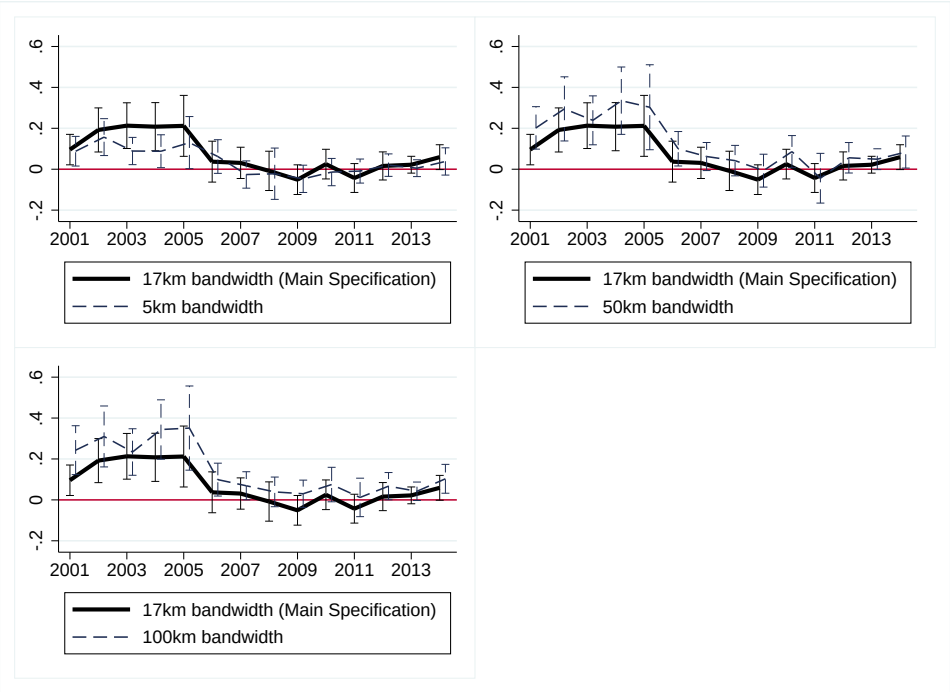
Appendix (for online publication only)

A Appendix Figures and Tables

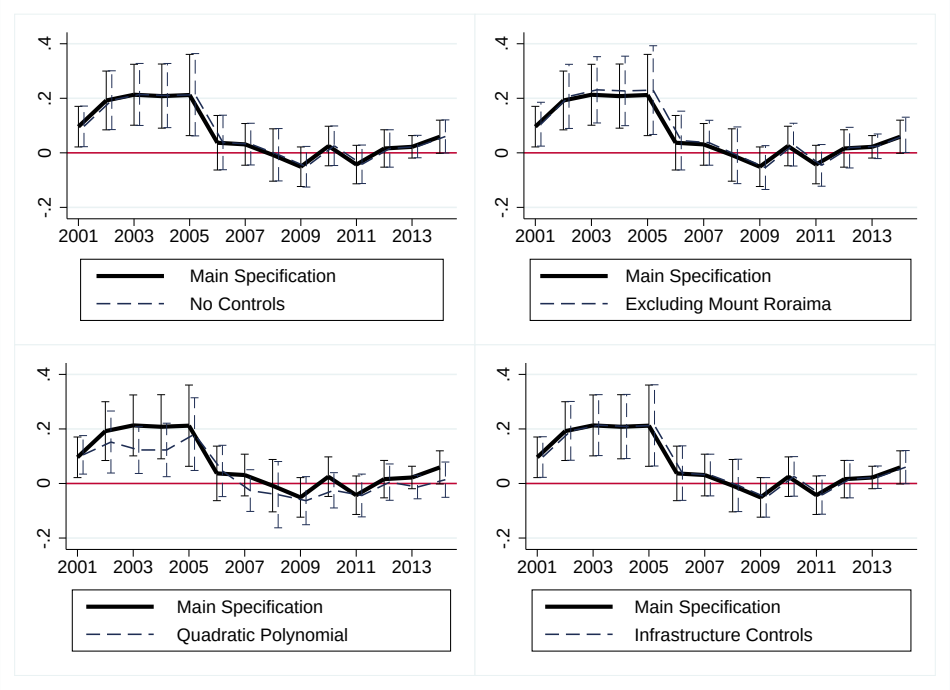
In this section we present the tables with summary statistics of the data and the estimates presented in Figures 5 and A1, as well as all robustness exercises mentioned in the paper. We also present the main robustness tests graphically.

