Recent Developments of Housing Finance Markets in Korea

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Seung Dong You is an assistant professor at the Department of Economics and Finance at Sangmyung University. Professor You has strong interests in both consumer finance and producer finance in the real estate market. As a consultant at the United Nations - Habitat, he published “Housing Finance Mechanisms in the Republic of Korea.” He has papers related to project finance and real estate finance on *Real Estate Economics, Asia Pacific Journal of Financial Studies, and others academic journals*. With his professional experience, in particular, he published “Establishing a New Government Sponsored Enterprise” on *Housing Finance International*.

Professor You has recently completed the 2017/18 Knowledge Sharing Program with the Republic of the Philippines: Enhancing the Reverse Mortgage Program in the Philippines. In 2011, in addition, he was a winner of both ICSC (International Council of Shopping Centers) Best Paper Award at AREUEA & AsRES Joint International Conference and FN-KAFA Doctoral Student Dissertation Award. Professor You has more than forty articles on mortgages, securitization, mortgage insurance and mortgage consumer protection.

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Contents

1. Overview of Housing Finance Systems
2. Primary Mortgage Market
3. Secondary Mortgage Market
4. Reverse Mortgages
Overview of Housing Finance Systems
Trend in Nominal Housing Purchase Composite Price Index
(Condominium: 1986=100)

Subprime Crisis
Financial Crisis in 1997
Two Million Unit Housing Construction Project in 1989
Trend in Nominal Housing Purchase Composite Price Index
(Condominium: 1986=100)

- Korea Housing Bank (1967)
- National Housing Fund by the Housing Construction Promotion Act in 1981
- Housing Finance Guarantee Co. Ltd in 1992

Subprime Crisis
Financial Crisis in 1997

Two Million Unit Housing Construction Project in 1989
Financial Crisis

• Privatization of the Korea Housing Bank in 1997

• Competition in the primary mortgage market

• Introduction of Securitization systems
  – Secondary mortgage market
Trend in Real Housing Purchase Composite Price Index

(Condominium: 1986=100)

- Financial Crisis in 1997
- Subprime Crisis
- Two Million Unit Housing Construction Project in 1989

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Housing Finance after the Financial Crisis

Korea Housing Finance Co. in 2004

Korea Mortgage Co. in 1998

Kookmin Bank merged KHB in 2001

Expansion of National Housing Fund in 2015 (National Housing Urban Fund)
Housing Finance in the 2000s

- Cross-boarder MBS in 2002
- MBS in 2000
- ABS in 1999
- Public CMBS in 2000
- National Housing Urban Fund in 2015
- A Proposal for Mortgage Borrowers Protection in 2007
Nominal Prices in the 2010s
(condominium and household incomes: 2010.1=100)
Real Prices in the 2010s
(condominium and household incomes: 2010.1=100)
Primary Mortgage Market
Household Debt

Unit: KRW billions

Source: BOK
## Household Debt

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Household Debt</td>
<td>916</td>
<td>964</td>
<td>1,019</td>
<td>1,085</td>
<td>1,203</td>
<td>1,344</td>
<td>1,388</td>
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<td>Mortgage (A=a+b)</td>
<td>442</td>
<td>467</td>
<td>491</td>
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<td>598</td>
<td>669</td>
<td>693</td>
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<tr>
<td>Mortgage from FIs (a)</td>
<td>392</td>
<td>404</td>
<td>418</td>
<td>461</td>
<td>491</td>
<td>546</td>
<td>560</td>
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<tr>
<td>Saving Banks</td>
<td>309</td>
<td>318</td>
<td>329</td>
<td>366</td>
<td>402</td>
<td>443</td>
<td>449</td>
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<tr>
<td>Non banks</td>
<td>83</td>
<td>86</td>
<td>89</td>
<td>95</td>
<td>89</td>
<td>103</td>
<td>111</td>
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<tr>
<td>Mortgage from pub orgs(b)</td>
<td>50</td>
<td>63</td>
<td>73</td>
<td>75</td>
<td>108</td>
<td>123</td>
<td>133</td>
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<tr>
<td>Fraction of Mortgage</td>
<td>48%</td>
<td>48%</td>
<td>48%</td>
<td>49%</td>
<td>50%</td>
<td>50%</td>
<td>50%</td>
</tr>
</tbody>
</table>

