

Evaluation of Seguro Popular: Baseline Analysis

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The First Results of our Evaluation (Effect of Random Assignment on One Mexican)

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Before Treatment



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(Manett's) Arturo Vargas

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After Treatment



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Evaluation Components

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- **Impact Evaluation** (today's talk)

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- National Level Analysis

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- In-depth Focus Groups

Goals of SP & Evaluation Outcome Measures

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Data Sources

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- Focus group interviews

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 - Places with better doctors and health administration: bigger effects

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 - **Politically Infeasible**: local officials want benefits for their favored areas first

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- If politicians (in a democracy) decide which areas get MAOs
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 - Even if SP has no effect, areas with SP will be healthier

A Feasible Design for Scientific Evaluation

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 - **Methodological**: Drop areas where affiliation had already started

Remaining in study: 148 clusters in 7 states



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 - Same strategy as in most medical intervention studies

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- Without an evaluation, choices would still be made, but would be arbitrary choices made by local government officials

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 - Consequence: Bias in evaluation conclusions
- We need estimators robust not merely to statistical assumptions but to real world problems

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- One such failure has already occurred

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 - Repeat until all clusters are used

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Experimental Design Implementation

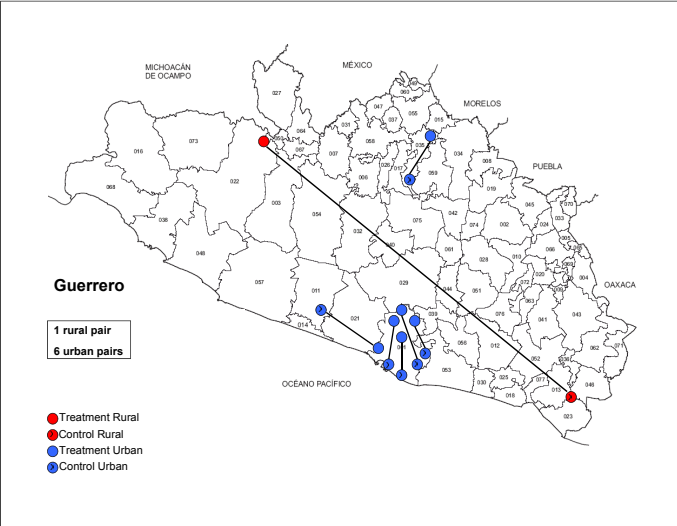
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- Intensive affiliation begins in treatment clusters

Experimental Design Implementation

- At the last moment: Flip coin to choose treatment and control cluster for each pair
- Treatment assignments delivered to state governments
- Intensive affiliation begins in treatment clusters
- 74 matched treatment-control pairs in the evaluation: 55 rural and 19 urban in 7 states

State	Rural Pairs	Urban Pairs	Total
Guerrero	1	6	7
Jalisco	0	1	1
México	35	1	36
Morelos	12	9	21
Oaxaca	3	1	4
San Luis Potosí	2	0	2
Sonora	2	1	3
<i>Total</i>	<i>55</i>	<i>19</i>	<i>74</i>

