

Seguro Popular Evaluation

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Joint work with Emmanuela Gakidou, Kosuke Imai, Jason Lakin, Ryan T. Moore, Clayon Nall, Nirmala Ravishankar, Manett Vargas, Martha María Téllez-Rojo, Juan Eugenio Hernández Ávila, Mauricio Hernández Ávila, Héctor Hernández Llamas

Project References

- A 'Politically Robust' Experimental Design for Public Policy Evaluation, with Application to the Mexican Universal Health Insurance Program Gary King, Emmanuela Gakidou, Nirmala Ravishankar, Ryan T. Moore, Jason Lakin, Manett Vargas, Martha María Téllez-Rojo, Juan Eugenio Hernández Ávila, Mauricio Hernández Ávila, Héctor Hernández Llamas. *Journal of Policy Analysis and Management*, January 2007.

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- **The Essential Role of Pair Matching in Cluster-Randomized Experiments, with Application to the Mexican Universal Health Insurance Evaluation** Kosuke Imai, Gary King, and Clayton Nall.

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- **The Essential Role of Pair Matching in Cluster-Randomized Experiments, with Application to the Mexican Universal Health Insurance Evaluation** Kosuke Imai, Gary King, and Clayton Nall.
- **Public Policy for the Poor? A Randomized 10-Month Evaluation of the Mexican Universal Health Insurance Program** Gary King, Emmanuela Gakidou, Kosuke Imai, Jason Lakin, Ryan T. Moore, Nirmala Ravishankar, Manett Vargas, Martha María Téllez-Rojo, Juan Eugenio Hernández Ávila, Mauricio Hernández Ávila, Héctor Hernández Llamas.

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- First cohort: 148 geographic areas, 1,380 localities, approximately 118,569 households, and about 534,457 individuals.

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 - uses data far more efficiently to **find effects** and **save money**

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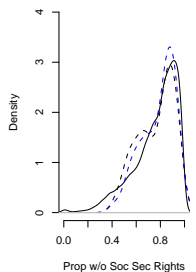
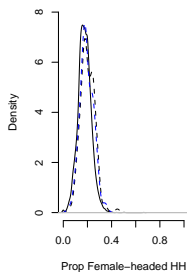
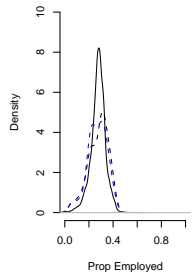
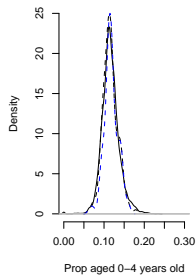
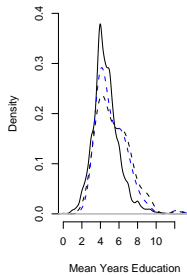
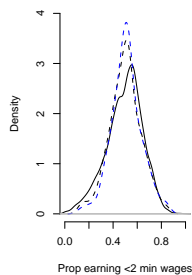
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- Imai-King-Nall: prove above results and offer simple estimators for MPDs making minimal assumptions for both **intent to treat** and **complier average treatment** effects

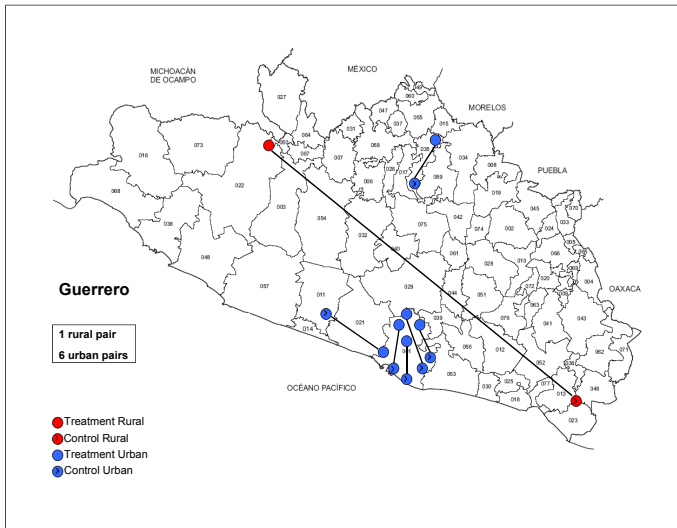
Remaining in study: 148 clusters (74 pairs) in 7 states