Unit: KRW Trillions

Source: BOK
Delinquency rates

Source: FSC and FSS
Delinquency Rate (delinquent for more than 1 month)

Data: NFS

Unit: %
Key Players in the Primary Market

• Commercial banks
  – Leading the mortgage market
  – Mortgage debt
    • 49% of outstanding household debt (Jun 2017)
    • 61% of outstanding household debt (Mar 2013)

• Housing Urban Fund
  – Established in 1973 as the National Housing Account
  – Low income households (consumers and producers)
  – Funding: National Housing Bonds, interest income and borrowing form Special National Accounts
Key Players in the Primary Market

• Korea Housing Finance Corp.
  – Established in 2004 by merging KoMoCo
  – Operating two funds: Housing Finance Credit Guarantee Fund and Reverse Mortgage Guarantee Fund
  – Securitization commitment program: KRW 9.4 T in 2011
  – Shareholders: National account (54.5%), BOK(36.7%), and National Housing Fund (8.8%)
History of NHUF

- 1973. 1 Establishment of the National Housing Account
- 1973. 3 First issue of the National Housing Bond
- 1981. 7 Implementation of the National Housing Fund (Treasury Bank: Korea Housing Bank)
- 2003. 1 Expansion of the Treasury Bank (Woori Bank, Nonghyup Bank, Kookmin Bank)
- 2008. 1 Re-election of the Treasury Bank (5 Treasury Banks)
  - General Treasury Bank: Woori Bank
  - Treasury Bank: Nonghyup, Industrial, Shinhan, Hana Bank
- 2013. 1 Re-election of the Treasury Bank (6 Treasury Banks)
  - General Treasury Bank: Woori Bank
  - Treasury Bank: Nonghyup, Industrial, Shinhan, Hana, Kookmin Bank
- 2015. 7 Expansion of the NHF (Renamed National Housing Urban Fund)
  - designate exclusive management agency (Korea housing and Urban guarantee corporation or HUG)

Source: NHUF
NHUF Management

Minister of MOLIT (Ministry of Land, Infrastructure, and Transport)

HUG (Housing and Urban Guarantee)

Assistant Entrust Banks

General Entrust Banks

Business owner loan

Loan

Operating Entities

General Management Agent for the Policy

Business

Source: NHUF
Financial Status of NHUF

- National Housing Bond, 64, 43%
- Housing Subscription Savings, 60, 40%
- Accrued Interest, 8.3, 6%
- General Accounts Deposits, 7.2, 5%
- Retained Earings, 5.9, 4%
- Deposits from Other Funds, 1.9, 1%
- Government, 0.3, 0%
- Lottery Sales Fund, 1, 1%
- Public Capital Management Fund, 0.2, 0%

Source: NHUF
Operations of NHUF

Business loan
- Loan for rental housing construction
- Loan of for-sale housing construction

Consumer loan
- Purchase loan
- Jeonse loan

Source) NHUF
Korea Housing Finance Corporation

Government Controlled Entity

KHFC is 100% owned by the Korean Government

History

Established with the merger and integration of two Government entities to implement the Government’s housing finance policy.

Corporate Governance

The president is appointed by the President of Korea

Support of the housing sector

Helped 800 thousands families with the purchase of their homes. (As of Aug.2015)

Government ownership structure

- Korean Government: 100%
- Bank of Korea: 38.4%
- Ministry of Strategy and Finance: 55.3%
- National Housing Fund: 6.3%

Source: KHFC
## KHFC Business Lines

### Long-term Fixed Rate Amortized Mortgage
- Supply long-term, fixed rate, amortized mortgage loans known as Bogeumjari Loans and Conforming Loan

### Issuance of MBS and Covered Bond
- Issue domestic MBS and cross-border Covered Bond market

### Improve the Nation’s Housing Welfare and Advance the Housing Finance Industry

### Reverse Mortgage Guarantee
- Grant pension to senior citizens by Reverse Mortgage

### Guarantees for Housing Finance
- Issue letters of guarantees to eligible rentees and home builders

Source: KHFC
Secondary Mortgage Market
Three Types of Mortgage Backed Products

• MBS (Mortgage Backed Securities)
  – By the KHFC law, KHFC can issue MBS
  – Issue MBS by the securitization commitment program
  – KRW 300-600 B by issuance