Figure A1: Artificial Border Segments

This figure shows the regression discontinuity coefficients of the Brazilian effect, γ, on the percentage of annual forest loss by year, from equation (5) estimated through OLS regressions with *linear polynomials* and 17 km bandwidth. It shows the effects estimated restricting the sample to pixels around artificial borders (presented Panel C Table *A4* in Appendix). The vertical bars represent 95% confidence intervals.



(a) Different Bandwidth



(b) Robustness

Figure A2: Regression Discontinuity Coefficients by Year

This figure shows the regression discontinuity coefficients of the Brazilian effect, γ, on the percentage of annual forest loss by year, from equation (5). The upper panel shows specifications with *linear polynomials* and different bandwidths. The solid lines use a 17 km bandwidth – our main specification –, and the dashed lines use different bandwidths from 5 km to 100 km as indicated in each panel (presented in Table *A3*in Appendix). The bottom panel presents specifications with *linear polynomials* and a 17 km bandwidth. The solid lines show again our main specification (presented in Panel A Table *A3*in Appendix), and the dashed lines show different specifications (presented in Panels A, B, D and E Table *A4* in Appendix). The vertical bars represent 95% confidence intervals.

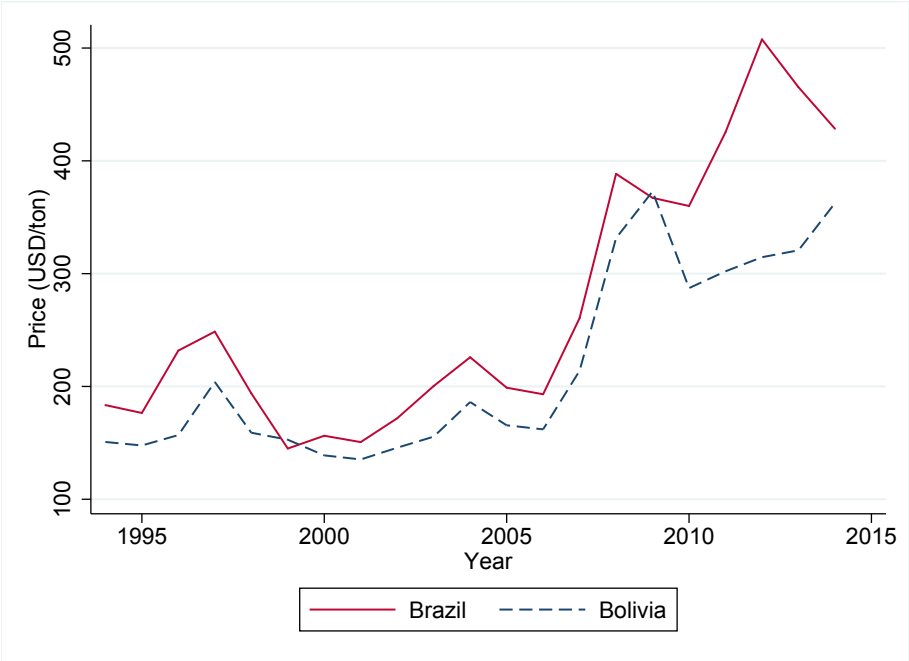
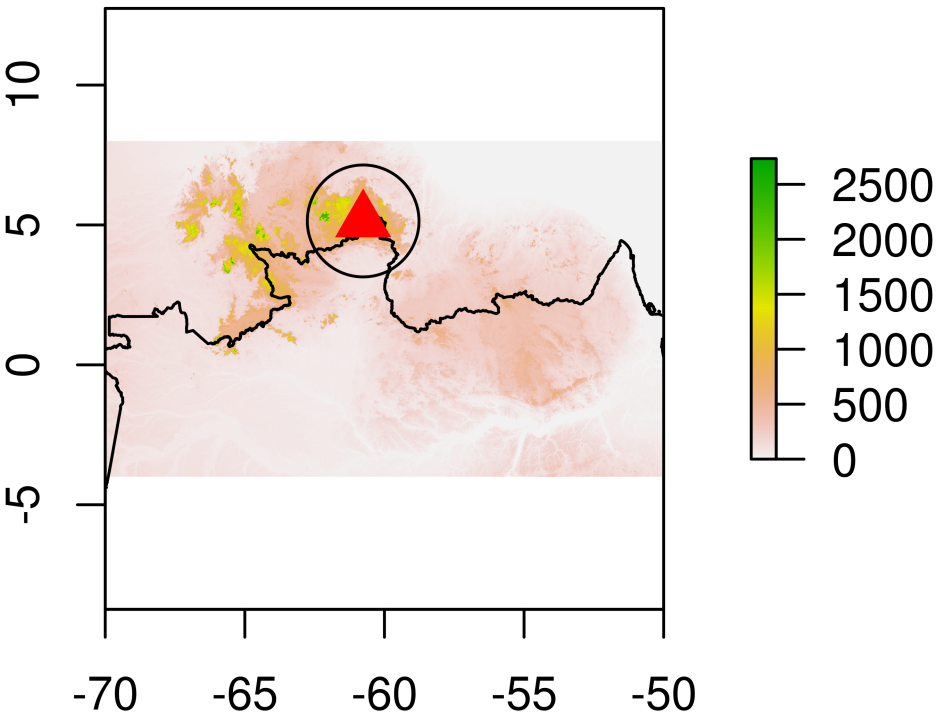
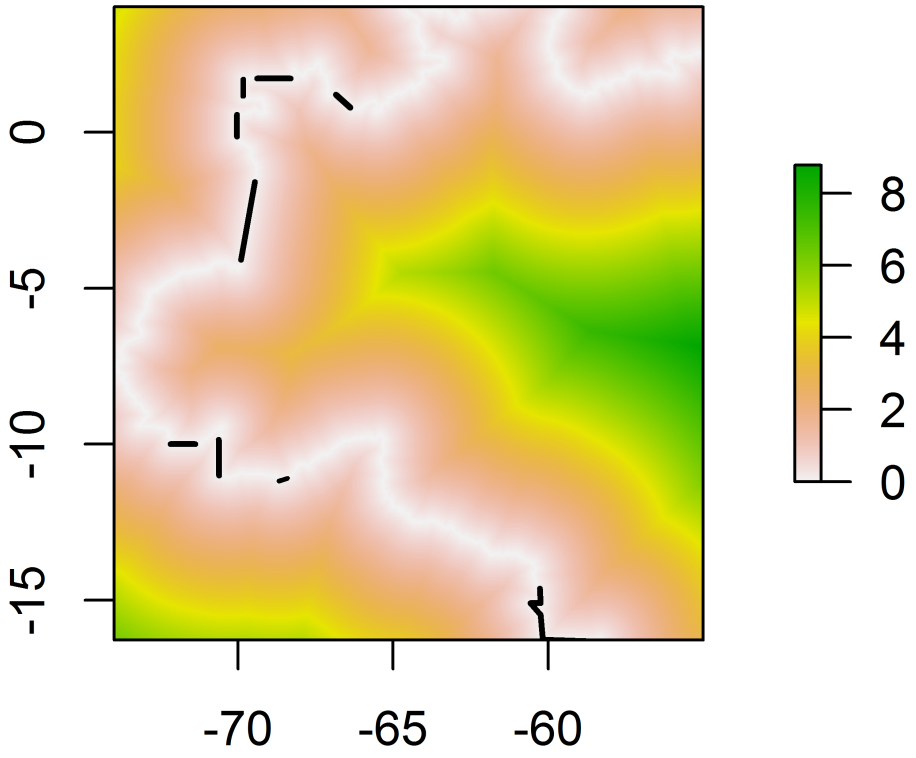


