New Method 4

Table 1. Housing Project Areas Description

	All		City		Suburb	
	Const.	Unconst.	Const.	Unconst.	Const.	Unconst.
Number of Projects	166	139	84	92	82	47
Area (km2)	1.20	1.18	1.19	1.00	1.22	1.53
Median Construction Yr.	2006	2006	2005	2006	2006	2005
Delivered Houses	298	0	409	0	184	0
House Price in 1 km (R†)	200,919	230,175	214,620	242,025	186,691	209,249
Distance to CBD‡ (km)	32.4	28.0	23.1	21.1	42.0	41.6

Const. refers to constructed projects and unconst. refers to unconstructed projects.
*Calculated from *expected* completion dates using Gauteng National Treasury budget reports.
† The USD averaged to about 7.70 Rands during the 2001-2011 period.
‡Measured as the average minimum distance with respect to Johannesburg and Pretoria CBDs.
City includes projects whose centroids are within 30.4 km of their nearest CBD.
Suburb includes projects whose centroids are further than 30.4 km from their nearest CBD.

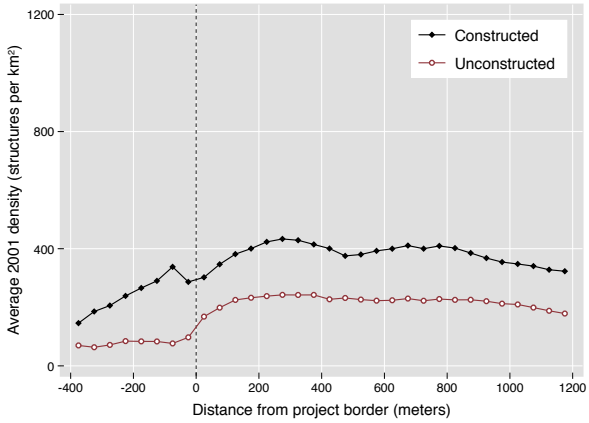
Table 2. Dwelling Characteristics at Baseline from 2001 Census

	Constructed	Unconstructed	All Small Areas
Flush Toilet	0.64	0.45	0.82
Piped Water in Home	0.14	0.22	0.42
Electricity for Cooking	0.34	0.41	0.71
Electricity for Heating	0.29	0.37	0.68
Electricity for Lighting	0.57	0.48	0.80
Number of Rooms	2.64	2.62	3.47
Household Size	3.38	3.26	3.40
N	1,072	235	6,803

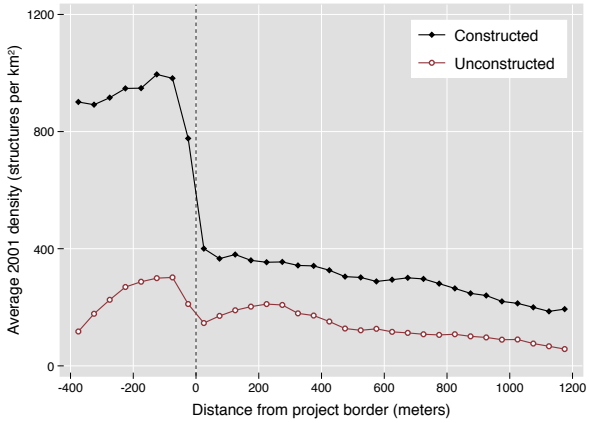
"Constructed" and "Unconstructed" include census small-areas with over 30% area overlap with constructed and unconstructed projects respectively.
"All" includes all small areas.

