

AUREL HIZMO

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Academic Appointment

New York University, Stern School of Business

Assistant Professor of Finance, 2011 - Present

Education

Duke University, Durham, NC

Ph.D. in Economics, May 2011

M.A. in Economics, May 2008

Saint Louis University, St. Louis, MO

B.S.B.A Economics, 2005

Honors: Summa Cum Laude

Fields of Interest

Financial Economics, Real Estate, Public, Urban, and Labor Economics

Publications, Working Papers and Projects

1. "Risk in Housing Markets: An Equilibrium Approach". Fall 2011, Working Paper.

Abstract: I develop a flexible and estimable equilibrium model that jointly considers location decisions of heterogeneous agents across space, and their optimal portfolio decisions. Merging continuous-time asset pricing with urban economics models, I find a unique sorting equilibrium and derive equilibrium house and asset prices in closed-form. Risk premia for homes depend on both aggregate and local idiosyncratic risks, and equilibrium returns for stocks depend on their correlation with city-specific income and house price risk. In equilibrium, very risk-averse households do not locate in risky cities although they may have a high productivity match with those cities. I estimate a version of this model using house price and wage data at the metropolitan area level and provide estimates for risk premia for different cities. The estimated risk premia imply that homes are on average about \$20000 cheaper than they would be if owners were risk-neutral. This estimate is over \$100000 for volatile coastal cities. I simulate the model to study the effects of financial innovation on equilibrium outcomes. For

reasonable parameters, creating assets that correlate with city-specific risks increase house prices by about 20% and productivity by about 10%. The average willingness to pay for completing markets per homeowner is between \$10000 and \$20000. Productivity is increased due to a unique channel: lowering the amount of non-insurable risk decreases the households' incentive to sort on these risks, which leads to a more efficient allocation of human capital in the economy.

2. "Beyond Signaling and Human Capital: Education and the Revelation of Ability" with Peter Arcidiacono and Patrick Bayer, 2010, *American Economic Journal: Applied Economics*. 2(4): 76-104.

Abstract: In traditional signaling models, education provides a way for individuals to sort themselves by ability. Employers in turn use education to statistically discriminate, paying wages that reflect the average productivity of workers with the same given level of education. In this paper, we provide evidence that education (specifically, attending college) plays a much more direct role in revealing ability to the labor market. Using the NLSY79, our results suggest that ability is observed nearly perfectly for college graduates. In contrast, returns to AFQT for high school graduates are initially very close to zero and rise steeply with experience. As a result, from very beginning of the career, college graduates are paid in accordance with their own ability, while the wages of high school graduates are initially completely unrelated to their own ability. This view of ability revelation in the labor market has considerable power in explaining racial differences in wages, education, and the returns to ability. In particular, we find no racial differences in wages or returns to ability in the college labor market, but a 6-10 percent wage penalty for blacks (conditional on ability) in the high school market. These results are consistent with the notion that employers use race to statistically discriminate in the high school market but have no need to do so in the college market.

3. "The Common Variation in Housing Price Returns" Summer 2011. Working Paper.

Abstract: I show that a real estate counterpart to the Fama-French Three Factor model fits the annual house price returns very well. Using annual housing return and average wage data at the metropolitan area level, I construct three risk factors. The first factor is the annual house price returns for the whole US housing market. The second factor replicates a diversified portfolio that holds houses in low-price metropolitan areas and shorts houses in high-price ones. The third factor replicates a diversified portfolio that holds houses in metropolitan areas with high price-to-wage ratios and shorts houses in areas with low price-to-wage ratios. Remarkably, these three factors explain nearly 90 percent of the time-series and cross-sectional variation in returns for twenty-five diversified housing portfolios constructed by sorting metropolitan areas on price level and price-to-wage ratio. As these portfolios are well diversified, I find that idiosyncratic risk is not priced in the cross-section. These results mean that an investor would not be concerned about location specific house price risk if they could hold these portfolios instead of only owning in one particular metropolitan area. On the other hand, when the same analysis is carried out using individual metropolitan areas instead of portfolios, the three factors explain a much lower share of the time-series and cross-sectional variation in returns. In addition, idiosyncratic risk is priced in the cross-section. Households that own only in one metro area are exposed to a significant amount of local idiosyncratic risk and this is reflected in house price

returns.

4. "Hedging Housing Risk with Stock Indexes from Local Employers" Spring 2011. In Progress.

