# Colonial Origins and Fertility: Can the Market Overcome History?

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# Fertility rates in sub-Saharan Africa are the highest in the world



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"The challenge of Africa...it is civilizational today. What are the problems in Africa? Failed states, the complex democratic transitions, demographic transitions, which is one of the main challenges facing Africa..."

"...when countries still have seven to eight children per woman, you can decide to spend billions of euros, you will not stabilize anything."- French President Emmanuel Macron, G20 Summit in 2017

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# Fertility rates vary widely across African countries



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# Fertility rates vary widely across African countries



- Explanations: Geographical factors, historical accidents, and institutional endowments (Galor (2011))
- Little is known about the causal impact of historical political institutions on reproductive behavior
  - $\rightarrow\,$  Little is known about whether economic policies can overcome the long-term impact of history

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# This Paper: What We Do

- 1. Examine the long-term causal impact of **British** (vs. **French**) colonization on reproductive behavior in Africa:
  - $\rightarrow$  Fertility
  - $\rightarrow$  Sexual behavior
  - $\rightarrow$  Marriage patterns

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- 2. Analyze the heterogeneous effect of colonial origins by market access
  - $\rightarrow\,$  Can exogenous market forces overcome historical determinism?
  - $\rightarrow$  Rationale: high market access  $\uparrow$  female labor force participation  $\uparrow$  opportunity cost of childbearing

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  - $\rightarrow$  Can exogenous market forces overcome historical determinism?
  - $\rightarrow\,$  Rationale: high market access  $\uparrow$  female labor force participation  $\uparrow\,$  opportunity cost of childbearing
- 3. Explore the possible direct and indirect mechanisms:
  - $\rightarrow$  Colonial population policies (*direct*)
    - Contraceptive use
  - $\rightarrow$  Colonial governance rules (*indirect*)
    - Female education, child mortality, and household income

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# History (1/5)





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# History (2/5): The Direct Role of Colonial Population Policies

Colonial population policies: France's pronatalist law of 1920



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- $\rightarrow$  Prohibited any propaganda on **contraceptive use** or directed against having children, and severely repressed abortion
- $\rightarrow\,$  The law was extended to the French colonial empire
- $\rightarrow$  This law was revoked in France in 1967, but it remained in application in all former French colonies in Africa after the independence
- → Following the adoption of the resolutions of the World Population Conference held in Bucharest in 1974, this law was revoked in most former French colonies in Africa in the 1980s.

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# History (3/5): The Direct Role of Colonial Population Policies

Great Britain had a more liberal culture of reproductive rights



- → Inspired by Malthusianism, Knowlton's (1832) Fruits of Philosophy was re-published by Bradlaugh and Besant in 1877, which led to the Bradlaugh-Besant trial
- $\rightarrow$  The popularity of this trial democratized ideas of birth control in England and in British colonies
- $\rightarrow$  In the 1920s British colonial population policies were still pronatalist (Latham (2002))
- $\rightarrow$  In the 1930s the British Eugenics movement lobbied for population control in the colonies (Latham (2002), Ittmann (1999))

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# History (4/5): The Direct Role of Colonial Population Policies

"In 1941, Dr Archibald Smart, a medical adviser to the Colonial Office, expressed the mounting concern among some officials over the pace of population growth in the British empire [...] Dr Smart's comment marked a fundamental shift in the position of the British government toward colonial demographic issues, as the Colonial Office increasingly viewed population growth as a threat to its efforts to strengthen the British empire."- (Ittmann, 1999, p. 55)

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"the population (of Africa) will start shooting up just when all the white people (except the USSR) will be starting to go down."- Julian Huxley in a letter to Oliver Stanley, the secretary of state for the colonies as quoted in (Ittmann, 1999, p. 64)

# History (5/5): The Direct Role of Colonial Population Policies



 $\rightarrow$  In 1941, a colonial population control policy was adopted in London, as a method of promoting economic development in the colonies

 $\rightarrow$  The decision to promote economic development in the colonies was formalized by the passage of the Colonial Development and Welfare Act in 1940

 $\rightarrow$  Modern methods of birth control were introduced in African British colonies in the 50s, well before they were introduced in former French colonies in the 80s