Figure A3: Farmgate Soybean Prices in Brazil and Bolivia

This figure shows average producer prices for soybeans in Brazil and neighboring Bolivia, using data from the FAO.



(a) Map of elevation with 220km radius buffer around the peak of Mount Roraima



(b) Map of Distance From Border with Artificial Borders Highlighted

Figure A4: Maps

The map in the upper panel shows the elevation (in shades as in the scale) with a 220km radius buffer around the peak of Mount Roraima in the North segment of Brazilian border with Venezuela and Guyana. The map in the bottom panel shows the distance from border measures in latitude degrees (in shades as in the scale). The area in white is distance zero. The highlighted sections in black are the areas where the border is artificially delimited, i.e. where borders are not set by a natural landmark.

Table A1: Summary Statistics

	Bandwidth 17km		Bandwidth 100km	
	Brazil	Abroad	Brazil	Abroad
	(1)	(2)	(3)	(4)
# Observations	10,258,587	10,279,125	52,646,804	52,636,853
Forest cover in 2000 (%)	83.48	89.03	84.29	90.37
Forest loss in 2001 (%)	.279	.065	.329	.047
Forest loss in 2002 (%)	.38	.059	.381	.042
Forest loss in 2003 (%)	.303	.052	.322	.037
Forest loss in 2004 (%)	.422	.083	.372	.063
Forest loss in 2005 (%)	.453	.144	.437	.096
Forest loss in 2006 (%)	.19	.083	.223	.059
Forest loss in 2007 (%)	.172	.103	.172	.071
Forest loss in 2008 (%)	.18	.127	.187	.097
Forest loss in 2009 (%)	.141	.129	.153	.088
Forest loss in 2010 (%)	.224	.123	.213	.115
Forest loss in 2011 (%)	.142	.154	.163	.092
Forest loss in 2012 (%)	.186	.114	.191	.105
Forest loss in 2013 (%)	.127	.068	.124	.062
Forest loss in 2014 (%)	.197	.094	.205	.076
Protected Areas (%)	47.6	1.1	46.3	.2
Private Non-PAs (%)	14.4	0	18.6	0
Unclaimed Non-PAs (%)	38	0	35.1	0
Area in Black Listed Counties (%)	3		1.5	
Dist. to enforcement (km)	711.4	735.9	648.4	788
Dist. to water (km)	44.5	45.90	41.3	38.3
Dist. to urban (km)	90.6	92.7	88.60	92.7
Dist. to roads (km)	41.5	46.1	34.6	50.8
Roads within 5km (%)	16.3	16.1	16.9	12.9
Mount Roraima's Buffer (%)	7.4	7.9	5.2	8.1

This table presents the summary statistics of the variables used in the paper. Each column present results for a different bandwidth or segment of the border in *Brazil* and *Abroad* (bordering countries) as indicated. The bandwidth of 17km is the average optimal bandwidth of our dependent variables. Units of observations are 120 meter pixels around the whole Brazilian Amazon border.

Table A2: Covariates Balance Check

	Land Slope			Distance from Urban Area			Distance from Water			Distance from Roads		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A. *Maximum Distance from Border* 17 *km*												
Brazil dummy (γ)	.077	.084	.054	.001	0	-.004	-.002	-.002	-.003	0	-.001	.006
	(.082)	(.09)	(.16)	(.016)	(.017)	(.036)	(.007)	(.008)	(.018)	(.008)	(.009)	(.019)
Panel B. *Maximum Distance from Border* 5 *km*												
Brazil dummy (γ)	.02	.022	.031	.001	.001	.011	0	0	.002	.001	.002	.007
	(.132)	(.144)	(.185)	(.005)	(.005)	(.029)	(.002)	(.003)	(.013)	(.003)	(.003)	(.007)
Panel C. *Maximum Distance from Border* 50 *km*												
Brazil dummy (γ)	.078	.084	-.088	-.019	-.019	-.003	-.018	-.026	-.002	-.02	-.025	-.018
	(.071)	(.076)	(.133)	(.056)	(.058)	(.059)	(.023)	(.024)	(.036)	(.029)	(.031)	(.04)
Panel D. *Maximum Distance from Border* 100 *km*												
Brazil dummy (γ)	.072	.079	-.147	-.026	-.027	.031	-.051*	-.062**	-.027	-.053	-.055	.055
	(.076)	(.082)	(.171)	(.069)	(.073)	(.085)	(.027)	(.028)	(.04)	(.038)	(.04)	(.051)
Excluding Mount Roraima		Y			Y			Y			Y	
Artificial Borders			Y			Y			Y			Y

This table presents the regression estimates of the Brazilian dummy, γ, on land slope (columns 1-3), distance from water (columns 4-6), distance from roads (columns 7-9) and distance from urban areas (columns 10-12), from equation (5) with *linear polynomials*. Each panel shows results for a different bandwidth, Panel A refers to the average optimal bandwidth of our dependent variables, and Panel B refers to the optimal bandwidth of forest cover in 2000. Units of observations are 120 meter pixels around the whole Brazilian Amazon border. We present results for three segments as indicated in the columns: the whole border, the border excluding a 220km buffer around the peak of Mount Roraima, and artificial borders only. Number of observations (whole border, excluding Mount Roraima, artificial border): Panel A (20,537,712; 18,961,163; 2,016,027), Panel B (6,239,668; 5,750,468; 558,906), Panel C (56,024,296; 51,982,251; 5,029,133), Panel D (105,283,103; 98,296,660; 7,289,279). Standard errors clustered at 50km grids in parentheses, number of clusters for the respective border segments: Panel A (301, 282, 39), Panel B (223, 205, 27), Panel C (510, 480, 58), Panel D (788, 747, 72). Significance levels: *10%, **5%, ***1%.

