Railroad Rides for Freedom: Colonial Transportation Networks and Diffusion of Independence Movement

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Abstract

How does colonial infrastructure development affect mobilization for independence? In this paper we show that the railroads built under Japanese imperialism and colonization of Korea between the late nineteenth and twentieth century actually facilitated the Korean independence movement. On March the first in 1919, a series of massive public demonstrations for Korean national independence began from the capital city of Seoul and quickly spread throughout the Korean peninsula. We find that during the March First Movement, districts in close proximity to the railways were much more likely to witness the political mobilization. Our main finding remains robust to other contributing factors including distance to the capital and existing transportation networks, number of public markets and schools, as well as deterring factors such as the presence of military and police stations.

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Introduction

Colonial railways have been linked to increases in agricultural production, urbanization and overall population growth in the colonies,[1] but they were rarely constructed for the benefit of the colonial subjects or their independence. Serving as instruments of imperialist pursuits, the railways transported not only agricultural and manufactured goods, but also armed forces and military supplies to impose colonial rule over territories. Aside from aiding colonizers, how did the railways affect colonial subjects?

In this paper we present an unintended and under-explored consequence: the effective spread of organized protest movements for independence against the colonial government. In particular, we present the case of Korea under Japan's colonial rule in the beginning of the twentieth century, to show that advances in railway networks critically helped the independence protest movements to reach all the regions in the Korean peninsula. Although many works have examined how railroads contribute to economic growth and explored the various channels to obtain the outcome,[2] studies on the impact of transportation networks on political mobilization

[1]Donaldson (2018) for example shows that the building of colonial railway networks in India led to positive economic outcomes through reduced trading costs, smaller inter-regional price gaps, and increased trade volumes in the country. Bogart and Chaudhary (2013) find that the colonial railways in India led to an increase in total factor productivity between 1874 and 1912. Jedwab and Moradi (2016) find similarly positive economic outcomes of colonial railways in the case of Ghana. Paik and Vechbanyongratana (2020) on the other hand show that railways could also help at-risk states to defend themselves against colonial threats. The authors discuss the case of Siam (presently Thailand), in which the British and French colonial threats led the Southeast Asian kingdom to build "political" railways between the late nineteenth and twentieth century. The railways were built in order to more efficiently send out and station military personnel and government officials, and bring the kingdom's peripheral regions under the direct rule of the king.

[2]Some of the representative works include Chandler, Alfred, Jr. (1977), Donaldson (2018), Atack, Haines, and Margo (2011), Atack and Margo (2011), Donaldson and Hornbeck (2016), and Fogel (1964).

have received less attention in the literature. We bring forth the case study of colonial Korea and its independence movement to shed some light on this important topic.

The 1919 March First Movement (*Samil Undong*) in Korea was a widely spread, highly impactful civic movement, during which massive protests against Japan's colonial rule occurred. On March 1st, 1919, thirty-three national representatives announced the Declaration of Independence against Japanese occupation. Crowds gathered and marched in downtown Seoul afterwards, and despite brutal suppression by the military and the police, more than a thousand demonstrations with bevies of participants were seen in almost every part of the peninsula for nearly two months.[3] The Movement was the beginning of systematic efforts toward national independence, and this historic event became the spiritual foundation of Korea's nation-building efforts after its liberation from Japan in 1945.[4] Importantly, the March First Movement in its mission and scale also inspired similar national independence movements in neighboring countries, including the May Fourth Movement in China (Shin 2001).

Numerous scholars have examined the causes, processes, and aftermath of the March First Movement since it occurred.[5] Scholars have generally emphasized Koreans' grievances against the illegitimacy and brutality of the Japanese rule as the impetus for the Movement. For example the Korean History Society and Institute for Korean Historical Studies eds. (1989) provide detailed accounts of the political suppression, economic exploitation and discrimination

[3]An official document from the Chosen Military Police Headquarters and Police Department of Chosen Governor General in 1920 reports that 550 thousand people participated in the demonstrations. According to the Provisional Government of Republic of Korea in 1920, the number of participants was 2 million. The total population of Korea according to the first census in 1925 was 21 million.

[4]The preface of the Constitution of Republic of Korea manifested that the March First Movement was the beginning of the Provisional Government of Republic of Korea, later succeeded by the government of Republic of Korea after the liberation in 1945.

