

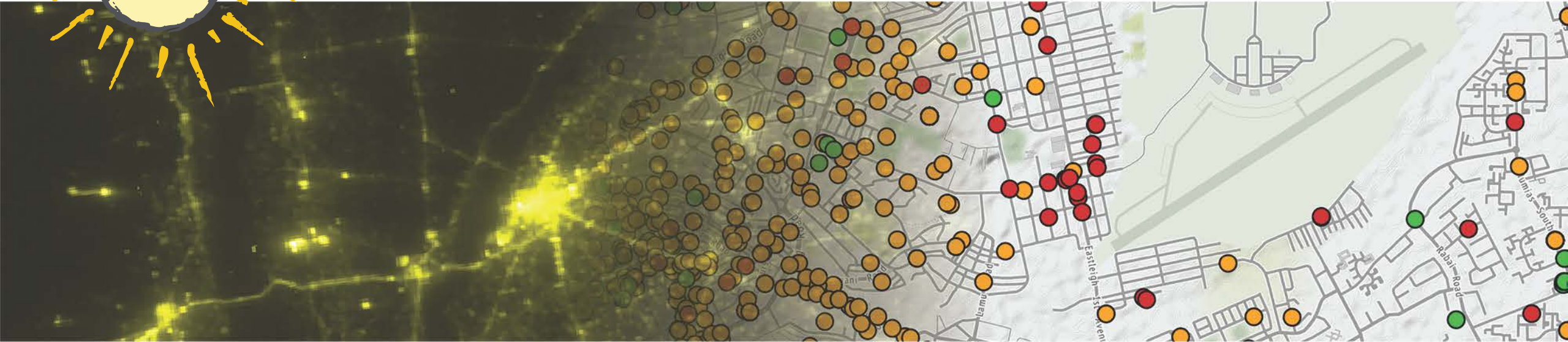


IE CONNECT FOR IMPACT

Transforming the Growth Potential
of Transport Investments

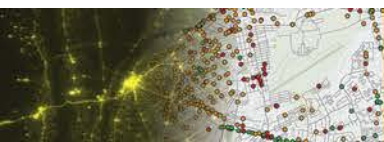
The Impact of Transit on Labor Market Outcomes

Evidence from a Subway Expansion in Santiago



Main ideas

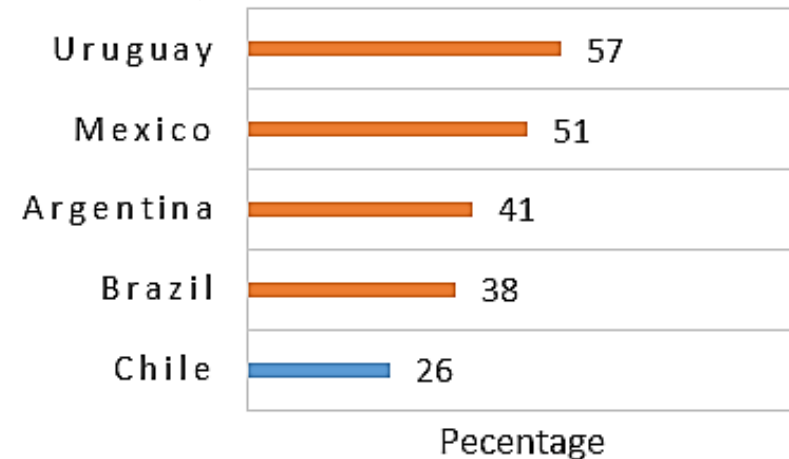
- Urban transport infrastructure has a large positive impact on the labour market
- Use of best data and methods available
=> Most convincing conclusions



1 MOTIVATION

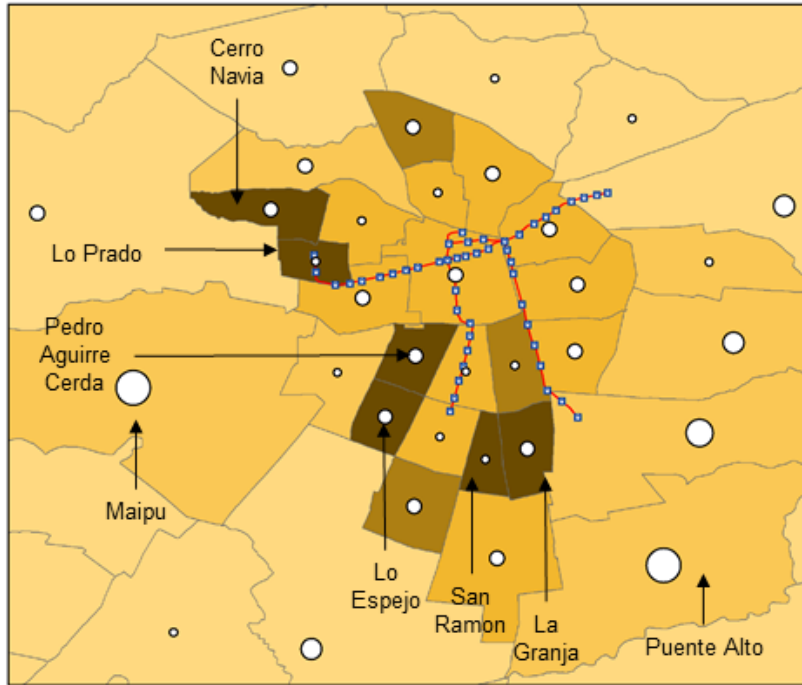
Why is Santiago de Chile an interesting case?