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# Preview of Results (1/3): Average Effects

- Using spatial RDD with ethnic homeland fixed effects, we find that women in former British colonies:
  - $\rightarrow~$  have fewer children
  - $\rightarrow\,$  are more likely to delay sex and childbearing
  - ightarrow are less likely to marry before age 18

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# Preview of Results (2/3): Heterogeneity by Market Access

We measure market access in different ways:

- 1. Access to international markets:
  - $\rightarrow$  Proximity to sea
  - $\rightarrow\,$  Travel time to international ports
- 2. Access to domestic markets:
  - $\rightarrow$  A network-based measure of connexion (Donaldson and Hornbeck, 2016; Jedwab and Storeygard, 2016)
  - $\rightarrow$  Travel time to major cities
- British effect is null in areas with high market access

British effect is primarily present in areas with low market access

# Preview of Results (3/3): Mechanisms

In areas with low market access, the effects operate through:

- $\rightarrow\,$  Differences in the timing of colonial population policies (direct) strong evidence
- $\rightarrow$  Use of modern methods of birth control (*direct*) strong evidence
- $\rightarrow$  Female education (*indirect*) **no evidence**
- $\rightarrow$  Child mortality (*indirect*) **no evidence**
- → Household income (*indirect*) **no evidence**

Main message and policy implication: exogenous market incentives can break the bonds of historical determinism

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# Contributions to the Literature

Answer a new question: can market incentives overcome history?

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# Contributions to the Literature

- Answer a new question: can market incentives overcome history?
- Short-term determinants of fertility: Becker (1960); Mincer (1963); Becker and Lewis (1973); Galor and Weil (1996); Strulik (2017); Bloom et al. (2009)

 $\rightarrow\,$  We focus on a long-term determinant: colonial origins

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# Contributions to the Literature

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- Short-term determinants of fertility: Becker (1960); Mincer (1963); Becker and Lewis (1973); Galor and Weil (1996); Strulik (2017); Bloom et al. (2009)
  - $\rightarrow\,$  We focus on a long-term determinant: colonial origins
- Historical origins of comparative economic development: Acemoglu et al. (2001); La Porta et al. (2008); Nunn (2008); Alesina et al. (2011); Nunn and Wantchekon (2011); Michalopoulos and Papaioannou (2013, 2016); Alesina et al. (2013); Anderson (2018); Jedwab et al. (2018); Okoye et al. (2019)
  - $\rightarrow~$  No study on the role of colonial population policies
  - → First to highlight the heterogeneous nature of the colonial origins of comparative fertility behavior and economic development

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  - $\rightarrow~$  No study on the role of colonial population policies
  - → First to highlight the heterogeneous nature of the colonial origins of comparative fertility behavior and economic development
- Historical determinism of political economy: Banerjee and Duflo (2014)
  - $\rightarrow\,$  Though history cannot be changed, its effects can be modified by appropriately designed economic incentives

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# Data Sources

- Individual level data: Demographic and Health Surveys (1986-2013)
  - $\rightarrow$  Fertility history of women between 20 and 49 years old.
  - $\rightarrow\,$  Socio-economic and health characteristics
- Ethnicity level data: George Peter Murdock's Ethnographic Map of Africa (1959)
  - $\rightarrow\,$  Portrays the spatial distribution of 826 ethnic areas across Africa at the time of colonization
- Geo-referenced panel data on roads in Africa provided by the World Bank
- Panel database of the location of cities and urban populations in sub-Saharan Africa obtained from Africapolis
- Geographic measures at the pixel level: Elevation, soil suitability for agriculture, light density, area under water, and natural resources Sources

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## Identification: The Scramble for Africa - A European Randomization



"We have been engaged in drawing lines upon maps where no white man's feet have ever trod; we have been giving away mountains and rivers and lakes to each other, only hindered by the small impediment that we never knew exactly where the mountains and rivers and lakes were." — The British Prime Minister (1895–1902), Lord Salisbury

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# Historical ethnic groups split across colonial borders



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# Baseline Specification: RDD with Ethnic Homeland FE

$$Y_{\textit{ipcet}} = \alpha + \beta \textit{British}_{c} + f(\textit{BD}_{\textit{pce}}) + \delta_{e} + \gamma_{t} + \sigma_{a} + \theta_{r} + Z'_{\textit{pce}} \mu + \varepsilon_{\textit{ipcet}}$$

