Discussion of Michelangeli
“Does it Pay to Get a Reverse Mortgage?”

Matteo Iacoviello
Boston College

GLMW, September 19, 2008
Disclaimer

The views expressed in this discussion do not necessarily reflect the views of the speaker (Georg).
Many thanks to Georg for sitting with me through a couple of rehearsals and for his comments and suggestions on this discussion!
Outline

- What does the paper do?
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- Comments on the Model
What the Paper is About

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- There is no reverse mortgage in the model, but the framework is rich enough to ask what the benefit would be of allowing people to cash in their housing wealth without selling their house.
- Valentina did a great job in presenting her model (I hope!), so I will not say anymore about the model and will go directly to my main points.
What is a Reverse Mortgage?

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- People know what they are (86 percent of 62+ years old know what it is).
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- People do not use them much, although things are changing
Little use so far

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- 0.5 percent of seniors took a reverse mortgage in 2007
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  2. **Italy**: "Usufrutto" (12% of seniors)
  3. **Germany** has 40% homeownership (it is 70% in U.S.): probably the best way to make housing wealth liquid is not to have any, after all.
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- Here, $h$ and $a$ are two different objects: cannot liquidate your housing wealth!
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- Suppose instead housing $h$ and liquid wealth $a$ are fungible
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u^{LIQ} = u(a + h) = \log \left(\frac{a + h}{3}\right) + \log \left(\frac{a + h}{3}\right) + \log \left(\frac{a + h}{3\delta}\right)
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Comparing utilities

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- \( u(a, h) = u^{LL} = \log(a/2) + \log(a/2) + \log(h) \)

- \( u(a + h) = u^{LQ} = \log((a + h)/3) + \log((a + h)/3) + \log((a + h)/(3\delta)) \)

Let \( h \) be the initial housing share of wealth. The utility gain from a reverse mortgage (i.e. transforming illiquid asset into a liquid one) is \( \text{gain} = u^{LQ} - u^{LL} \). This depends on the housing share in wealth (see plot).
Comparing utilities

- \[ u(a, h) = u^{ILL} = \log\left(\frac{a}{2}\right) + \log\left(\frac{a}{2}\right) + \log(h) \]

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  \[ \text{gain}(\phi) = - (2 \ln (1 - \phi) + \ln \phi + \text{constant}) \]

- Depends on housing share in wealth (see plot)
Utility gains are large for those with little or a lot of housing at $t_0$. Little housing, can use part of your savings to increase it. Lots of housing, can cash it in.

---

Utility gain from Reverse Mortgage

```
y
```

```
0 2 4 6
x
```

```
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9
```

Initial Housing share in Wealth
• Utility gains are large for those with little or a lot of housing at $t_0$
Little housing, can use part of your savings to increase it..
Lots of housing, can cash it in

When housing is liquid, can achieve higher utility because can use part of housing for consumption tomorrow and because can adjust $h$ to target optimal level of housing today $h_1$
Here in the paper utility gains are calculated as $\Delta a$ s.t:

\[ u^{LL} (a + \Delta a, h) = u^{LQ} (a + h) \]

Of course, need a structural model to calculate the $\Delta a$ : this is exactly what the paper does! Very interesting!
Also, model is much richer than my toy above.

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1. Risk is carefully modelled and there are costs for making housing liquid (makes gains from reverse mortgage smaller for low housing wealth)

2. Moves are exogenous and add an interesting twist to the story. The higher the probability of a move, the less likely you are to access a reverse mortgage.
General Comments

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  - a calibration approach to a richer model.
  - even better: an estimation approach to a richer model (richer in the sense that it models housing and saving and retirement like its competitors). Only then I could judge how successful the technicalities in the paper are.
Comments on Estimation 1: Data

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- From other data, we also know that elderly let housing depreciate relatively more, so they have ways to make illiquid housing liquid.
Comments on Estimation 2: Choice of Parameters

- Choice of parameters to estimate seems a bit arbitrary

<table>
<thead>
<tr>
<th>parameter</th>
<th>estimate</th>
<th>calibrate</th>
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<tbody>
<tr>
<td>$\beta$</td>
<td></td>
<td>0.96</td>
</tr>
<tr>
<td>$\psi^{own}$ (maintenance)</td>
<td></td>
<td>1.5%</td>
</tr>
<tr>
<td>$\psi^{rent}$</td>
<td></td>
<td>6%</td>
</tr>
<tr>
<td>$\theta_B$</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>$\phi^{own}$ (trans. cost)</td>
<td></td>
<td>6%</td>
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<tr>
<td>$\gamma$</td>
<td>3.87</td>
<td></td>
</tr>
<tr>
<td>$\omega$</td>
<td>0.85</td>
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<tr>
<td>$\sigma$ (measurem.error)</td>
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Comments on Model 1: Owning vs Renting

- Model validation: does the estimated model capture homeownership rates by age?

Home ownership among 70-74 years old

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A puzzle in the data is why homeownership is so high in old age. This already tells us that—probably—portfolios of the elderly are imbalanced. In a frictionless world, people should rent unless there are strong bequest motives. The model should explain simultaneously why people do not want to rent nor access liquid mortgages at the same time.
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Comments on Model 2: Need richer Model of Housing and Retirement

- **Health risk and uncertain lifetimes** are main concern for retirees. The risk of living long and facing high medical expenses goes a long way toward explaining the elderly’s savings decisions (Denardi, French and Jones, 2007)
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- **Health risk and uncertain lifetimes** are main concern for retirees. The risk of living long and facing high medical expenses goes a long way toward explaining the elderly’s savings decisions (Denardi, French and Jones, 2007).

- Can moves be treated exogenous to everything else in the model? Think about household size (and possibly formation). **Moves in practice are often driven by shocks to household size (probably age-dependent), not just an extreme value Type I housing preference/moving shock...**
Conclusions

- Computational advantage should be better explained. It is possible to solve a partial equilibrium model life-cycle model of this complexity (3 values for housing, choice of owning vs renting, and a continuous choice for assets) using fortran in less than 2 seconds using standard, existing methods (source: my calculations based on a model of housing in life-cycle economy of similar complexity).
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- Housing people are likely to find the model too simple to be realistic, but Valentina has the tools to make the model richer.