

Woodman-Scheller Israel Studies International Program

Calculating the Housing Wealth Effect of Israeli regional cohorts

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December 2016

Working Paper Housing Wealth Effect Proposal

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5 December 2016

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Abstract

Uses pseudo-panel construction to calculate the housing wealth effect for regional cohorts of Israeli households. Combines data from the Central Bureau of Statistics Household Expenditure Survey and the Consumer Price Index.

Keywords: consumption, economics, housing, housing market, liquidity constraints, wealth effect

1 Introduction

1.1 The housing market

The study of housing provides a fascinating topic for the researcher of Israeli society. Several factors have drawn attention to the housing market and made it a topic of much discussion. The price of housing was one of the main issues that drove more than 400,000 demonstrators to the streets in the summer of 2011. Large portions of the Israeli population own a home, or rent one, or live in a multi-family household. Their first-hand experience of the market may be relayed to the researcher as anecdotal evidence of the state of the housing market, as well as causes and solutions for the perceived short-comings of the market.

In a simple economic model of a housing market, home prices are set by the market forces of supply and demand. Various factors influence the supply and demand of housing in the market. Consider an interest-rate reduction, this shifts the demand curve to the right, as cheaper credit entices more buyers to enter the market. It also reduces credit-constraints on builders and leads to increased supply, albeit after some lag. In Israel, the average home price has risen by an astonishing 80% between the 2008 global financial crisis and 2016. In the minds of many lay observers this rapid increase indicates a lack of supply. Main bottlenecks limiting supply are cited as the sale of government land or the lengthy permitting process for new construction.

Gruber (Gruber [2016](#)), however, offers copious evidence and cogent reasoning to support his claim that the chief factor in the rise was actually excessive demand. As global capital markets suffered large declines, investors moved to other asset classes, including the real estate market. The additional factor of low interest rates lead to a dramatic increase in purchase of additional houses by those who were already owner-occupiers. This shifted the demand curve to the right, increasing the average cost of an apartment and driving out less affluent first-time homebuyers. These would-be first-time homebuyers then entered or remained in the rental market, driving up average rents. The higher market rental prices and lowered vacancy rate established a feedback loop which further encouraged in the purchase of investment houses as rental property.

1.2 Consumption by Households

The expenditure method for calculating National Income (Y), states that $Y = GDP = C + I + G + NX$. The gross domestic product is equal to Consumption Expenditure (C) plus Investment Expenditure (I) plus Government Expenditure (G) plus Net Exports (NX). Firms and households each engage in both consumption and investment. When a firm buys a copy machine which lasts several years, that is an investment. The purchase of owner-occupied housing is the largest investment made by most households. The paper placed in the copy machine and the food on the table are each classified as consumption. Consumption by households makes up a large and important part of GDP, as seen in figure 1.



As can be seen from the graph, in 2015 Household Consumption was 55.3% of GDP. If the housing wealth effect is large is, its effect on this large portion of the economy will have real, import, reaching effects in people's lives. It is a measure tracked closely by businesses, economists and the government.

Household income is either saved or consumed, with the marginal propensity to consume (MPC) and the marginal propensity to save (MPS) summing to 1. Generally, household consumption can be understood as household income times the MPC. The MPC can be affected by the interest rate, rising interest rates incentivize additional savings, raising

the MPS and lowering the MPC. Falling interest rates decrease the attraction of savings. With a constant MPC a household can increase consumption due to increased income from a salary increase, hourly wage increase or increase in the number of hours worked. Household consumption would fall due a decrease in salary, wages or working hours. A further factor in consumption is expected future income. This posits that the rational consumer increases their consumption now if they know that they will get a raise or some overtime next week. They will also reduce consumption and increase savings now when they expect future unemployment or wage reductions. Another factor affecting consumption is the wealth effect. When the wealth of a household increases (the price of shares held in an investment portfolio, the price of a Picasso on the wall or in a vault, the price of the family home or rental property), household consumption increases, in effect spending now some of the expected future gains on the sale of the shares, painting or real estate. Conversely, a decline in household wealth should produce a decline in household consumption.