	(1) Total	(2) Formal	(3) Informal	(4) Informal Bkyd.	(5) Informal Non-Bkyd.
inside × constr	643.55[a]	594.61[a]	130.82	574.75[a]	-275.56[a]
	(109.70)	(69.88)	(87.46)	(92.25)	(75.10)
0-200m outside × constr	64.84	48.57[b]	41.17	65.15[b]	-21.08
	(42.70)	(22.82)	(38.08)	(28.38)	(29.89)
200-400m outside × constr	22.53	39.64[b]	11.36	29.59	-34.29
	(32.64)	(18.52)	(30.16)	(24.56)	(23.93)
inside	200.12[a]	67.75[a]	128.27[b]	32.35	141.41[a]
	(59.48)	(22.43)	(51.05)	(22.57)	(46.55)
0-200m outside	99.53[a]	41.42[a]	87.58[a]	51.89[a]	62.16[a]
	(23.45)	(12.85)	(20.33)	(15.42)	(18.74)
200-400m outside	90.10[a]	46.04[a]	80.93[a]	70.01[a]	31.15[b]
	(22.26)	(12.25)	(20.38)	(17.97)	(14.52)
constr	33.01[c]	14.55[c]	48.19[b]	30.90[b]	12.03
	(19.18)	(7.52)	(18.57)	(14.50)	(7.62)
Outcome Lag	0.21[a]	-0.02[a]	0.11[a]	0.34[a]	-0.16[a]
	(0.02)	(0.00)	(0.03)	(0.06)	(0.04)
Mean dep. var.	463.2	235.8	227.4	121.9	105.5
# Projects	316	316	316	316	316
R^2	0.131	0.137	0.028	0.108	0.039
N	1,472,912	1,472,912	1,472,912	1,472,912	1,472,912