Table A3: Results Forest Loss by Year

	Forest Cover	Forest Loss in year													
	in 2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Panel A. *Maximum Distance from Border* 17 *km*															
Brazil (γ)	-3.276***	.096**	.192***	.213***	.208***	.212***	.037	.031	-.008	-.051	.025	-.043	.016	.022	.059*
	(.993)	(.038)	(.055)	(.057)	(.06)	(.076)	(.051)	(.039)	(.049)	(.037)	(.037)	(.036)	(.035)	(.021)	(.031)
Panel B. *Maximum Distance from Border* 5 *km*															
Brazil (γ)	-1.19**	.088**	.157***	.089***	.088**	.13**	.062	-.026	-.022	-.047	-.014	-.009	.02	.005	.038
	(.547)	(.037)	(.046)	(.034)	(.041)	(.065)	(.042)	(.034)	(.064)	(.034)	(.034)	(.03)	(.028)	(.021)	(.034)
Panel C. *Maximum Distance from Border* 50 *km*															
Brazil (γ)	-5.046**	.202***	.295***	.239***	.335***	.303***	.1**	.062*	.042	-.007	.086**	-.044	.056	.049*	.084**
	(1.989)	(.053)	(.08)	(.061)	(.084)	(.106)	(.043)	(.035)	(.038)	(.041)	(.04)	(.062)	(.038)	(.026)	(.04)
Panel D. *Maximum Distance from Border* 100 *km*															
Brazil (γ)	-5.667**	.243***	.31***	.234***	.344***	.351***	.099**	.069*	.039	.03	.075*	.012	.067*	.042*	.103***
	(2.215)	(.061)	(.076)	(.058)	(.074)	(.105)	(.041)	(.035)	(.037)	(.034)	(.043)	(.048)	(.034)	(.023)	(.036)

This table presents the regression estimates of the Brazilian effect, γ, on the percentage of forest cover in 2000 (column 1) and annual forest loss (columns 2-15), from equation (5) with *linear polynomials*. All regressions control for the slope of the terrain and distance to water. Each panel shows results for a different bandwidth, as indicated. Panel A refers to the average optimal bandwidth of our dependent variables, and Panel B refers to the optimal bandwidth of forest cover in 2000. Units of observations are 120 meter pixels around the whole Brazilian Amazon border. Standard errors clustered at 50km grids in parentheses. Number of clusters and observations: 301 and 20,537,712 (Panel A), 223 and 6,239,668 (Panel B), 510 and 56,024,296 (Panel C), and 788 and 105,283,103 (Panel D). Significance levels: *10%, **5%, ***1%.

Table A4: Robustness – Forest Loss by Year

	Forest Cover	Forest Loss by Year													
	in 2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Panel A. *Whole Border and No Controls – Linear Polynomials*															
Brazil (γ)	-3.242***	.097**	.193***	.214***	.21***	.213***	.038	.032	-.007	-.051	.026	-.042	.016	.023	.06*
	(1.012)	(.038)	(.055)	(.058)	(.06)	(.077)	(.051)	(.039)	(.049)	(.038)	(.037)	(.036)	(.035)	(.021)	(.031)
Panel B. *Border Excluding Mount Roraima Area – Linear Polynomials*															
Brazil (γ)	-3.872***	.105***	.207***	.231***	.227***	.23***	.045	.037	-.009	-.054	.03	-.046	.019	.024	.066**
	(.989)	(.041)	(.06)	(.062)	(.065)	(.083)	(.055)	(.042)	(.053)	(.041)	(.04)	(.039)	(.038)	(.023)	(.033)
Panel C. *Artificial Borders Only – Linear Polynomials*															
Brazil (γ)	-10.06**	.27***	.267*	.474**	.56**	.096	.087	.034	-.217	-.256*	-.189	-.127	-.009	.009	-.013
	(3.957)	(.101)	(.158)	(.202)	(.247)	(.081)	(.145)	(.065)	(.303)	(.151)	(.26)	(.107)	(.049)	(.08)	(.059)
Panel D. *Whole Border – Quadratic Polynomials*															
Brazil (γ)	-1.546**	.105***	.152***	.123***	.123**	.181***	.046	-.026	-.041	-.063	-.025	-.044	.005	-.013	.014
	(.704)	(.036)	(.058)	(.044)	(.05)	(.068)	(.048)	(.039)	(.062)	(.045)	(.033)	(.04)	(.034)	(.022)	(.033)
Panel E. *Whole Border and Infrastructure Controls – Linear Polynomials*															
Brazil (γ)	-3.313***	.097**	.193***	.214***	.209***	.213***	.038	.031	-.007	-.051	.026	-.042	.016	.023	.06*
	(.981)	(.038)	(.055)	(.057)	(.06)	(.076)	(.051)	(.039)	(.049)	(.037)	(.037)	(.036)	(.035)	(.021)	(.031)
Panel F. *Poisson Model – Linear Polynomials*															
Brazil (γ)	-.038***	.799***	1.122***	1.414***	1.01***	.675***	.2	.255	-.12	-.385	.107	-.313	.11	.221	.214
	(.012)	(.219)	(.212)	(.225)	(.238)	(.224)	(.339)	(.32)	(.268)	(.263)	(.204)	(.249)	(.244)	(.214)	(.198)