Clusters are Representative On Measured Variables



Matched Pairs, Guerrero

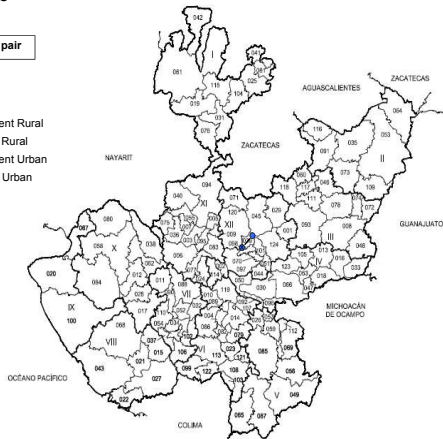


Matched Pairs, Jalisco

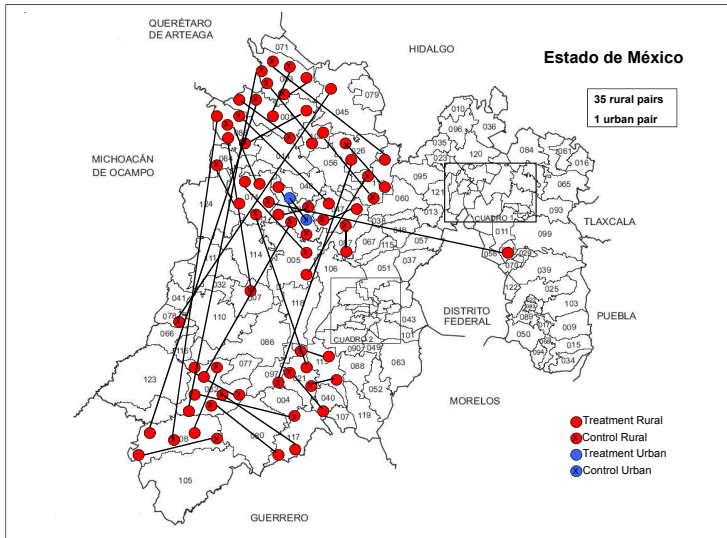
Jalisco

1 urban pair

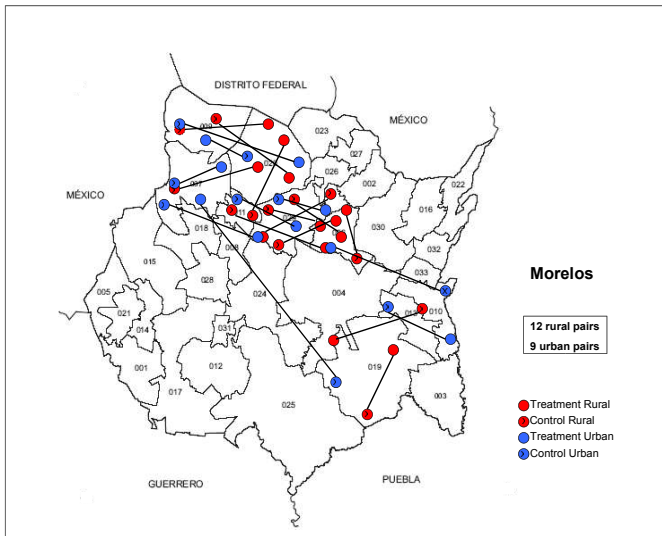
- Treatment Rural
- Control Rural
- Treatment Urban
- Control Urban