Figure 1. Pre-Period Housing Densities in Constructed and Unconstructed projects

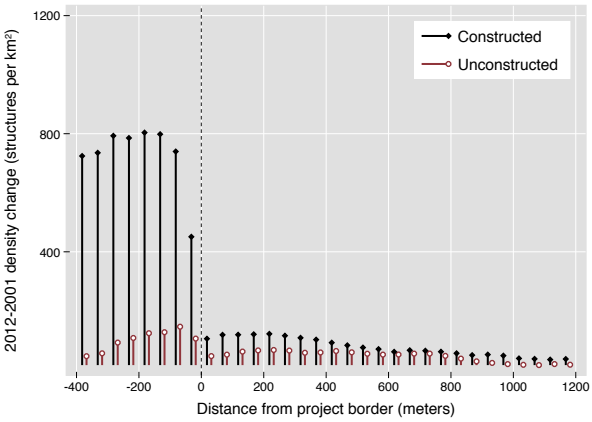


(a) pre-period formal housing density

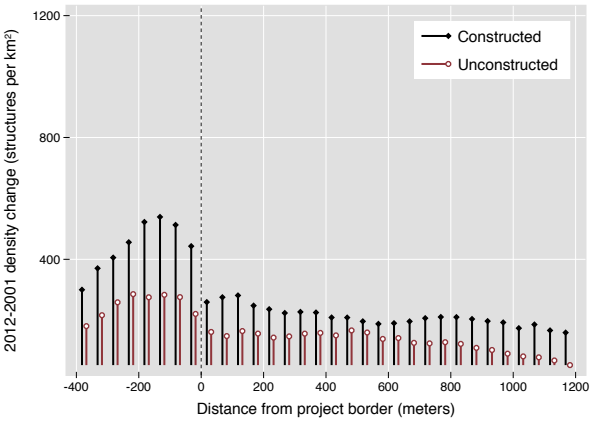


(b) pre-period informal housing density

Figure 2. Housing Densities in Constructed and Unconstructed projects



(a) formal housing density change



(b) informal housing density change

Table 3. Effect of Housing Projects on Socio-demographics

	(1) Age	(2) P.O.B. not Gauteng	(3) Unemployed	(4) Years of Education	(5) Monthly Income
project × post × constr	0.430[c]	-0.019	-0.064[a]	0.552[a]	-935.207[b]
	(0.247)	(0.019)	(0.021)	(0.175)	(426.926)
project × post	0.252	0.010	-0.071[a]	0.682[a]	14.411
	(0.194)	(0.016)	(0.018)	(0.151)	(297.929)
project × constr	-1.491[a]	0.038	0.037	-0.503[b]	143.400
	(0.360)	(0.036)	(0.024)	(0.202)	(531.082)
project	-1.004[a]	0.099[a]	0.088[a]	-0.807[a]	-1172.518[a]
	(0.332)	(0.030)	(0.017)	(0.181)	(405.960)
spillover × post × constr	0.609[a]	0.009	-0.081[a]	0.490[a]	-530.566
	(0.165)	(0.009)	(0.011)	(0.086)	(347.561)
spillover × post	0.695[a]	0.038[a]	-0.053[a]	0.820[a]	2344.735[a]
	(0.138)	(0.008)	(0.010)	(0.081)	(328.317)
spillover × constr	-0.927[a]	-0.007	0.062[a]	-0.440[a]	-574.398
	(0.268)	(0.014)	(0.019)	(0.119)	(400.197)
p-val, h_0: project=spill.	0.417	0.111	0.361	0.705	0.186
Mean Outcome 2001	27.29	0.37	0.47	8.27	2,481.16
Mean Outcome 2011	28.30	0.43	0.33	9.68	4,509.09
R^2	0.450	0.600	0.362	0.537	0.395
# projects	314	314	314	314	314
N project areas	3,656	3,656	3,656	3,656	3,656
N spillover areas	9,077	9,072	9,067	9,072	9,068
N	12,733	12,728	12,723	12,728	12,724

Standard errors clustered at the project level in parenthesis. [c] p<0.10, [b] p<0.05, [a] p<0.01
P.O.B. means "place of birth." Monthly income is in Rands.

Table 4. Census Household-level Post × Constructed Coefficients: City Versus Suburb

	(1) Age	(2) P.O.B. not Gauteng	(3) Unemployed	(4) Years of Education	(5) Monthly Income
City × proj	0.137	-0.024	-0.063[b]	0.524[b]	-1275.500[b]
	(0.329)	(0.028)	(0.028)	(0.243)	(633.922)
City × spill	0.400[c]	0.018	-0.070[a]	0.350[a]	-743.794
	(0.214)	(0.012)	(0.013)	(0.102)	(457.428)
Suburb × proj	0.859[b]	-0.016	-0.062[c]	0.523[b]	-651.882
	(0.368)	(0.017)	(0.034)	(0.217)	(441.660)
Suburb × spill	0.941[a]	-0.003	-0.106[a]	0.809[a]	-21.545
	(0.242)	(0.012)	(0.018)	(0.130)	(405.773)
p-val, h_0 City: proj = spill	0.348	0.112	0.767	0.443	0.194
p-val, h_0 Suburb: proj = spill	0.808	0.429	0.147	0.177	0.122
R^2	0.452	0.602	0.363	0.539	0.399
N City proj areas	2,152	2,152	2,152	2,152	2,152
N City spill areas	5,917	5,913	5,910	5,913	5,910
N Suburb proj areas	1,504	1,504	1,504	1,504	1,504
N Suburb spill areas	3,160	3,159	3,157	3,159	3,158

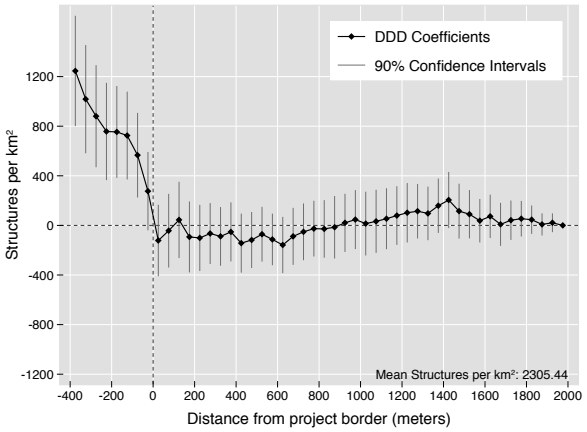
All difference-in-differences controls are included in the specification while only the interaction terms for Post × Constructed are shown. Standard errors clustered at the project level in parenthesis.
[c] p<0.10, [b] p<0.05, [a] p<0.01. P.O.B. means "place of birth." Monthly income is in Rands.