This table presents the regression estimates of the Brazilian effect, γ, on the percentage of forest cover in 2000 (column 1) and annual forest loss (columns 2-15), from equation (5). Maximum Distance from Border 17 km (the average optimal bandwidth of our dependent variables). All regressions, except those in Panel A, control for the slope of the terrain and distance to water. Each panel shows results for a different specification: Panel A uses only linear polynomials of distance to the border as controls; Panel B excludes a 220km buffer around the peak of Mount Roraima; Panel C restricts the sample to the areas around artificial borders (i.e., straight line borders); Panel D controls for quadratic polynomials of distance to the border; Panel E adds controls for the distance from roads and distance from urban areas, and distances from Brazilian roads and from Brazilian urban areas; Panel F uses a Poisson model instead of OLS. Units of observations are 120 meter pixels around the whole Brazilian Amazon border. Standard errors clustered at 50km grids in parentheses. Number of clusters and observations: 301 and 20,537,712 (Panels A, D, E and F), 282 and 18,961,163 (Panel B), and 39 and 2,016,027 (Panel C). Significance levels: *10%, **5%, ***1%.

Table A5: Heterogeneous Effect by Land Type (Poisson model)

	Forest Cover	Forest Loss in year													
	in 2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Panel A. *Protected Areas in Brazil*															
Brazil (γ)	.061***	-.376	-.518	-.389	-1.157***	-1.217***	-1.385***	-.745**	-1.503***	-.842**	-.153	-1.466***	-.487*	-.843***	-.492
	(.021)	(.392)	(.475)	(.5)	(.363)	(.454)	(.387)	(.345)	(.367)	(.333)	(.361)	(.263)	(.275)	(.266)	(.438)
Panel B. *Private and Non-Protected Areas in Brazil*															
Brazil (γ)	-.359***	2.335***	2.689***	3.019***	2.669***	2.478***	1.563***	1.476***	1.146***	.638*	1.171***	.722**	1.269***	1.674***	1.309***
	(.068)	(.233)	(.254)	(.231)	(.262)	(.248)	(.372)	(.399)	(.344)	(.337)	(.293)	(.355)	(.382)	(.375)	(.424)
Panel C. *Unclaimed and Non-Protected Areas in Brazil*															
Brazil (γ)	-.075***	.586**	.628**	.986***	.586**	.272	-.01	-.027	-.391	-.882***	-.387	-.556*	-.178	-.027	.066
	(.029)	(.283)	(.258)	(.339)	(.279)	(.269)	(.452)	(.377)	(.279)	(.304)	(.288)	(.297)	(.301)	(.229)	(.192)

This table presents the Poisson regression estimates of the Brazilian effect, γ, on the percentage of forest cover in 2000 (column 1) and annual forest loss (columns 2-15), from equation (5) with *linear polynomials*. All regressions control for the slope of the terrain and distance to water. Bandwidth 17km from the border, the average optimal bandwidth of our dependent variables. Each panel refers to different land types within Brazil. Units of observations are 120 meter pixels around the whole Brazilian Amazon border. Standard errors clustered at 50km grids in parentheses. Number of clusters and of observations: 285 and 15,166,304 (Panel A), 287 and 15,650,533 (Panel B), 9 and 548,511 (Panel C). Significance levels: *10%, **5%, ***1%.

B Additional Background Information

B.1 Timeline of Relevant Events in the Amazon and PPCDAm

1494 Treaty of Tordesilhas, most of the Amazon belongs to the Spanish Crown.

1637 First big Portuguese expedition to the Amazon (two thousand people).

1750 Treaty of Madrid, Portugal gains control of most of the current Brazilian Amazon.

1851-1871 The precise limits of Brazilian border with Bolivia and Peru are set.

1870-1900 First Rubber Cycle. Government gave incentives to migrate to the region. First big migration influx. Migrants could work as rubber tappers, but could not own land.