• MBB (Mortgage Backed Bond)
  – The Covered Bond Act is to be enacted
  – Financial institutions hold mortgage debt in their balance sheet

• ABS (Asset Backed Securities) including Cross-boarder MBS
  – Financial institutions
MBS Issuance by Year

Unit: KRW Trillions

Note: MBB is included
Data: KHFC
MBS Issuance by Maturity

Note:
1) Mortgage-MBS Swap (Total KRW 6.6 trillion) & Cross-border CB (KRW 0.6 trillion) not included
2) Purchase from insurance account of banks classified as insurance companies
3) June 2004 ~ Aug. 2010
Data: KHFC
MBS Placements

- Insurance (43.24%)
- Pension Fund (13.03%)
- Investment (7.41%)
- Securities (9.31%)
- Banks (59.45%)

Note:
1) Mortgage-MBS Swap (Total KRW 6.6 trillion) & Cross-border CB (KRW 0.6 trillion) not included
2) Purchase from insurance account of banks classified as insurance companies
3) June 2004 ~ Aug. 2010

Data: KHFC
MBS Structure

Issuance Amount
- KRW 500 billion ~ 1 trillion (per issuance)

Issuance Structure
- Multiple tranches with each tranche having a different tenor
- Sequentially Partially Callable tranches (except 1~3 years maturities)

Servicer
- Participating Lenders (or KHFC in case of u-Bogeumjari Loans)

Source: KHFC
# MBS Issuance Information

<table>
<thead>
<tr>
<th><strong>Underlying Assets</strong></th>
<th>KHFC Mortgage Loans &amp; Conforming Loans</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Issuance Amount</strong></td>
<td>KRW 400~600 billion (per issuance)</td>
</tr>
<tr>
<td><strong>Issuer</strong></td>
<td>Trust (Trustee: KHFC)</td>
</tr>
<tr>
<td><strong>Issuance Structure</strong></td>
<td>Multiple tranches with each tranche having a different tenor</td>
</tr>
<tr>
<td></td>
<td>1, 2, 3yr tranches are not callable</td>
</tr>
<tr>
<td></td>
<td>Sequentially Partially Callable tranches</td>
</tr>
<tr>
<td><strong>MBS Coupon &amp; Issuance procedure</strong></td>
<td>Fixed-rate Coupon</td>
</tr>
<tr>
<td></td>
<td>AAA Credit rating, Deposited in KSD, Listed in KRX</td>
</tr>
<tr>
<td><strong>Servicer</strong></td>
<td>Participating Lenders (or KHFC in case of u-Bogeumjari Loans)</td>
</tr>
</tbody>
</table>

Source: KHFC
MBB Structure

Source: KHFC
Cross Boarder MBS

Implications to Emerging Markets

• Importance of housing markets
  – Housing is an underlying asset: macroeconomic policy and housing policy
  – Housing market indicators and housing finance statistics

• Conflict between public interest and private profits

• Financial stability and housing finance
A Case Study: Reverse Mortgage Program

This chapter was presented in Manila, Philippines in April 2008 as a part of the 2017/18 Knowledge Sharing Program conducted by the Ministry of Strategy and Finance, the Korea Development Institute, and National Home Mortgage Finance Corporations.

The views and opinions expressed in the chapter are those of the author and do not necessarily reflect the official policy or position of the above mentioned agencies.
Research Objective

- Many countries with aging societies are seeking alternative policy tools to cover up a deficiency in traditional welfare systems for senior citizens

- **Asset-based welfare systems**
  - “HECM” (US) in 1989
  - “JTYK” (Korea) in 2007
  - “MaBuHay” (Philippines) in 2016

- **Policy implication to the Philippines**
  - Academic theories and concepts
  - Experience in Korea and other countries such as US and UK
  - Operational characteristics of RM
  - Philippine market environments and experience
  - Policy suggestions
Global Trend of Ageing and Reverse Mortgages

- Portion of people aged 60 years or over will grow by 56% between 2015 and 2030 according to the United Nations
  - Imminent issue on promote financial security for senior citizens
  - At the same time, public debt could rise sharply

- Three options to unlock home equity
  - Downsizing the house (but preference for aging in place)
  - Renting the house (but not preferred)
  - Cash-out financing (traditional forward mortgage but repayment burdens remain)
  - Reverse mortgages