Matched Pairs, Guerrero

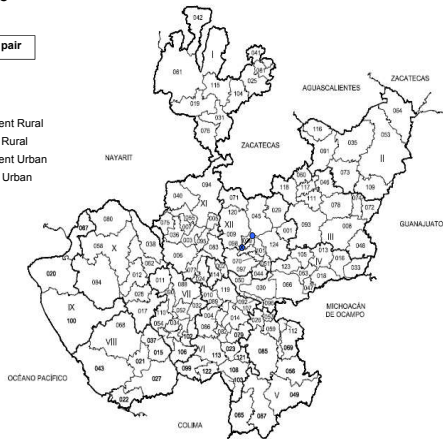


Matched Pairs, Jalisco

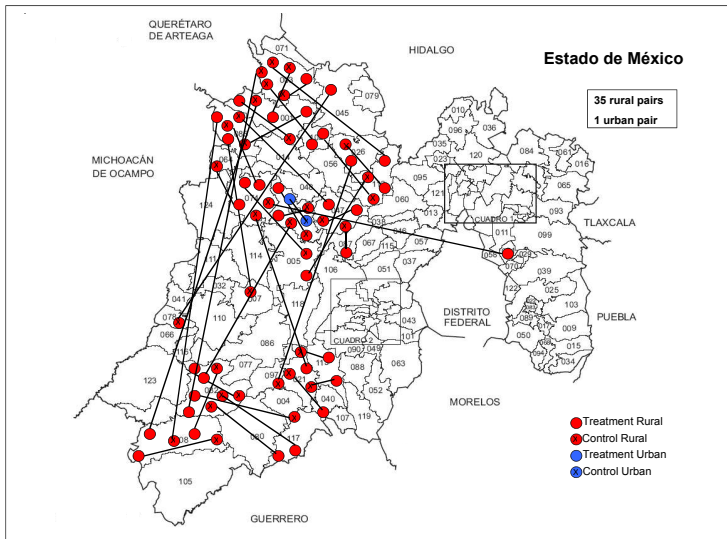
Jalisco

1 urban pair

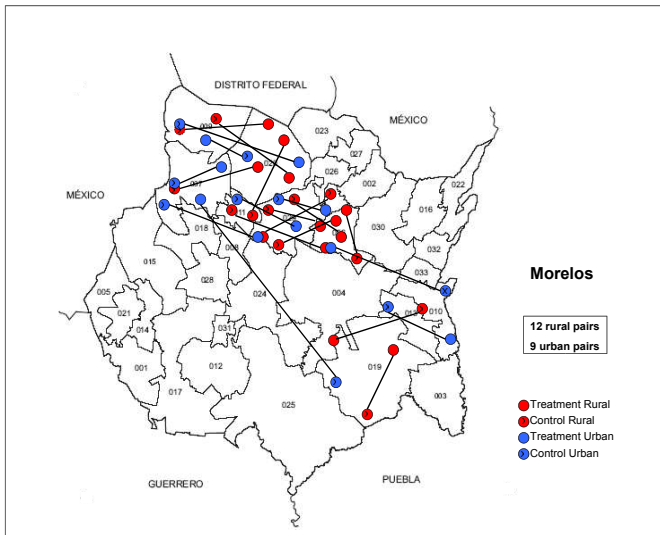
- Treatment Rural
- Control Rural
- Treatment Urban
- Control Urban