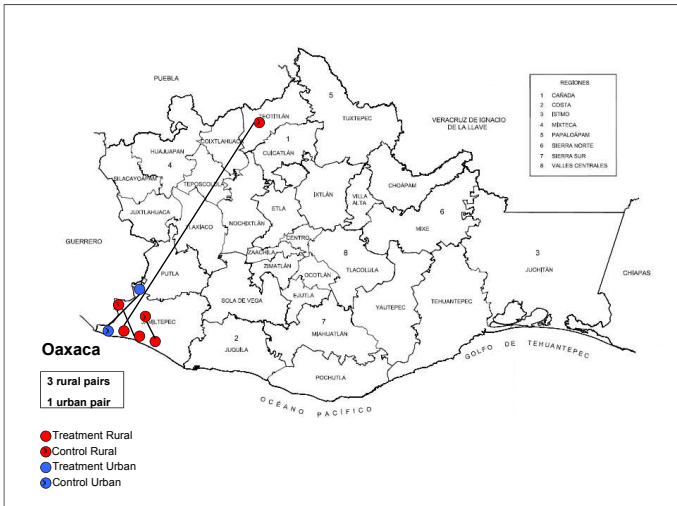
Matched Pairs, Estado de México



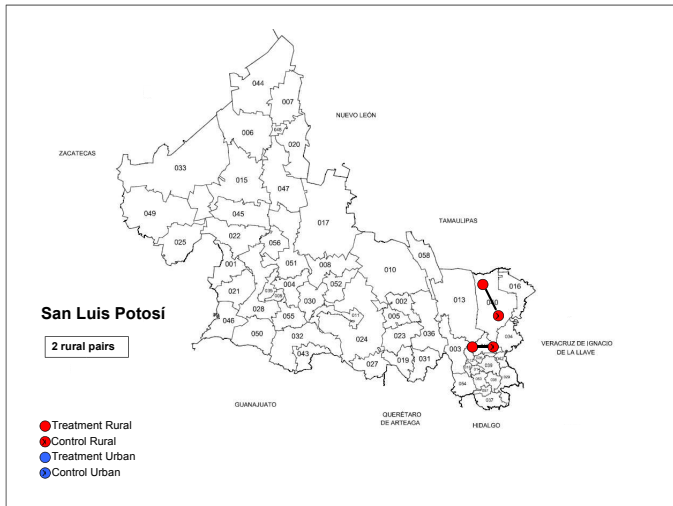
Matched Pairs, Morelos



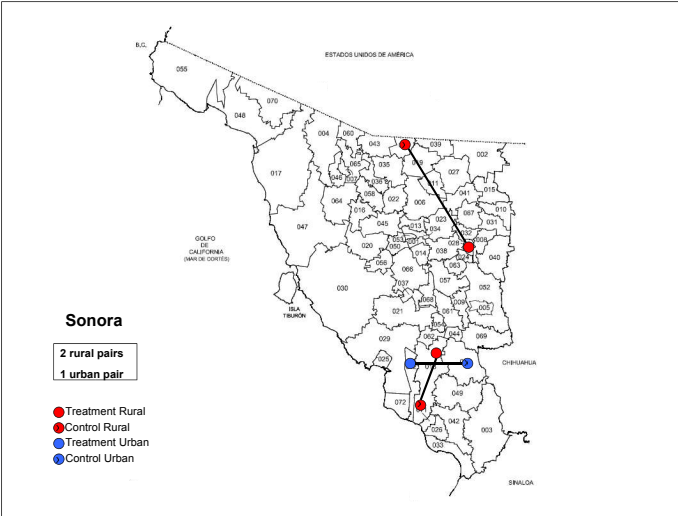
Matched Pairs, Oaxaca



Matched Pairs, San Luis Potosí



Matched Pairs, Sonora



Design and Analysis Strategy is Triply Robust

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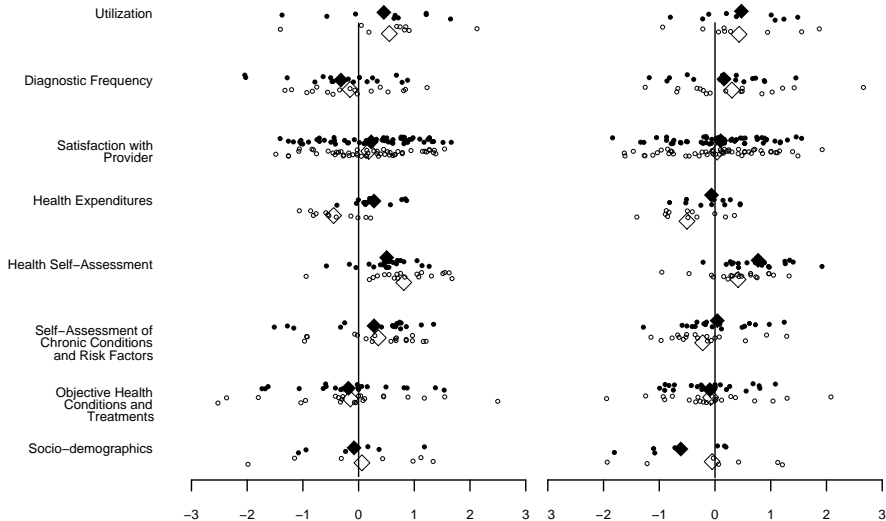
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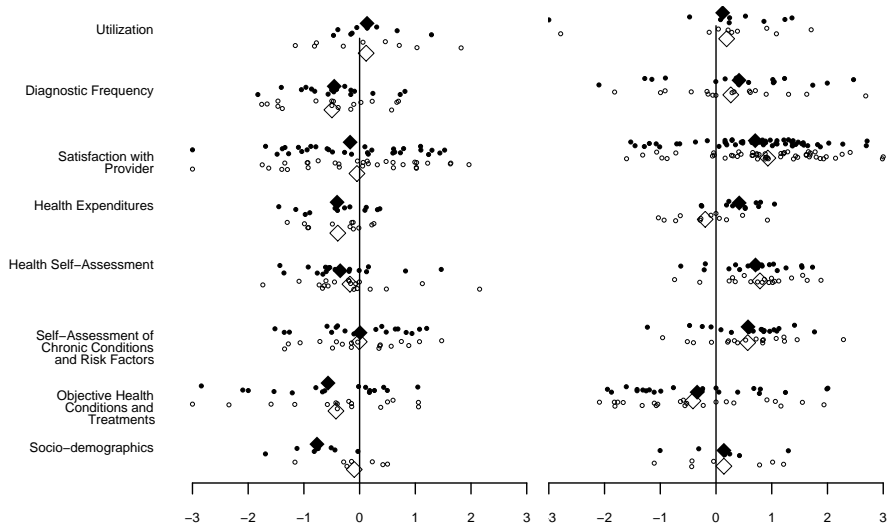
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- 2 If we lose pairs, we check for selection bias by rerunning this check