2 Literature Review

2.1 the housing wealth effect

Many households around the world store a majority of their wealth in housing. This, combined with the volatility of swings in house prices, has caused academics and policy makers to further investigate the housing wealth effect and its implications for GDP.(Gan 2010) Renters and owners should be effected differently by a change in housing prices. An increase in housing prices should increase consumption by owners and decrease consumption by renters. Changes in house prices affect renters through the mechanism of the savings motive. One of the factors influencing the renter's mix of savings and consumption is their desire to purchase a home in the future. Renters respond to an increase in the price of housing by adjusting their expectation of the future price of the home they wish to purchase. They then reduce their consumption and increase their savings rate. Research using Japanese data showed that renters fell into two categories when faced with increased housing prices. Some gave up saving for a home and instead increased consumption of luxury goods in what was termed the "consumption of despair." The other group decreased consumption, and increased their savings rate, still dreaming of

home ownership. These effects on renters were subsequently found in data from Canada and San Francisco.(Sheiner 1995)

The data used in the proposed study should allow me to measure the extent to which Israeli renters engaged in consumption of despair over the last fourteen years. The life cycle savings hypothesis suggests that consumption of anticipated increases in wealth will be distributed by consumers over time, and that there would be a single MPC for both housing wealth and stock market wealth. When empirically tested, data showed that 85% of respondents did not increase consumption in response to a change in their shares portfolio. Several reasons were suggested why changes in the value of wealth held in different forms would illicit different consumption effects from households. Prices changes in some assets may be viewed as transitory. Others may be harder to measure than the daily feedback of the stock quote. Tax laws may discourage the sale of certain assets and wealth may be held in separate “mental accounts,” one of which may be a rainy-day fund against life’s uncertainties.

2.2 Mechir Lamistaken - The Israeli first-time homebuyers program

Finance Minister Moshe Kahlon has a plan to deal with the excess demand in the housing market caused by real estate speculators who would own one apartment and still buy one or more others as rental property. The Mechir Lamistaken program sells land to developers at a below market rate if the housing is reserved for first-time buyers. However, there is evidence for widespread use by investors of strawbuyers to evade the restriction. Thus, young families are still squeezed out of the market and the government forgoes revenue from land sales while benefiting investors. An important factor that reduces the supply of housing by increasing permitting times for new construction is the lack of municipally determined property tax rates. New residential units add an additional burden on city infrastructure and do not pay for themselves in terms of the taxes they generate. Wealthier districts make up the short fall through taxes on commercial property. Poorer localities throw up additional barriers to delay the construction of apartments until they are promised balance grants by the Ministry of Interior.

3 Methodology

This research is being conducted in the interdisciplinary field of Israel Studies. It lies at the intersection of sociology and economics. It partially adheres to the practices of reproducible research, i.e. methods are fully reported and the process by which raw data is analyzed is viewable. Unfortunately, while the housing price data is freely distributable, the household level consumption data is not. This is fully reproducible after obtaining the listed datasets, which are available from the Central Bureau of Statistics and the Israel Social Sciences Data Center. Pseudo-panel construction is the methodology by which I propose to combine the available data on household consumption and house prices.

3.1 data sets

This study combines household level consumption data with housing price data to estimate and test the hypothesis that different age cohorts have different wealth effects. It has been postulated that older households will have a higher wealth effect, or larger proportional change in spending in response to a change in wealth than a younger household. The available consumption data from the Household Expenditure Survey provides us with a means to test this hypothesis. Table One shows a listing of the files used in the study. Column 2 - Consumption, names the files from the “Housing Expenditure Survey.” Column 3 shows the locations of the housing price data. These data are released as part of the calculation of the Consumer Prices Index as Table 6.2 - “Average Prices of Owner Occupied Dwellings (NIS Thousand), by Residential Area and Size Groups (Rooms in Dwelling).” The data for the fourteen years in question, 2002-2015 is split among six files that are at different locations, but all named the same thing. These files each contain 8 quarters of data. They are renamed upon download and saved with the filenames in column four. The nine Residential Areas are Jerusalem, Tel Aviv, Haifa, Gush Dan, Center, South, Sharon, North and Qrayot Haifa. Apartments are grouped by number of rooms, 1.5-2, 2.5-3, 3.5-4 and 4.5-5. Also included is an average home price for the Residential Area. This is not an average of the four size groups. These data from the various years are then combined to produce a time-series of home prices from 2002 to 2015 for the nine location/size pairs.