1904 Brazil gains control of Acre state, in the border with Bolivia and Peru.

1940-1945 Second Rubber Cycle (coincides with WWII). President Getulio Vargas promotes the "March to the West" and advertises the "New Eldorado".

1964-1980s Military Dictatorship invested and gave incentives to occupy the area.

1976 Regularization of land titling for properties under 60 thousand hectares that were occupied illegally but in "good faith".

1978 Population in the Legal Amazon 7 million people.

1980s Environmental concerns start to emerge and the main local environmental leader, Chico Mendes, is murdered in 1988.

1990s New large population influx with cattle ranching and soybean plantations expansion.

2000 Population in the Legal Amazon 21 million people.

2002 The Amazon Protected Area Program (ARPA) is created to expand and strengthen the Brazilian National System of Protected Areas (SNUC) and to ensure financial resources are devoted to promoting sustainable development (Federal Decree 4.326/2002).

Ecological and Economic Zoning (EEZ) are legally institutionalized as a tool of National Environmental Policy (Federal Decree 4297/2002).

2003 Marina Silva is appointed Minister of the Environment.

2004 In November, the Ministry of Environment launches the first phase of PPCDAm.[16]

2004-08 Demarcation of the perimeter of new Conservation Units and Indigenous Lands; both are *Protected Areas*.[17]

[16] The first phase was originally planned to be implemented from April 2003.
[17] Creation of 46 PAs (24 mi ha).

	Banning of over 60,000 illegal rural property titles.
	Development of the remote-sensing system DETER by INPE.
2005	Demarcation of Conservation Units in the areas surrounding the highways BR-319 (Manaus – Porto Velho) and BR-163 (Tenente Portela – Santarém).[18]
2005-07	Georeferencing of more than 10 million hectares of public lands in black listed municipalities (none on the border).[19]
2005-07	18 operational basis from IBAMA are constructed.[20]
2006	Law on Public Forest Management (law 11.284/2006) enacted.
	IBAMA's Center for Environmental Monitoring (CEMAM) fully functioning and operational centers receiving online deforestation data.
2007	First *Black Listed* municipalities are defined (Decree 6.321/2007).
	Ecological and Economic Zoning (EEZ)'s project for BR-163 is concluded.
2008	Decree 6.514/2008 reestablished the directives to investigate and punish environmental infractions. It defines the administrative processes for environmental crimes and introduced new mechanisms for law enforcement (e.g., seizure of equipment used for illegal activities).
	"Operation Fire Arc" is implemented through public security actions.
2008-10	"Operation Green Arc" is supported by eight federal Ministries and instituted policies and actions to promote sustainable development in 43 *black listed municipalities.*
	Resolution conditioning the concession of rural credit in the Amazon Biome upon legal and environmental compliance.[21]
2009	Land titles of federal public land given to squatters with small holdings.
	Seven municipalities are added to the list of black listed municipalities.
2010-15	Second phase of Amazon Protected Area Program (ARPA) , with the goal to create 13.5 million ha of new PAs.
2011	Seven municipalities are added to the list of black listed municipalities.
2012	New Forest Code (Law 12.651/2012) grant amnesty for past forest crimes.

[18] Law 11132/2005.

[19] Altamira, Anapu, Novo Progresso, Medicilândia, Santarém, Esperança, Pacajá, Cachoeira do Piriá, Coroaci-Paraná, and Alto Alegre

[20] An operational base a local headquarters that centralize the local PPDCAm actions in the area.

[21] Resolution 3545, introduced by the Brazilian National Monetary Council (CMN).

B.2 Background

B.2.1 Environmental Regulation in the Brazilian Amazon

Until the 1960s, the Brazilian Amazon's native vegetation was largely preserved and inhospitable, popularly known as the "Green Hell" (*Inferno Verde*). The area had a small and sparse population living at subsistence levels, primarily involved in the extraction of rubber, as well as an indigenous population. Between 1964 and 1985, the military government promoted the occupation of the region by non-indigenous people with large infrastructure construction projects – e.g., by building roads and hydroelectric power plants – and by promoting the titling of occupied productive land (Pfaff, 1999). As a consequence, a substantial number of migrants moved to the Amazon area, creating a boom of cattle ranching in the region.

Environmental consequences were not a central concern of Brazil during this period. Indeed, the Ministry of Environment (MMA) was created only in 1985, and the Brazilian Environmental Protection Agency (IBAMA) only in 1989. Even after the creation of IBAMA, and despite the enactment of the first Environmental Crimes Act in 1998, penalties for deforestation and squatting on unclaimed land were weak, and there was little coordination among federal agencies attempting to enforce these laws. On net, between the 1980s and 2004, the deforested area grew from 6% to 16% of total forest land in the Brazilian Amazon (MMA, 2013).

