

EFFECTS OF THE OPENING OF THE MANILA-DAGUPAN RAILROAD LINE ON CENTRAL LUZON, 1892-1939*

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abstract: The opening of the Manila-Dagupan railroad had mixed effects on its surrounding region. Some towns, especially in Tarlac, benefitted greatly as the railroad served to open up landlocked central Luzon, to the Manila-based colonial economy. Some train station towns, however, did not appear to have been significantly affected, suggesting that the opening of the railroad provided an initial access advantage that was not sustained or not translated into increased production *relative* to other towns. A few train station towns appear to have been disadvantaged after the railroad opened. In this case, the railroad may have contributed to concentration tendencies towards the large towns at the expense of smaller ones, including other train station towns.

1. INTRODUCTION

Plans for an insular, locomotive-driven railroad system in the Philippines were initiated officially on June 25, 1875 (US War Department 1900). In 1887, the Manila Railway Company (MRC) started construction of the Manila-Dagupan railroad (Figure 1). This railroad, which was the first major line to be built in the islands, was opened to public traffic in 1892. In 1898, railroad operations were halted, and then restored, and then halted again in 1899 because of the Philippine Revolution and the Philippine-American War. Extensive expansion took place later, up to 1938. This paper looks into some of the effects of the Manila-Dagupan railroad on the surrounding region, from the time it was opened towards the end of the American colonial period in 1939.

2. EARLY EXPECTATIONS AND INDICATIONS

The opening of the Manila-Dagupan line has been credited with beneficial developments to surrounding regions and to the country as a whole. The most often-mentioned benefits and symptoms of development include: increased real estate values, renewed development in old towns and the rise of new ones near railroad junctions and stations, the stimulation of the consumption of import goods especially in the rural areas, increased production and flow of export crops from provincial haciendas to the international port of Manila, increased labor mobility, new employment opportunities in the railroad company itself and in other related services and concessions.

*Adapted from Arturo G. Corpuz, "Railroads and Regional Development in the Philippines: Views from the Colonial Iron Horse, 1875-1935, Ph.D dissertation, Chapter 3, Cornell University, Ithaca, New York, 1989.



Figure 1. Manila-Dagupan Railroad, 1892

Source: adapted from Manila Railroad Company, "Report of the General Manager," 1922.

Some of these claims are plausible or easily supported for certain locations along the Manila-Dagupan line. For example, real estate values around the Tutuban station in Manila multiplied by a factor of 60 to 80 (from P0.24 to P15.00-P20.00 per square meter) by the time the Americans had taken control of the colonial capital (Philippine National Railways n.d.). The extent to which this and similar increases in land values were caused by the railroad is not clear, although it is reasonable to expect that the location of the central terminal in Tutuban was a primary reason. Likewise, by 1902, the MRC was employing an average of over 900 Filipinos in various positions ranging from track walkers to engineers, blacksmiths, conductors, carpenters, painters, watchmen, cleaners, etc. Meanwhile, Spaniards, Americans, and Englishmen served as clerks, inspectors, foremen, station masters, and in other administrative positions (US Bureau of Census 1903).

Other effects are more difficult to confirm because of the lack of specific and reliable data concerning urban and economic growth at that time. Data on insular trade patterns and flows for the Spanish period are almost non-existent. Nevertheless, there are some indications of how surrounding regions reacted to the opening of the railway. One is an 1899 testimony of Horace L. Higgins, the MRC general-manager, in response to questions posed by the United States Schurman Commission. Here, Higgins, claimed that the railroad caused a marked improvement in regional agricultural production:

- Q: What effect did the railroad have on the land--on the cultivation?
A: It has brought up the products of the country--of the counties served--more than 100 percent.
Q: And in what things did this development take place; sugar?
A: Increase in the rice product, increase in sugar, and, in general, increased traffic.
Q: How far was the improvement felt on either side of the route?
A: I should think it extended about a zone of ten or fifteen kilometers, ten I would say (US War Department 1901).

Higgins' responses are not surprising, coming from a railroad official testifying before a commission that could decide the fate of the railroad company on the eve of American rule in the Philippines. His claims are reasonable, however, although some of them cannot be verified independently.

