BRINGING DIGITALIZATION
HOME SYMPOSIUM

Comments: How Is Digitalization Changing the Ways that People Find and Finance Housing?

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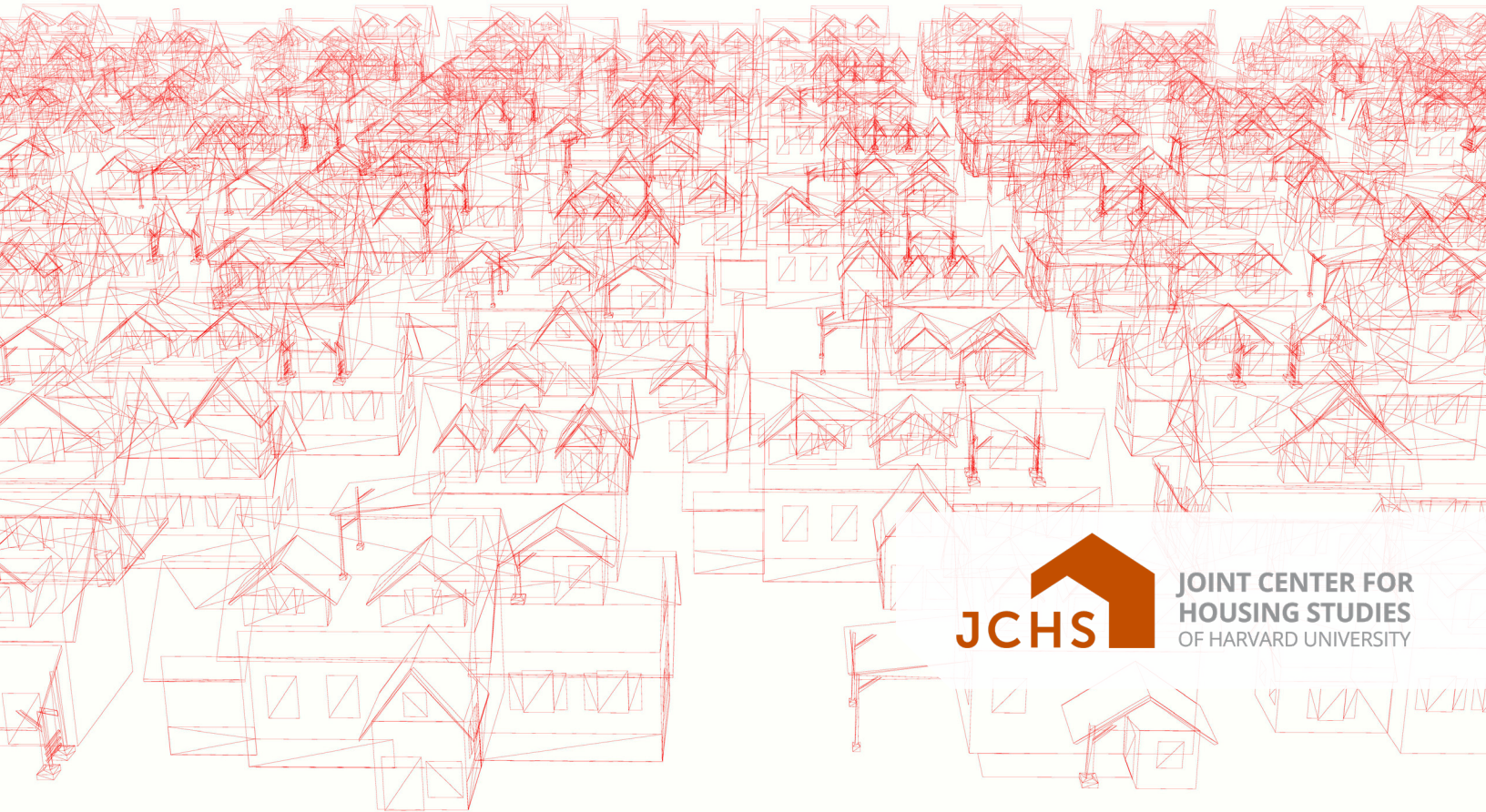

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Comments: How Is Digitalization Changing the Ways that People Find and Finance Housing?