[5]Choi (1920) provides the earliest scholarly work on the Movement. Korean History Society and Institute for Korean Historical Studies eds. (1989) and Park (2014) provide detailed bibliographies.

that the colonial subjects faced under the Japanese rule. On the empirical side, earlier studies focused on the nationwide general protest patterns and historical narratives of events that took place in the capital and among the national leaders. Recent works on the other hand have delved more into the micro-level data on the duration and intensity of demonstrations at the town or village level.[6] Given that nearly all the regions experienced the protests eventually, our goal in this paper is to investigate to which extent access to transportation was a major determinant of the protest spread. Various historical accounts suggest that the local protest organizers first congregated in Seoul where the demonstrations began on March 1st, met with the leaders, and then went back to spread the movement. This propagation mechanism implies that regions with easier access to Seoul were more likely to witness the demonstration than others.

We uncover the relationship between railroad access and incidents of demonstrations by using extensive colonial census records, novel incident reports and railroad maps that have not been utilized in the literature. While we are certainly not the first to argue that the colonial railways in Korea helped to mobilize the March First Movement,[7] no study has yet systematically tested this claim against other explanatory channels. Our analysis reveals a strong empirical trend to support the argument: during the two months over which the protests took place, each distance unit (ten kilometers) increase away from the nearest railroad led to a six to eight percent decrease in the likelihood of witnessing a protest, depending on the regression specification. This result remains statistically significant and robust to a number of confounding factors, including the distance to the capital, existing road infrastructure, Korean and Japanese population, urban centers, public markets, schools, as well as the presence of military and police force.

[6]See for example Andong University (2013), Chung (1989), Hwang (1987), Kim (2009), Kim (2011), Lee (1989), Lee (1989), Lee (2009), Park (2007), Kim and Lee (2009), Kim, Park, and Park (2009).

[7]Kim (2000) for example presents a similar argument.

Colonial Railways and the March First Movement

After the collapse of the Goryeo Dynasty (918-1391 AD), the Joseon Dynasty (13912-1910 AD) ruled the Korean peninsula for almost six hundred years. However, since the port-opening in 1876 and facing pressure from Japan and Western imperial powers, the rulers of the Dynasty were unsuccessful in reforming the kingdom, and Korea was finally annexed by Japan in 1910. The railway construction in Korea first began in 1899 with funds from Japan. Over the subsequent decades that saw Japan's increasing encroachment over Joseon, the colonial government that eventually annexed the kingdom completed building four core lines that became the backbone of the Korean railroad system.

The X-shaped railways with Seoul as the point of intersection facilitated Japan's access to China and Russia via the peninsula. The railways also connected major ports so that the extracted goods produced in Korea could efficiently be shipped to Japan. Among the four major lines, the Kyungbu line connected Seoul and Busan. Busan was the largest port located in the southeastern part of Korean peninsula, and it was the closest main gateway to Japan. The Kyungui line linked Seoul and Sinuiju. Sinuiju is the border city by the Yalu river, located in the northwestern part of the peninsula. The two lines together transported people and goods from Japan to China via Seoul. In addition to these lines, two more trunk lines were built during this period. The Honam line stretched freom Seoul to the southwestern part of the peninsula. The southwestern region comprises the largest plains in Korea, and the railway moved agricultural goods produced from this region to a major port (Mokpo) and other parts of Korea. Finally, the Kyungwon line linked Seoul to Wonsan, a major port of the northeastern region. Out of 220 districts (*Kun* in Korean), 58 had railroad stations at this time.

In addition to laying the transportation infrastructure, the Governor General of colonial Korea deployed military police, put Korean political leaders and activists into prison, abolished Korean newspapers, and deprived Koreans of their basic rights in efforts to completely take

over Joseon.[8] These oppressive measures, however, could not stop the colonial subjects from claiming their independence permanently. From the late 1918 to the early 1919, a new wave of resistance sprouted, inspired in part by the then-president Woodrow Wilson's principle of national self-determination (Park 1989; Shin 2001). The movement was further fueled by the sudden death of Gojong (the last king of Joseon) in January 1919, as Koreans suspected that their king was poisoned to death by the Japanese colonial government that wanted to prevent him from organizing independence operations in secret. The date of his state funeral was decided as March 3rd, and a large number of people from all over the country came to Seoul for mourning.