- Y<sub>ipcet</sub> is an outcome of interest for an individual *i* born at time *t*, living in country *c*, ethnic homeland *e*, and pixel *p*.
- British<sub>c</sub> is equal to one if the country was colonized by Great Britain and zero if it was colonized by France.
- f(BD<sub>pce</sub>) second-order RD polynomial of the distance from the centroid of each pixel to the nearest national border with different colonial power.
- >  $Z'_{pce}$  is a vector of pixel-level location and geographic controls.
- ▶  $\delta_e$ ,  $\gamma_t$ ,  $\sigma_a$ , and  $\theta_r$  stand for ethnic homeland, year of birth, age, and religion fixed effects, respectively.

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# RESULTS

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# Graphical Illustration - Average Effect of Colonial Origins on Fertility



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# Heterogeneity by Market Access: Can the Market Overcome History?

- Market access increases the opportunity cost of childbearing
  - → If the **market effect** dominates the **colonial effect**, then the effect of British colonization should be smaller in areas with high market access relative to areas with low market access

We empirically test the heterogeneous effect of British colonization by market access

Measures of access to international and domestic markets:

- $\rightarrow$  Proximity to sea
- $\rightarrow$  Travel time to international ports
- $\rightarrow$  A network-based measure of connexion (Donaldson and Hornbeck, 2016; Jedwab and Storeygard, 2016) Formula
- $\rightarrow~$  Travel time to major cities

Opportunity cost

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# Heterogeneity by Market Access: Graphical Illustration - Fertility



Positive Values: 2km Bins in former British colonies Negative Values: 2km Bins in former French colonies

Fertility effect of British colonization is null in areas with higher market access



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Analyze the possible direct and indirect mechanisms through which the effect of British (vs. French) colonization operates



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  - → Colonial population policies and contraceptive use (*direct*): British colonies introduced family planning policies much earlier than French colonies - Strong evidence

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We answered a new question: Can market incentives overcome the long-term effect of historical institutions?

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- We examined the causal impact of British (vs. French) colonization on reproductive behavior in Africa and found that women in former British colonies:
  - $\rightarrow$  Have fewer children
  - $\rightarrow~$  Delay initiation of sexual activity
  - $\rightarrow$  Delay marriage

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- These effects are smaller in areas with high market access
- We explored the possible mechanisms and found:
  - $\rightarrow$  Fertility effect of colonial origins is driven entirely by differences in the timing of colonial population policies (*direct mechanism*)
  - → Strong evidence for contraceptive use (*direct mechanism*)
  - $\rightarrow$  No evidence for female education, child mortality and income (*indirect mechanism*)

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# Conclusion (cont'd)

- This paper highlights the heterogeneous nature of the colonial origins of comparative fertility behavior (and economic development)
- Taken together, our results imply that positive exogenous market incentives can break the bonds of historical determinism

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# Thank you!

# Context and History: The Indirect Role of Colonial Institutions

The indirect fertility effect of colonial origins is theoretically ambiguous

- 1. British rules are more conducive to economic growth and may lower fertility
  - $\rightarrow$  Indirect vs. Direct rule (Lee and Schultz (2012))
  - $\rightarrow$  Common vs. Civil law (La Porta et al. (1998))
  - $\rightarrow$  Education policies (Cogneau and Dupraz (2014))
- 2. British marital law impedes female property rights and may increase fertility
  - $\rightarrow$  Separate marital property regime vs. Community marital property regime (Anderson (2018))

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# Data Sources for Geographic Variables

- https://www.ngdc.noaa.gov/mgg/shorelines/data/gshhg/latest/
  - http://www.arcgis.com/home/item.html?id=1ac6777abcc24ab4a9fe39f27c
- http://nelson.wisc.edu/sage/data-andmodels/atlas/data.php?incdataset=Topography
- http://nelson.wisc.edu/sage/data-andmodels/atlas/data.php?incdataset=Suitability%20fo%20Agriculture
- https://www.prio.org/Data/Geographical-and-Resource-Datasets