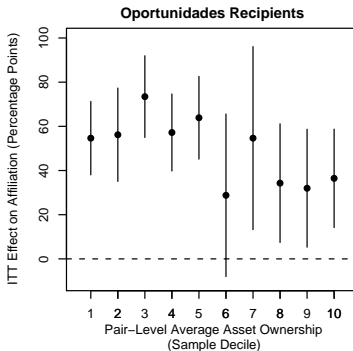
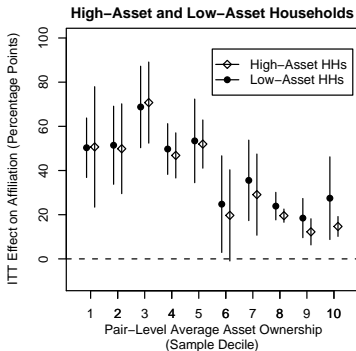
ITT on Outcome Measures at Baseline, for all families (left) and poor families, in Oportunidades (right)



ITT on Outcome Measures at Baseline, for wealthy families (left) and middle income families (right)



Effect of Encouragement on Seguro Popular Affiliation



Horizontal axes: per-capita asset ownership deciles of areas (poorer to the left). Vertical axes: percentage point causal effect of encouragement to affiliate on Seguro Popular affiliation.

Effect on % of Households with Catastrophic Health Expenditures

	All Study Participants			Experimental Compliers		
	Average (Control)	ITT	SE	Average (Control)	CACE	SE
All	8.4	1.9*	(.9)	9.5	5.2*	(2.3)
Low Asset	9.9	3.0*	(1.3)	11.0	6.5*	(2.5)
High Asset	7.1	0.9	(0.8)	7.9	3.0	(2.7)
Female-Headed	8.5	1.4	(1.1)	10.6	3.8	(3.0)

“Catastrophic expenditures”: out-of-pocket health expenses > 30% of post-subsistence income

Effect on Out-of-pocket Health Expenditures, I (in pesos)

	All Study Participants			Experimental Compliers		
	Average (Control)	ITT	SE	Average (Control)	CACE	SE
Overall:						
All	\$1631.3	\$258.0	(\$175)	\$1712.7	\$689.7	(\$453)
Low Asset	1360.2	425.6*	(197)	1502.6	915.3*	(392)
High Asset	1867.9	128.4	(201)	1933.2	428.2	(669)
Female-Headed	1509.1	156.5	(207)	1689.9	428.6	(566)
Inpatient Care:						
All	532.5	96.9*	(44)	557.1	259.1*	(112)
Low Asset	527.1	188.2*	(73)	579.0	404.8*	(142)
High Asset	537.2	31.1	(52)	536.2	103.6	(173)
Female-Headed	452.5	115.1*	(68)	510.0	315.2*	(182)
Outpatient Care:						
All	448.3	116.7*	(63)	499.1	312.0*	(161)
Low Asset	412.3	176.7*	(73)	466.3	380.0*	(147)
High Asset	479.7	81.9	(69)	533.0	272.9	(230)
Female-Headed	416.3	110.4	(75)	496.8	302.4	(202)

Effect on Out-of-pocket Health Expenditures, II (in pesos)