At noon, March 1st, 1919, thirty-three national representatives leading the Movement announced the Declaration of Independence at a restaurant in downtown Seoul. Thousands of people gathered and marched on the streets of Seoul, and similar demonstrations were held across six major cities on the same day. After the first wave of demonstrations in Seoul, protesters moved to various parts of Korea, delivered leaflets informing the locals of the Movement in Seoul, and led local protests. Crowds gathered in public places such as markets, announced the Declaration of Independence and marched on streets. Merchants showed their support by closing their shops, students boycotted attending classes and numerous Korean civil servants resigned and joined the demonstrations. The colonial government reacted to these protests with brute force from the very beginning, arresting thirty-three representatives immediately and resorting to torture and shootings of protesters.[9]

While the colonial government's harsh oppression continued, the protests went on until the end of April and inspired a subsequent series independence movements until the country

[8]Shin 2001

[9]There are numerous studies on the March First Movement that provide historical descriptives on the sequence of the events; representative works include Korean Provisional Government (1919), Choi (1946), Park (1920), Korean History Society and Institute for Korean Historical Studies eds. (1989), Lee (2009), Kim and Lee (2009), Park (2014), and Park, Park and Kim (2009).

gained independence in 1945. Shortly after the Movement, the national leaders established the Provisional Government of the Republic of Korea in Shanghai in 1920. A large number of independence fighters also relocated to Manchuria and organized covert operatives to fight the colonial government (Shin 2017). Until the liberation in August 1945, these organizations worked as vehicles for reclaiming national independence.

In the long run, the collective memory of the Movement became the spiritual foundation of nation-building after 1945; the preface of the Constitution of Republic of Korea manifested that the March First Movement was the beginning of the Provisional Government of Republic of Korea, later succeeded by the government of Republic of Korea after the liberation. The Movement also forced the colonial government to change their policies. They realized that oppressive military policies would not work and took a more conciliatory strategy. The civil police replaced the military police to allow Korean newspapers to publish and lower the level of censorship on publications to some extent. Furthermore, from 1920, they started municipal elections, in which Koreans paying a certain level of tax to the government could vote as well as run for office as candidates (Dong 2011; Yoon 2006).

Findings

Online Appendix Table 1 presents summary statistics of the March First Movement. We note that over the two months of protests beginning on March 1st, there were on average about five protests witnessed in any given district ((*kun* in Korean). These protests gathered a bevy of participants averaging 2500, with the maximum number of participants in our data totalling 25,000 people. Among them about 2 percent of them were reported as arrested.[10] Nearly every district (193 out of 220) experienced at least one protest with a large group of participants over the two-month time period. While innumerable protests had occurred for national independence

[10]These records come from the colonial office and are likely under-reported.

throughout the colonial period, the Movement constitutes the most significant one of its kind for its spread and magnitude.

There are a number of factors that could explain the protest outcomes, including proximity to Seoul and road coverage, as well as the total number of Korean and Japanese population in each district. We expect that districts closer to Seoul and well connected by roads likely witnessed more protests. Districts with more Korean population also would likely have more protests, while those with more Japanese population might not. Urban centers, i.e. districts containing cities (*bu* in Korean), the number of public markets, as well as presence of Korean schools and Japanese schools, all likely mattered as well. Protests were more likely in urban centers when considering the ease of information spread within dense networks; public markets and schools became the gathering places of merchants and students who actively participated in the Movement. Finally we may consider the number of military and police stations as a measure of law enforcement present in the district; more police and military force meant more capacity to oppress the independence movement. [11]

Table 1 shows that districts with concentration of Korean population and Korean schools witnessed more protests and participants. While more arrests were made in districts closer to

[11]Yet another potential driver of independence movement may have been the presence of local churches and missionaries, as many of the national representatives leading the Movement claimed to be Protestants (Kane and Park 2009). Because the Statistical Yearbook of Governor General of Colonial Korea (`https://kosis.kr/statHtml/statHtml.do?orgId=999&tblId=DT_999N_098I1009&conn_path=I3`) only provides the number of churches at the provincial level in 1909, we are unable to directly control for the mechanism at the district level. While we do not believe that proximity to railways is capturing church presence (especially considering the wide reach of railways and the battery of other controls in our regression), we do find support for the claim that Protestants played an important role in Korea's independence movement. Out of the 750 registered churches in 1909, the majority of them (537) were located in the northwestern provinces of Hwang-hae and Pyong-an. These provinces in Figure 1 are also shown to have witnessed protests earlier than others.