3. INITIAL TRAFFIC PATTERN

Another indication of the railroad's initial effects as well as of the state of regional development at the turn of the century comes from a handwritten 1892 report of the MRC. The report lists the train stations as one travels from Manila to Dagupan and ranks them according to their proceeds (Table 1). The three largest-earning stations are Manila, San Fernando, and Tarlac (the provincial capital). Some of the other relevant information that can be derived from this report include:

Table 2. 1887-1903 Population Changes of Ranked Train Station Towns and Provinces.

1892 Rank-Town	Pop Change	% Pop Change
1 Manila		
2 San Fernando	-2,475	-15.40
3 Tarlac	4,235	52.30
4 Calumpit Sur	2,284	19.70
5 Malolos	-3,131	-19.90
6 Angeles	1,100	11.50
7 Mabalacat	-2,052	-22.50
8 Guiguinto	-1,186	-23.10
9 Bigaa	185	2.40
10 Bocaue	-162	-1.90
11 Meycauayan	486	5.30
12 Caloocan		
13 Polo	-1,979	-19.50
14 Dagupan	3,557	21.20
15 Bagbag		
16 Apalit	1,608	15.20
17 Capas	2,325	123.10
18 Calumpit Norte	2,284	19.70
19 Maricao	-1,060	-23.20
20 Bamban	1,192	65.90
21 Santo Tomas	490	13.00
22 Bayambang	-291	-2.60
23 Gerona	5,815	75.00
24 Moncada	10,578	436.20
25 Calasiao	1,170	7.60
26 Paniqui	7,429	133.80
27 San Carlos	-2,982	-9.90
28 Malasiqui	1,795	14.10
All Stations		
	31,215	12.30
Bulacan	-16,137	-6.70
Pampanga	-2,248	-0.90
Tarlac	45,534	51.80
Pangasinan	40,933	13.50

Sources: Ferrocarril de Manila a Dagupan 1893; 1887, 1903 Censu

Table 1. Train Stations Ranked According to Amount of Proceeds, 1892.

Station	roceeds (Pesos)	Rank
Manila	82,460.96	1
Caloocan	4,594.09	12
Polo	4,517.32	13
Meycauayan	4,960.36	11
Maricao	2,016.25	19
Bocaue	5,633.21	10
Bigaa	6,024.45	9
Guiguinto	6,817.94	8
Malolos	16,023.06	5
Bagbag	2,951.19	15
Calumpit Sur	16,827.65	4
Calumpit Norte	2,054.11	18
Apalit	2,934.34	16
Santo Tomas	1,468.41	21
San Fernando	28,549.70	2
Angeles	12,214.57	6
Mabalacat	7,574.27	7
Bamban	1,816.06	20
Capas	2,063.75	17
Tarlac	17,716.32	3
Gerona	871.19	23
Paniqui	437.09	26
Moncada	456.24	24
Bayambang	1,127.25	22
Malasiqui	230.85	28
San Carlos	275.29	27
Calasiao	452.19	25
Dagupan	3,056.55	14
Total	236,124.66	

Source: Ferrocarril de Manila a Dagupan, 1893

- a. An overwhelming majority of train receipts came from passenger traffic.
- b. Most of the passengers (95%) used third class seats.
- c. Most of the freight consisted of rice (41%) and sugar (24%). The third largest freight component was construction materials which, together with rice and sugar, amounted to 71% of the total freight tonnage.
- d. Most of the freight traffic was northbound (76%).
- e. Tarlac was the most frequent destination of both passenger (33%) and freight (49%) trains (Ferrocarri de Manila a Dagupan 1893?).

The domination of railway receipts by passenger traffic is to be expected, at least during the initial years of the railroad's operation. Although the MRC expected to (and eventually did) depend more on freight traffic income, this was not immediately possible for a newly-built line which still lacked feeder connections. This meant that most of the region's trade continued to depend on traditional transportation linkages. If 1893 production quantities are used (in the absence of comparable 1892 figures) the amount of sugar freight handled by the MRC was only 16 percent of the total sugar production of Pampanga and Tarlac (US Bureau of Census 1903). The rest, presumably, continued to be transported through carts, wagons, boats, and other river and sea crafts.