- An option for ageing societies: reverse mortgages
  - Traditional asset-based welfare: homeownership promotion
  - In ageing societies, tapping housing equity can be a solution for both senior citizens and their government
Asset Composition for Retired Households

Composition of household wealth (%), Korea
(Married couple at retirement age)

- Other real estate, 35.2%
- Housing, residence, 45.5%
- Other asset, 1.2%
- Annuitized pension, 7.7%
- Financial asset, 10.3%

Composition of household wealth (%), U.S.A
(Married couple at retirement age)

- Other asset, 17.8%
- Housing & other RE, 24.7%
- Other asset, 1.2%
- Annuity pension, 44.9%
- Financial asset, 12.6%

Relative Poverty Rate in Korea (OECD:2013)

주: 1) 상대적 빈곤율은 국가 전체 중위소득의 절반에 미치지 못하는 소득을 가진 인구의 비중임.
2) 상대적 빈곤율은 가계의 자산과 부채를 고려하지 않고, 중위소득에 대한 자료를 통해서 추정됨.


You (2017), Social Trend
Parents who Live with Their Children

Per cent of parents who live with their children

You (2017), Social Trend
Sources of Living Expenses

From their children  
By themselves

You (2017), Social Trend
Reverse Mortgage vs Forward (Conventional) Mortgage

- Housing equity that elderly citizens have accumulated over their lifecycle can be liquidated into (periodic) payments
  - Elderly homeowners can live in their home, sweet home until they pass away, move away, or sell the house
JTYK History in Korea

- **Private RM products developed in the mid-1990s**
  - Conservative marketing and extremely low demand

- **‘The Way to Activate Reverse Mortgage’ in 2006 by MoSF**
  - Public RM products
  - Guarantee program
    - Risks (interest rate, house price, and longevity) associated with RM: managed by the public entity

- **Public guaranteed RM program in 2007 by KHFC**
  - JTYK can be literally translated into Housing Pension
  - KHFC is operating the program and also manages the JTYK Guarantee Fund
JTYK Characteristics

- **Property requirement**
  - House, condominium, and nursing home
  - Any existing mortgages on the house must be paid off
  - The value of house is less than KRW 900 M (about US $850 K)

- **Loan limit:** KRW 500 M (About US $470 K)

- **Borrower’s obligations**
  - Principal residence
  - Maintenance and taxes
JTYK Endorsements

Source: Korea Housing Finance Corp

<table>
<thead>
<tr>
<th>Year</th>
<th>Endorsements</th>
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<tbody>
<tr>
<td>2007</td>
<td>515</td>
</tr>
<tr>
<td>2008</td>
<td>695</td>
</tr>
<tr>
<td>2009</td>
<td>1,124</td>
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<tr>
<td>2010</td>
<td>2,016</td>
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<tr>
<td>2011</td>
<td>2,936</td>
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<tr>
<td>2012</td>
<td>5,013</td>
</tr>
<tr>
<td>2013</td>
<td>5,296</td>
</tr>
<tr>
<td>2014</td>
<td>5,039</td>
</tr>
<tr>
<td>2015</td>
<td>6,486</td>
</tr>
<tr>
<td>2016</td>
<td>10,309</td>
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</table>
Philippine Market Environments

Labor Participation in the Philippines

### Population Structure Changes in the Philippines

<table>
<thead>
<tr>
<th>Particulars</th>
<th>ACTUAL</th>
<th>PROJECTION</th>
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<tr>
<td></td>
<td>2010</td>
<td>2015</td>
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<tr>
<td>Senior Citizens (60 &amp; above)</td>
<td>No.</td>
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<td>6,367</td>
<td>7,843</td>
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<tr>
<td>Growth Rate (%)</td>
<td>-</td>
<td>18.82%</td>
</tr>
<tr>
<td>Senior Citizens (65 &amp; above)</td>
<td>No.</td>
<td></td>
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<tr>
<td></td>
<td>4,060</td>
<td>5,000</td>
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<tr>
<td>Growth Rate (%)</td>
<td>-</td>
<td>19.80%</td>
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<tr>
<td>Total Population</td>
<td>No.</td>
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<td></td>
<td>94,013</td>
<td>102,965</td>
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<tr>
<td>Growth Rate (%)</td>
<td>-</td>
<td>9.52%</td>
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</table>

| % of SC (60 & above) in Total Population | 6.77% | 7.62% | 8.71% | 9.92% | 11.18% | 12.39% | 13.84% |
| % of SC (65 & above) in Total Population | 4.32% | 4.86% | 5.58% | 6.51% | 7.52%  | 8.58%  | 9.59%  |