Table 1: *Total number of protests, participants and arrests*

	Protests	Participants	Arrests
Distance to Seoul	-0.067	-0.039	-2.168**
	(0.081)	(0.033)	(0.893)
Distance to nearest road	0.070	0.177	-2.180
	(0.137)	(0.147)	(3.861)
Korean population	0.044**	0.023*	0.897**
	(0.015)	(0.013)	(0.355)
Japanese population	0.170	0.035	7.520
	(0.222)	(0.236)	(4.344)
Equal to 1 if district	2.144	2.429	-53.225
contains a city	(5.308)	(2.763)	(36.996)
Number of public markets	-0.117	0.047	-3.315
	(0.081)	(0.107)	(2.221)
Total number of Korean schools	0.943*	0.728*	-6.196
	(0.462)	(0.388)	(9.962)
Total number of Japanese	0.008	-0.092	1.117
schools	(0.437)	(0.385)	(6.092)
Number of military and police	-0.132	-0.160	2.867
stations	(0.111)	(0.149)	(2.855)
N	220	220	220
Prov FE	Yes	Yes	Yes

Robust standard errors are clustered at the province level and reported in parentheses.
* p <0.1, ** p <0.05, *** p <0.01.

Seoul, the simple regression results also suggest that the locations of protests and participants were not significantly correlated with distance to Seoul or road access. How did the Movement then manage to spread far and wide? Successful nationwide waves of protests appear to have required better and faster means of mobilization than the existing road infrastructure. We argue that the railroads were instrumental in this endeavor and helped to promote the significance of the Movement. Specifically, we test whether a region's access to railroad increased the likelihood of holding a protest during the two critical months. The dependent variable is the number of days that passed until the district witnessed its first protest between March 1st and April 30th, 1919.[12] Excluding Seoul, there are 220 districts in total in our data. The main explanatory variable of interest is the district's access to a railroad. For each district, we calculate the distance to the nearest railroad constructed between 1899 and 1918.[13]

Figure 1 shows the railways built before the Movement (between 1899 and 1918) as well as the number of days passed before the first protest in each district. The Movement was widespread throughout the peninsula; out of the 220 districts, only 27 of them (colored in white on the map) did not witness any protest by the end of April. Among the districts that did witness protest, the average number of days it took for the first protest was 18 days.

[12]In each district-day observation, we code in one if there was at least one protest in the district on the day and zero otherwise.

[13]We provide detailed data sources for all the variables in our analysis in the Appendix.