One interesting feature of the MRC's traffic is Tarlac's dominance of both passenger and freight train destinations. It is interesting because although Tarlac was the provincial center and capital of the province of the same name, Tarlac province was the least developed and populated among those served by the MRC. (Tarlac was classified as a third class province by Spanish officials while Bulacan, Pampanga, and Pangasinan were considered first class provinces.) Additional insights into the effects of the railroad on Tarlac and the rest of central Luzon are provided by population estimates before and after the Manila-Dagupan was opened.

4. POPULATION CHARACTERISTICS

The latest available pre-1892 population data are those of the 1887 census. This census was conducted by the Spaniards and is the closest to the opening of the railroad that is not substantially flawed and provides individual town figures. The earliest available post-1892 data are those of the 1903 census conducted by the Americans. (An 1896 census was attempted but this was aborted because in August of the same year the Philippine Revolution was under way.) Comparing these two sets of data provides indications of how train-station towns fared in general after the railroad opened.

A direct comparison reveals a dramatic population increase in the train-station towns of Tarlac (Table 2). This contrasts sharply with the smaller increases and even decreases in the other provinces. The census figures should be interpreted with caution, however, because the 1887 and 1903 population estimates are not directly comparable. They were conducted under very different conditions resulting from the Philippine Revolution and the Philippine-American War that commenced in 1899 and was still lingering in 1903. A more appropriate comparison, therefore, is of population of towns *within* and not between each census. This can be seen in Tables 3-6 and Figure 2, which include comparable figures compiled in 1918 and 1939.

Table 3. Bulacan Towns Ranked According to Population and Population Share, 1887, 1903, 1918, 1939
(Train Station Towns are in bold type).

Rank	Town	1887			1903			1918			1939		
		Pop	Pop%	Town	Pop	Pop%	Town	Pop	Pop%	Town	Pop	Pop%	Town
1	Malolos	31,726	13.25	Malolos	27,025	12.10	Malolos*	26,109	10.50	Malolos	33,384	10.03	
2	San Miguel	19,397	8.10	Hagonoy	21,304	9.54	Hagonoy	22,490	9.05	Hagonoy	29,734	8.93	
3	Hagonoy	18,500	7.72	Baliuag	15,936	7.14	Baliuag	18,254	7.34	San Miguel	26,759	8.04	
4	Baliuag	17,223	7.19	San Miguel	14,919	6.68	San Miguel	17,988	7.24	Baliuag	22,972	6.90	
5	Bulacan	11,891	4.96	Calumpit	13,897	6.22	Calumpit	14,844	5.97	Calumpit	17,047	5.12	
6	Calumpit	11,613	4.85	Bulacan	11,589	5.19	Sta Maria	12,174	4.90	S Ildefonso	16,395	4.93	
7	Polo	10,162	4.24	Sta Maria	10,791	4.83	Meycauayan	11,285	4.54	Meycauayan	16,062	4.83	
8	San Rafael	10,149	4.24	Meycauayan	9,742	4.36	Bulacan	10,423	4.19	Sta Maria	14,987	4.50	
9	Pulilan	9,869	4.12	Pulilan	9,665	4.33	Pulilan	10,160	4.09	Polo	13,468	4.05	
10	Sta Maria	9,476	3.96	Paombong	8,554	3.83	Bigaa	9,875	3.97	Pulilan	12,693	3.81	
11	Meycauayan	9,256	3.86	Bocaue	8,438	3.78	Polo	9,323	3.75	Bocaue	12,345	3.71	
12	Bocaue	8,600	3.59	Polo	8,183	3.66	Paombong	9,260	3.72	San Rafael	12,269	3.69	
13	Paombong	8,177	3.41	Obando	8,051	3.61	S Ildefonso	9,190	3.70	Bigaa	12,037	3.62	
14	Angat	8,152	3.40	Bigaa	8,000	3.58	Bocaue	8,749	3.52	Bulacan	11,931	3.58	
15	Bigaa	7,815	3.26	Quingua	7,229	3.24	San Rafael	8,537	3.43	Paombong	11,269	3.39	
16	Obando	7,575	3.16	Bustos	7,072	3.17	Angat	8,336	3.35	Plaridel	11,161	3.35	
17	Quingua	7,312	3.05	Angat	6,961	3.12	Quingua**	8,216	3.30	Angat	11,060	3.32	
18	S Ildefonso	7,262	3.03	San Rafael	6,682	2.99	Obando	7,604	3.06	Norzagaray	10,789	3.24	
19	Bustos	6,797	2.84	S Ildefonso	5,326	2.38	Bustos	6,855	2.76	Obando	10,026	3.01	
20	Norzagaray	6,111	2.55	Norzagaray	5,131	2.30	Norzagaray	6,747	2.71	Bustos	8,692	2.61	
21	Guiguinto	5,134	2.14	Guiguinto	3,948	1.77	Guiguinto	4,847	1.95	Guiguinto	6,199	1.86	
22	Marilao	4,566	1.91	Marilao	3,506	1.57	Marilao	4,202	1.69	San Jose	5,826	1.75	
23	San Jose	2,760	1.15	San Jose	1,378	0.62	San Jose	3,141	1.26	Marilao	5,682	1.71	
Total		239,523	100.00		223,327	100.00		248,609	100.00		332,807	100.00	

