

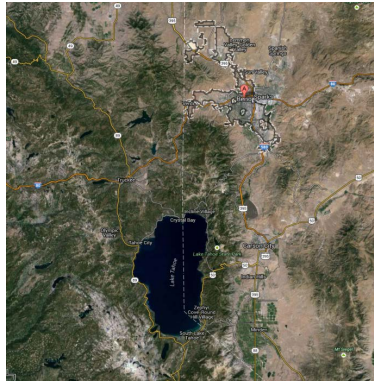
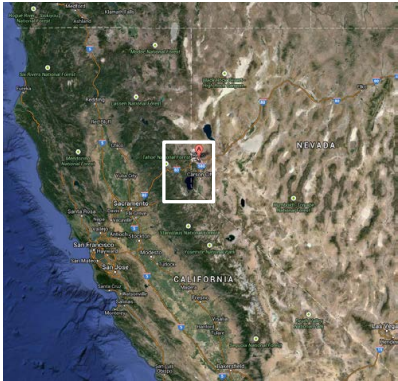
## Length of Residency and Urban Water Use



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Klaus Moeltner  
Shawn Stoddard



*Presented at the 2015 Urban Water Demand Roundtable,  
Arizona State University, Feb. 9-10, 2015*



## Existing evidence

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Reasons?

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Change in **landscaping preferences**, technology (**LOR**)



# Data

- daily metering, 63 consecutive days in summer 2008

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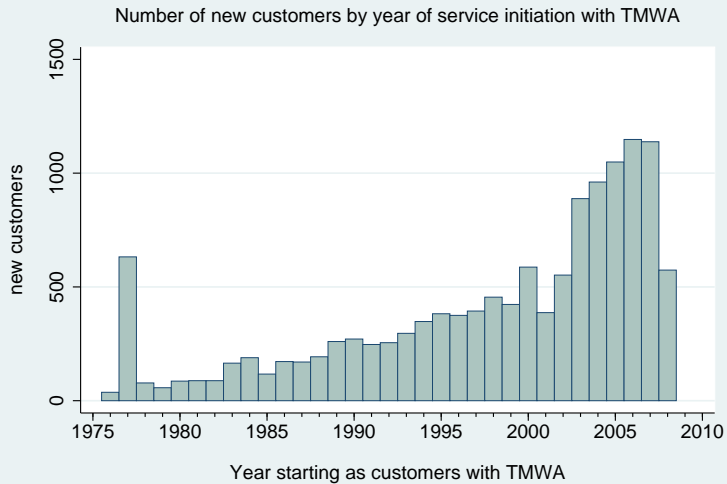
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- 13,062 HHS (with at least 3 full weeks)

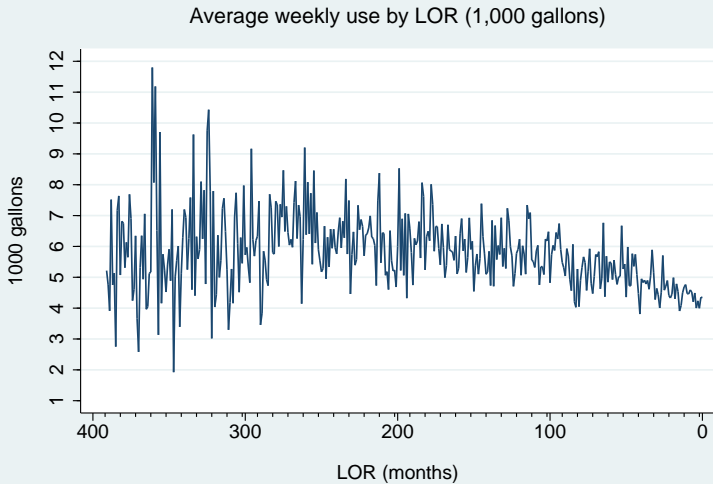
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- 13,062 HHS (with at least 3 full weeks)
- 68,796 HH-weeks