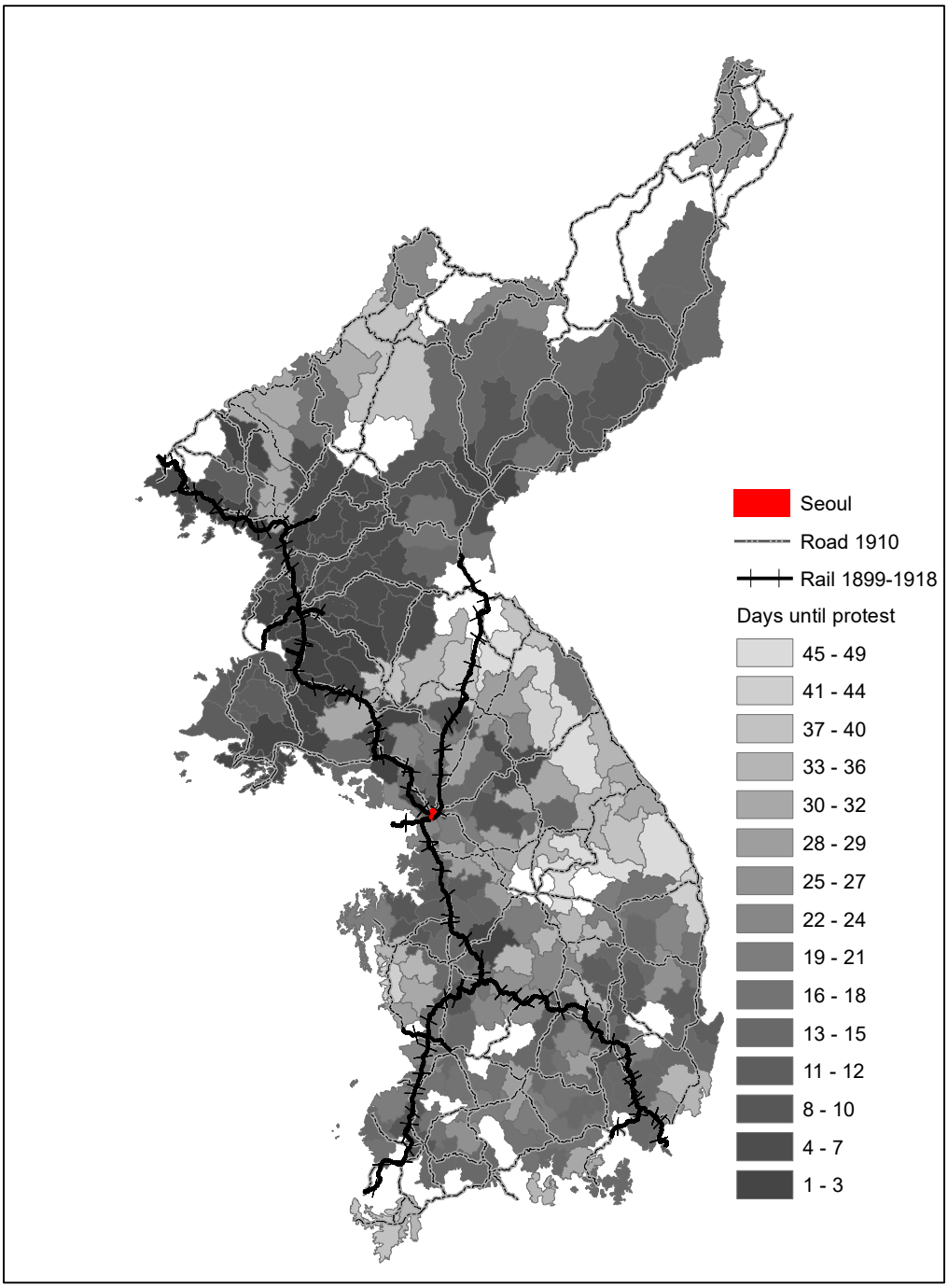

Figure 1: *Railroad Coverage and Protest Spread (Source: Resource Institute of Korean Studies, Korea University)*

Table 2: *Likelihood of Protest (Single-event Cox proportional hazards model)*

Distance to nearest railway	0.935***	0.920***	0.931***	0.942**	0.940***	0.920***	0.931***	0.941**
built 1899-1918 (in 10km)	(0.020)	(0.021)	(0.022)	(0.022)	(0.021)	(0.022)	(0.022)	(0.022)
Distance to nearest railway					0.891	0.873	0.962	0.937
built 1919-1945					(0.086)	(0.085)	(0.088)	(0.089)
Distance to Seoul		1.027	1.033	1.031		1.028	1.033	1.032
		(0.021)	(0.023)	(0.023)		(0.022)	(0.023)	(0.023)
Distance to nearest road		0.934	0.908	0.879		1.083	0.956	0.960
		(0.125)	(0.078)	(0.085)		(0.172)	(0.130)	(0.146)
Korean population			1.013***	1.018***			1.013***	1.017***
			(0.003)	(0.004)			(0.003)	(0.004)
Japanese population			1.006	1.040			1.007	1.042
			(0.013)	(0.040)			(0.013)	(0.040)
Contains City (bu)			1.951*	2.091*			1.954*	2.100*
			(0.751)	(0.840)			(0.758)	(0.859)
Number of public markets				0.966				0.967
				(0.036)				(0.037)
Number of Korean schools				1.227**				1.242**
				(0.107)				(0.106)
Number or Japanese schools				0.951				0.939
				(0.104)				(0.106)
Number of military and police				0.925**				0.923**
stations				(0.035)				(0.035)
N	220	220	220	220	220	220	220	220
Prov FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors are reported in parentheses.

* p <0.1, ** p <0.05, *** p <0.01.

We use the Cox proportional hazard model (Cox 1972) to assess the impact. In Table 2 Columns 1 to 4, we find that a district with railroad access indeed has a higher likelihood of witnessing a protest. The hazard ratio for the distance variable depending on the specification is between 0.92 and 0.94; a ten kilometer increase in the distance to the closest railroad reduces the likelihood of having a protest by 6 to 8 percent.[14] We also find that districts containing cities, larger Korean population and more Korean schools are more likely to witness protests, while those with more military and police stations are likely to experience less.