Notes: Malolos, Calumpit, Polo, Meycauayan, Bocaue, Bigaa, Guiguinto, and Marilao stations opened in 1891 as part of the Manila-Dagupan line; the Baliuag, San Miguel, Pulilan, San Ildefonso, and Quingua stations opened in 1904 as part of the Bigaa-Cabanatuan branch.

* includes former municipalities Barasoain and Santa Isabel in 1887 and 1903.

** became Plaridel.

Sources: A Pronouncing Gazetteer and Geographical Dictionary, 1903, 1918, 1939 Census.

Table 4. Pampanga Towns Ranked According to Population and Population Share, 1887, 1903, 1918, 1939 (Train Station Towns are in bold type).

Rank	1887			1903			1918			1939		
	Town	Pop	Pop%	Town	Pop	Pop%	Town	Pop	Pop%	Town	Pop	Pop%
1	Lubao	20,344	9.07	Lubao	19,063	8.56	Lubao	21,614	8.44	S Fernando	35,662	9.50
2	S Fernando	19,812	8.83	S Fernando	17,827	8.01	S Fernando*	20,622	8.05	Lubao	29,154	7.77
3	Mexico	14,721	6.56	Guagua	15,151	6.80	Angeles	17,948	7.01	Angeles	26,027	6.94
4	Guagua	14,281	6.36	Macabebe	14,405	6.47	Mexico	16,151	6.31	Arayat	22,510	6.00
5	Arayat	14,040	6.26	Bacolor	13,493	6.06	Macabebe	16,100	6.29	Mexico	22,341	5.95
6	Bacolor	12,920	5.76	Mexico	13,469	6.05	Guagua**	15,962	6.23	Guagua	22,331	5.95
7	Macabebe	12,845	5.72	Arayat	12,904	5.80	Bacolor	15,302	5.98	Mabalacat	20,560	5.48
8	Candaba	11,542	5.14	Apalit	12,206	5.48	Candaba	14,434	5.64	Macabebe	20,149	5.37
9	San Luis	10,765	4.80	Candaba	11,783	5.29	Arayat	12,302	4.80	Candaba	19,956	5.32
10	Apalit	10,598	4.72	Angeles	10,646	4.78	Apalit	11,880	4.64	Bacolor	19,129	5.10
11	Angeles	9,546	4.25	San Luis	10,067	4.52	San Luis	9,830	3.84	Floridablanca	17,521	4.67
12	Mabalacat	9,101	4.06	Magalang	8,516	3.82	Porac	9,810	3.83	Magalang	16,634	4.43
13	Magalang	8,799	3.92	Porac	8,487	3.81	Magalang	9,780	3.82	Porac	16,169	4.31
14	Porac	8,594	3.83	Sta Rita	7,954	3.57	Masantol***	9,636	3.76	Apalit	14,330	3.82
15	Sta Rita	8,389	3.74	San Miguel	7,076	3.18	Mabalacat	9,258	3.62	Masantol	14,095	3.76
16	San Simon	7,008	3.12	Mabalacat	7,049	3.17	Sta Rita	8,989	3.51	San Luis	10,966	2.92
17	Floridablanca	6,654	2.97	Floridablanca	7,001	3.14	Floridablanca	8,477	3.31	Sta Rita	10,801	2.88
18	Sta Ana	6,322	2.82	Sexmoan	6,981	3.14	Sexmoan	7,224	2.82	Sexmoan	10,018	2.67
19	Sexmoan	6,289	2.80	San Simon	6,764	3.04	Minalin	7,219	2.82	Minalin	9,805	2.61
20	Minalin	6,239	2.78	Minalin	6,282	2.82	San Simon	6,992	2.73	San Simon	8,940	2.38
21	San Miguel	5,585	2.49	Sta Ana	5,532	2.48	Sta Ana	6,528	2.55	Sta Ana	8,183	2.18
Total		224,394	100.00		222,656	100.00		256,058	100.00		375,281	100.00