- Low employment rates in early 2000s
 - Working age population (men and women): 49%
 - Female (Chile): 31%
 - Employment rate of poorest tenth (data for 2011)

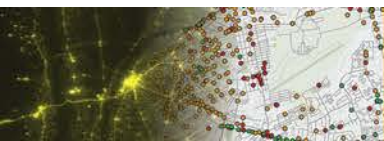
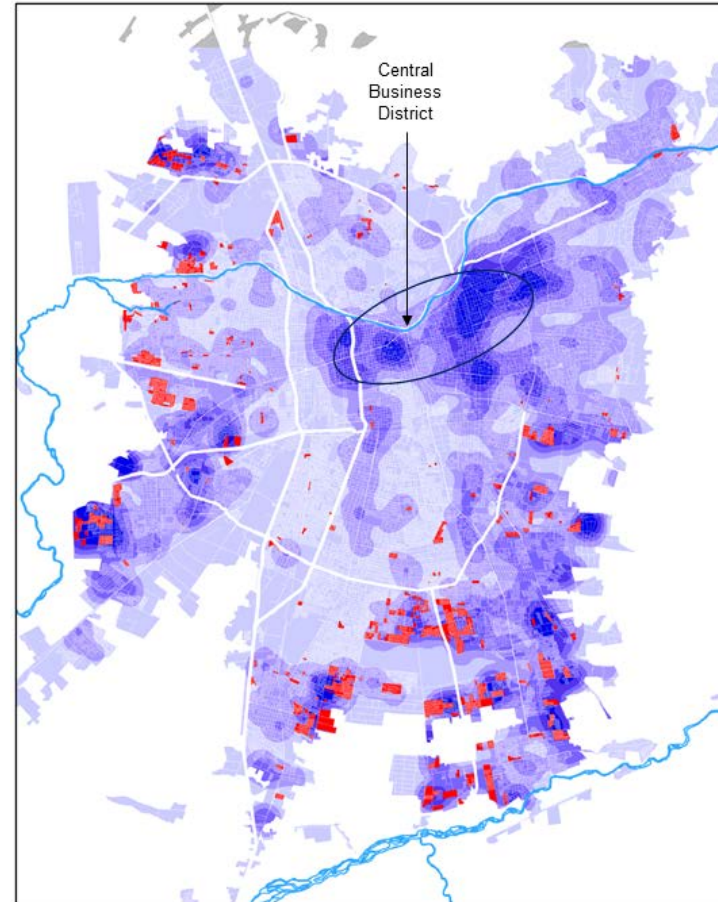
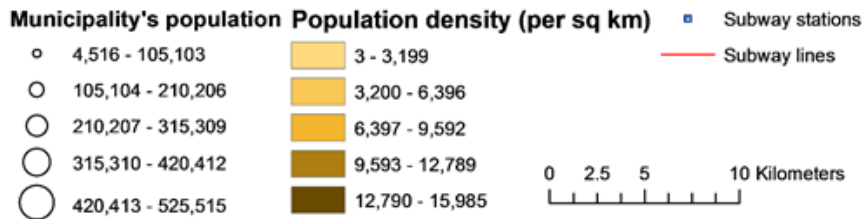


- Increase in proximity to subway network for more than 50% of households in Santiago in 2005