Table 5. Triple Difference Estimates

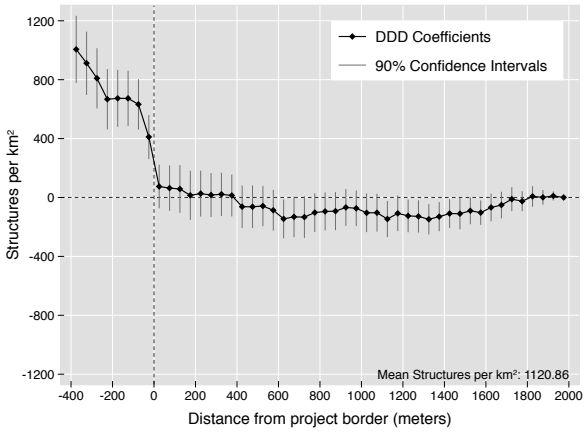
	(1) Total Housing	(2) Formal Housing	(3) Informal Housing	(4) Backyard Housing	(5) Non-Bkyrd Housing
-400m to 0m	524.76[a]	676.24[a]	-151.49	529.43[a]	-680.92[a]
	(186.53)	(104.92)	(160.25)	(141.02)	(145.07)
0m to 400m	-187.22[c]	70.14	-257.36[a]	-57.51	-199.85[b]
	(108.64)	(67.72)	(96.64)	(79.63)	(87.44)
Mean dep. var.	2,305.44	1,120.86	1,184.59	593.38	591.21
# Projects	634	634	634	634	634
R^2	0.093	0.125	0.081	0.094	0.086
N	693,580	693,580	693,580	693,580	693,580

Standard errors clustered at the project level in parenthesis. [c] p<0.10,[b] p<0.05,[a] p<0.01