MaBuHay program

- Market survey for 356 senior citizens
  - Homeownership rate (78.3%)
  - Cash poor (60.3%)
  - Interests in the program (45%)

- The MaBuHay program approved in November 2016
  - “To help the senior citizens/retirement with limited income to use their properties as a source of additional income”
  - “The NHMFC board of directors approved the program as a rehabilitation program for housing loan accounts of elderly (mortgage) borrowers”

- Basic structure and operations
  - 60 years and older
  - “Additional income” to cover daily living expense
  - Borrowers need to pay the existing debt off “completely”
  - Right to stay in the house
  - Counselling
Source: NHMFC
HECMs in the US

- **Home Equity Conversion Mortgage**
  - First introduced as a pilot program in 1989 to fix the flaws that private RMs had under unstable market conditions
  - Life time residence and non-recourse features
  - Became permanent in 1998 by the HUD Appropriations Act

- **100% guaranteed by Housing and Urban Development (HUD)**
  - FHA(Federal Housing Agency) takes all the risks instead of lenders.
  - RM borrowers can stay in the house until the house is sold or the borrower moves out or passes away

- **Property requirement**
  - Single family or 2-4 unit home, HUD approved condo, and manufactured home
  - Any existing mortgages on the house must be paid off

- **Loan limit: $625,000**

- **Borrower’s obligations**
  - Principal residence
  - Maintenance and taxes
HECM Endorsements

Source: NRMLA and Federal Reserve Bank of St, Louis Homepages
Policy Recommendation: General Characteristics

- **Alternative policy tool for ageing societies**
  - A reverse mortgage program can be complement to insufficient pension system
  - It helps senior citizens to smooth their consumption (Venti and Wise, 2002)
  - Asian countries have LARGE potential markets (Merton and Lai, 2016)

- **Most reverse mortgage programs have age requirements**
  - 62 years of age and more (HECM), 60 years of age and more (JTYK and Mabuhay)
    - 55 or 60 in UK and other private programs
  - Reverse mortgages are for house rich, but cash poor elderly homeowners (Mayer and Simons, 1999; Davidoff and Welke, 2004; Tsay, et al., 2014; You, 2017)
Reverse mortgage programs help seniors to overcome urgent financial needs

- Medical expenses (Caplin, 2002)
- No FICO score and no income (Bhuyan, 2011)
- Financial troubles and health issues (Nakajima and Telyukova, 2017)

Policy Issues involved with RM

- Senior homeowners could pay no payments during the loan term
- Non-recourse loans are preferred
- Social welfare program: special tax treatment
- Risk management and consumer protection are critical issues
Other suggestions

- **Long-term views**
  - Experience in other countries

- **Risk management**
  - Housing finance market information and infrastructure
    - House price indices

- **Legal and regulatory frameworks**
  - From lending model to guarantee model (or modified lending model)
My Recent Research

This chapter was presented at the International Forum for Financial Consumer in Shanghai, China in 2017.
Reverse Mortgages (RM)

- RM are for elderly homeowners
  - 62 years or older (in US) and 60 years or older (in Korea)
  - Allowing to convert their home equity into cash
  - Aging in place

- Cash poor but house rich
  - US, Korea, Hong Kong, Singapore, Japan, UK, ...
Research Question and Contribution

- Are RMs financial products for the house-rich and cash-poor?
  - Little empirical evidence
  - But, too much discussion and a series of policies in many countries
    - What if RMs are for house rich and cash rich?
    - Bequest incentive (Mayer and Smith, 1995)

- Empirical evidence with a household-level data set
  - Korean RMs (aka housing pensions) : non-US evidence
  - Labour income vs. non labour income
Literature Review

• Trend of previous research (Tsay et al., 2014)
  – Pricing mechanisms
  – Introduction of RM systems