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This paper was presented as part of "Panel 3: How Is Digitalization Transforming How People Find & Finance Housing?" at the symposium "Bringing Digitalization Home: How Can Technology Address Housing Challenges?", hosted by the Harvard Joint Center for Housing Studies in March 2022 and funded by Qualcomm. Participants examined the changes that digitalization—the use of automated digital technologies to collect, process, analyze, distribute, use, and sell information—is spurring in the way housing is produced, marketed, sold, financed, managed, and lived in.

Introduction

It is my pleasure to comment on two very interesting papers. While very different in orientation—with the Boeing, Harten and Sanchez-Moyano (2022) paper addressing the search process and the Perry and Martin (2022) paper addressing mortgage access issues—both papers come to the same basic conclusion. They agree that digitalization has the potential to reduce costs and democratize the process, but that potential has not been achieved. Both papers are particularly critical of marketing algorithms.

In this note, I want to provide my observations on the papers, and then discuss the public policy implications of the rapid advances in digitalization.

Observations

Digitalization is here to stay, and whining about it does no good. We need to figure out a public policy framework that captures our societal goals, while partially mitigating the undesirable consequences. Digitalization won't create equity, and in some cases may widen the gap. For example, digitalization done poorly could make us choose between a higher homeownership rate and a wider racial homeownership gap, or a lower homeownership rate and a narrower racial homeownership gap.

My biggest concern is that digitalization gives us access to much more information in usable form, allowing for skimming of the most profitable consumers. This skimming would destroy the "pooled equilibrium" generated in a world in which there is less available information. But digitalization makes the system more efficient by deploying better technology and data. Again, the question is, how to set parameters that allow society to enjoy the benefits of digitalization, but minimize the undesirable consequences? Do we want to wall off some of the information? That has certainly been done in other spheres. One example: insurers cannot use race or religion in setting premiums. We need to create standards on what data may be applied to marketing, screening and other activities that could be viewed as discriminatory. Enforcement of fair housing laws is a must, as it will provide a set of checks and balances.

Both papers mention that people have unequal access to the internet, with those with lower wealth having less access. This is not a housing issue; it affects every facet of life. The goal should be to increase access for those that don't have access, not to restrict those that do. Expansion of broadband should be a policy goal; it was part of the bipartisan infrastructure bill passed last year. Meanwhile, we need to re-evaluate whether some of our democratizing institutions such as post offices and libraries, which have outlived much of their initial mission, can play a role. Libraries played a crucial role in the

Emergency Rental Assistance distribution, as they helped low-income renters upload the information to support their Emergency Rental Assistance applications. Many of these families did not own a computer; some of those that did own a computer did not know how to upload information. Could libraries and post offices be re-equipped to provide access for the underserved?

The growth of digitalization will be very uneven. It may be slow to come to the mortgage market due to the fragmentation of the mortgage process. That is, the entity that makes the loan is not the same entity which holds the credit risk. Given the role played by Fannie Mae and Freddie Mac, the government-sponsored enterprises or GSEs, the originators are not rewarded for innovation. Innovation may well be faster in areas where the innovator is able to reap the rewards.

Some measure will prove necessary to evaluate the benefits versus costs of new forms of digitalization. I like the Perry and Martin SCALE approach—societal values, contextual integrity, accuracy, legality and expanded opportunity. It should be noted that some of the items on the list may conflict. For example, accuracy in AVMs, automated valuation models, can conflict with societal values and expanded opportunity. If the purpose of an AVM is to measure where homes trade, it is important to recognize that the same home in a black neighborhood will often sell for less than a similar home in a white neighborhood. The root cause may well be historical discrimination priced into market value, but should AVMs address this? Can they do so effectively? An AVM that ignores market values in the name of reversing historical discrimination would not be useful as a guide for to how to lend—though there may be some scope for making equality of home treatment a secondary goal when deciding between models that fit equally well. In short, there needs to be a weighting of criteria.

