Online Appendix: Girls' Night In? Effects of the Kenyan COVID-19 Lockdown on Web Browsing

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Table TA1. Mobile Internet Speed in Selected Cities in Kenya

City	Download (Mbps)	Upload (Mbps)	Users in sample (%)
	(1)	(2)	(3)
Mombasa	39.46	17.48	4.11
Nairobi	21.43	12.95	59.18
Kilifi	35.93	2.13	1.27
Eldoret	15.77	16.6	1.90
Thika	11.64	3.77	6.33
Nakuru	11.11	8.93	4.43
Garissa	10.27	9.92	0
Nanyuki	7.57	4.75	0
Narok	7.28	4.28	0.32
Nyeri	6.55	8.72	0.95
Kisumu	6.18	19.62	2.22
Kakamega	5.12	5.87	0.63

Notes. This table displays the average download and upload speeds in megabits per second (Mbps) for mobile internet in various cities in Kenya from the speedtest.net mobile broadband speed checker. (Available at https://www.speedtest.net/global- index/kenya) The percentages in column (3) represent the proportion of survey's participants in our sample from each city.

Table TA2. Effects of Curfew Implementation on Total Browsing Time

	Dependent Variable: Total browsing time					
	Level	Log	Level	Log	Level	Log
	(1)	(2)	(3)	(4)	(5)	(6)
Curfew	46.004***	0.273***				
	(8.864)	(0.072)				
Curfew × Female			14.749	-0.003		
			(21.040)	(0.161)		
Curfew × High Speed					3.289	-0.192
					(17.810)	(0.152)
Observations	27699	27699	27426	27426	27699	27699
Individuals	316	316	313	313	316	316
Day FEs			✓	✓	✓	✓
Individual FEs	✓	✓	✓	✓	✓	✓
Day-of-week FEs	✓	✓	✓	✓	✓	✓

Notes. This table shows estimation results of curfew effect on total browsing time. *Curfew* is a dummy variable that takes value 1 from 27 March 2020 onward and zero otherwise. The unit of observation is a user-day. Standard errors, shown in parentheses, are clustered at the individual level. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table TA3. Effects of Curfew Implementation on Browsing Concentration

	Overall		By Gender		By Speed	
	Domains	Topics	Domains	Topics	Domains	Topics
	(1)	(2)	(3)	(4)	(5)	(6)
Curfew	-0.058***	-0.050***				
	(0.008)	(0.009)				
Curfew × Female			0.040**	0.048**		
			(0.019)	(0.020)		
Curfew × High Speed					0.011	0.013
					(0.017)	(0.019)
Observations	23370	23370	23118	23118	23370	23370
Individuals	316	316	313	313	316	316
Day FEs			✓	✓	✓	✓
Individual FEs	✓	✓	✓	✓	✓	✓
Day-of-week FEs	✓	✓	✓	✓	✓	✓

Notes. This table shows estimation results of the curfew effect on domain and topic concentration indices, measured by the Herfindahl-Hirschman Index. *Curfew* is a dummy variable that takes value 1 from 27 March 2020 onward and zero otherwise. The unit of observation is a user-day. Standard errors, shown in parentheses, are clustered at the individual level. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table TA4. Effect of Curfew Implementation on Browsing Time in Kenyan Top-Level Domains

	Level	Log	Level	Log	Level	Log	Level	Log
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Curfew	1.542	0.186***						
	(1.609)	(0.045)						
Curfew × Kenyan TLD			-24.390***	-0.043	-27.400**	-0.050	-21.821	-0.038
			(9.243)	(0.080)	(10.870)	(0.100)	(13.871)	(0.137)
Curfew × Kenyan TLD × Female					9.322	0.028		
					(21.183)	(0.170)		
Curfew × Kenyan TLD × High Speed							-2.388	0.004
							(18.420)	(0.169)
Observations	27699	27699	55398	55398	54852	54852	55398	55398
Individuals	316	316	316	316	313	313	316	316
Day FEs			✓	✓	✓	✓	✓	✓
Individual FEs	✓	✓	✓	✓	✓	✓	✓	✓
Day-of-week FEs	✓	✓	✓	✓	✓	✓	✓	✓
Kenyan TLD dummy			✓	✓	✓	✓	✓	✓
Curfew × Kenyan TLD					✓	✓	✓	✓
Curfew × Subgroup					✓	✓	✓	✓
Kenyan TLD × Subgroup					✓	✓	✓	✓

