Teachers Teaching Teachers: The Role of Workplace Peer Effects in Financial Decisions

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Emory

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MIT-Sloan

NYU PhD Class
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Background

How (well) do households make important financial decisions?

- households often appear to commit financial mistakes
- one explanation is the presence of informational frictions
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**Thought Process:** why study mortgage refis?
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- home value represents by far the largest portion of household wealth
- a significant portion of households exhibit suboptimal mortgage refinancing decisions (too fast or too slow)
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- home value represents by far the largest portion of household wealth
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Implications:
- pro-cyclical rates lead to counter-cyclical savings
- financial crisis: HARP
- potential un-even impact of monetary policy
Thought Process: what likely influences refi behavior?

- “Smart” refinancing requires acquiring interest rates/terms & estimating savings
- Individual’s likely learn from peers (I’d probably be pumped if I saved $12k on mortgage payments)
Suboptimal mortgage refinancing

**Thought Process**: what likely influences refi behavior?

- “Smart” refinancing requires acquiring interest rates/terms & estimating savings
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**End Result**: We study the exogenous arrival of otherwise costly information and its effect on household financial decision making

- specifically, the impact of an individual’s employment network on her mortgage refinancing decision
Empirical challenge

To study household financial decisions the data needs to be:
granular, representative, ideally a panel
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Additionally, studying peer effects is challenging for multiple reasons:
1. difficult to identify links between individuals
2. individuals tend to self-select into (observable) peer groups
3. individuals in the same peer group are subject to common shocks
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Thought Process: what are characteristics of a good setting?

1. common employment risk
2. geographically dispersed
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Thought Process: what are characteristics of a good setting?
1. common employment risk
2. geographically dispersed

Candidates: teachers, postal workers, firefighters, police officers
Advantages of the setting

For studying household financial decisions:

1. county deeds are accurate (reporting required by law)
2. county records provide the entire history of transactions for each property
3. Texas teachers represent a large group of households
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For studying peer effects:
1. employment records allow us to identify networks
2. teachers have little to no effect on campus assignment
3. inclusion in the employment records is not voluntary
4. can exploiting variation across (and within) campuses
## Overcoming obstacles

<table>
<thead>
<tr>
<th>TEA Records</th>
<th>County Records</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher ID</td>
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<tr>
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<td>Property ID</td>
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<tr>
<td>Last Name</td>
<td>Transaction Date</td>
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<td>Transaction Type</td>
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<tr>
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<tr>
<td>Education</td>
<td>Lender</td>
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Overcoming obstacles

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Motivation
Overcoming obstacles

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Overcoming obstacles

Motivation

Peer effects

Conclusion

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…
Representative HHs [1/2]

Thought Process: often times face a trade-off between tight-identification and external validity

Texas public school employees

- granular administrative data
- possibly different than the average HH
Representative HHs [1/2]

**Thought Process**: often times face a trade-off between tight-identification and external validity

Texas public school employees
- granular administrative data
- possibly different than the average HH

**First Step**: what does refi look like for our sample vs general population?
Representative HHs [2/2]
Recurring question: peer effects or common shocks?
Confounding effects

Recurring question: peer effects or common shocks?

Employment concerns leading to correlated refinancing decisions
- within-district variation mitigates concerns related to common, unobservable employment shocks
Recurring question: peer effects or common shocks?

Employment concerns leading to correlated refinancing decisions

- within-district variation mitigates concerns related to common, unobservable employment shocks

Potential variation in campus-level loan supply exposure

- example: a new billboard near a campus advertising a lender’s superior mortgage terms
Recurring question: peer effects or common shocks?

Employment concerns leading to correlated refinancing decisions

- within-district variation mitigates concerns related to common, unobservable employment shocks

Potential variation in campus-level loan supply exposure

- example: a new billboard near a campus advertising a lender’s superior mortgage terms

Teachers’ schedules provide a source of within-campus variation
Off-periods classification

Motivation

Peer effects

Conclusion

Off-periods classification

<table>
<thead>
<tr>
<th>Time</th>
<th>Ava</th>
<th>Kim</th>
<th>Bob</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00am</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:00am</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>11:00am</td>
<td>45</td>
<td></td>
<td></td>
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<tr>
<td>12:00pm</td>
<td></td>
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<td>45</td>
</tr>
<tr>
<td>1:00pm</td>
<td></td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>2:00pm</td>
<td></td>
<td></td>
<td>45</td>
</tr>
<tr>
<td>3:00pm</td>
<td></td>
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</table>