Notes: San Fernando, Apalit, Mabalacat, and Sto Tomas stations opened as part of the Manila Dagupan line in 1892; the Bacolor, Guagua, Lubao, and Floridablanca stations were part of the Floridablanca branch (San Fernando-Carmen, Floridablanca); the first two opened in 1907, the latter two in 1908. Magalang was the terminus of the Magalang branch (Dau-Magalang) which opened in 1907. The Mexico, Sta Ana and Arayat stations opened in 1914 as the Arayat branch (San Fernando-Arayat).

* includes former municipality of Sto Tomas in 1887 and 1903.

** includes former municipality of Betis in 1887 and 1903.

*** San Miguel in 1887 and 1903.

Sources: A Pronouncing Gazetteer and Geographical Dictionary, 1903, 1918, 1939 Census.

Table 5. Tarlac Towns Ranked According to Population and Population Share, 1887, 1903, 1918, 1939 (Train Station Towns are in bold type).

Rank	1887			1903			1918			1939		
	Town	Pop	Pop%	Town	Pop	Pop%	Town	Pop	Pop%	Town	Pop	Pop%
1	Camiling	17,115	19.45	Camiling	25,243	18.91	Camiling*	28,266	17.15	Tarlac	55,682	21.54
2	Concepcion	14,439	16.41	Tarlac	15,044	11.27	Tarlac**	23,888	14.49	Camiling	33,020	12.78
3	Tarlac	10,485	11.92	Victoria	14,945	11.19	Concepcion***	17,487	10.61	Concepcion	32,702	12.65
4	Victoria	10,234	11.63	Concepcion	13,731	10.28	Paniqui	16,603	10.07	Paniqui****	23,159	8.96
5	Gerona	7,800	8.87	Gerona	13,615	10.20	Victoria	15,661	9.50	Gerona	20,982	8.12
6	Paniqui	5,553	6.31	Moncada	13,003	9.74	Gerona	14,809	8.99	Victoria	19,575	7.57
7	Pura	4,301	4.89	Paniqui	12,982	9.72	Moncada	10,673	6.48	La Paz	13,298	5.15
8	La Paz	4,118	4.68	Capas	5,308	3.98	La Paz	8,568	5.20	Capas	13,178	5.10
9	Capas	3,581	4.07	Pura	4,840	3.63	Capas****	7,633	4.63	Moncada	12,518	4.84
10	Anao	2,717	3.09	La Paz	4,389	3.29	Sta Ignacia	5,382	3.27	Sta Ignacia	10,993	4.25
11	Moncada	2,425	2.76	Anao	3,678	2.75	Pura	5,333	3.24	Bamban	9,663	3.74
12	S Clemente	1,954	2.22	Bamban	3,002	2.25	Bamban	4,539	2.75	Pura	7,005	2.71
13	Bamban	1,810	2.06	Sta Ignacia	1,911	1.43	Anao	3,314	2.01	Anao	3,486	1.35
14	Sta Ignacia	1,447	1.64	S Clemente	1,822	1.36	S Clemente	2,654	1.61	S Clemente	3,199	1.24
Total		87,979	100.00		133,513	100.00		164,810	100.00		258,460	100.00

Notes: Tarlac, Gerona, Paniqui, Moncada, Capas, and Bamban stations were opened in 1892 as part of the Manila-Dagupan line.

* includes barrios organized as Mayantoc.

** includes former municipalities of Moriones and parts of Murcia in 1887 and 1903.

*** includes part of former municipality of Murcia in 1887 and 1903.

**** includes former municipality of O'Donnell in 1887 and 1903.

***** includes barrios organized as Ramos.

Sources: A Pronouncing Gazetteer and Geographical Dictionary, 1903, 1918, 1939 Census.