years	Consumption	www.cbs.gov.il/www/ +	houseP_savedAs
2002	requested	MISSING	NA
2003	requested	MISSING	NA
2004	requested	MISSING	NA
2005	f467	archive/200803/price_new/a6_2_e.xls	NA
2006	f468	archive/200803/price_new/a6_2_e.xls	houseP06_07.xls
2007	f469	archive/201003/price_new/a6_2_e.xls	houseP06_07.xls
2008	requested	archive/201003/price_new/a6_2_e.xls	houseP08_09.xls
2009	f472	archive/201203/price_new/a6_2_e.xls	houseP08_09.xls
2010	f471	archive/201203/price_new/a6_2_e.xls	houseP10_11.xls
2011	f459	archive/201403/price_new/a6_2_e.xls	houseP10_11.xls
2012	f458	archive/201403/price_new/a6_2_e.xls	houseP12_13.xls
2013	f457	archive/201503/price_new/a6_2_e.xls	houseP12_13.xls
2014	f456	/price_new/a6_2_e.xls	houseP14_16.xls
2015	requested	/price_new/a6_2_e.xls	houseP14_16.xls

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References

- Bajari, P, CL Benkard, and J Krainer (2005). House prices and consumer welfare. *Journal of Urban Economics* 58(3), 474–487.
- Barkat, A (2016). Flug: Home price solution is supply, supply and supply. *Globes*.
- Benjamin, JD, P Chinloy, and GD Jud (2004). Real Estate Versus Financial Wealth in Consumption. *The Journal of Real Estate Finance and Economics* 29(3), 341–354.
- Bhatia, KB (1987). Real Estate Assets and Consumer Spending. *The Quarterly Journal of Economics* 102(2), 437.
- Bodkin, R (1959). Windfall Income and Consumption. *The American Economic Review* 49(4), 602–614.
- Browning, M, M Gørtz, and S Leth-Petersen (2013). Housing Wealth and Consumption: A Micro Panel Study. *The Economic Journal* 123(568), 401–428.
- Browning, M and A Lusardi (1996). Household Saving: Micro Theories and Micro Facts. *Journal of Economic Literature* 34(4), 1797–1855.
- Buiter, WH (2008). Housing Wealth Isn't Wealth. Working Paper 14204. National Bureau of Economic Research. <http://www.nber.org/papers/w14204>.
- Buiter, WH (2010). Housing Wealth Isn't Wealth. *Economics: The Open-Access, Open-Assessment E-Journal* 4(2010-22), 1.
- Calomiris, C, SD Longhofer, and W Miles (2009). The (Mythical?) Housing Wealth Effect. Working Paper 15075. National Bureau of Economic Research. <http://www.nber.org/papers/w15075>.
- Campbell, JY and JF Cocco (2007). How do house prices affect consumption? Evidence from micro data. *Journal of Monetary Economics* 54(3), 591–621.
- Carroll, CD (1997). Death to the Log-Linearized Consumption Euler Equation! (And Very Poor Health to the Second-Order Approximation). Working Paper 6298. National Bureau of Economic Research. <http://www.nber.org/papers/w6298>.
- Carroll, CD (2001). A Theory of the Consumption Function, with and without Liquidity Constraints. *The Journal of Economic Perspectives* 15(3), 23–45.
- Carroll, CD (2004). Housing Wealth and Consumption Expenditure. Tech. rep. Johns Hopkins University.