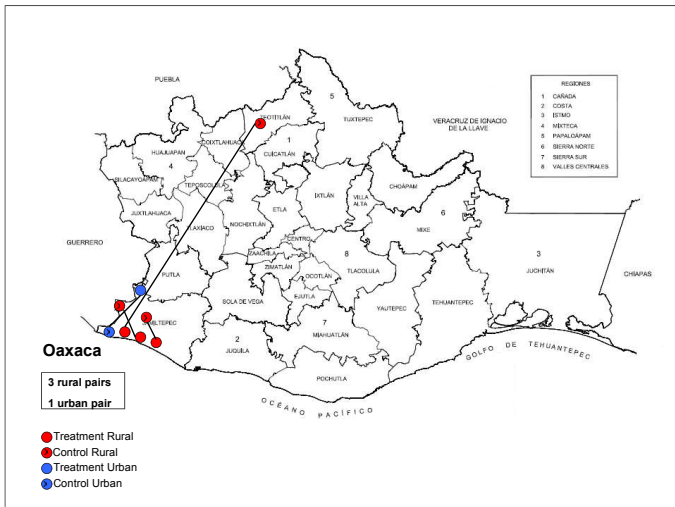
Matched Pairs, Estado de México



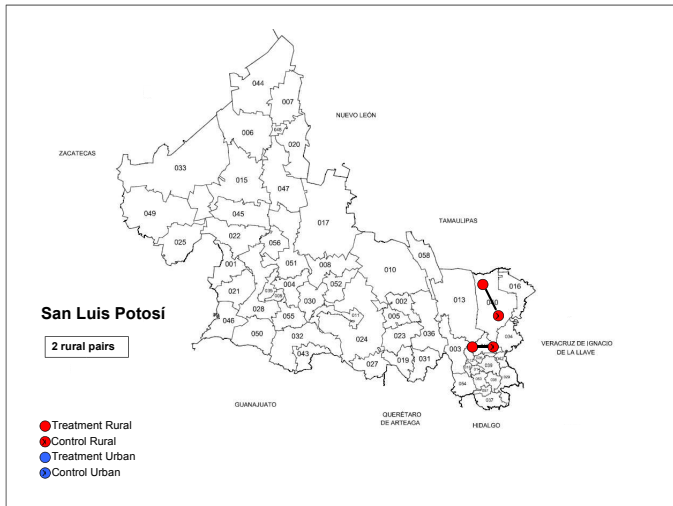
Matched Pairs, Morelos



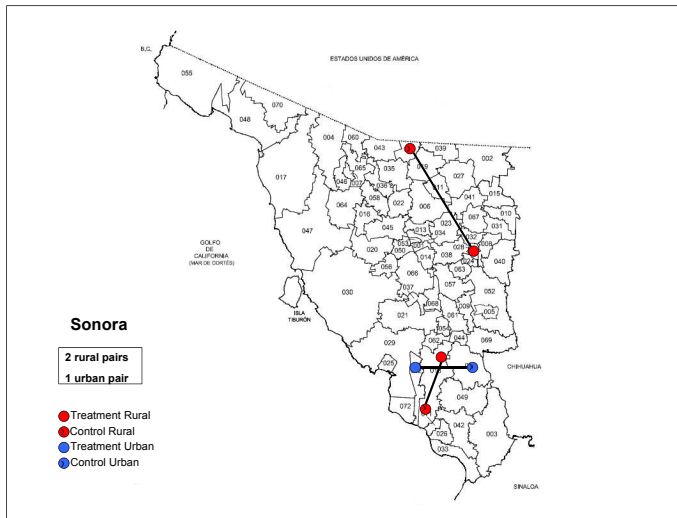
Matched Pairs, Oaxaca



Matched Pairs, San Luis Potosí



Matched Pairs, Sonora



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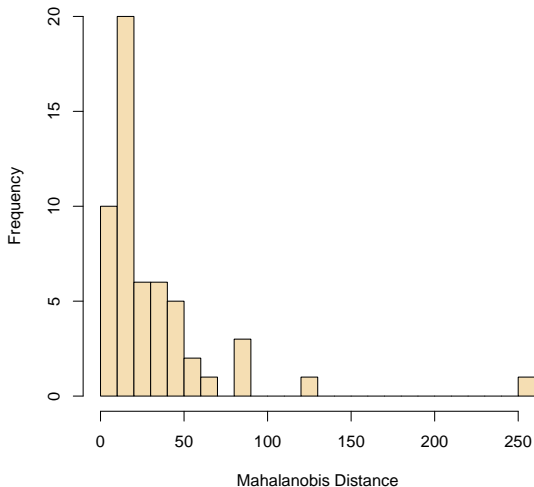
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Two Additional Checks if Triple Robustness Fails

- 1 If one of the three works, then “effect of SP” on time 0 outcomes (measured in baseline survey) must be zero
- 2 If we lose pairs, we check for selection bias by rerunning this check

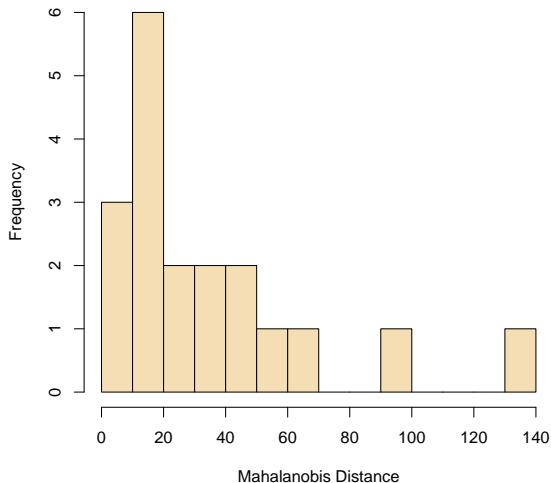
Total Multivariate Distances Within All 55 Rural Pairs

Histogram of Mahalanobis Distances for Rural Pairs, Pre-Assignment



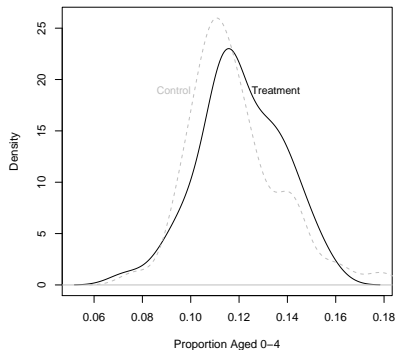
Total Multivariate Distances within All 19 Urban Pairs

Histogram of Mahalanobis Distances for Urban Pairs, Pre-Assignment

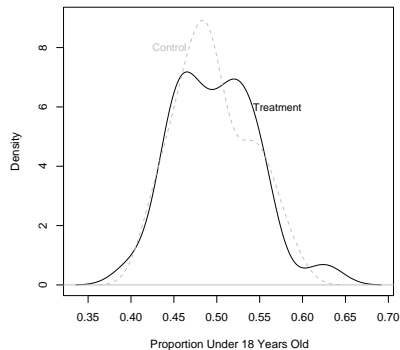


Rural Age Balance After Randomization

Smoothed Histogram of Proportion Aged 0–4, Rural Clusters, Post-Assignment

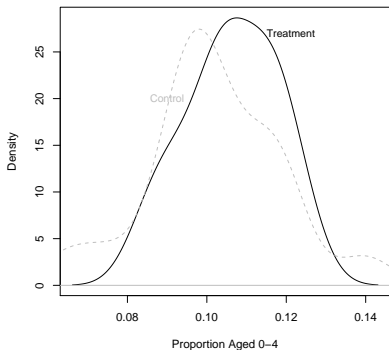


Smoothed Histogram of Proportion Under 18 Years Old, Rural Clusters, Post-Assignment