	All Study Participants			Experimental Compliers		
	Average (Control)	ITT	SE	Average (Control)	CACE	SE
Medicine:						
All	521.1	20.0	(41)	534.5	53.3	(109)
Low Asset	427.3	17.8	(46)	444.7	38.3	(100)
High Asset	603.0	29.4	(47)	627.5	98.1	(157)
Female-Headed	625.6	53.6	(55)	738.9	146.8	(151)
Medical Devices:						
All	139.7	-8.8	(23)	117.8	-23.4	(62)
Low Asset	72.0	-0.2	(20)	72.8	-0.5	(43)
High Asset	198.8	-16.5	(29)	165.6	-55.1	(98)
Female-Headed	155.5	10.9	(34)	162.8	30.0	(94)

Utilization: Overall

	All Study Participants			Experimental Compliers		
	Average (Control)	ITT	SE	Average (Control)	CACE	SE
Utilization (Procedures):						
Used Outpatient Services (%)	62.6	-1.5	(1.9)	64.8	-4.0	(5.2)
Outpatient Visits (count)	1.6	-0.03	(0.09)	1.7	-0.08	(0.23)
Hospitalized (%)	7.6	-0.2	(0.5)	7.9	-0.5	(1.5)
Hospitalizations (count)	0.1	-0.003	(0.006)	0.1	-0.01	(0.02)
Satisfaction with Provider (%)	68.0	-1.0	(1.6)	69.8	-2.6	(4.5)
Utilization (Preventative) (%):						
Eye Exam Last Yr.	10.0	-0.7	(0.7)	9.8	-1.8	(1.9)
Flu Vaccine	25.7	-1.8	(1.4)	27.2	-4.9	(3.7)
Mammogram Last Yr.	5.1	-0.9	(0.6)	5.2	-2.3	(1.6)
Cervical Last Yr.	21.8	-1.3	(2.0)	22.2	-3.2	(4.8)
Pap Test Last Yr.	31.9	-2.3	(2.1)	33.2	-5.8	(5.0)

Self-Assessment: Overall

	All Study Participants			Experimental Compliers		
	Average (Control)	ITT	SE	Average (Control)	CACE	SE
Overall Health	55.7	4.2*	(2.0)	54.3	8.9*	(3.9)
Mobility	86.7	1.0	(1.0)	86.3	2.1	(2.0)
Vigorous Activity	69.2	4.6*	(2.7)	67.9	9.8*	(5.7)
Self-Care	95.3	0.4	(0.6)	95.2	0.8	(1.2)
Soreness	80.3	2.6*	(1.5)	79.3	5.5*	(3.1)
Pain	82.4	2.4*	(1.4)	81.4	5.2*	(2.8)
Sleeping	85.1	2.7*	(1.3)	84.3	5.9*	(2.5)
Depression	77.3	6.4*	(3.7)	76.0	13.8*	(7.3)
Anxiety	85.9	3.1	(2.0)	85.2	6.7	(4.1)

Self-Assessment, Controlling for Baseline Levels

	ITT		CACE	
Overall Health	0.6	(2.2)	1.7	(6.0)
Mobility	0.2	(0.9)	0.6	(2.5)
Vigorous Activity	3.3	(2.4)	8.9	(6.4)
Self-Care	-0.2	(0.6)	-0.5	(1.6)
Soreness	1.0	(1.4)	2.6	(3.8)
Pain	1.1	(1.2)	3.0	(3.3)
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A **difference-in-difference test**: The causal effect of Seguro Popular on the change from baseline to followup in the difference between treated and control groups on health self-assessment variables.

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For more information

<http://GKing.Harvard.edu>

Risk Factors: Overall

	All Study Participants			Experimental Compliers		
	Average (Control)	ITT	SE	Average (Control)	CACE	SE
Doctor's Diagnosis (%):						
Diabetes	6.5	0.4	(0.4)	6.2	1.0	(1.2)
Hypertension	14.7	-1.1	(0.8)	15.0	-2.9	(2.1)
Cholesterol	5.6	-0.2	(0.4)	5.3	-0.6	(1.0)
Diet or Exercise Program (%):						
Hypertension	27.8	-0.6	(1.8)	28.4	-1.6	(5.0)
Cholesterol	11.4	-0.8	(1.1)	11.2	-2.1	(3.0)
Treated with Medication (%):						
Hypertension	35.2	0.8	(1.5)	34.5	2.2	(4.1)
Cholesterol	4.8	-0.1	(0.5)	4.5	-0.4	(1.5)
Risk Factors (%):						
Smoking	10.7	1.6*	(0.6)	10.9	4.3*	(1.7)
Seat Belt	28.2	1.0	(1.7)	25.4	2.6	(4.6)