Table 6. Pangasinan Towns Ranked According to Population and Population Share, 1887, 1903, 1918, 1939 (Train Station Towns are in bold type).

Rank	1887			1903			1918*			1939		
	Town	Pop	Pop%	Town	Pop	Pop%	Town	Pop	Pop%	Town	Pop	Pop%
1	San Carlos	30,148	9.94	San Carlos	27,166	7.88	San Carlos	35,780	8.32	San Carlos	47,334	8.55
2	Dagupan	16,800	5.54	Lingayen	21,529	6.24	Urdaneta	24,536	5.70	Malasiqui	33,660	6.08
3	Urdaneta	15,755	5.20	Urdaneta	20,544	5.96	Lingayen	22,750	5.29	Dagupan	32,602	5.89
4	Lingayen	15,755	5.20	Dagupan	20,357	5.90	Malasiqui	22,747	5.29	Lingayen	30,655	5.53
5	Calasiao	15,369	5.07	Manaoag	16,793	4.87	Dagupan	22,441	5.22	Urdaneta	29,120	5.26
6	Binmaley	15,303	5.05	Calasiao	16,539	4.80	Manaoag	22,279	5.18	Manaoag	29,030	5.24
7	Mangaldan	12,790	4.22	Binmaley	16,439	4.77	Binmaley	18,243	4.24	Bayambang	25,578	4.62
8	Malasiqui	12,755	4.21	Mangaldan	15,841	4.59	Binalonan	17,392	4.04	Binmaley	20,455	3.69
9	San Nicolas	12,743	4.20	Binalonan	14,603	4.23	Calasiao	16,960	3.94	Binalonan	19,736	3.56
10	Asingan	11,654	3.84	Malasiqui	14,550	4.22	Asingan	16,920	3.93	Asingan	19,571	3.53
11	Bayambang	11,389	3.76	Asingan	12,911	3.74	Mangaldan	16,761	3.90	San Fabian	19,362	3.50
12	Mangatarem	10,744	3.54	Mangatarem	12,895	3.74	Mangatarem	15,971	3.71	Calasiao	19,325	3.49
13	San Manuel	10,164	3.35	Villasis	12,660	3.67	San Fabian	15,845	3.68	Mangaldan	18,997	3.43
14	Tayug	9,804	3.23	Bayambang	11,098	3.22	Pozorrubio	15,391	3.58	Mangatarem	18,658	3.37
15	Sta Barbara	9,667	3.19	Pozorrubio	11,018	3.20	Bayambang	15,260	3.55	Pozorrubio	18,627	3.36
16	Pozorrubio	9,604	3.17	Tayug	10,400	3.02	Villasis	14,233	3.31	Villasis	18,452	3.33
17	San Fabian	9,411	3.10	Sta Barbara	10,367	3.01	Tayug	13,594	3.16	Tayug	16,222	2.93
18	Manaoag	9,331	3.08	San Fabian	10,022	2.91	Sta Barbara	13,263	3.08	San Nicolas	16,088	2.90
19	Binalonan	9,126	3.01	San Nicolas	9,780	2.84	San Nicolas	12,628	2.94	San Manuel	15,622	2.82
20	Alcala	9,016	2.97	Alcala	9,008	2.61	San Manuel	12,244	2.85	Sta Barbara	15,125	2.73
21	Villasis	7,388	2.44	Salasa	8,746	2.54	Salasa**	10,289	2.39	Bugallon	14,469	2.61
22	Urbiztondo	6,142	2.03	San Manuel	7,784	2.26	Alcala	9,054	2.10	Sison	13,168	2.38
23	Salasa	5,845	1.93	Sta Maria	7,628	2.21	Sison	8,829	2.05	Alcala	12,697	2.29
24	Sta Maria	4,944	1.63	Urbiztondo	7,416	2.15	Urbiztondo	8,538	1.98	Urbiztondo	11,159	2.01
25	San Jacinto	4,862	1.60	San Jacinto	5,014	1.45	Sta Maria	7,362	1.71	Sta Maria	10,295	1.86
26	San Isidro	4,340	1.43	Aguilar	4,763	1.38	San Jacinto	6,714	1.56	Aguilar	8,178	1.48
27	Aguilar	4,223	1.39	San Isidro***	3,092	0.90	Aguilar	6,006	1.40	San Jacinto	7,853	1.42
28	Alava	4,153	1.37	Sual	2,986	0.87	Sual	4,286	1.00	Sual	6,396	1.15
29	Sual	3,951	1.31	Alava****	2,902	0.84	Labrador	3,920	0.91	Labrador	5,446	0.98
	Total	303,186	100.00		344,851	100.00		430,236	100.00		553,880	100.00