Could protest locations be explained by omitted variables that also affected the location of the railways? While Japan's access to China and Russia was the primary consideration behind the railway construction, there may still remain unobservable local factors that determined where the railways were laid and influenced the protest movement. In order to address this concern, we run a placebo test based on the district's access to railroads that were built *after* the protest. The colonial government continued adding railways between 1919 and 1945, and the locations of these railroads likely reflected both commercial interests and imperialist pursuits.[15] Table 2 Columns 5 to 8 show that the district's distance to the nearest railway built between 1919 and 1945 is not statistically significant, while the main results remain essentially the same. This non-significant coefficient estimates on proximity to the 1919-1945 railroads suggests that there are no systematic unobservable factors driving the placement of these railways that could also be driving our main result.[16]

[14]One may argue that it is not the proximity to railroads but distance to railway stations that should matter, as people should be able to get on and off the trains. There are six districts in our data which have a railroad going through them but do not have a station. Removing these districts from our regressions does not substantively change our result.

[15]Online Appendix Figure 1 shows the railways constructed from 1919 to 1945.

[16]We focus on the *first* occurrence of protest explained by access to railroad and use the singe-event hazard model, in which all the subsequent protest observations in a district are dropped and each observation is censored at 61(days). Keeping multiple incidents in each district in the data and using the multi-event hazard model

Summary

Transportation networks promote allocation of resources towards more efficient uses and contribute to economic growth. In this short paper, we explore yet another novel consequence of infrastructure-building under colonization: widespread political mobilization for independence. We present the March First Movement in 1919 as a historic event that, by some account, saw close to ten percent of the entire Korean population rise up against the Japanese colonial government, with long-lasting impact beyond the Korean peninsula. We find that closer access to railroads is associated with a higher likelihood of protest during the two months of the nationwide protest movement, and its significance remains robust to other channels that can explain higher levels of political mobilization: distance to origin of the Movement (Seoul), pre-existing transportation infrastructure, population, urban centers, places of gathering (public markets and schools), as well as the presence of law enforcement. The same railroads that carried colonial armed forces and government officials also spread independence fighters, serving both colonizers and colonized alike, albeit in different ways.

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instead does not substantively change our findings. Online Appendix Table 2 presents the result, where the magnitude and statistical significance of the railroad variable remain essentially the same. Online Appendix Tables 3 and 4 provide alternative OLS specifications, and again find similar results.

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Online Appendix

Table 1: Summary Statistics

	mean	sd	min	max	count
Total number of protests	5.24	6.00	0	45	220
Total number of participants (1000s)	2.49	4.01	0	25	220
Total number arrested	56.56	98.99	0	904	220
Number of days until first protest	17.91	11.74	1	49	193
Distance to nearest railway built 1899-1918 (in 10km)	4.31	7.65	0	43	220
Distance to Seoul (in 10Km)	19.54	11.84	0	63	220
Distance to nearest road in 1910 (in 10km)	0.12	1.01	0	13	220
Korean population in 1918 (1000s)	75.90	35.65	9	306	220
Japanese population in 1918 (1000s)	1.53	5.35	0	69	220
Equal to 1 if district contains a city	0.05	0.23	0	1	220
Number of public markets in 1924	5.70	3.31	0	23	220
Total number of Korean schools in 1918	2.20	1.59	0	19	220
Total number of Japanese schools in 1918	1.13	1.16	0	11	220
Number of military and police stations in 1918	6.88	5.81	0	78	220
Distance to nearest railway built 1919-1945 (in 10km)	0.64	1.49	0	14	220
Observations	220				

