25 years? You will still be able to go up to it for maintenance purposes (sealing, solar heaters, air conditioners, etc.), but you will not be able to spend time on it, hang laundry, store things, etc. | Yes/ no | |

Here is an example of a solar system installed on the roof of a residential house.

The system can be installed on a tiled roof



or a flat roof



Please list the reasons why you have not yet installed a solar system. Select all that apply.

- I was not aware of the possibility of installing a RPV system
- I don't have money to invest in a RPV system
- I don't want to spend money on installing a RPV system

Multiple selection

| | | | |
|-----------------------|--|--|--|
| | | <ul style="list-style-type: none"> • There is economic uncertainty regarding the payback time of the investment on the RPV system • I don't have enough information about installing RPV systems • The environmental benefits do not justify the costs of installing an RPV system • Preventing climate change is not my responsibility • I don't know anyone else with an RPV system • My roof is not optimal for installing RPV • It is possible that over the years I will build another floor • I am in the process of approving and installing RPV • I want to install RPV, but I received a negative answer from the electricity company • I am afraid of electromagnetic radiation • It does not interest me • I don't know if I will be at home throughout the years to enjoy the fruits of the investment • It damages the aesthetics of the house | |
| PV in neighborhood | In your estimation, on how many of the roofs in your neighborhood have solar systems been installed (including public buildings, such as schools)? | Nobody/ A minority/ About half/ Most roofs/ All roofs | Mundaca & Samahita (2020). Single choice. |
| Acquaintances with PV | How many of your acquaintances (friends, family, co-workers, neighbors) have installed a home solar system (not on warehouses/farms, etc.)? | integer | Mundaca & Samahita (2020). Positive or zero |
| Trust Gov. | Government ministries make decisions in the public interest | 1 - Do not agree at all 2 - Do not agree 3 - Not sure 4 - Agree 5 - Absolutely agree | Single choice |

| | | | |
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| Trust IEC. | The Electric Company (a government company) is fair to its customers | same | |
| Novelty seeking | I like to experiment new technologies | same | |
| | I like to be updated and buy the most technologically advanced products | same | |
| Environmental | When there is a choice between products, I choose the product that harms the environment the least | 0- Never true 1- Rarely true 2- sometimes true 3- Usually true 4- Always true | Sudbury-Riley, L., & Kohlbacher, F. (2016). Ethically minded consumer behavior: Scale review, development, and validation. <i>Journal of Business Research</i> , 69(8), 2697–2710, http://dx.doi.org/10.1016/j.jbusres.2015.11.005 . |
| | I change my choice between products because of environmental reasons | same | same |
| | I don't buy household products that harm the environment | same | same |
| | I pay more for environmentally friendly products even though there is a cheaper alternative | same | same |
| Information presentation group | | 0- control group 1- Graph group 2- Financial data group 3- Combined group: graph + financial data | Random system variable |
| <p>Let's say that you recently heard about the possibility of making money from generating electricity from solar energy.</p> <p>You contacted a consultant to check the possibility of installing such a system in your home. The consultant sent you an electricity bill of a person who installed a system on a roof in an area of 125 square meters about two years ago.</p> <p>The cost of the system for that person was about ILS 80,000. Before the installation, he signed a contract with the electric company in which the electric company undertakes to buy the electricity that will be produced at a fixed rate for 25 years.</p> <p>The system was connected and started generating electricity in March 2019.</p> <p>You are presented with three questions based on the account shown to you by the consultant. The questions require a numerical evaluation, there is no need for exact calculations.</p> | | | |

In each of the following three questions, the user is presented with an electricity bill according to the group to which it belongs

| | | | |
|---|---|--|--------------------------------------|
| Monthly revenue | Estimate how many ILS the system generates (revenues only) in an average month (from the day it was installed)? | integer | |
| Cumulative revenue | Look at the bill in front of you and estimate how many ILS the system will generate (revenues only) over 25 years? | integer | |
| payback period | Look at the bill in front of you and estimate that after a few years from the date of installation, the solar system returns the investment (as you remember, ILS 80,000) | integer | |
| After viewing the electricity bill presented to you, rate your agreement with the following statements... | | | |
| ITA | I would like to hear more details about installing a solar system on my roof (such as installation and maintenance costs, and the revenues potential) | 1 - Do not agree at all 2 - Do not agree 3 - Not sure 4 - Agree 5 - Absolutely agree | Wolske et al (2017) Single choice |
| | I will call a solar company within the next six months to get advice on the possibility of installing a solar system on my roof | same | Wolske et al (2017) |
| | I will likely install a solar system on my roof within the next 3 years | same | Wolske et al (2017) |
| Relative advantage | A solar system can generate additional income for my household | same | Wolske et al (2017) |
| | A solar system gives a nice return on investment | same | Wolske et al (2017) |
| | A solar system can increase the value of my property | same | Wolske et al (2017) |
| Expense concern | I cannot afford to purchase a solar system within the family budget | same | Wolske et al (2017) |
| | I worry that the initial expense for the purchase of the solar system is high | same | Wolske et al (2017) |