I would add one more item to the Perry/Martin list: transparency, provided in a way that is interpretable to the general public.

Thoughts on Implications for Public Policy

Public policy will inevitably need to establish a set of rules that govern digitalization. At the minimum, the rules must be written to rigorously test for and enforce fair housing and anti-discrimination laws. Best practices for public policy will inevitably require that some "known" data will not be able to be used in marketing or pricing. Public policy should require some additional amount of transparency. Not only is it necessary to test for algorithmic bias, but there should be some public release of the data showing the effect of the testing on protected classes. We look at each of these items in turn.

Before adopting a digital approach, public policy should consider the use of the information—would it be net positive or negative? Prohibited information may have different consequences when

used in different spheres. Consider the role of utility payments in expanding access to credit. Utility payments may be a negative for lower-income renters: since the utility company is very slow to cut off electricity or heat, the utility bill is the first one a financially strapped tenant will not pay. However, utility payments may be positive for middle-income renters and homebuyers, who usually have strong performance on these trade lines. Should utility payments be allowed in the context of credit scoring for homeownership, but not in the context of renting?

More transparency is necessary. No one releases their models: they are regarded as trade secrets. However, there should be some required public release of information on the effect of the algorithms on protected classes, and this information should be provided in a way that is interpretable to the general public. Those that score the worst would have an incentive to improve. There is plenty of precedent for requiring market actors to produce more information. Two examples of this: FHA's Neighborhood Watch and the US Treasury's 2014-2015 private label securities exercise.

FHA's Neighborhood Watch discloses early pay defaults and delinquencies by lender, with information furnished by the lender. This enables each institution to see how they are performing relative to their peers. It also allows warehouse lenders to evaluate originators. This information is released on an ongoing basis, and it is publicly available.[1]

In 2014-2015, the US Treasury took measures to reinvigorate the private label securities (PLS) market. The Treasury Department asked the six agencies that rate residential mortgage product (DBRS, Fitch, Kroll, Moody's, Morningstar, and Standard and Poor's) to analyze six hypothetical pools of residential mortgages and show loss expectations and subordination levels for each rating category, AAA through B. The base pool analyzed consisted of loans that collateralized Freddie Mac's recent risk-sharing transaction, STACR 2014-DN3, with additional assumptions to more closely replicate an analogous non-agency execution. The intent of the exercise was to show PLS investors precisely how the rating agencies think about the risk associated with a range of pools, which in turn would allow these investors to better assess their own risk tolerance and investment appetite in the space.[2] This was a one-shot exercise, with the results publicly available.

In both these cases, the federal government mandated the transparency. In the case of digitalization, how would we achieve that transparency? We must look to the federal agencies that could compel private-label participants to provide information. The Consumer Financial Protection

[1] See https://entp.hud.gov/sfnw/public/, accessed 4/7/2022.
[2] See Goodman and Parrott (2015) for a detailed description of this exercise.

Bureau (CFPB) could do so in its consumer protection role. The SEC could ask for this information for any algorithm that is used to evaluate collateral to back a security.

We do need to ask if the output data alone is sufficient to test for bias. A related question: Should firms be required to provide more information on how they have done the testing, including sources on the input data?

Finally, algorithms are an improvement over human judgement, but they could embed biases. Is there a less discriminatory formulation that accomplishes a similar business purpose? In practice, there are usually a number of models that fit almost as well. Could one of the alternative models, which produces less discriminatory outcomes, be selected without a huge loss in accuracy? If we are willing to consider such alternatives, how do we define the maximum give-up in accuracy we would tolerate?

References

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