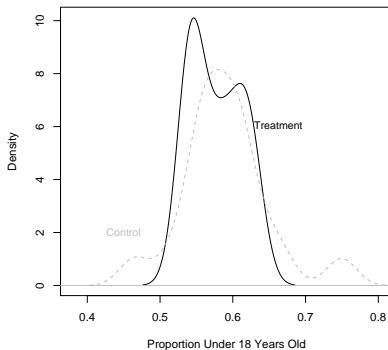


Urban Age Balance After Randomization

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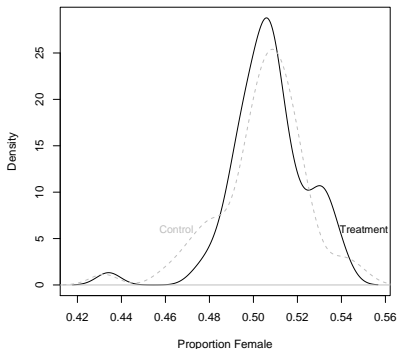


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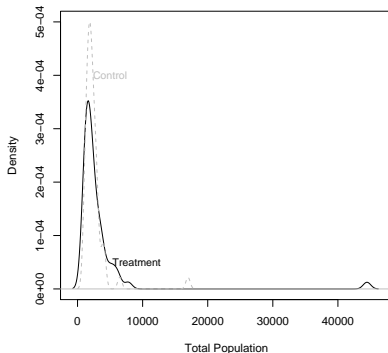


Rural Demographic Balance After Randomization

Smoothed Histogram of Proportion Female, Rural Clusters, Post-Assignment

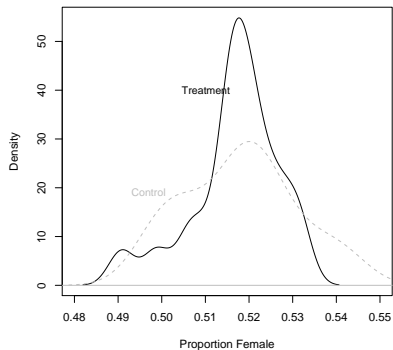


Smoothed Histogram of Total Population, Rural Clusters, Post-Assignment

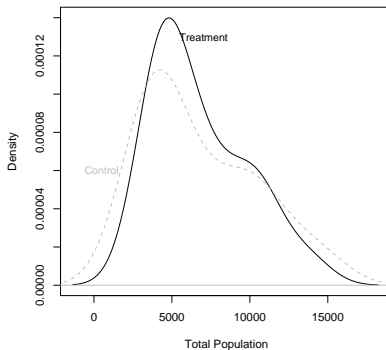


Urban Demographic Balance After Randomization

Smoothed Histogram of Proportion Female, Urban Clusters, Post-Assignment



Smoothed Histogram of Total Population, Urban Clusters, Post-Assignment



Household Survey Design

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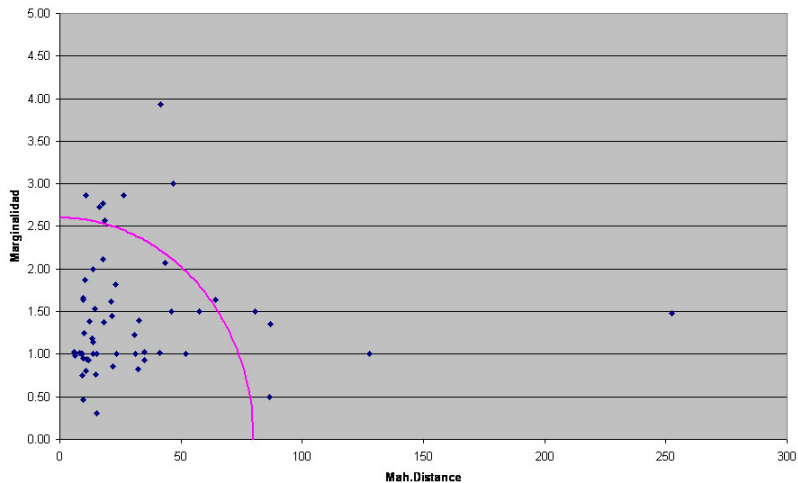
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Choosing Pairs for the Survey

RURAL



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Expert Opinions from Ministry Workshop 4/26/06

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(Experts from DGED, INSP, SP, NCGERH, NCESDC)