- Case, K (2005). Comparing Wealth Effects: The Stock Market versus the Housing Market. *Advances in Macroeconomics* 5(1).
- Choudy, O (2015). Kahlon hails deal to build 20,000 homes in Beersheva. *Globes*.
- Clarke, H and J Zavisca (2015). Housing/Housing Markets. *The Wiley Blackwell Encyclopedia of Consumption and Consumer Studies*.
- Claudio Irigoyen Esteban Rossi-Hansberg, MLJW (2003). *Solutions manual for recursive methods in economic dynamics*. Harvard University Press.
- Cristini Annalisa; Sevilla Sanz, A (2011). Do House Prices Affect Consumption? A Comparison Exercise. Working Paper 589. Oxford U.
- Deaton, A (1993). *Understanding consumption*. Clarendon Lectures in Economics. Oxford University Press, USA.
- Delmendo, LC (2016). Israel's house price boom continues. *Global Property Guide*.
- Dovman, P, S Ribon, and Y Yakhin (2012). The Housing Market in Israel 2008-2010: Are House Prices a 'Bubble'? *Israel Economic Review* 10(1).
- Druckman, Y (2015). Israel's housing crisis: Massive price increases across the country. *Ynet*.
- Engelhardt, GV (1996). House prices and home owner saving behavior. *Regional Science and Urban Economics* 26(3-4), 313–336.
- Finlay, CWJJR (2013). Home Prices and Household Spending. Research Discussion Paper. Economic Group: Reserve Bank of Australia.
- Fuchs, H (2015). The Socioeconomic Situation of Young Adults in Israel. *State of the Nation Report: Society, Economy and Policy in Israel*, 139–181.
- Gan, J (2010). Housing Wealth and Consumption Growth: Evidence from a Large Panel of Households. *Review of Financial Studies* 23(6), 2229–2267.
- Gardes, F, GJ Duncan, P Gaubert, M Gurgand, and C Starzec (2005). Panel and Pseudo-Panel Estimation of Cross-Sectional and Time Series Elasticities of Food Consumption. *Journal of Business & Economic Statistics* 23(2), 242–253.
- Gourinchas, PO and J Parker (2002). Consumption Over the Life Cycle. *Econometrica* 70(1), 47–89.
- Gruber, N (2014). The Israeli Housing Market. *State of the Nation Report: Society, Economy and Policy*, 91–168.
- Gruber, N (2015). Comments on Finance Minister Moshe Kahlon's Housing Plan.

- Gruber, N (2016). The Israeli Housing Market: Approaching a Turnaround. Shores Research Paper. Ed. by D Ben-David, 20.
- Hall, RE (1978). Stochastic Implications of the Life Cycle-Permanent Income Hypothesis: Theory and Evidence. *Journal of Political Economy* 86(6), 971–987. eprint: <http://dx.doi.org/10.1086/260724>.
- Horowitz, D (2016). A deeper political agenda behind Israel's soaring housing market? The Times of Israel.
- Housing: Purchase of a Home in Israel.
- How Large Are Housing and Financial Wealth Effects? A New Approach (2011). *Journal of Money, Credit, and Banking* 43(1), 55–79.
- Iacoviello, M (2004). Consumption, house prices, and collateral constraints: a structural econometric analysis. *Journal of Housing Economics* 13(4), 304–320.
- Iacoviello, M (2011). Housing Wealth and Consumption. International Finance Discussion Papers 1027. Board of Governors of the Federal Reserve System.
- J. V. Henderson, YMI (1983). A Model of Housing Tenure Choice. *The American Economic Review* 73(1), 98–113.
- Kahn Michael; Ribon, S (2013). The Effect of House and Rent Prices on Private Consumption in Israel - A Micro Data Analysis. Tech. rep. Bank of Israel.
- Kimhi, A and K Shraberman. The Increase in the Number of Income Earners and Its Impact on Household Income.
- Lewis, A (2015). Jerusalem mayor fumes over plan to build in nature reserve. Times of Israel.
- Lillis (2014). R Graph Essentials.
- Maki, KEDDM (2001). Does Stock Market Wealth Matter for Consumption? FEDS Discussion Paper 2001-23. Board of Governors of the Federal Reserve System.
- Martin Lettau, SCL (2004). Understanding Trend and Cycle in Asset Values: Reevaluating the Wealth Effect on Consumption. *The American Economic Review* 94(1), 276–299.
- Nancy L. Stokey Robert E. Lucas Jr., ECP (1989). *Recursive Methods in Economic Dynamics*. Harvard University Press.
- New home sales in Israel down in 2016 (2016). Globes.