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| | and will therefore be problematic | | |
| Maintenance costs | In my opinion, maintaining a solar system is expensive | same | Wolske et al (2017) |
| Trialability | Before I consider installing solar panels, I would like to talk to someone who has already installed solar panels on the roof | same | Wolske et al (2017) |
| | If a solar company tells me how much I can earn, I will ask for another opinion | same | Wolske et al (2017) |
| Subjective norms | Most of the people important to me will support me if I decide to install a solar system | same | Wolske et al (2017) |
| | I believe most of my acquaintances expect me to install a solar system | same | Wolske et al (2017) |
| Perceived behavioral control | There is not enough sun on my roof for solar panels to produce the maximum energy | same | Wolske et al (2017) |
| | I may not be in this house long enough to enjoy the investment gains | same | Wolske et al (2017) |
| Education | Your education | 1 Less than 12 years of study 2 High school 3 BA 4 Master's degree or higher | Single choice |
| Income | What was the total net income of your family, after deductions, in the last month | 1 Less than 5,000 ILS 2 Between 5,000 and 10,000 ILS 3 Between 10,000 and 13,000 ILS 4 More than 13,000 ILS | Optional choice |
| Household size | How many people live in the household? | Positive integer | |

We appreciate the time you devoted to filling out this survey.
Thank you.

S2. Controlled Information Presentation

Respondents were randomly assigned to one of four condition groups: None, Graph, Fin, and Both. During the questionnaire, electricity bills were presented according to these groups. The bill layout is presented in Figure 8. Most of the bill structure was constant, while the “Fin” and “Graph” boxes were displayed with respect to the group.