B.2.2 The Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAm)

In 2004, the Brazilian federal government decided to crack down on deforestation in the Amazon, and launched the *Action Plan for the Prevention and Control of Deforestation in the Legal Amazon* (PPCDAm). Enactment of this plan followed the appointment of Marina Silva as Minister of the Environment in 2003. PPCDAm led to changes in both the legal sanctions for deforestation, as well as substantial changes in the enforcement of environmental regulation. In particular, a new remote-sensing system for environmental monitoring and enforcement was created (DETER), which in turn fed coordinated enforcement actions between many government institutions (see more details in Assunção et al., 2013a).

In sum, while the vast majority of deforestation in the Amazon was illegal prior to 2005, the *de jure* legal sanctions associated with deforestation substantially increased in 2005.

Yet despite all the migration and infrastructure policies supported since the military government, and despite all the recent enforcement measures promoted by the PPCDAm, the deep Amazon – the area we study in this paper – is still very much a frontier region. Cattle ranchers and illegal loggers are still active. "At the end of the road, on the Amazonian frontier, it feels like the Wild West, except with motor bikes and cell phones," wrote the Vice President and Chief Scientist of WWF, Jon Hoekstra, back in 2010.[22] In an interview to the New York Times in 2014, a top official of IBAMA, Luciano Evaristo, said about one county black listed by the government, Novo Progresso (literal translation *New Progress*): "this is the Wild West

[22] http://blog.nature.org/conservancy/2010/05/18/stopping-deforestation-on-the-amazonian-frontier/

of environmental crimes. We are waging an endless war."[23]

B.2.3 The formation of the Brazilian border

Since we focus on the Brazilian border, it is useful to understand briefly the history of how the border was drawn. The broad limits of the Brazilian territory were defined in the colonial period when the Portuguese and the Spanish Crowns had very limited knowledge about the precise geography of the center of the South American continent. As such, they usually do not correspond to major differences in economic opportunity – and as we will see, include many arbitrary straight line segments.

The Treaty of Madrid defined the general lines of the Portuguese – Brazilian – border with the Spanish colonies in 1750. When drawing the Treaty of Madrid map, Portugal and Spain agreed on two general guidelines: (i) who had first established local presence should keep the area (*uti possidetis*); (ii) rivers should be used as border divisions as much as possible to easy demarcation. The main objective of Portugal during the negotiations was to hold the control of the (known) mining regions located between the center of the continent and the Atlantic coast, pushing the border West to keep potential invaders away. The main objective of the Spanish crown was to maintain navigable access to the sea. As such, the Treaty of Madrid set the limits of the colonies in that region would be defined by the Paraguay and Guaporé Rivers, which are located more than 200km and more than 500km, respectively, from the Portuguese westernmost important settlement, Cuiabá.

At the time, in the middle of the 18th century, the areas in the center of the South American continent – and which form the borders we study today – were still largely unknown. This was particularly true for the Amazon area and the Northern segment of the Brazilian border. Indeed, the magnitude of this "unknown" land can be seen by the vast blank spaces in the base map used in the Treaty of Madrid: *Carte de l'Amérique Méridionale*.[24] In fact, the precise location of rivers' springs and mouths – and what was between them – was not exact. The straight line segments we can see in the Brazilian border are a consequence of this lack of information. These are due to rivers that followed a different path than the predicted one or that ended before reaching other geographic feature – and in such cases, the Treaty of Madrid (and the subsequent 1867 Treaty of Ayacucho) specified that a straight line should be used instead.[25]

[23] http://www.nytimes.com/2014/10/04/world/americas/brazil-rainforest-amazon-conservation-election-rousseff-silva.html?_r=0

[24] "[The] *Carte de l'Amérique Méridionale shows, with great detail and many new local circumstances, the empty state of our knowledge with large completely naked spaces"* (D'Anville (1779)).

[25] Article VI of the Treaty of Madrid says "... and, from there, seek the straight line by higher ground to the main head of the more nearby river, which flows into the Paraguay River for its Eastern bank, which *might* be what they call Corrientes." The Treaty of Ayacucho (1867) that defined the precise border between Brazil and Bolivia, more than 100 years later, writes: "This river to the West follow the border by a parallel, taken from the left bank in South latitude 10º 20' until you find the Javary River. *If* Javary River has its sources North from this East-West line, follow the border, from the same latitude, for a line to get the main source of said Javary.".