Notes. This table reports changes on browsing time in Kenyan top-level domains during curfew for the whose sample and for different sub-populations. *Curfew* is a dummy variable that takes value 1 from 27 March 2020 onward and zero otherwise. The unit of observation is a user-day-domain type. Kenyan top-level domains comprise domain name extensions like .ke, kenya.com, kenya.org, and kenya.net. Standard errors, shown in parentheses, are clustered at the individual level. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table TA5. Effects of Lockdown Stringency on Total Browsing Time

	Dependent Variable: Total browsing time					
	Level	Log	Level	Log	Level	Log
	(1)	(2)	(3)	(4)	(5)	(6)
Stringency Index	1.988***	0.008***				
	(0.388)	(0.003)				
Stringency Index × Female			0.846	0.003		
			(0.939)	(0.007)		
Stringency Index × High Speed					0.020	-0.010
					(0.787)	(0.006)
Observations	27699	27699	27426	27426	27699	27699
Individuals	316	316	313	313	316	316
Day FEs			✓	✓	✓	✓
Individual FEs	✓	✓	✓	✓	✓	✓
Day-of-week FEs	✓	✓	✓	✓	✓	✓

Notes. This table shows estimation results of curfew effect on total browsing time. *Stringency Index* is a composite measure that records the strictness of government policies to Coronavirus and takes values between 0 and 100. The unit of observation is a user-day. Standard errors, shown in parentheses, are clustered at the individual level. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table TA6. Effects of Lockdown Stringency on Browsing Concentration

	Overall		By Gender		By Speed	
	Domains	Topics	Domains	Topics	Domains	Topics
	(1)	(2)	(3)	(4)	(5)	(6)
Stringency Index	-0.002***	-0.002***				
	(0.000)	(0.000)				
Stringency Index × Female			0.002**	0.002***		
			(0.001)	(0.001)		
Stringency Index × High Speed					0.001	0.001
					(0.001)	(0.001)
Observations	23370	23370	23118	23118	23370	23370
Individuals	316	316	313	313	316	316
Day FEs			✓	✓	✓	✓
Individual FEs	✓	✓	✓	✓	✓	✓
Day-of-week FEs	✓	✓	✓	✓	✓	✓

Notes. This table shows estimation results of the curfew effect on domain and topic concentration indices, measured by the Herfindahl-Hirschman Index. *Stringency Index* is a composite measure that records the strictness of government policies to Coronavirus and takes values between 0 and 100. The unit of observation is a user-day. Standard errors, shown in parentheses, are clustered at the individual level. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table TA7. Effect of Lockdown Stringency on Browsing Time in Kenyan Top-Level Domains

	Level	Log	Level	Log	Level	Log	Level	Log
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Stringency Index	0.058	0.006***						
	(0.071)	(0.002)						
Stringency Index × Kenyan TLD			-1.112***	-0.001	-1.185**	-0.001	-1.022*	-0.001
			(0.405)	(0.004)	(0.467)	(0.004)	(0.602)	(0.006)
Stringency Index × Kenyan TLD × Female					0.203	-0.000		
					(0.951)	(0.008)		
Stringency Index × Kenyan TLD × High Speed							-0.054	0.001
							(0.807)	(0.007)
Observations	27699	27699	55398	55398	54852	54852	55398	55398
Individuals	316	316	316	316	313	313	316	316
Day FEs			✓	✓	✓	✓	✓	✓
Individual FEs	✓	✓	✓	✓	✓	✓	✓	✓
Day-of-week FEs	✓	✓	✓	✓	✓	✓	✓	✓
Kenyan TLD dummy			✓	✓	✓	✓	✓	✓
Stringency Index × Kenyan TLD					✓	✓	✓	✓
Stringency Index × Subgroup					✓	✓	✓	✓
Kenyan TLD × Subgroup					✓	✓	✓	✓