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Dr. Francisco Garrido

Dr. Esteban Puentes

Dr. Gustavo Olaiz

Laura Mendoza

Lic. Ricardo Forero Paez

Dr. Javier Eduardo Figueroa Zuniga

Dr. Miguel Angel Pena Azuara

Dr. Fernando Escalona Figueroa

Dr. Adolfo Valdez Escobedo

Lic. Luis Carlos Fragoso

Ing. Francisco Salcedo

Dr. Emilio Herrera

Dr. Cuitlahuac Ruiz Matus

Dr. Adrian Delgado Cara

Dra. Liliana Martinez Peafiel

Dra. Ana Mara Sols

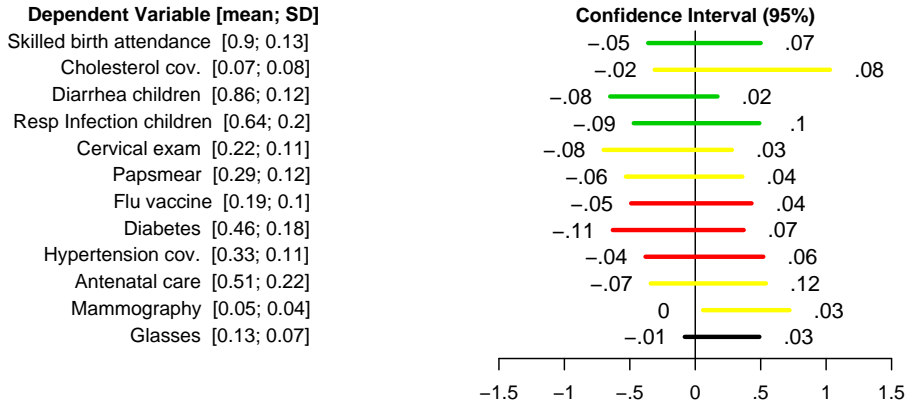
Marisela Cano Bustamante

Dra. Mara Esther Lozano Dvila

Dra. Haidee Caballero Cruz

Effect of SP Rollout at Baseline: 1 of 3

(Expected effects at 10 months: **small**, **medium**, **large**)

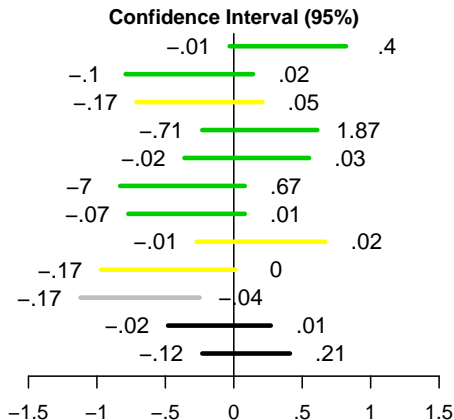


Effect of SP Rollout at Baseline: 2 of 3

(Expected effects at 10 months: **small**, **medium**, **large**)

Dependent Variable [mean; SD]

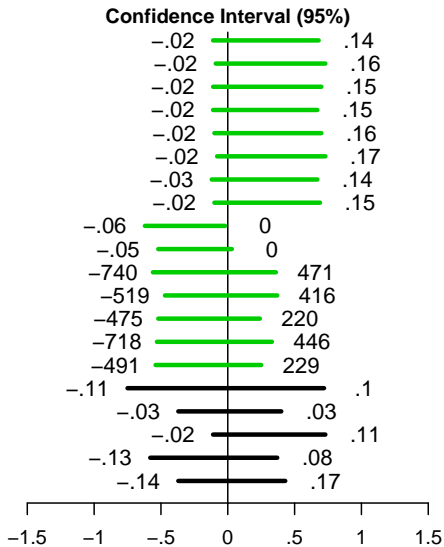
Outpatient visits	[1.24; 0.49]
Prescribed drugs	[1.2; 0.12]
Waiting time	[2.32; 0.23]
SBP	[126; 3.05]
Hypertension	[0.18; 0.05]
Cholesterol	[173; 8.86]
High cholesterol	[0.16; 0.09]
Inpatient visits	[0.09; 0.04]
Cleanliness	[2.04; 0.17]
Talk privately	[2.01; 0.15]
Smoking	[0.11; 0.05]
Seatbelt	[4.75; 0.5]



Effect of SP Rollout at Baseline: 3 of 3

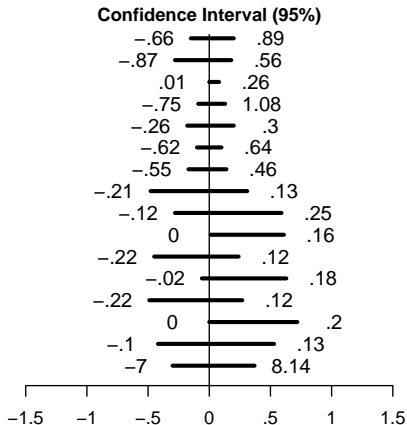
(Expected effects at 10 months: **small**, **medium**, **large**)