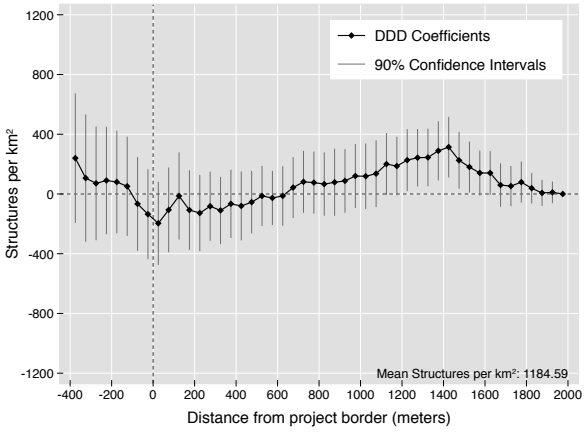
(a) Total Houses



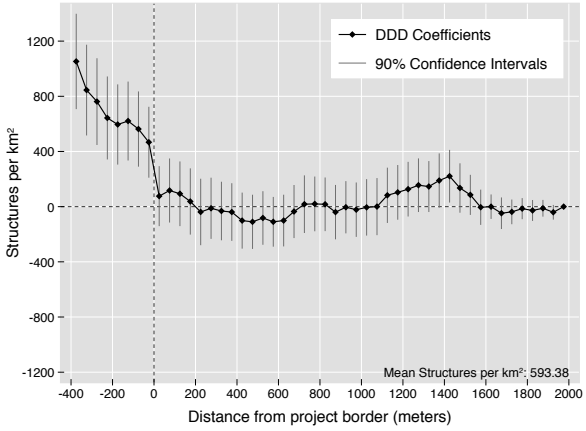
(b) Formal Houses



(c) Informal Houses



(d) Backyard Informal Houses



(e) Non-Backyard Informal Houses

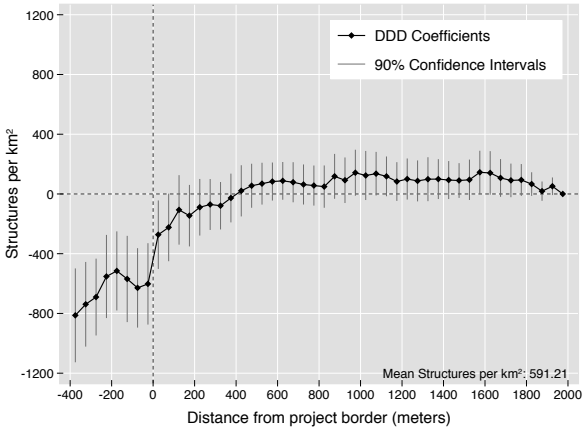
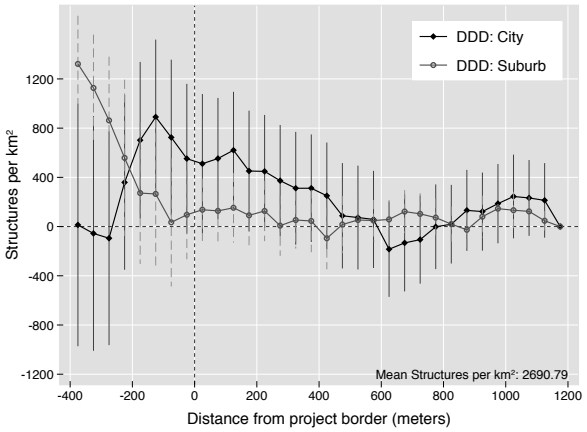
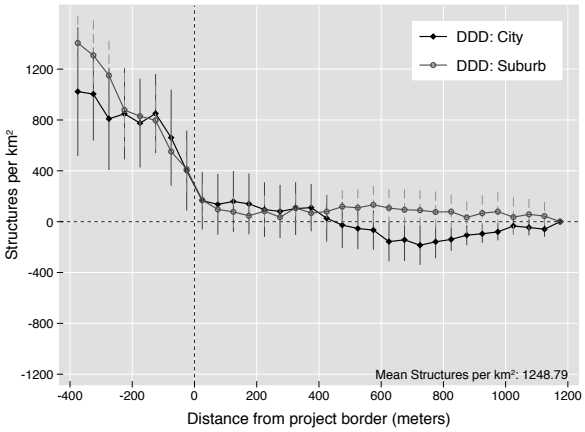


Figure 3. DDD coefficients (equation **??**) for fives types of housing densities.