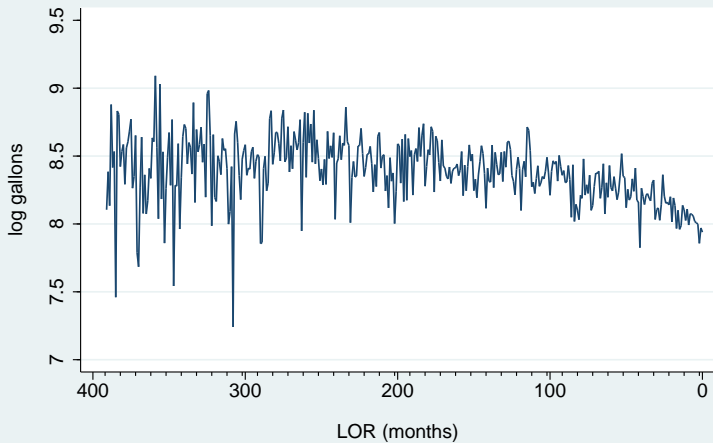
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- daily metering, 63 consecutive days in summer 2008
- 13,062 HHS (with at least 3 full weeks)
- 68,796 HH-weeks
- 325 neighborhoods (subdivisions)





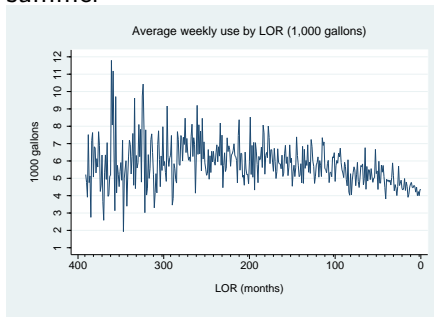
Average weekly use by LOR (log gallons)



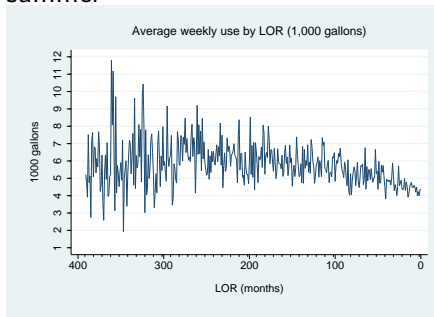




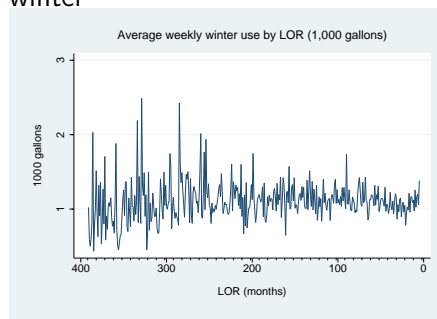
## summer



## summer



## winter

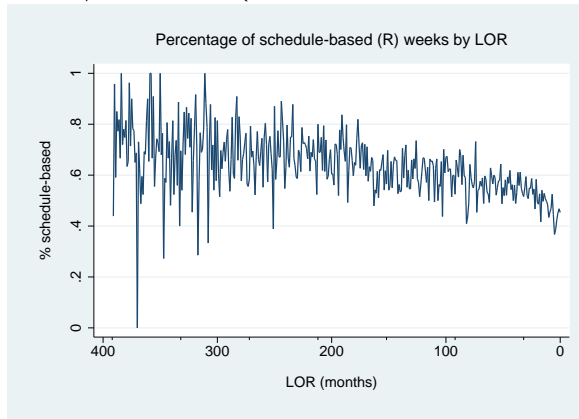


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**R** = 0/1 indicator (1= irrigate on all their assigned days)

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## Neighbors

	Average number of households	std	min	max
Neighborhoods	40	109	1	1,536
Within 50 yards	4	2	1	24
Within 100 yards	13	8	1	58
Within 200 yards	40	23	1	122

# Model Highlights

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- Standard errors clustered at HH level

## Results

	(1)	(2)	(3)
	N (50 yards)	N (100 yards)	N (200 yards)
lnLOR (log months)	0.049*** (0.013)	0.033** (0.014)	0.031** (0.015)
N (1,000 gallons)	0.020** (0.010)	0.009 (0.010)	0.013 (0.013)
R	0.443*** (0.024)	0.440*** (0.023)	0.441*** (0.023)
N-lnLOR	-0.001 (0.002)	0.002 (0.002)	0.002 (0.003)
R-lnLOR	-0.020*** (0.005)	-0.019*** (0.005)	-0.019*** (0.005)

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**R:**

- “rigidity penalty” of 55% for sticking to assigned days
- good news: this decreases over time  
(- 0.2% per month of residency)

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Avg. 2008 weekly use, all HHs (000s)	4.78
Avg. 2008 weekly use, HHs w. LOR $\leq$ 10 yrs	4.26
Avg 2008 weekly use, HHs w. LOR $>$ 10 yrs	5.04
Total 2032 weekly use, ignoring LOR	1,027
Total 2032 weekly use, accounting for LOR	1,061
Difference	3.3%



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- Where did they move from?

forecasting