Notes. This table reports changes on browsing time in Kenyan top-level domains during curfew for the whose sample and for different subpopulations. *Stringency Index* is a composite measure that records the strictness of government policies to Coronavirus and takes values between 0 and 100. The unit of observation is a user-day-domain type. Kenyan top-level domains comprise domain name extensions like .ke, kenya.com, kenya.org, and kenya.net. Standard errors, shown in parentheses, are clustered at the individual level. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table TA8. Browser Activity Summary Statistics: Total Daily Time and Concentration

		Gender			Broadband Speed		
	All	Female	Male	diff.	High-speed	Low-speed	diff
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total duration	273.71	305.52	261.66	-43.856***	296.82	234.15	-62.666***
Time of Day							
Bin 1: 00:00-03:59	26.38	33.66	23.44	-10.219***	30.20	19.85	-10.342***
Bin 2: 04:00-07:59	12.90	14.76	12.16	-2.591***	13.66	11.60	-2.064***
Bin 3: 08:00-11:59	50.16	49.78	50.66	0.882	50.94	48.82	-2.119*
Bin 4: 12:00-15:59	68.20	72.39	66.92	-5.467***	72.31	61.18	-11.130***
Bin 5: 16:00-19:59	61.13	67.54	58.74	-8.803***	65.06	54.40	-10.658***
Bin 6: 20:00-23:59	54.94	67.39	49.73	-17.659***	64.66	38.30	-26.352***
Domains							
Google	32.15	30.70	32.82	2.118**	30.87	34.33	3.461***
Youtube	105.95	126.14	97.89	-28.250***	122.77	77.16	-45.609***
Facebook	9.14	5.59	10.85	5.255***	9.28	8.90	-0.382
Yahoo	2.61	1.63	3.09	1.461***	2.23	3.27	1.046***
Instagram	1.46	1.74	1.36	-0.386**	1.92	0.68	-1.243***
Twitter	3.35	1.29	4.32	3.026***	3.46	3.16	-0.295
LinkedIn	1.14	0.84	1.29	0.458***	1.37	0.75	-0.618***
Netflix	19.20	46.55	7.16	-39.390***	25.66	8.14	-17.516***
PayPal	0.67	0.64	0.69	0.054	0.62	0.77	0.156*
WhatsApp	1.53	1.40	1.61	0.207**	1.55	1.51	-0.034
Topics							
Arts & Entertainment	141.47	194.37	119.14	-75.226***	169.80	92.95	-76.847***
Beauty & Fitness	1.11	3.54	0.04	-3.505***	0.05	2.93	2.883***
Computers & Electronics	9.84	11.65	9.11	-2.541***	10.37	8.93	-1.443***
Email & Messaging	20.17	17.25	21.52	4.272***	18.89	22.37	3.475***
Finance	4.98	3.24	5.83	2.587***	4.61	5.60	0.991*
Games	3.55	0.91	4.79	3.878***	3.33	3.94	0.614*
Health	1.56	0.68	1.98	1.299***	0.44	3.48	3.042***
Jobs & Education	12.18	9.54	13.33	3.790***	11.04	14.12	3.082***
News	3.94	2.01	4.86	2.849***	3.30	5.04	1.743***
Online Communities	17.49	11.67	20.33	8.669***	18.82	15.21	-3.611***
Concentration (HHI)							
Domains	0.51	0.55	0.50	-0.048***	0.53	0.49	-0.036***
Topics	0.52	0.58	0.49	-0.085***	0.54	0.48	-0.058***
Local Domains							
Kenyan top-level domains	15.97	9.46	18.96	9.493***	13.54	20.15	6.611***

Notes. This table shows summary statistics of our main outcome variables related to browsing activities. Columns report mean values, except for columns 4 and 7 that report difference in means by sub-population. The unit of observation is a user-day. Time durations are in minutes. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table TA9. Browser Activity Summary Statistics: Similarity Index

	Gender	Broadband Speed
	(1)	(2)
Domains		
Jaccard	0.45	0.49
Jaccard(weighted)	0.19	0.21
Topics		
Jaccard	0.82	0.87
Jaccard(weighted)	0.22	0.25

Notes. This table shows mean values of the similarity index (Jaccard) for domains and topics computed for each market segment (gender or speed). The unit of observation is a day.