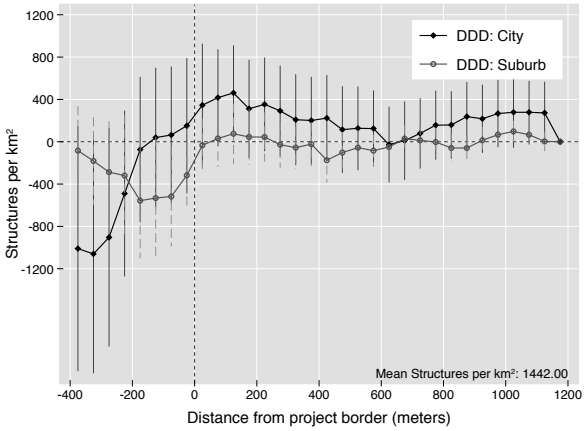
(a) Total Houses



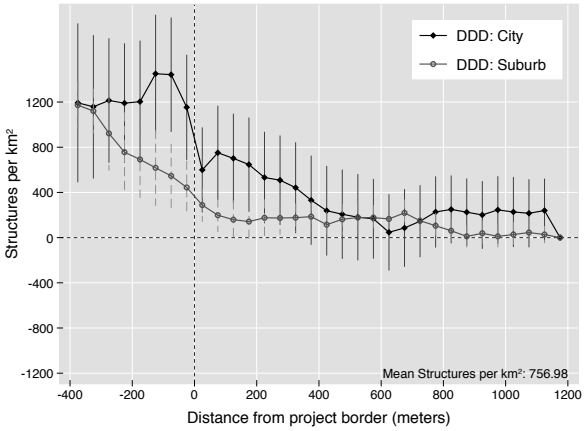
(b) Formal Houses



(c) Informal Houses



(d) Backyard Informal Houses



(e) Non-Backyard Informal Houses

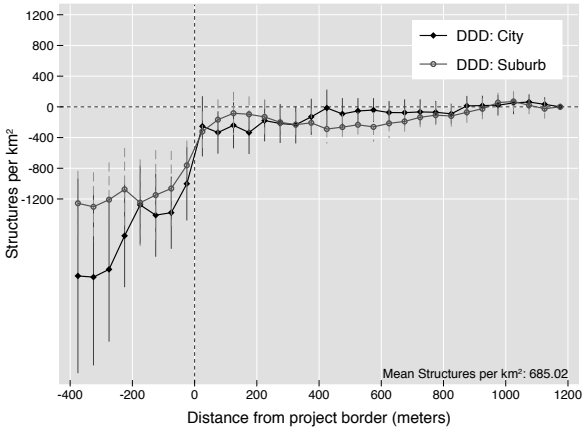


Figure 4. DDD coefficients (equation **??**) for fives types of housing densities.

Table 6. Triple Difference Estimates

	(1) Total Housing	(2) Formal Housing	(3) Informal Housing	(4) Backyard Housing	(5) Non-Bkyrd Housing
City -400m to 0m	419.55	788.11[a]	-368.56	1083.59[a]	-1452.15[a]
	(353.69)	(172.33)	(396.38)	(234.43)	(346.78)
City 0m to 400m	344.38[b]	179.14[c]	165.24	343.61[a]	-178.37
	(170.43)	(92.50)	(149.55)	(115.42)	(114.82)
Suburb -400m to 0m	258.34	648.86[a]	-390.51	542.41[a]	-932.92[a]
	(277.93)	(138.71)	(253.49)	(166.05)	(265.38)
Suburb 0m to 400m	100.81	44.81	55.99	103.53	-47.53
	(119.84)	(75.46)	(99.62)	(76.63)	(109.34)
Mean dep. var.	2,690.79	1,248.79	1,442.00	756.98	685.02
# Projects City	187	187	187	187	187
# Projects Suburb	138	138	138	138	138
R^2	0.121	0.118	0.091	0.133	0.062
N	384,472	384,472	384,472	384,472	384,472

"Near" is within 32 km from the CBD and "Far" is greater than 32km from the CBD.
Standard errors clustered at the project level in parenthesis. [c] p<0.10,[b] p<0.05,[a] p<0.01