# **Summary Statistics**

	Observations	Means	Sd.dev.	Max	Min	
Panel A: In	Panel A: Individual-level means					
Age	39,428	31.56	8.16	20	49	
Year of birth	39,428	1968	10.26	1938	1988	
Muslim religion	39,341	0.61	0.49	0	1	
Children ever born	39,428	4.08	2.89	0	18	
Age at first sexual intercourse	31,649	16.11	2.94	4	37	
Age at first marriage	36,951	17.24	3.86	3	47	
Early marriage (before age 18)	36,951	0.60	0.49	0	1	
Years of education	39,405	2.08	3.82	0	21	
Currently working	37,804	0.74	0.44	0	1	
Skilled worker	27,992	0.45	0.50	0	1	
Low skilled worker	27,992	0.16	0.37	0	1	
Agricultural worker	27,992	0.39	0.49	0	1	
Cash earning	15,274	0.71	0.45	0	1	
Contraceptive use	5,182	0.54	0.50	0	1	
Child mortality	104,979	0.23	0.42	0	1	

## Table 1: Summary Statistics



# Average effect: Fertility

		RDD - Bandwidth			
	OLS (1)	<60 km from border (2)	<100 km from border (3)	<200 km from border (4)	
	Dependent	variable: Total num	ber of children ever bo	orn	
		Panel A: Baseline	specification		
British (vs. French)	-0.42***	-0.33***	-0.34***	-0.42***	
· · · ·	(0.084)	(0.114)	(0.087)	(0.089)	
Observations	38,774	21,662	29,484	37,290	
	Panel E	3: Control for spillove	er effect at the border		
British (vs. French)	-0.47***	-0.39**	-0.40**	-0.47***	
	(0.151)	(0.172)	(0.164)	(0.156)	
Observations	15,873	8,507	11,759	15,127	
Ethnic homeland FE	$\checkmark$	$\checkmark$	✓	$\checkmark$	
Geographic controls	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
Age FE	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
Year of birth FE	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
Religion FE	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	

## Table 2: Colonial origins and fertility



# Average Effect: Other Reproductive Outcomes

		RDD - Bandwidth						
	OLS (1)	<60 km of bound. (2)	<100 km of bound. (3)	<150 km of bound. (4)	<200 km of bound. (5)			
		Base	line specification					
		Panel A: F	irst birth before age	18				
British (vs. French)	-0.06***	-0.06***	-0.06***	-0.06***	-0.07***			
	(0.023)	(0.024)	(0.022)	(0.022)	(0.025)			
Observations	35,005	19,556	26,597	30,685	33,647			
		Panel B: Age	at first sexual interc	ourse				
British (vs. French)	0.49*	0.53***	0.48*	0.50*	0.51*			
. ,	(0.295)	(0.198)	(0.287)	(0.276)	(0.276)			
Observations	31,062	17,456	24,143	27,862	30,028			
		Panel C: Early m	arriage (before 18 ye	ears old)				
British (vs. French)	-0.07**	-0.07**	-0.06**	-0.07**	-0.07**			
	(0.030)	(0.035)	(0.031)	(0.029)	(0.029)			
Observations	36,372	20,229	27,630	31,898	34,937			
Ethnic homeland FE	✓	√	√	√	√			
Age FE	$\checkmark$	√	$\checkmark$	$\checkmark$	$\checkmark$			
Year of birth FE	$\checkmark$	$\checkmark$	$\checkmark$	√	$\checkmark$			
Religion FE	$\checkmark$	$\checkmark$	$\checkmark$	√	$\checkmark$			
Geographic controls	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	√			

#### Table 3: Colonial Origins and Other Reproductive Outcomes



# **Robustness Checks**

- Higher order RD polynomial
- RD polynomial in latitude and longitude (Dell (2010))
- Estimating standard errors accounting for spatial correlation using Conley's (1999) method
- Drop countries colonized by more than one colonizer: Togo and Cameroon



# Network-based Market Access Formula

$$MA_{i,t} = \sum_{j \neq i} P_{j,t} \tau_{ij,t}^{-\theta}$$
(1)

Where:

- P<sub>j,t</sub> is the population of locality j at time t (which proxies for the size of the local market in j).
- τ<sub>ij,t</sub> is the time required to travel between locality *i* and *j* given the state of the road network at time *t*.
- θ is a measure of trade elasticity. Following Donaldson and Hornbeck (2016), we use an elasticity of trade, θ, equal to 3.8

Back to Heterogenity

# High Opportunity Cost of Childbearing in Areas with Higher Market Access

	Exte	ernal market	s	Domestic	markets
	Sea coast (1)	MA port (2)	TT port (3)	MA cities 50,000 (4)	TT cities 50,000 (5)
	Pa	nel A: Log	of light d	ensity	
MA	-1.40*** (0.255)	0.36*** (0.061)	-1.35*** (0.252)	0.27*** (0.038)	-1.36*** (0.102)
Observations	1,696	1,655	1,655	1,655	1,655
	Par	nel B: High	-skilled w	orkers	
MA	-0.02***	0.00***	-0.01***	0.00***	-0.01***
	(0.006)	(0.001)	(0.004)	(0.000)	(0.002)
Observations	36,975	35,813	35,813	35,813	35,813
		Panel C: 0	Cash earni	ng	
MA	-0.11***	0.06***	-0.18***	0.02***	-0.09***
	(0.036)	(0.012)	(0.050)	(0.005)	(0.018)
Observations	15,028	14,231	14,231	14,231	14,231
		Panel	D: Asset		
MA	-0.06***	0.02***	-0.07***	0.01***	-0.07***
	(0.010)	(0.003)	(0.010)	(0.004)	(0.017)
Observations	38,461	37,302	37,302	37,302	37,302
Ethnic homeland FE	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Geographic controls	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$

Table 4: Market access, local economic development and the opportunity cost of childbearing

# Colonial Origins, Proximity to the Sea, and Light Density

	<60 km	of bound.	${<}100$ km of bound.		<150 km	of bound.	<200 km of bound.	
	Close (1)	Far (2)	Close (3)	Far (4)	Close (5)	Far (6)	Close (7)	Far (8)
			Panel A:	Pixel is lit				
British (vs. French)	-0.01 (0.152)	0.15*** (0.042)	-0.01 (0.139)	0.13** (0.058)	-0.02 (0.139)	0.13** (0.058)	-0.02 (0.138)	0.15** (0.057)
Observations	481	499	625	644	704	723	733	752
		Pan	el B: Log	of light de	nsity			
British (vs. French)	-0.08 (0.648)	0.64*** (0.209)	-0.03 (0.644)	0.56** (0.267)	-0.09 (0.670)	0.57** (0.262)	-0.08 (0.669)	0.64** (0.266)
Observations	481	499	625	644	704	723	733	752
Ethnic homeland FE Geographic controls	√ √	√ √	√ √	√ √	√ √	√ √	√ √	√ √

#### Table 5: Colonial origins, proximity to sea, and light density

Areas closer to the sea coast tend to be more similarly developed

Interestingly, this table also highlights the heterogeneous nature of the colonial origins of comparative economic development

# Heterogeneous Effects of Colonial Origins

	<60 km f	rom border	$<\!\!100~{\rm km}$	from border	<200 km from border		
	Close (1)	Far (2)	Close Far (3) (4)		Close (5)	Far (6)	
Dependent variable: Total number of children ever born							
	Pa	nel A: Base	line specif	ication			
British (vs. French)	-0.09 (0.106)	-0.47*** (0.096)	-0.13 (0.119)	-0.42*** (0.083)	-0.14 (0.112)	-0.52*** (0.076)	
Observations	9,136	12,019	11,724	16,183	13,753	18,815	
Pa	anel B: Co	ntrol for spi	illover effe	ct at the bo	rder		
British (vs. French)	0.07 (0.167)	-0.55*** (0.129)	-0.01 (0.188)	-0.50*** (0.125)	-0.03 (0.177)	-0.58*** (0.091)	
Observations	3,004	5,211	3,947	7,134	4,817	8,304	
Ethnic homeland FE Geographic controls Age FE Year of birth FE Religion FE	$\begin{array}{c} \checkmark \\ \checkmark \\ \checkmark \\ \checkmark \\ \checkmark \\ \checkmark \end{array}$	$\begin{array}{c} \checkmark \\ \checkmark \\ \checkmark \\ \checkmark \\ \checkmark \\ \checkmark \\ \checkmark \end{array}$	$\begin{array}{c} \checkmark \\ \checkmark \\ \checkmark \\ \checkmark \\ \checkmark \\ \checkmark \end{array}$	$\begin{array}{c} \checkmark \\ \checkmark \\ \checkmark \\ \checkmark \\ \checkmark \\ \checkmark \\ \checkmark \end{array}$	$\begin{array}{c} \checkmark \\ \checkmark \\ \checkmark \\ \checkmark \\ \checkmark \\ \checkmark \end{array}$	$\begin{array}{c} \checkmark \\ \checkmark \\ \checkmark \\ \checkmark \\ \checkmark \\ \checkmark \\ \checkmark \end{array}$	