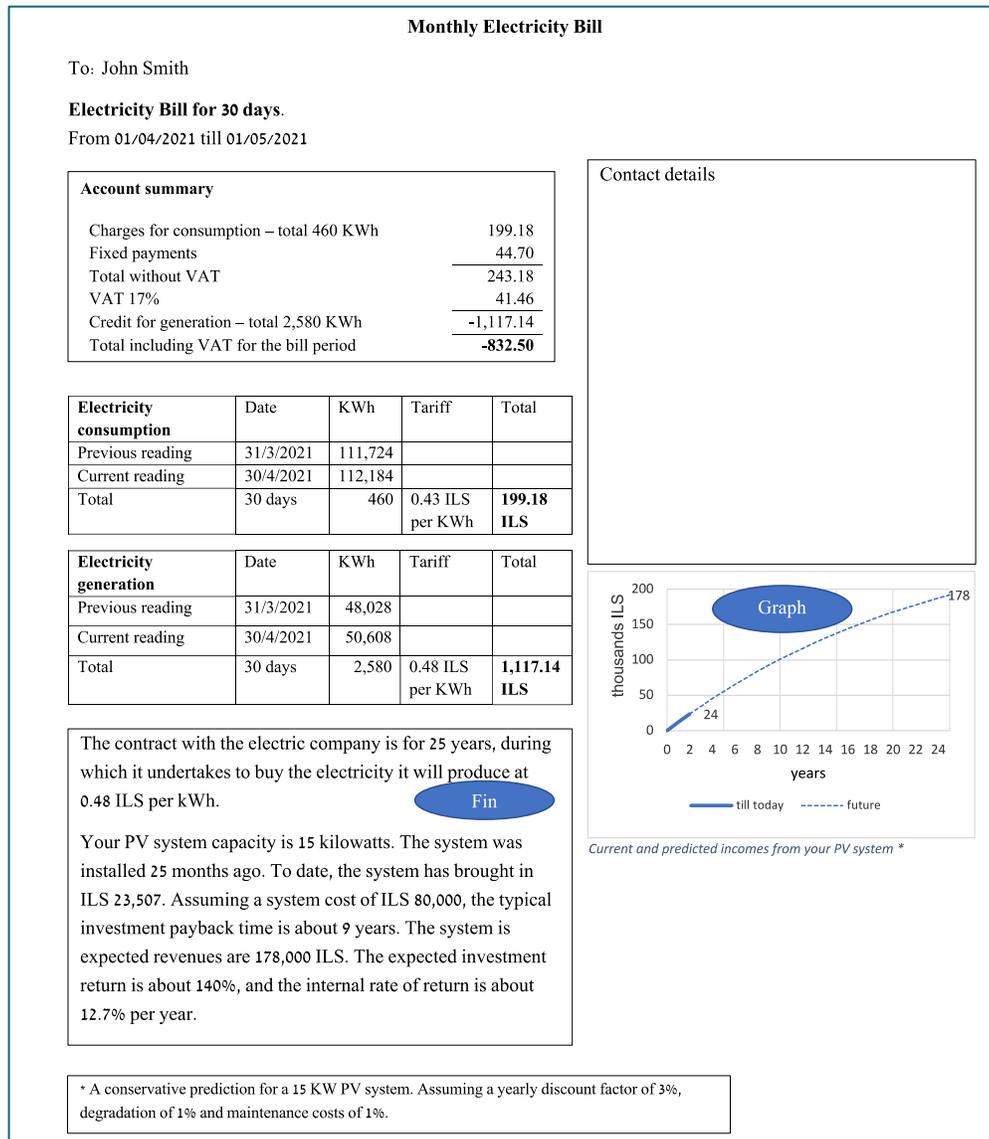


Figure S1. Electricity bill layout

S3. Descriptive Statistics of Four Condition Groups in the Sample

Table S2. Distribution of categorical variables among the four condition groups (chi-square test)

| | | Graph N=217 (24.1%) | Fin N=221 (24.6%) | Both N=228 (25.4%) | Control N=233 (25.9%) | P value |
|----------------|--------------|----------------------------------|--------------------------------|---------------------------------|------------------------------------|-------------------|
| Gender (% Men) | | 116 (53.5) | 113 (51.1) | 131 (57.7) | 117 (50.2) | 0.381 |
| Up to 35 | Age, years | 62 (27.5) | 61 (27.6) | 66 (29.0) | 55 (23.6) | 0.219 |
| | (%) | | | | | |
| | 35 to 61 | 113 (52.1) | 113 (51.1) | 110 (48.2) | 141 (60.5) | |
| | 61 and above | 42 (19.4) | 47 (21.3) | 52 (22.8) | 37 (15.9) | |

| | | | | | | |
|------------------------|----------------|------------|------------|------------|------------|-------|
| Urban (% urban) | | 148 (68.2) | 169 (76.5) | 162 (71.1) | 176 (75.5) | 0.168 |
| Education (% academic) | | 127 (58.5) | 137 (62.0) | 149 (65.4) | 155 (66.5) | 0.291 |
| Income (% High) | | 35 (18.5) | 39 (19.3) | 37 (17.7) | 36 (16.8) | 0.924 |
| Tiles | Roof type (%) | 115 (53.0) | 105 (47.5) | 95 (41.7) | 92 (39.5) | 0.018 |
| Flat concrete | | 101 (46.5) | 112 (50.7) | 116 (50.9) | 124 (53.2) | 0.560 |
| Flat floored | | 17 (7.8) | 19 (8.6) | 28 (12.3) | 27 (11.6) | 0.317 |
| No use | Roof Usage (%) | 66 (30.4) | 69 (31.2) | 63 (27.6) | 74 (31.8) | 0.779 |
| Facilities | | 130 (59.9) | 136 (61.5) | 142 (62.3) | 137 (58.8) | 0.870 |
| Storage | | 33 (15.2) | 20 (9.1) | 29 (12.7) | 32 (13.7) | 0.249 |
| Leisure | | 21 (9.7) | 23 (10.4) | 26 (11.4) | 33 (14.2) | 0.457 |