Notes: San Carlos, Dagupan, Calasiao, Malasiqui, and Bayambang stations opened in 1892 (Manila-Dagupan line); Mangaldan and San Fabian stations opened in 1908.

* not including towns annexed from Nueva Ecija and Zambales.

*** became Bugallon.

**** became Sison.

Sources: A Pronouncing Gazetteer and Geographical Dictionary, 1903, 1918, 1939 Census.

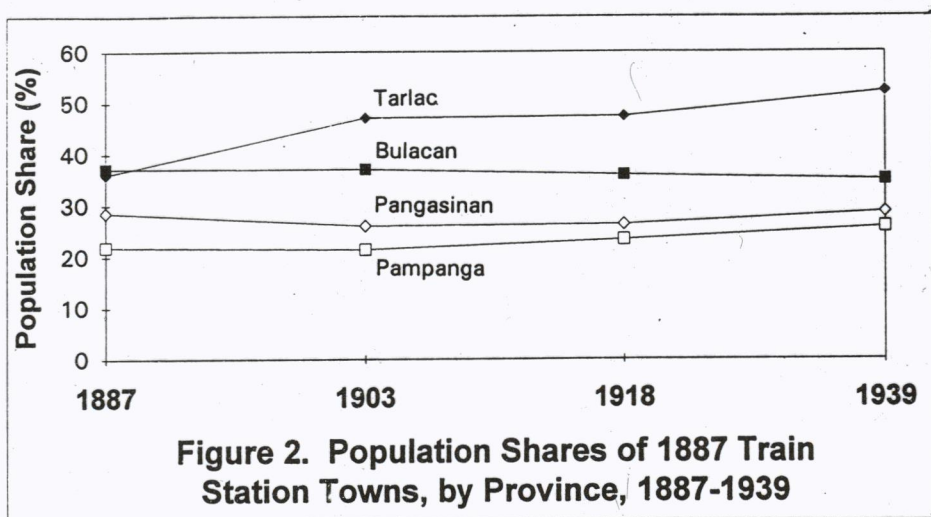


Table 7. Population Shares (%) of 1887 Train and Non-Train Station Towns, by Province, 1887, 1903, 1918, 1939.

Train Station Towns	1887	1903	1918	1939
Bulacan	37	37	36	35
Pampanga	22	21	23	26
Tarlac	36	47	47	52
Pangasinan	29	26	26	29
Total	30	31	31	33
Non-Train Station Towns	1887	1903	1918	1939
Bulacan	63	63	64	65
Pampanga	78	79	77	74
Tarlac	64	53	53	48
Pangasinan	71	74	74	71
Total	70	69	69	67

It can be noted, first of all, that only two of the largest towns of each province (Malolos and San Carlos) were train-station towns in 1887. However, many train-station towns raised their population rankings within their respective provinces, suggesting some positive effect of the railroad and supporting Higgins' claims. Three additional train-stations appeared in the top ten lists of the 1903 census (Angeles, Meycauayan, Capas) while one (Polo) dropped out. Train station towns that enjoyed substantial population increases from 1887-1939, resulting in greater shares of their respective provincial populations include Calumpit, Meycauayan, San Fernando, Angeles, Mabalacat, Paniqui, Moncada, and Malasiqui. But by far the largest increase was experienced by the town of Tarlac. After maintaining its share (11.9 percent) of the provincial population in the 1903 census, Tarlac's share rose to 14.5 percent in 1918 and further on to 21.5 percent in 1939, the highest among all the towns served by the Manila-Dagupan railroad.