## Table 6: Heterogeneity by proximity to sea: colonial origins and fertility

# Heterogeneity by Market Access: an Alternative Specification

$$\begin{aligned} Y_{ipcet} &= \beta_0 + \beta_1 British_c + \beta_2 MA_{pce} + \beta_3 British_c \times MA_{pce} + f(BD_{pce}) \\ &+ \delta_e + \gamma_t + \sigma_a + \theta_r + Z'_{pce} \mu + \varepsilon_{ipcet} \end{aligned}$$

- Y<sub>ipcet</sub> is an outcome of interest for an individual *i* born at time *t*, living in country *c*, ethnic homeland *e*, and pixel *p*.
- British<sub>c</sub> is equal to one if the country was colonized by Great Britain and zero if it was colonized by France.
- MA<sub>pce</sub> is a trichotomous indicator representing the tertiles of our different measures of market access

Note: This specification only exploits variation in market access within ethnic homelands and controls for differences in ethnic characteristics (e.g., ancestral traditions, exposure to slave trade, etc.) Table

# Heterogeneity by Market Access: an Alternative Specification (con't)

	External markets			Domestic	markets
	Sea coast (1)	MA port (2)	TT port (3)	MA cities 50,000 (4)	TT cities 50,000 (5)
Dependent	variable: To	tal number	of childre	en ever born	
	Pan	el A: Basel	ine		
British (vs. French)	-0.07	-0.14	-0.13	-0.03	0.03
	(0.096)	(0.125)	(0.116)	(0.101)	(0.079)
British (vs. French) $\times$ Medium MA	-0.25	0.41**	-0.16	-0.83***	-0.81***
	(0.183)	(0.161)	(0.159)	(0.209)	(0.158)
British (vs. French) × Low MA	-0.65***	-0.65***	-0.61***	-0.31*	-0.39***
	(0.139)	(0.241)	(0.227)	(0.183)	(0.119)
Observations	21,662	21,285	21,285	21,285	21,285
Ethnic homeland FE	√	$\checkmark$	$\checkmark$	√	$\checkmark$
Age FE	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Year of birth FE	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Religion FE	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Geographic controls	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$

Table 7: Heterogeneity by market access: colonial origins and fertility

# Why Do Colonial Origins Matter?



The conceptual framework supports both a direct and an indirect role of colonial institutions in fertility behavior



# Colonial population policies drive the fertility effect of British colonization



# Timeline of population policies in Africa

# Event-study estimates of the effect of FP policies on the British-French fertility gap



# Mechanism: Use of Modern Methods of Birth Control

	Ext	ernal marke	ts	Domestic markets		
	Sea coast (1)	MA port (2)	TT port (3)	MA cities 50,000 (4)	TT cities 50,000 (5)	
Cha	cies					
Panel A: D	V is use of	modern m	ethod of b	irth control		
British (vs. French)	0.20***	0.19***	0.20***	0.27***	0.07	
	(0.032)	(0.033)	(0.033)	(0.040)	(0.056)	
British (vs. French) $\times$ Medium MA	-0.00	0.29**	-0.01	-0.11*	0.21***	
	(0.120)	(0.145)	(0.123)	(0.069)	(0.068)	
British (vs. French) $\times$ Low MA	0.41***	0.27**	0.29**	0.15	0.42***	
	(0.096)	(0.122)	(0.122)	(0.122)	(0.113)	
Observations	3,273	3,222	3,222	3,222	3,222	
Ethnic homeland FE	$\checkmark$	$\checkmark$	✓	√	$\checkmark$	
Age FE	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
Year of birth FE	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
Religion FE	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
Geographic controls	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	