Table TA10. Curfew Effects on Daily Browsing Time by Time of Day

	Time of Day					
	00:00-03:59	04:00-07:59	08:00-11:59	12:00-15:59	16:00-19:59	20:00-23:59
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: All						
Curfew	10.977***	5.922***	6.116***	9.019***	2.037	7.284**
	(2.338)	(1.317)	(2.097)	(2.287)	(2.764)	(2.883)
Observations	27699	27699	27699	27699	27699	27699
Individuals	316	316	316	316	316	316
Panel B. Subsample						
Curfew	14.206***	6.624***	6.116***	9.019***	2.037	7.977**
	(2.980)	(1.464)	(2.097)	(2.287)	(2.764)	(3.153)
Observations	22192	24546	27699	27699	27699	25836
Individuals	254	280	316	316	316	295
Individual FEs	✓	✓	✓	✓	✓	✓
Day-of-week FEs	✓	✓	✓	✓	✓	✓

Notes. This table shows estimation results of the curfew effect on total browsing time for each time of day bin, as indicated in the column header. *Curfew* is a dummy variable that takes value 1 from 25 March 2020 onward and zero otherwise. In Panel A we use the whole sample while in Panel B we excluded user-bin observations with no browsing activity during the entire time window. The unit of observation is a user-day-time-of-day bin. Standard errors, shown in parentheses, are clustered at the individual level. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table TA11. Share of Users per Domain and Topic, by User Segment

	Domains									
	Google (1)	Youtube (2)	Facebook (3)	Yahoo (4)	Instagram (5)	Twitter (6)	LinkedIn (7)	Netflix (8)	PayPal (9)	WhatsApp (10)
Female	100.0	96.9	96.9	60.4	58.3	63.5	63.5	41.7	66.7	70.8
Male	100.0	96.8	97.7	76.0	58.5	81.1	73.3	27.6	72.4	73.3
High-speed Area	100.0	98.0	98.0	71.0	61.5	79.0	70.5	35.5	71.5	75.5
Low-speed Area	100.0	94.8	96.6	72.4	51.7	70.7	68.1	25.0	69.8	68.1

	Topics									
	Arts & Entertainment	Beauty & Fitness	Computers & Electronics	Email & Messaging	Finance	Games	Health	Jobs & Education	News	Online Communities
Female	99.0	39.6	100.0	100.0	93.8	74.0	80.2	97.9	97.9	100.0
Male	98.6	31.8	100.0	100.0	99.1	87.1	82.0	98.6	100.0	99.5
High-speed Area	100.0	35.0	100.0	100.0	98.0	81.5	80.0	98.0	99.0	100.0
Low-speed Area	96.6	31.9	100.0	100.0	96.6	83.6	84.5	99.1	100.0	99.1

Notes. This table reports the share of internet users that have positive browsing time by domain and topic category, at any point in our study window.

Table TA12. Effects on Browsing Concentration: Effective Number of Firms

	Overall		By Gender		By Speed	
	Domains	Topics	Domains	Topics	Domains	Topics
	(1)	(2)	(3)	(4)	(5)	(6)
Curfew	0.223***	0.231***				
	(0.044)	(0.051)				
Curfew × Female			-0.200**	-0.254**		
			(0.095)	(0.106)		
Curfew × High Speed					-0.111	-0.085
					(0.090)	(0.104)
Observations	23370	23370	23118	23118	23370	23370
Individuals	316	316	313	313	316	316
Day FEs			✓	✓	✓	✓
Individual FEs	✓	✓	✓	✓	✓	✓
Day-of-week FEs	✓	✓	✓	✓	✓	✓

Notes. This table shows estimation results of the curfew effect on domain and topic concentration indices, measured by the inverse Herfindahl index, also known as effective number of firms. *Curfew* is a dummy variable that takes value 1 from 25 March 2020 onward and zero otherwise. The unit of observation is a user-day. Standard errors, shown in parentheses, are clustered at the individual level. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.