- Ohtake, HYF (1989). An Analysis of Female Labor Supply, Housing Demand, and the Saving Rate in Japan. *European Economic Review* 33, 997–1030.
- Paz-Frankel, E (2012). Home prices double OECD average in salary terms. *Globes*.
- Peng, VSFLRD (2014). *Implementing Reproducible Research*. Chapman & Hall/CRC The R Series. CRC Press/Taylor and Francis.
- Portnov, BA, C Ingene, and S Akron (2016). Long-Term Natural Cycle Momentum and Housing Price Changes in Israel, 1995-2013. *Journal of Real Estate Research* 38(3), 393–422.
- Poterba, JM (2000). Stock Market Wealth and Consumption. *The Journal of Economic Perspectives* 14(2), 99–118.
- Prakken, EBJ (2004). *Housing Wealth Effects: Housing's Impact on Wealth Accumulation, Wealth Distribution and Consumer Spending*. Tech. rep. W04-13. Harvard U.: Joint Center for Housing Studies.
- Raman Vijayshankar; Hellerstein, JM (2000). *An Interactive Framework for Data Cleaning*. EECS UCB/CSD-0-1110. U.C. Berkeley.
- Reback, G (2015). Kahlon announces plan to lower housing prices. *Times of Israel*.
- Regev, E (2014). Making Ends Meet—Household Income, Expenditures and Savings in Israel. *State of the Nation Report: Society, Economy and Policy*, 19–89.
- Richard Disney John Gathergood, AH (2010). House Price Shocks, Negative Equity, And Household Consumption In The United Kingdom. *Journal of the European Economic Association* 8(6), 1179–1207.
- Rise in housing prices accelerating, says state report (2015). *Times of Israel*.
- Robert E. Lucas Jr., TJS (1981). *Rational Expectations and Econometric Practice - Volume 1*. Minnesota Archive Editions. Univ Of Minnesota Press.
- Shauly, AE (2016). Jews from abroad buying fewer homes in Israel. *Globes*.
- Sheiner, L (1995). Housing Prices and the Savings of Renters. *Journal of Urban Economics* 38(1), 94–125.
- Sierminska, E and YF Takhtamanova (2007). *Wealth Effects Out of Financial and Housing Wealth: Cross Country and Age Group Comparisons*. Tech. rep. 2007-01. Federal Reserve Bank of San Francisco: Working Paper Series. <http://dx.doi.org/10.2139/ssrn.1007825>.

- Sinai, T and NS Souleles (2005). Owner-Occupied Housing as a Hedge Against Rent Risk. *The Quarterly Journal of Economics* 120(2), 763–789. eprint: <http://qje.oxfordjournals.org/content/120/2/763.full.pdf+html>.
- Skinner, J (1989). Housing Wealth and Aggregate Saving. NBER Working Papers 2842. National Bureau of Economic Research, Inc. <http://EconPapers.repec.org/RePEc:nbr:nberwo:2842>.
- Slacalek, CDCMOJ (2006). How Large is the Housing Wealth Effect? A New Approach. Working Paper 12746. Cambridge, MA: National Bureau of Economic Research.
- Weiss, H (2014). Homeownership in Israel: The Social Costs of Middle-Class Debt. *Cultural Anthropology* 29(1), 128–149.
- Wrobel, S (2010). Bank of Israel: Housing prices will continue to rise. *The Jerusalem Post*.