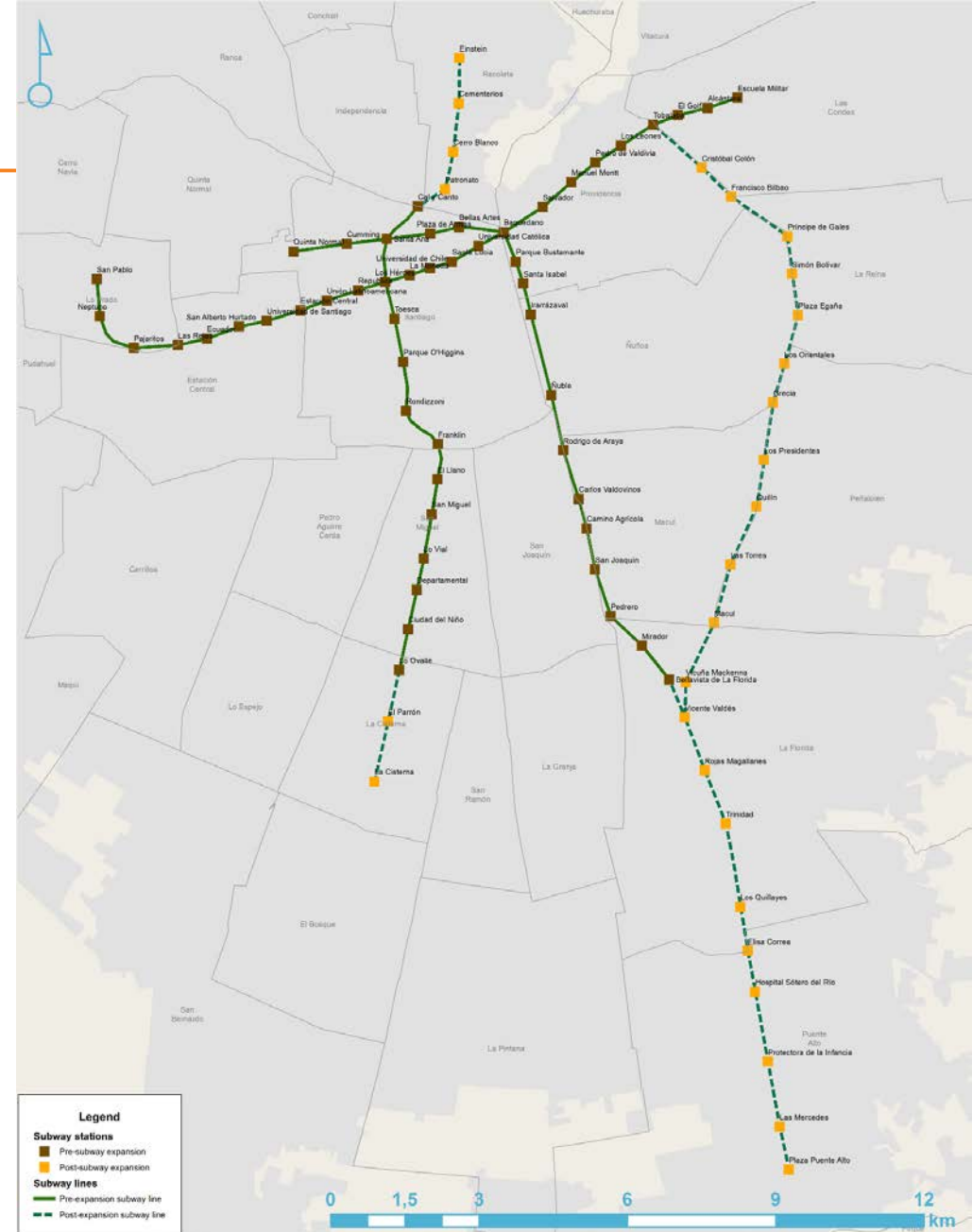
1 MOTIVATION: Spatial Mismatch



Legend



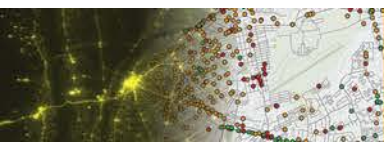
1 MOTIVATION



Santiago post-intervention (July 2006)
Subway Map. Source: Own elaboration..

2 METHOD

- Empirical strategy
 - Using before-after information on employment we can control for individual's fixed characteristics such as ability



2 METHOD: Data

- Ideal data: random allocation of individuals to locations
- Alternative: panel with individual addresses + subway expansion
- My data: Chile's 1996, 2001, 2006 CASEN household panel dataset
 - Individuals' municipalities of residence (35 municipalities in my dataset), years of schooling, age, health, demographic characteristics, number of rooms in the dwelling, home tenure, rurality, type of health insurance, and perceptions of the neighbourhood.
- Average distance between individuals in each municipality and the closest subway station or central business district
 - Address of students from Chile's 2009 University Selection Test.
 - Subway stations location

4 ANALYSIS

Employment status

Table 3. The effect of the municipality–subway distance reduction on employment status 2001 to 2006

Dependent variable: change in employment status 2006–2001	(1) All individuals	(2) Women	(3) Men
Proximity to the nearest subway station (km) distance \leq 1 km	3.096** (1.393)	3.903** (1.899)	1.191 (2.869)
Proximity to the nearest subway station (km) distance $>$ 1 km	0.637 (0.840)	2.473* (1.236)	-1.720 (1.395)
Observations	2,279	1,262	1,017
R-squared	0.354	0.332	0.443

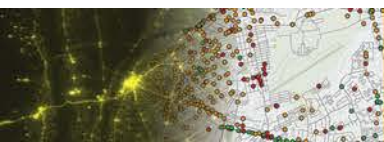
Notes: See notes in Table 2. Panel A excludes workers living in the terminal stations' municipalities of the new subway line and extensions: Las Condes, Providencia and Puente Alto (Line 4); and La Cisterna and Recoleta (Line 2).

