Backyarding in South Africa

Jan K. Brueckner, *UC Irvine*

Claus Rabe, *Independent Consultant, Cape Town*

Harris Selod, *The World Bank*

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What is backyarding?

Many papers study housing and land-use patterns in the developing world.

But the economics literature hasn't recognized an important emerging land-use pattern in South Africa: BACKYARDING.

Informal structure is constructed and rented out in backyard of an owner-occupied, government-subsidized house.

Rental payment also covers access to water, electricity and a toilet.

Backyarding is thus a mixture of informal and formal tenure modes.

What is backyarding?

Efficient response to increase in demand

Backyarding allows densification of cities without a wholesale redevelopment of the housing stock.

Represents an efficient response to increase in demand for access to urban livelihoods.

Also suggests overly generous use of land in original construction of government-subsidized housing.

Model of homeowner's backyarding decision

Owner decides how much of backyard to rent out.

Trades off rental income against loss of yard-space consumption.

Higher rent per square foot:

- raises opportunity cost of own-consumption of yard space, tending to reduce it
- raises income, tending to increase own-consumption

Net effect ambiguous but negative under standard preferences.

So higher rent means less own-consumption and more backyarding.

Empirical hypothesis and data

Rent will be higher closer to job centers where backyarders commute.

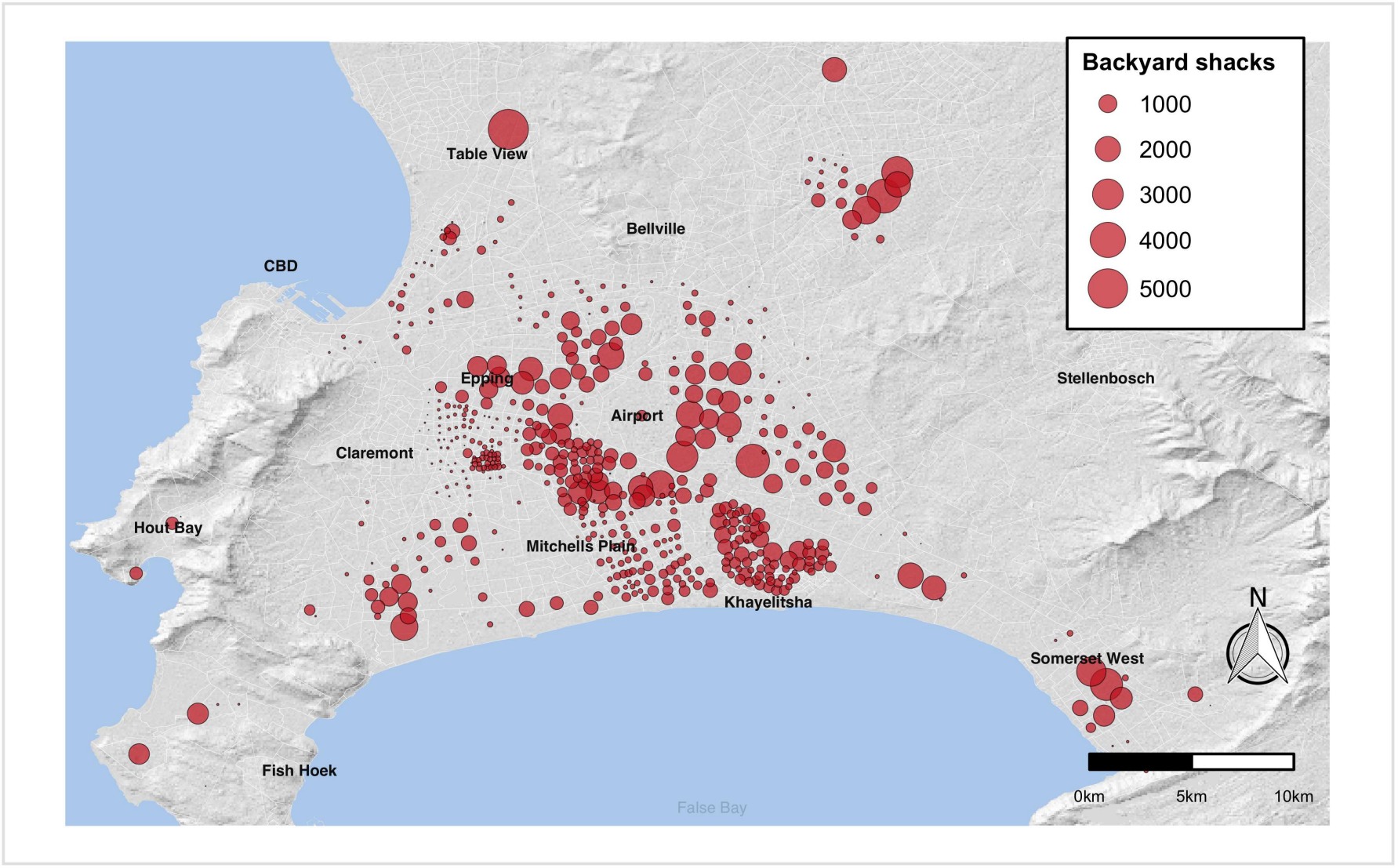
Generates following hypothesis: BETTER JOB ACCESS RAISES BACKYARDING.

Tested for city of Cape Town using:

- satellite data yielding count of backyard structures per parcel
- job data by transportation zone
- trip times between transportation zones

Job and trip data yield number of jobs within 45, 60, or 90 minutes of each parcel.