  – 1867 middle-aged adult and 663 of them are owners
  – Willingness to consider apply for reverse mortgage (5-point scale)
    • 11 percent of definitely would or probability would
    • 32.6 percent are neutral
  – Childless (+), amount of financial assets (+)
    • Self-evaluated financial strains: insignificant
Literature Review

• Frantantoni (1999: JHR)
  – Reverse mortgage product choice, payment duration choice
    • tenure, fixed-term, line of credit, combinations
  – Business and marketing purpose

• This study: choice b/w RM borrowers and non borrowers
US Markets

• Shan (2011, REE) : Reverting the Trend
  – The size of the US market is smaller than expected
    • Demand side: bequest, medical expense, interaction with welfare program, complex financial product
    • Supply side: document requirements, regulations, difficult to securitize and finance
    • Missing age, gender, marital status, income or demographic characteristics
  – RM take-out when the local housing market at its peak
    • Borrowers’ behaviors vary across time
    • 2000-2005 housing boom is partially responsible for the rapid growth (one year house appreciation rate)
    • Income-poor but housing-rich areas
• Haurin et al. (2014, JRFE): Local Variation in Reverse Mortgage Usage
  – State-level variation
  – Lock-in their equity gain by obtaining reverse mortgages
    • Seniors rationally anticipate future reductions in house prices
    • House price volatility are critical and their prices are higher than an average: insurance motive
• **No research with a micro-level data**

• Nakajima and Telyukova (2017:JoF)
  – Household-level decisions
  – Households with low income and low wealth
    • Low wealth represents more outstanding mortgage (hard to measure)
  – Low bequest motives and poor health
    • Singles
    • More medical expenditure
  – Expectation on future house prices
Data

• 2012 KHFC HP Survey
  – 600 HP borrowers and 2,000 non-borrowers
    • The non-borrowers are locally distributed according to the 2010 Census
  – More than 60 years or older
    • Eligible borrowers
    • Face-to-face interviews (rationality)
## Key Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent variables</strong></td>
<td></td>
</tr>
<tr>
<td>rev</td>
<td>1 if the household subscribed to a housing pension, 0 otherwise</td>
</tr>
<tr>
<td><strong>Wealth</strong></td>
<td></td>
</tr>
<tr>
<td>Ltw</td>
<td>Log(total wealth + 1)</td>
</tr>
<tr>
<td>Lnonhouse</td>
<td>Log(nonhousing wealth + 1)</td>
</tr>
<tr>
<td>Lhouse</td>
<td>Log(housing wealth + 1)</td>
</tr>
<tr>
<td><strong>Income per a year</strong></td>
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</tr>
<tr>
<td>Linc</td>
<td>Log(income + 1)</td>
</tr>
<tr>
<td>Llabinc</td>
<td>Log(labor income + 1)</td>
</tr>
<tr>
<td>Lnonlaborinc</td>
<td>Log(nonlabor income + 1)</td>
</tr>
<tr>
<td>Lincpen</td>
<td>Log(pension income + 1)</td>
</tr>
<tr>
<td>Lincfinre</td>
<td>Log(income from financial assets or real assets + 1)</td>
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</tbody>
</table>
## Other Covariates

<table>
<thead>
<tr>
<th>Household head’s characteristics</th>
<th>Variables</th>
<th>Definition</th>
</tr>
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<tbody>
<tr>
<td>Age</td>
<td>Age</td>
<td>Household head’s age</td>
</tr>
<tr>
<td>Dage</td>
<td>Age*age</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>1 if the household head is female, 0 otherwise</td>
<td></td>
</tr>
<tr>
<td>Col</td>
<td>1 if the household head holds a college degree, 0 otherwise</td>
<td></td>
</tr>
<tr>
<td>Ret</td>
<td>1 if the household head is retired, 0 otherwise</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Household’s characteristics</th>
<th>Dep</th>
<th>No of dependents (including the spouse)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lmed</td>
<td>Log(yearly medical expense +1)</td>
<td></td>
</tr>
<tr>
<td>Ldebt</td>
<td>Log(yearly debt payment +1)</td>
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Conclusion

- HP is for house rich and cash poor
  - A micro data set
    - Heterogeneous wealth and income
    - Other variables such as education, medical expense..
  - Policy implications
    - Asset-based welfare
    - Marketing strategies
  - Limitation
    - No price dynamics and robustness check(controlled for a province dummy)
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