Dependent Variable [mean; SD]
Catastrophic (1,30%) [0.48; 0.2]
Catastrophic (1,40%) [0.45; 0.21]
Catastrophic (2,30%) [0.47; 0.21]
Catastrophic (2,40%) [0.45; 0.22]
Catastrophic (3,30%) [0.42; 0.23]
Catastrophic (3,40%) [0.41; 0.23]
Catastrophic (4,30%) [0.45; 0.21]
Catastrophic (4,40%) [0.44; 0.22]
Catastrophic (5,30%) [0.18; 0.1]
Catastrophic (5,40%) [0.16; 0.1]
Out of pocket (1) [3002; 1327]
Out of pocket (2) [2674; 1113]
Out of pocket (3) [1488; 915]
Out of pocket (4) [2320; 1346]
Out of pocket (5) [1488; 915]
Affiliation [0.09; 0.14]
Satisfied health [0.89; 0.08]
Trust local government [0.29; 0.15]
Reduce rich-poor diff. [3.42; 0.21]
Privatize electricity [3.3; 0.39]

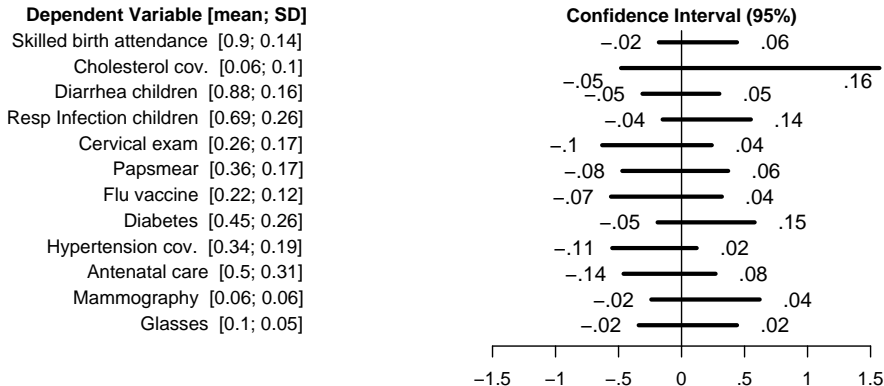


Effect of SP Rollout at Baseline Facilities

Dependent Variable	[mean; SD]
Doctors	[2.69; 4.49]
Family/general doctors	[2.02; 3.04]
Doctors with specialty	[0.55; 3.09]
Nurses	[3.27; 8.38]
Technical personnel	[0.48; 1.47]
Camas censables	[2.47; 6.17]
Camas no censables	[1.18; 3.29]
Stretchers	[0.24; 0.43]
Dental unit	[0.25; 0.43]
Ambulatory surgery room	[0.08; 0.27]
Delivery room	[0.66; 0.48]
Incubators	[0.09; 0.29]
Pharmacy	[0.73; 0.45]
Ambulance	[0.09; 0.28]
Vehicles	[0.06; 0.25]
Weekly hours open	[44; 22]



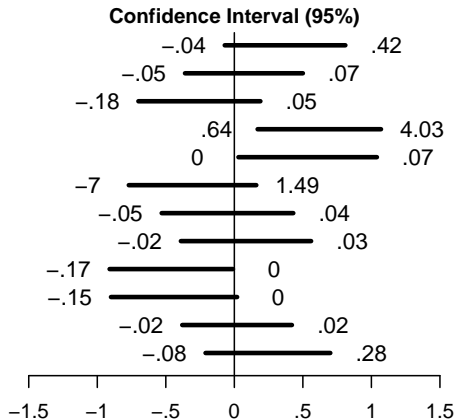
Effect of SP Rollout at Baseline on the Poor: 1 of 3



Effect of SP Rollout at Baseline on the Poor: 2 of 3

Dependent Variable [mean; SD]

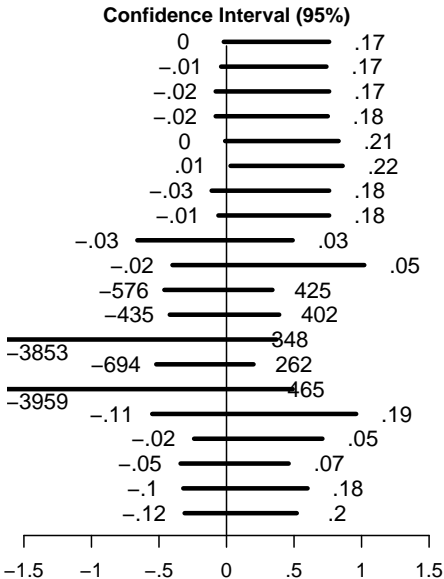
Outpatient visits	[1.29; 0.52]
Prescribed drugs	[1.19; 0.14]
Waiting time	[2.31; 0.25]
SBP	[125; 3.78]
Hypertension	[0.17; 0.06]
Cholesterol	[172; 9.12]
High cholesterol	[0.15; 0.09]
Inpatient visits	[0.09; 0.05]
Cleanliness	[2.04; 0.19]
Talk privately	[2.01; 0.17]
Smoking	[0.11; 0.06]
Seatbelt	[4.97; 0.4]