Abstract: Using detailed data on the location of homes and employment centers, this paper documents how much of the local house price risk can be hedged using traded financial assets. While local house prices returns are generally not correlated with aggregate stock price indexes, they show considerable correlation with local stocks. Exploiting these correlations can allow for the construction of location specific optimal retirement portfolios that do take into account the large idiosyncratic risk that homeowners face by living in a particular neighborhood. I use detailed housing transaction level data to construct a house specific price index. This indexes are estimated by a local-linear repeat-sales estimator that only uses transactions of similar homes. Using business establishment data from the NETS database, I find the closest largest employers to a particular home and construct a location specific stock index. This local stock index is created by weighting the individual stock returns of local employers by the distance to the particular home and by the number of employees. At the metropolitan area level this procedure yields a correlation of about .35 between the house price index and the local stock index. Residents of these areas would benefit from shorting the local stock index to hedge housing price risk.

5. "Estimating the Cost of City-Industry Specific Risk from a Structural Migration Model" Fall 2010. In Progress.

Abstract: I extend the framework of my job market paper to the case where risk-averse individuals first choose a city to live in, and then choose an industry to work in. Individuals can also invest in the stock market and generally want to short the stock of the industry they work in. This setting allows for the study of industry-location specific risk rather than just city-specific risk. Using individual location decisions from the decennial Census data, I estimate the structural parameters of the model by using a random coefficient logit model. The estimation approach is similar to Bayer, McMillan and Rueben (2005). This procedure yields direct estimates of the heterogeneity of risk aversion in the population, as well as estimates of market prices of risk for exposure to different industries. I use the estimates to study the welfare benefits of creating traded industry specific income indexes and traded city specific house price indexes. These estimates can also be used to study the effects of the recent increases in uncertainty in the economy on house prices and on individuals' labor market choice.

6. "Dynamic Sorting Equilibrium in Housing Markets" with Marcus Casey, Summer 2010. In Progress.

Abstract: In this paper, we develop a dynamic equilibrium model of sorting with heterogeneous households. In each period, the infinitely-lived households choose their optimal location given forward-looking beliefs about the of neighborhood quality, housing prices, their own type, and transaction costs. The evolution of household type and neighborhood quality are assumed to follow stationary Markov processes. In the baseline case, assuming fixed supply of housing, we prove the existence and

uniqueness of equilibrium. We also show that solving for this equilibrium numerically is straightforward, and that the model can be estimated using existing nested fixed-point procedures. An extension allowing for household social interactions is then explored. Given the multiple equilibria in this case, a solution requires more restrictive assumptions.

7. "The Effects of Spatial and Temporal Aggregation on House Price Predictability" Fall 2008.

Abstract: The large observed short run predictability in housing price returns is puzzling from a theoretical asset pricing point of view. In this paper, I show that a share of the predictability in house prices is due to measurement issues. Unlike financial assets, houses trade very infrequently and house price indexes are usually constructed by aggregating transactions at the metropolitan area and at the quarterly level. Through a series of simulations I show that even if the underlying house-specific prices follow random walks, using spatially and temporally aggregated repeat-sales indexes leads to an artificially high level of predictability. I propose an estimator that estimates price persistence in continuous-time to avoid temporal aggregation. The estimator also constructs a house-specific price index that only uses information on similar homes avoiding spatial aggregation to a certain extent. I fit the proposed econometric model to detailed transaction level data to empirically show effects of spatial and temporal aggregation on the estimated persistence of house price returns.

Honors and Awards

Summer Dissertation Research Fellowship, Duke University, 2009

Distinguished Economics Dept. Graduate Fellowship, Duke University, 2005

Outstanding Senior in Economics, Saint Louis University, 2005

Referee Service

Economic Inquiry, International Journal of the Economics of Business, Journal of Empirical Finance, Journal of Political Economy, Real Estate Economics

Seminars, Conference Presentations and Discussions

2010

Conferences: ERID Conference on Housing Market Dynamics

2011

Seminars: Pennsylvania State University; University of Chicago; NYU Stern; UPenn (Wharton); Federal Reserve Bank of Philadelphia; Washington University in St. Louis; Federal Reserve Bank Board of Governors; University of Southern California (Marshall)

Discussions: "Credit Supply and House Prices: Evidence from Mortgage Market Segmentation", RDCCP at Philadelphia Fed

2012

Conferences: Housing-Urban-Labor-Macro Conference, Boston Fed; NYC Real Estate Conference, CUNY (Baruch)

Discussions: "House Price Booms and the Current Account" AEA/AFA Chicago