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4 ANALYSIS

Hours of work

- Average effect: 11.6 more hours per month per km (12% of average baseline hours of work)
- Women: 15.6 more hours per month per km.



4 ANALYSIS

- Robustness tests
 1. Previously existing positive trend in labour market outcomes?
 2. City-wide positive shock to labour market outcomes for citizens living near areas with a high demand for public transport (e.g. Maipú)?
 3. Results due to selective attrition on observables?

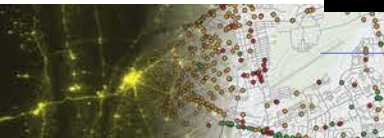
5 CONCLUSIONS Contribution

Causal effect



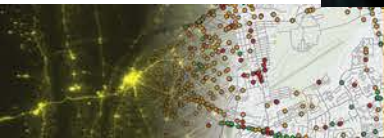
5 CONCLUSIONS Contribution

Spatial Mismatch



5 CONCLUSIONS Policy implication

Female employment



5 CONCLUSIONS Policy implication



Implications for cost-benefit analyses

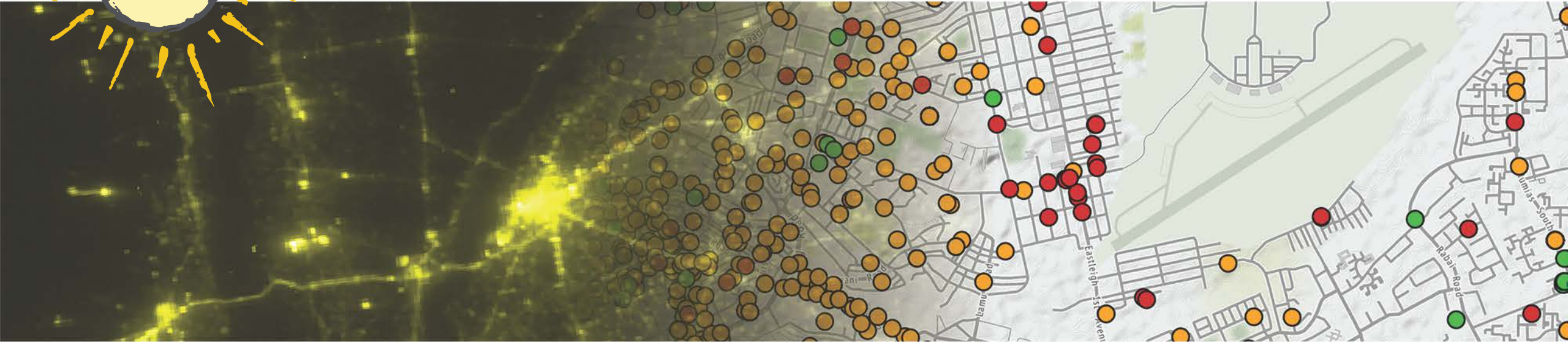


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4 ANALYSIS Robustness: attrition causing selection?

Table A3.3. The effect of municipality–subway distance reduction on employment status and hours of work 2001 to 2006 using the survey's longitudinal weights

	(1) All individuals	(2) Women	(3) Men	(4) As in (1) restricting sample to employed in both periods
Panel A. Dependent variable: change in employment status 2001 to 2006				
Proximity to the nearest subway station (km) distance ≤ 1 km	10.06*** (3.212)	19.17*** (3.773)	5.734 (5.075)	
Proximity to the nearest subway station (km) distance > 1 km	1.339 (1.262)	1.666 (1.44)	1.399 (1.542)	
Observations	2,096	1,164	932	
R-squared	(0.370)	(0.352)	(0.515)	
Panel B. Dependent variable: change in monthly hours of work 2001 to 2006				
Proximity to the nearest subway station (km) distance ≤ 1 km	23.68*** (7.847)	46.31*** (9.132)	9.534 (15.01)	25.50* (12.88)
Proximity to the nearest subway station (km) distance > 1 km	-5.489 (3.304)	-4.490 (3.537)	-3.724 (4.806)	-12.28*** (4.152)
Observations	1,778	1,035	743	634
R-squared	0.281	0.306	0.414	0.265

Notes: As in Table 3's panel B.