Teacher Schedules

Minutes Overlap

Bob: 45 - 15
Kim: 45 - 45
Ava: 45 - 15
Measure of peer group

Off-Periods:
- teachers with common off-period more likely to interact & share information

Identifying Assumption: teachers do not have discretion over off-period assignment
Common characteristics [1/2]

A: Pay

B: Tenure

Area = 0.61%

Area = 8.15%

C: Experience

D: Age

Area = 26.33%

Area = 6.89%
Common characteristics [2/2]

marginal, economically small (dis-)commonality in characteristics important to saturate model with controls for peer characteristics

- let each vary at the district-year level
Common characteristics [2/2]

marginal, economically small (dis-)commonality in characteristics important to saturate model with controls for peer characteristics

- let each vary at the district-year level

**Thought Process:** try to go one step further; teacher’s picking off-periods
Peer effects matter

<table>
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<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
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<tr>
<td>Peer refinances</td>
<td>10.745***</td>
<td>19.070***</td>
<td>14.263***</td>
</tr>
<tr>
<td></td>
<td>(4.85)</td>
<td>(5.95)</td>
<td>(5.10)</td>
</tr>
<tr>
<td>Savings ($, ×10,000)</td>
<td>59.446***</td>
<td>71.256***</td>
<td>64.222***</td>
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<tr>
<td></td>
<td>(6.76)</td>
<td>(5.37)</td>
<td>(6.35)</td>
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<tr>
<td>1(underwater)</td>
<td>-110.999***</td>
<td>-115.694***</td>
<td>-109.782***</td>
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<tr>
<td></td>
<td>(-8.39)</td>
<td>(-7.04)</td>
<td>(-8.21)</td>
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<tr>
<td>Percentage underwater</td>
<td>-75.753</td>
<td>-306.654</td>
<td>-186.824</td>
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<tr>
<td></td>
<td>(-0.52)</td>
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<tr>
<td>Loan age (months)</td>
<td>-4.715***</td>
<td>-5.852***</td>
<td>-5.025***</td>
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<tr>
<td></td>
<td>(-8.79)</td>
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<td>Yes</td>
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<tr>
<td>Peer characteristics</td>
<td>Yes</td>
<td>District × year</td>
<td>Yes</td>
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<tr>
<td>Teacher-peer commonalities</td>
<td>Yes</td>
<td>District × year</td>
<td>Yes</td>
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<tr>
<td>Campus × Month FEs</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Time slot FEs</td>
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<td>No</td>
<td>District × year</td>
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<tr>
<td>N</td>
<td>358,404</td>
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<td>356,495</td>
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<tr>
<td>$R^2$</td>
<td>0.201</td>
<td>0.251</td>
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</table>
Additional results (in the paper)

Previous results are even stronger when:

1. *Peer Refinances* is constructed from previous 2-month period
2. tossing Summer months
3. peers share common ethnicity

Consistent results when instrumenting for peer refi activity using potential savings

Refi teachers are more likely to choose a peer’s lender
Separating information from mimicking

We frame the previous results as information transmission
Separating information from mimicking

We frame the previous results as information transmission

Common observation in peer effects literature is mimicking (social utility)
We frame the previous results as information transmission.

Common observation in peer effects literature is mimicking (social utility).

Refi behavior provides a nice setting to differentiate between the two:
- Information of potential rates/savings isn’t enough to push me to refi (rationally).
- I also need to benefit from the action.
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**Approach:** break out sample into *potential* savings conditional on refi.
Potential benefits

The figure shows the coefficient on peer refinances (bp) across different quartiles of potential savings. The data points indicate that younger, less tenured, and lower paid teachers are more impacted by peer effects.
Potential benefits
Conclusion

Overall:

- one sigma increase in refi activity by peers increases his/her likelihood of refinancing by 20.7%
- stronger effect when potential savings are larger
- peers also affect the choice of lender
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- peers also affect the choice of lender

Results strongly support peer effects being an important determinant of refi behavior

- consistent with informational frictions playing an important role in suboptimal refinancing
Let’s enjoy some wine!