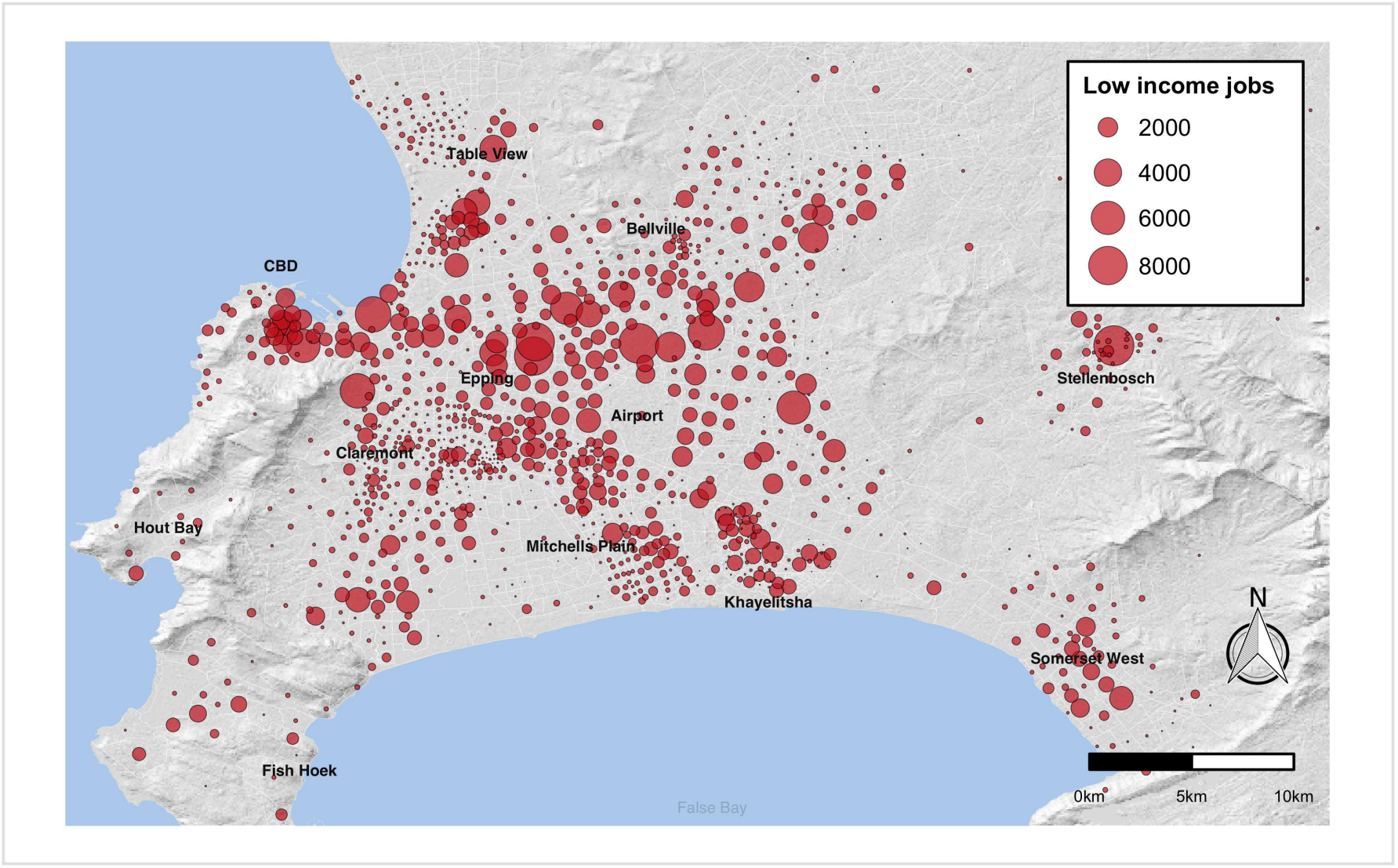
Data


Backyard shacks
1000
2000
3000
4000
5000
Table View
Bellville
CBD
Epping
Airport
Stellenbosch
Claremont
Hout Bay
Mitchells Plain
Khayelitsha
Somerset West
Fish Hoek
False Bay
N
0km
5km
10km

Data


Backyard structure
Property from municipal cadastre
0
75
150 m

Data


Low income jobs
2000
4000
6000
8000
Table View
Bellville
CBD
Epping
Airport
Claremont
Hout Bay
Mitchells Plain
Khayelitsha
Stellenbosch
Somerset West
Fish Hoek
False Bay
N
0km
5km
10km

Findings

Use Poisson regression, appropriate for count data, and four covariates:

- job access measure (different travel time cutoffs tried)
- dummies for two zoning categories where backyarding likely
- parcel area

Larger parcels can accommodate more backyarding but may mean higher owner income and less backyarding.

Results strongly support job-access hypothesis.

Also show more backyarding on smaller parcels.

Findings

Marginal Effects

VARIABLE	*Change*	*% Effect on expected number of backyarders*
parcel_area	50m^2 decrease	10% increase
sr1	increase from 0 to 1	61% increase
sr2	increase from 0 to 1	220% increase
jobs_lowinc_60_taxi	1 std. dev.	11% increase

In absolute terms, the 11% job-access impact translates to an extra backyarder for every 30th parcel.

Conclusion

Paper offers first study in the economics literature of overlooked new LDC land-use pattern that mixes informal and tenure modes.

Results can help predict policy impacts.

For example, transport improvements that raise job access would increase backyarding in affected areas.

Programs that raise labor incomes of homeowners would reduce it.