Figure 5. Price Estimates over Distance from Project

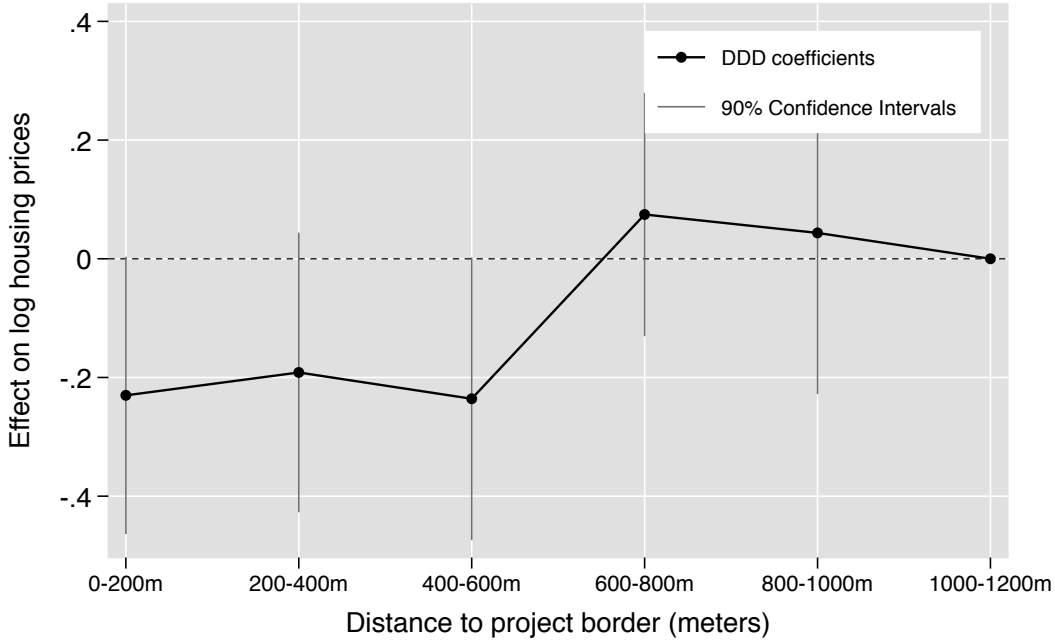


Figure 6. Price Estimates over Distance from Project Het

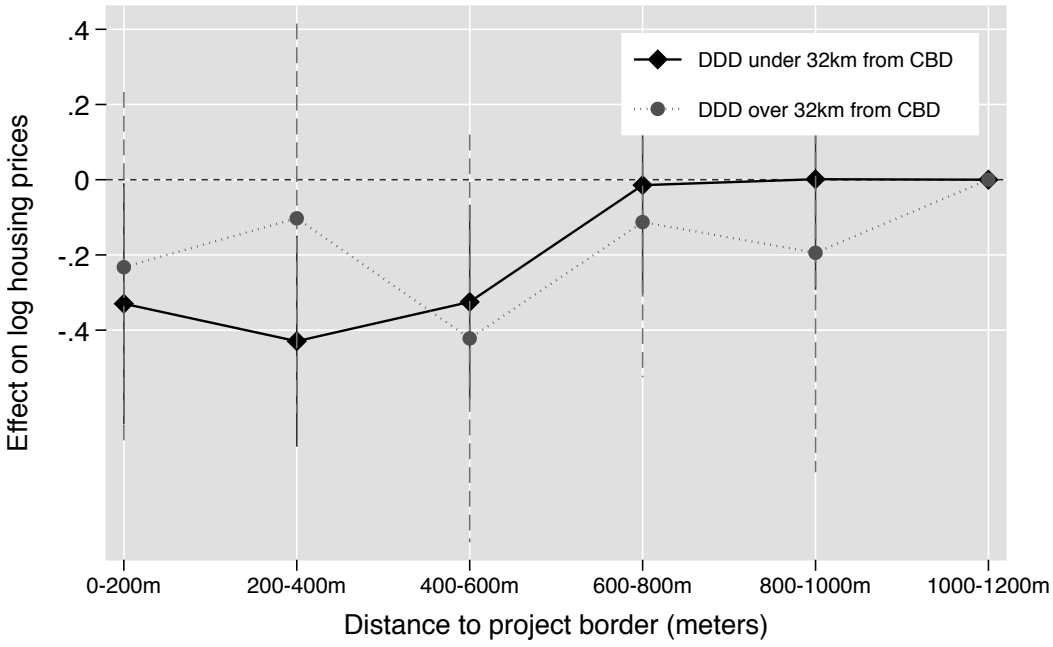


Table 7. Census Household-level Estimates

	(1) Flush Toilet	(2) Water Indoors	(3) Electricity Cooking	(4) Electricity Heating	(5) Electricity Lighting	(6) Number of Rooms	(7) Household Size	(8) Population Density
project × post × constr	0.216[a]	0.226[a]	0.256[a]	0.169[b]	0.052	0.174	-0.077	-280.030
	(0.064)	(0.046)	(0.079)	(0.071)	(0.083)	(0.132)	(0.101)	(1349.742)
project × post	-0.023	-0.001	0.155[b]	0.161[b]	0.146[b]	0.226[b]	-0.046	2706.899[b]
	(0.048)	(0.037)	(0.072)	(0.066)	(0.074)	(0.101)	(0.087)	(1356.409)
project × constr	0.018	-0.135[b]	-0.139	-0.088	-0.001	-0.033	0.140	107.780
	(0.084)	(0.062)	(0.090)	(0.082)	(0.100)	(0.200)	(0.128)	(1400.689)
project	-0.241[a]	-0.176[a]	-0.309[a]	-0.324[a]	-0.287[a]	-0.944[a]	-0.279[a]	-201.519
	(0.075)	(0.050)	(0.078)	(0.074)	(0.083)	(0.202)	(0.100)	(739.792)
spillover × post × constr	0.020	0.131[a]	0.074[a]	0.052[c]	-0.005	0.126[b]	-0.158[a]	-10.261
	(0.020)	(0.025)	(0.028)	(0.028)	(0.021)	(0.064)	(0.035)	(328.748)
spillover × post	0.010	0.046[b]	0.037[c]	0.011	0.043[b]	0.116[c]	-0.162[a]	974.235[a]
	(0.016)	(0.022)	(0.022)	(0.021)	(0.020)	(0.060)	(0.028)	(347.778)
spillover × constr	-0.046	-0.090[b]	-0.077[b]	-0.056[c]	-0.028	-0.207	0.128[b]	-444.992
	(0.036)	(0.040)	(0.033)	(0.033)	(0.035)	(0.161)	(0.057)	(1512.267)
p-val, h_0: project=spill.	0.004	0.019	0.019	0.096	0.490	0.728	0.406	0.849
Mean Outcome 2001	0.79	0.35	0.66	0.62	0.77	3.30	3.51	8,566.83
Mean Outcome 2011	0.83	0.54	0.81	0.72	0.82	3.56	3.18	9,823.82
R^2	0.368	0.367	0.432	0.410	0.389	0.411	0.462	0.394
# projects	314	314	314	314	314	314	314	314
N project areas	3,656	3,656	3,656	3,656	3,656	3,650	3,656	3,656
N spillover areas	9,076	9,076	9,076	9,076	9,076	9,059	9,074	9,078
N	12,732	12,732	12,732	12,732	12,732	12,709	12,730	12,734