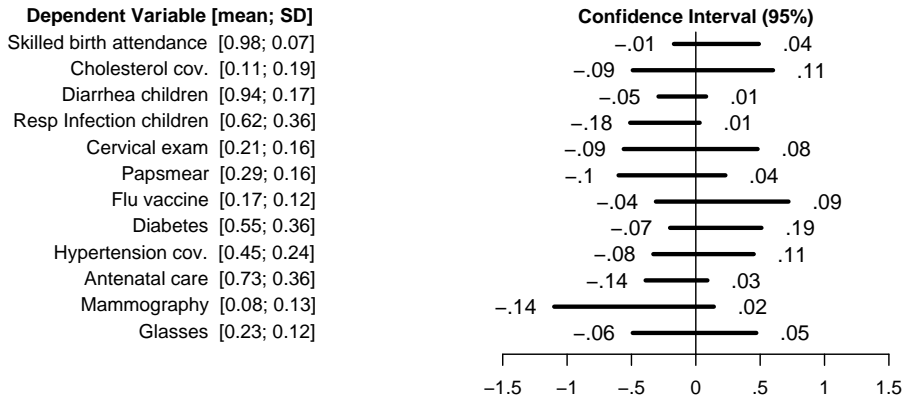
Effect of SP Rollout at Baseline on the Poor: 3 of 3

Dependent Variable [mean; SD]

Catastrophic (1,30%) [0.43; 0.22]
 Catastrophic (1,40%) [0.41; 0.23]
 Catastrophic (2,30%) [0.42; 0.22]
 Catastrophic (2,40%) [0.4; 0.23]
 Catastrophic (3,30%) [0.37; 0.25]
 Catastrophic (3,40%) [0.37; 0.25]
 Catastrophic (4,30%) [0.4; 0.23]
 Catastrophic (4,40%) [0.39; 0.24]
 Catastrophic (5,30%) [0.08; 0.05]
 Catastrophic (5,40%) [0.06; 0.05]
 Out of pocket (1) [2552; 1263]
 Out of pocket (2) [2308; 1035]
 Out of pocket (3) [1316; 951]
 Out of pocket (4) [1931; 1330]
 Out of pocket (5) [1316; 951]
 Affiliation [0.13; 0.2]
 Satisfied health [0.9; 0.07]
 Trust local government [0.3; 0.16]
 Reduce rich-poor diff. [3.39; 0.3]
 Privatize electricity [3.23; 0.39]



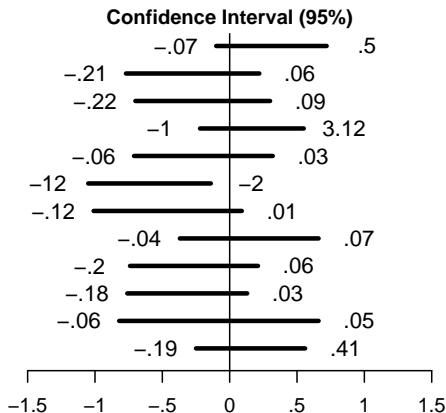
Effect of SP Rollout at Baseline on the Wealthy: 1 of 3



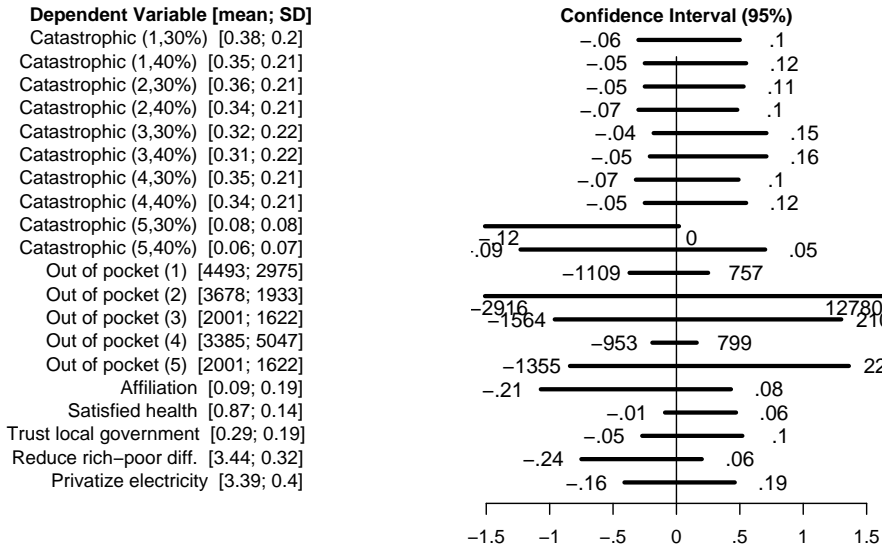
Effect of SP Rollout at Baseline on the Wealthy: 2 of 3