Table S3.: Distribution of continuous variables among the condition groups (Kruskal-Wallis Test)

| | Graph N=217 (24.1%) Mean (SD) | Fin N=221 (24.6%) Mean (SD) | Both N=228 (25.4%) Mean (SD) | Control N=233 (25.9%) Mean (SD) | P value |
|---------------------------|---|---|--|---|-------------------|
| Household size | 3.7 (1.7) | 3.7 (1.6) | 4.2 (2.3) | 4.0 (1.7) | 0.089 |
| PV in neighborhood | 1.7 (0.6) | 1.6 (0.6) | 1.7 (0.6) | 1.7 (0.6) | 0.205 |
| Acquaintances with PV | 1.5 (3.9) | 1.4 (4.1) | 1.3 (2.5) | 1.4 (4.4) | 0.955 |
| Trust gov | 2.6 (1.0) | 2.5 (1.0) | 2.8 (1.0) | 2.6 (0.9) | 0.123 |
| Trust electricity company | 2.6 (1.0) | 2.5 (1.0) | 2.7 (1.0) | 2.7 (1.0) | 0.647 |
| Novelty seeking | 3.7 (0.8) | 3.6 (0.7) | 3.8 (0.7) | 3.7 (0.8) | 0.389 |
| Pro environmental | 3.0 (0.8) | 2.9 (0.8) | 3.0 (0.8) | 3.0 (0.7) | 0.230 |

S4. Univariate Analysis of ITA RPV

Table S4. Univariate categorical variables affecting ordinal ITA RPV (Wilcoxon Two-Sample Test or Kruskal-Wallis Tests)

| | | Ordinal ITA Mean (SD) | P value |
|-----------------------------------|--------------------------------------|--|----------------|
| Comprehension: Monthly revenue | Correct: 500-1500 ILS (N=654) | 2.9 (0.8) | 0.081 |
| | Wrong (N=245) | 2.8 (0.9) | |
| Comprehension: Cumulative revenue | Correct: 150,000-300,000 ILS (N=337) | 2.9 (0.8) | 0.312 |
| | Wrong (N=559) | 2.8 (0.9) | |
| Comprehension: Payback period | Correct: 6-9 years (N=453) | 3.0 (0.8) | 0.000 |

| | | | |
|---------------------------|----------------------|-----------|-------|
| | Wrong (N=446) | 2.8 (0.9) | |
| Gender | Women (N=421) | 2.8 (0.9) | 0.000 |
| | Men (N=477) | 3.0 (0.8) | |
| Age | Up to 35 (N=244) | 2.8 (0.9) | 0.065 |
| | 35 to 61 (N=477) | 2.9 (0.8) | |
| | 61 and above (N=178) | 2.9 (0.8) | |
| Urban | No (N=244) | 3.0 (0.8) | 0.005 |
| | Yes (N=655) | 2.8 (0.9) | |
| Education | Non-academic (N=331) | 2.8 (0.9) | 0.007 |
| | Academic (N=568) | 2.9 (0.8) | |
| Income | Low (N=667) | 2.9 (0.8) | 0.339 |
| | High (N=147) | 2.9 (0.8) | |
| Roof type - Tiles | No (N=486) | 2.8 (0.9) | 0.007 |
| | Yes (N=413) | 3.0 (0.8) | |
| Roof type - Flat concrete | No (N=439) | 2.9 (0.8) | 0.080 |
| | Yes (N=460) | 2.8 (0.9) | |
| Roof type - Flat floored | No (N=808) | 2.9 (0.8) | 0.059 |
| | Yes (N=91) | 2.7 (0.9) | |
| Roof Usage - No use | No (N=627) | 2.9 (0.8) | 0.761 |
| | Yes (N=272) | 2.9 (0.9) | |
| Roof Usage - Facilities | No (N=352) | 2.9 (0.9) | 0.731 |
| | Yes (N=547) | 2.9 (0.8) | |
| Roof Usage - Storage | No (N=785) | 2.9 (0.9) | 0.594 |
| | Yes (N=114) | 2.8 (0.8) | |
| Roof Usage - Leisure | No (N=796) | 2.9 (0.8) | 0.037 |
| | Yes (N=103) | 2.7 (1.0) | |

Table S5. Univariate Spearman correlation with ITA RPV

| Variable | Spearman correlation |
|---------------------------|-----------------------------|
| Household size | 0.041 |
| PV in neighborhood | 0.080 * |
| Acquaintances with PV | 0.182 *** |
| Trust gov | 0.124 *** |
| Trust electricity company | 0.139 *** |
| Novelty seeking | 0.227 *** |
| Pro environmental | 0.206 *** |

* p<0.05, ** p<0.01, *** p<=0.001