All regressions include project Fixed-Effects. Standard errors clustered at the project level in parenthesis. [c] p<0.10,[b] p<0.05,[a] p<0.01

Table 8. Census Household-level Post × Constructed Coefficients: City Versus Suburb and Informal Versus Formal Housing

	Flush Toilet	Water Indoors	Electricity Cooking	Electricity Heating	Electricity Lighting	Number of Rooms	Household Size	Population Density
				Formal Houses				
City × proj	0.260[a]	0.168[b]	0.297[a]	0.220[a]	0.162[c]	0.124	-0.033	-157.430
	(0.078)	(0.071)	(0.080)	(0.072)	(0.093)	(0.209)	(0.179)	(1942.611)
City × spill	-0.001	0.107[a]	0.038	0.013	0.004	0.035	-0.128[b]	842.879[c]
	(0.020)	(0.032)	(0.024)	(0.027)	(0.023)	(0.088)	(0.061)	(450.669)
Suburb × proj	0.105	0.306[a]	0.153	0.066	-0.100	-0.283[c]	-0.424[a]	68.120
	(0.095)	(0.070)	(0.119)	(0.104)	(0.122)	(0.157)	(0.135)	(1012.859)
Suburb × spill	0.064	0.207[a]	0.096[c]	0.080[c]	-0.020	0.131	-0.277[a]	-690.360[b]
	(0.040)	(0.044)	(0.050)	(0.046)	(0.036)	(0.104)	(0.064)	(293.353)
				Informal Houses				
City × proj	0.287[a]	0.093	0.327[a]	0.225[a]	0.167[c]	-0.239[c]	-0.342[a]	-2.306
	(0.086)	(0.057)	(0.085)	(0.077)	(0.093)	(0.129)	(0.109)	(1979.737)
City × spill	0.012	0.086[a]	0.058[c]	0.017	0.025	-0.005	-0.003	643.970
	(0.024)	(0.025)	(0.030)	(0.031)	(0.026)	(0.074)	(0.055)	(448.736)
Suburb × proj	0.065	0.165[a]	0.050	-0.030	-0.183	-0.629[a]	-0.680[a]	311.365
	(0.080)	(0.041)	(0.123)	(0.109)	(0.145)	(0.153)	(0.152)	(1041.582)
Suburb × spill	0.042	0.112[a]	0.144[b]	0.129[b]	0.033	0.004	-0.259[a]	-729.152[b]
	(0.040)	(0.037)	(0.059)	(0.054)	(0.046)	(0.086)	(0.059)	(303.503)

All difference-in-differences controls are included in the specification while only the interaction terms for Post × Constructed are shown. All regressions include project Fixed-Effects. Standard errors clustered at the project level in parenthesis. [c] $p<0.10$,[b] $p<0.05$,[a] $p<0.01$