The longer view also suggests some adverse consequences for some towns not accessed by the railroad. The town of Bulacan, for example, experienced a consistent slide through to 1939, having been bypassed by major highway and railway lines. San Luis in Pampanga, Pura and Anao in Tarlac, San Nicolas and Santa Barbara in Pangasinan appear to have shared similar fates. (The decline of the town of Tayabas, the capital of the province of the same name, and the rise of Lucena after the Main Line South was constructed and bypassed the former follows the same pattern.)

But there are also indications that the railroad was not always an advantage, as far as population increases are considered advantageous, for some of the towns and surrounding areas it crossed. Guiguinto and Marilao in Bulacan, for example, or Santa Ana in Pampanga, seem to have been unaffected or even disadvantaged, remaining at the lower rungs of their respective provincial population rankings, by direct railroad service. In fact taking the total population of all train-station towns in 1887, by province, and comparing these to the total provincial populations for 1903, 1918, and 1939 reveal no marked increases (or decreases) except for one province. The exception is Tarlac, whose train-station towns, between 1887 and 1903, increased their total share of the provincial population from 36 to 47 percent (Table 7).

The extraordinary development of Tarlac after the opening of the Manila-Dagupan line is better understood when its economic and transportation linkages to Manila are viewed relative to the other provinces of central Luzon. For a long time, before the railroad was opened, Tarlac had the weakest of these linkages. A primary reason for this was the geography of the region. While Bulacan, Pampanga, and Pangasinan all enjoyed access to the sea, Tarlac was landlocked. As a result, the other provinces had direct access to Manila, either through an insular road system, however crude and seasonal, and/or through a water route, the most important mode of transporting provincial crops and manufactures.

The railroad alleviated Tarlac's regional transportation disadvantage by providing a straight route to Manila or to Dagupan, from which goods could likewise be shipped to the colonial capital (US War Department 1901). This was demonstrated effectively not only in terms of subsequent economic activities but also during the Philippine-American War in 1899. In this war, battle fronts were defined by opposing lines of military troops

that moved perpendicular to the railroad depending on who controlled what part of the railroad line. Later, after the Americans gained control of the entire Manila-Dagupan line, train station towns were among the first to be given civilian rule because the railroad facilitated the deployment of troops that allowed greater control of these towns (Government of the Philippine Islands 1903).

The production of rice, Tarlac's most important crop, was among the economic activities that benefitted the most from the railroad. Modern steam-powered rice mills were established in Calumpit, Bulacan in Gerona and Moncada in Tarlac, in Bayambang, Pangasinan, and other towns along the Manila-Dagupan line. Rice-husking industries also thrived (mostly with foreign proprietors) as a result of the railroad (Foreman 1906). That Tarlac become the primary destination of both railroad freight and passengers after the railroad opened, according to the 1892 MRC report, is probably explained as an immediate effect resulting from the lack of transportation opportunities to this provincial capital relative to the presence of existing and established routes to towns (in Bulacan, Pampanga, and Pangasinan) closer or already enjoying direct access to Manila. Overall, the relative underdevelopment of Tarlac's transportation linkages allowed it to benefit the most, as the early MRC reports indicate, from the new alternative offered by the railroad.

5. SUMMARY AND CONCLUSION

In summary, the opening of the Manila-Dagupan railroad had mixed effects on the surrounding region.

Some towns serviced directly by the railroad benefitted greatly. Tarlac, in particular, grew at a much faster pace than any other locality, and it appears as if the railroad was key to opening up this town, along with other parts of landlocked central Luzon, to the Manila-based colonial economy.

Some train station towns, however, did not appear to have been significantly affected, essentially maintaining their population shares throughout the period under study. Some of these towns enjoyed a surge in population share and, presumably, economic activity but they eventually stabilized to their previous share levels. This pattern suggests that the opening of the Manila-Dagupan railroad provided an initial access advantage that was not sustained or not translated into increased production *relative* to other towns.

There are indications that a few train station towns (Polo, Guiguinto, Santa Ana) were placed at a disadvantage after the railroad was opened. It is difficult to confirm or identify the precise reasons for this pattern although it is notable that these towns were located close to other train station towns that were or became large and economically dominant. It suggests that the railroad contributed to concentration tendencies towards the large towns at the expense of smaller ones, including other smaller train station towns.

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