## Table 8: Colonial origins and contraceptive use

# Mechanism: Female Education

	Exte	ernal market	ts	Domestic markets		
	Sea coast (1)	MA port (2)	TT port (3)	MA cities 50,000 (4)	TT cities 50,000 (5)	
	Channel 2	: Female e	ducation			
British (vs. French)	3.01***	2.83***	2.80***	2.08**	2.54***	
	(0.270)	(0.148)	(0.135)	(0.842)	(0.198)	
British (vs. French) $\times$ Medium MA	-1.90***	-2.93***	-1.93***	0.05	-0.33	
	(0.680)	(0.473)	(0.354)	(0.185)	(0.840)	
British (vs. French) $\times$ Low MA	-2.07***	-1.91***	-1.99***	-1.19	-1.82***	
	(0.568)	(0.274)	(0.445)	(0.768)	(0.355)	
Observations	21,646	21,269	21,269	21,269	21,269	
Ethnic homeland FE	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
Age FE	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
Year of birth FE	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
Religion FE	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
Geographic controls	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	

### Table 8: Colonial origins and female education

Back to Mechanism

# Mechanism: Child Quality

	Ext	ernal marke	ets	Domestic markets		
	Sea coast (1)	MA port (2)	TT port (3)	MA cities 50,000 (4)	TT cities 50,000 (5)	
	Channe	3: Child	quality			
P	anel E: DV	is Under-f	ive mortal	ity		
British (vs. French)	-0.00	0.00	0.00	0.01	0.02	
	(0.007)	(0.009)	(0.008)	(0.010)	(0.015)	
British (vs. French) $\times$ Medium MA	0.02	0.02	-0.01	-0.06***	-0.05*	
	(0.017)	(0.023)	(0.025)	(0.021)	(0.027)	
British (vs. French) × Low MA	-0.10***	-0.03	-0.04	-0.02	-0.03	
	(0.018)	(0.034)	(0.042)	(0.020)	(0.026)	
Observations	55,756	54,734	54,734	54,734	54,734	
Ethnic homeland FE	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
Age FE	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
Year of birth FE	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
Religion FE	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
Geographic controls	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	

## Table 9: Colonial origins and child outcomes

Back to Mechanism

#### 

# Fertility and GDP in Former British and French Colonies in Africa, 1960-2016



Gaps

# Fertility and Income Gaps Between Former British and French Colonies, 1960-2016



The fertility gap between former British and French colonies opened about two decades before the income gap



# Mechanism: Household Income and Female Education

	Exte	ernal market	s	Domestic markets		
	Sea coast (1)	MA port (2)	TT port (3)	MA cities 50,000 (4)	TT cities 50,000 (5)	
	Baseli	ne specifica	ation			
Panel	A: Total nu	mber of ch	ildren eve	er born		
British (vs. French)	0.27***	0.18	0.19	0.18	0.32***	
	(0.067)	(0.123)	(0.117)	(0.109)	(0.099)	
British (vs. French) $\times$ Medium MA	-0.45***	0.08	-0.38**	-0.81***	-0.84 <sup>***</sup>	
. ,	(0.141)	(0.148)	(0.153)	(0.209)	(0.183)	
British (vs. French) $\times$ Low MA	-0.88***	-0.86 <sup>***</sup>	-0.83 <sup>***</sup>	-0.42***	-0.59***	
. ,	(0.156)	(0.235)	(0.247)	(0.123)	(0.117)	
Observations	21,474	21,102	21,102	21,102	21,102	
Ethnic homeland FE	$\checkmark$	~	√	√	√	
Age FE	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	√	
Year of birth FE	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	√	
Religion FE	$\checkmark$	~	$\checkmark$	$\checkmark$	$\checkmark$	
Geographic controls	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	√	
Education and Household income	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	

#### Table 7: Effect of colonial origins on fertility by market access ( Controlling for education and income)

Note: Observations are within 60km of each side of the British-French border



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