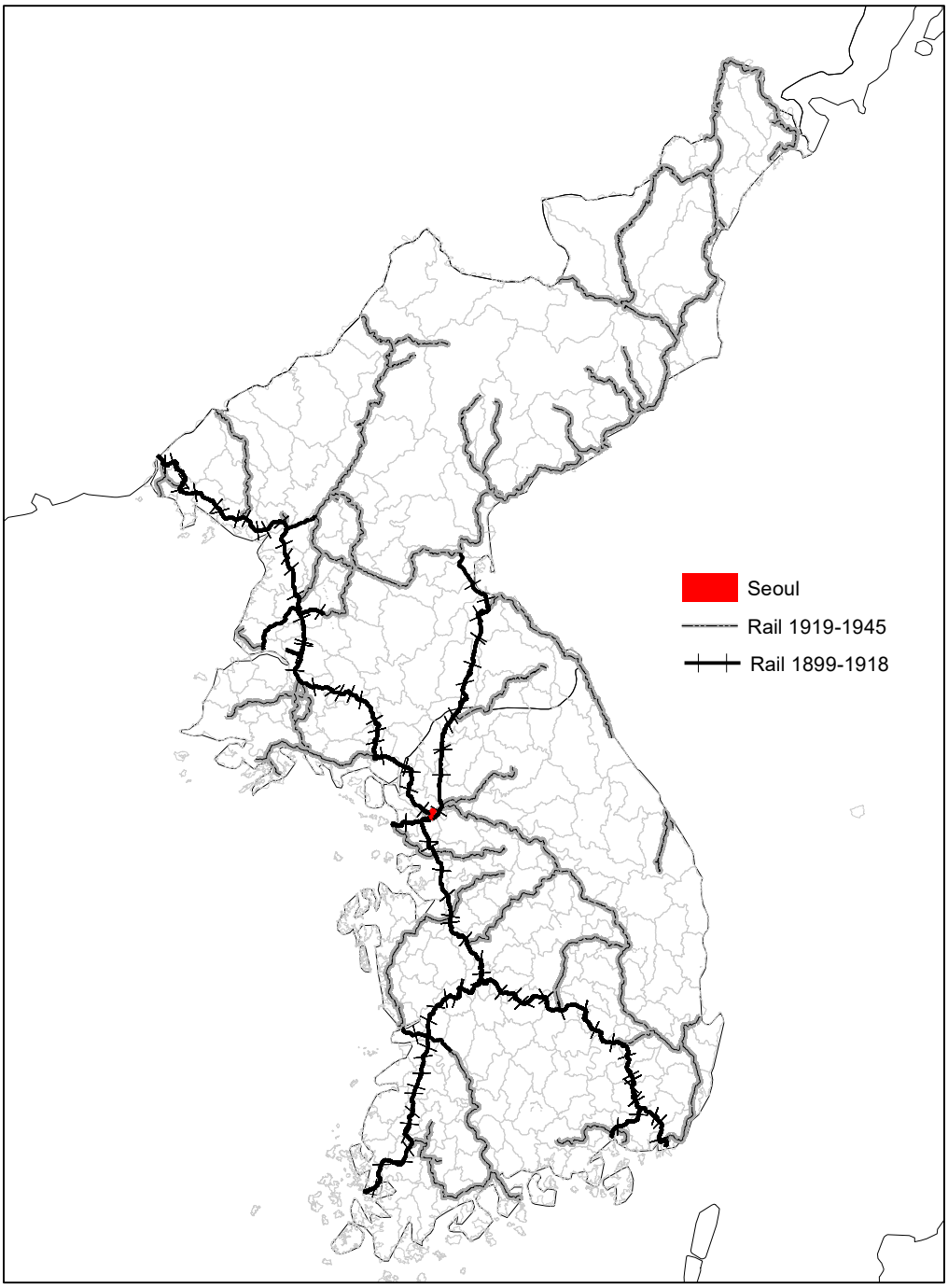

Figure 1: *Railroad Coverage from 1899 to 1945 (Source: Resource Institute of Korean Studies, Korea University)*