Dependent Variable [mean; SD]

Outpatient visits [1.45; 0.7]
Prescribed drugs [1.18; 0.28]
Waiting time [2.31; 0.31]
SBP [125; 5.69]
Hypertension [0.16; 0.09]
Cholesterol [175; 11]
High cholesterol [0.18; 0.12]
Inpatient visits [0.11; 0.1]
Cleanliness [1.99; 0.27]
Talk privately [2; 0.24]
Smoking [0.11; 0.08]
Seatbelt [4; 0.74]

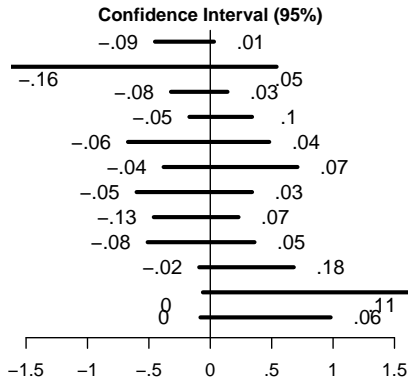


Effect of SP Rollout at Baseline on the Wealthy: 3 of 3



Effect of SP Rollout at Baseline on Others: 1 of 3

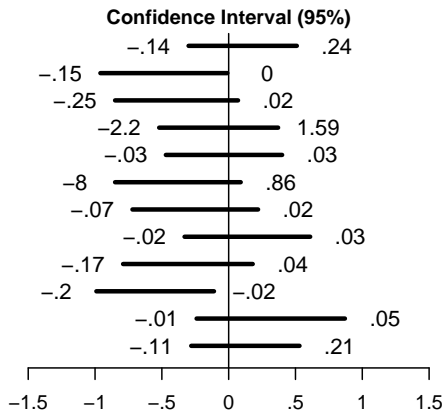
Dependent Variable [mean; SD]
Skilled birth attendance [0.89; 0.2]
Cholesterol cov. [0.06; 0.08]
Diarrhea children [0.8; 0.24]
Resp Infection children [0.63; 0.3]
Cervical exam [0.16; 0.09]
Papsmear [0.21; 0.1]
Flu vaccine [0.14; 0.09]
Diabetes [0.39; 0.28]
Hypertension cov. [0.27; 0.15]
Antenatal care [0.53; 0.27]
Mammography [0.04; 0.04]
Glasses [0.11; 0.06]



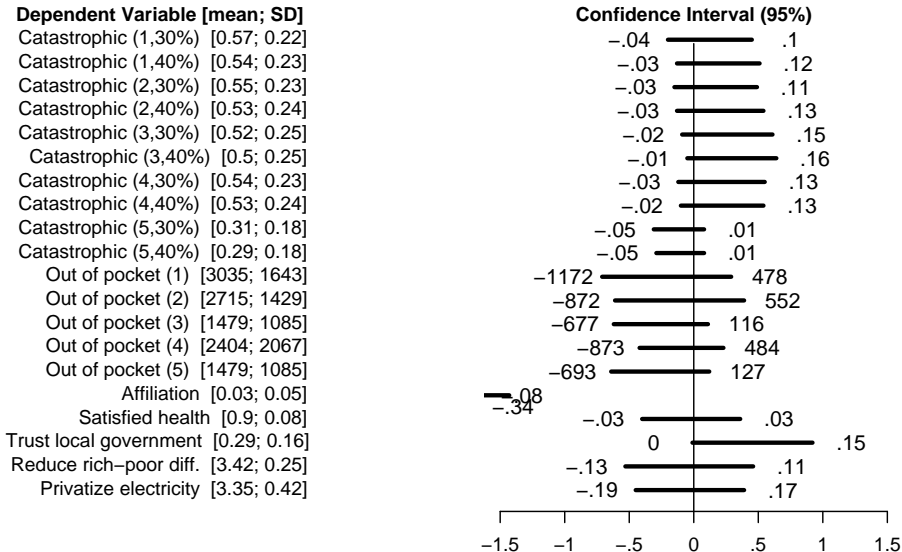
Effect of SP Rollout at Baseline on Others: 2 of 3

Dependent Variable [mean; SD]

Outpatient visits	[1.08; 0.46]
Prescribed drugs	[1.22; 0.16]
Waiting time	[2.31; 0.29]
SBP	[126; 4.26]
Hypertension	[0.19; 0.07]
Cholesterol	[173; 9.58]
High cholesterol	[0.16; 0.1]
Inpatient visits	[0.1; 0.05]
Cleanliness	[2.04; 0.21]
Talk privately	[2.02; 0.21]
Smoking	[0.11; 0.06]
Seatbelt	[4.86; 0.4]



Effect of SP Rollout at Baseline on Others: 3 of 3



For more information

<http://GKing.Harvard.edu>