Table 2: *Likelihood of Protest (Multiple-event Cox proportional hazards model)*

Distance to nearest railway	0.947***	0.938***	0.954***	0.960**	0.949***	0.940***	0.954***	0.959**
built 1899-1918	(0.014)	(0.020)	(0.016)	(0.017)	(0.015)	(0.020)	(0.016)	(0.017)
Distance to nearest railway					0.925	0.889*	0.958	0.955
built 1919-1945					(0.070)	(0.057)	(0.054)	(0.054)
Distance to Seoul		1.011	1.014	1.009		1.010	1.014	1.009
		(0.017)	(0.014)	(0.014)		(0.017)	(0.014)	(0.014)
Distance to nearest road		1.026	1.002	1.019		1.165	1.056	1.077
		(0.091)	(0.057)	(0.063)		(0.125)	(0.095)	(0.101)
Korean population			1.008***	1.008***			1.008***	1.008***
			(0.002)	(0.002)			(0.002)	(0.002)
Japanese population			0.975***	0.974			0.976***	0.975
			(0.008)	(0.022)			(0.008)	(0.022)
Equal to 1 if contains city			1.552*	1.492			1.535*	1.478
(bu)			(0.363)	(0.434)			(0.362)	(0.433)
Number of public markets				1.000				1.000
				(0.022)				(0.022)
Number of Korean schools				1.104**				1.108**
				(0.046)				(0.046)
Number or Japanese schools				1.043				1.038
				(0.060)				(0.061)
Number of military and police				0.975				0.975
stations				(0.020)				(0.020)
N	1062	1062	1062	1062	1062	1062	1062	1062
Prov FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors are reported in parentheses.

* p <0.1, ** p <0.05, *** p <0.01.

Table 3: *Railway access on the initial spread and total number of proteststst*

	Days until first riot			
Distance to nearest railway	2.278***	2.159***	1.832***	1.635**
built 1899-1918	(0.395)	(0.505)	(0.422)	(0.407)
Distance to Seoul		1.091	1.078	1.155
		(0.222)	(0.214)	(0.244)
Distance to nearest road		0.721	2.238	1.860
		(0.572)	(1.966)	(1.828)
Korean population			0.937***	0.923**
			(0.022)	(0.029)
Japanese population			0.925	0.759
			(0.114)	(0.244)
Equal to 1 if contains city			0.214	0.379
(bu)			(0.639)	(1.132)
Number of public markets				1.046
				(0.315)
Number of Korean schools				0.756
				(0.570)
Number or Japanese schools				0.519
				(0.420)
Number of military and police				1.490
stations				(0.503)
N	193	193	193	193
Prov FE	Yes	Yes	Yes	Yes

Robust standard errors are reported in parentheses.

* p <0.1, ** p <0.05, *** p <0.01.

Table 4: *Placebo Test*

	Days until first riot			
Distance to nearest railway	2.124***	2.046***	1.773**	1.597*
built 1899-1918	(0.385)	(0.493)	(0.423)	(0.409)
Distance to nearest railway	3.454	11.188**	7.422*	7.313*
built 1919-1945	(3.524)	(13.225)	(8.572)	(8.679)
Distance to Seoul		1.089	1.082	1.154
		(0.219)	(0.212)	(0.243)
Distance to nearest road		0.024*	0.113	0.096
		(0.047)	(0.223)	(0.190)
Korean population			0.945**	0.933**
			(0.021)	(0.029)
Japanese population			0.918	0.783
			(0.101)	(0.251)
Equal to 1 if contains city			0.187	0.294
(bu)			(0.512)	(0.818)
Number of public markets				1.044
				(0.307)
Number of Korean schools				0.673
				(0.500)
Number or Japanese schools				0.531
				(0.436)
Number of military and police				1.452
stations				(0.494)
N	193	193	193	193
Prov FE	Yes	Yes	Yes	Yes

Robust standard errors are reported in parentheses.

* p <0.1, ** p <0.05, *** p <0.01.

Data Sources

The statistics are calculated based on several colonial-era documents. The protest information are obtained from the Demonstration List of the March First Movement(*jo-seon-so-yo-sa-geon-il-lam-pyo*) issued by the Police Department of Governor General and Headquarter of Joseon Military Policy in 1920. The railroad maps are from The History of Joseon Transportation (*jo-seon-gyo-tong-sa*) published in 1986 by *seon-gyo-hoe* press, digitized and available from the Academy of Korean Studies's Digital Historical Maps Archive.[1] The remaining statistics include the number of police and military stations (the Police Department of Governor General and Headquarter of Joseon Military Policy (1917)), the Japanese and Korean population (the Statistical Yearbook of Governor General of Colonial Korea (1918)), the number of public markets (Table 34, The Joseon Geography Documents (*jo-seon-ji-ji-ja-lyo* (1924)) and The Markets of Joseon (*jo-seon-ui si-jang* (1924)) and the number of schools (Joseon School Records (*jo-seon-je-hag-gyo-il-lam*) (1918)).

[1]The archive website is `http://waks.aks.ac.kr/rsh/?rshID=AKS-2011-EBZ-3105`.