
COMMENTARY AND DEBATE

COMMENT ON "THE PARAGUAYAN ROSETTA STONE"

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I read with interest the research note by Thomas Whigham and Barbara Potthast, "New Insights into the Demographics of the Paraguayan War, 1864–1870," published in these pages in 1999.¹ The discovery of census data for thirty Paraguayan districts for 1870 is significant, but this particular census only raises more questions. Contrary to the assertions of Whigham and Potthast, it does not settle the debate over the demographic impact of the War of the Triple Alliance on Paraguay.

Whigham and Potthast use the 1870 enumeration to assert a population in 1870 totaling between 141,351 and 166,351, and they argue for a 60 to 69 percent loss of Paraguayan population during the war of 1864–1870 (p. 184). This catastrophic loss was calculated by assuming that the 1870 count is complete and by analyzing the work of other historians. Whigham and Potthast contend that John Hoyt Williams and Anneliese Kegler de Galeano both undercounted the population of the 1846 census, leading to an underestimation of the prewar population. At the same time, they claim that because the 1870 enumeration indicates such a small population, historians (myself included) have overcounted the postwar population (p. 175).

Most historians' calculations for the 1846 census fall somewhere between Anneliese Kegler's estimates of 233,862 and Olinda Massare de

1. Thomas Whigham and Barbara Potthast, "The Paraguayan Rosetta Stone: New Insights into the Demographics of the Paraguayan War, 1864–1870," *LARR* 34, no. 1 (1999):174–86.

Kostianovsky's of 262,694.² Whigham and Potthast compute a population of 284,302 to 292,999 based on missing parishes and undercounting of the Indian population. Without explaining their reasoning and ignoring the 1864 census, they set the 1864 population at 388,511 to 456,979 (p. 179). Although on the high side, the lower figure is a possibility. The 1864 census stemmed from the collection of agricultural data and the enumeration of households. One problem, however, was calculating household size. I estimated it at 5.5 to 6.98 persons per household, leading to a population range in 1864 of 291,605 to 370,073.³

The disagreement over the Paraguayan population of 1864 is significant because it has become the base figure used by historians to calculate the mortality of population due to the War of the Triple Alliance and the Paraguayan population in 1870. The higher the base population, the higher the mortality rate that results.

Most likely, the 1870 tally that Whigham and Potthast discovered is part of the same agricultural series as the 1864 count, given that both censuses indicate population figures and crop plantings. But for each year after the first half of 1864, the census data become more incomplete.⁴ The 1870 enumeration follows this pattern.

Whigham and Potthast ignore all the potential problems of taking an accurate census and suggest that the 1870 count documents a Paraguayan population of 141,351 to 166,351 inhabitants (p. 184). The challenge of obtaining a complete census in 1870 must have been daunting. The Allied Powers (Brazil, Argentina, and Uruguay) had established a provisional government in Asunción, and Paraguay was in the process of creating a new constitution. Brazilian troops did not evacuate Paraguay until June of 1876, and Argentine troops left only in November of 1878.

Even assuming that it was in the interest of the Allied Powers to conduct a census, to what degree would Paraguayans have cooperated? Before the war, the Paraguayan government carried out censuses on crop production and the availability of men for the military. Previous Paraguayan experience with military recruitment may have led potential respondents to avoid cooperating with any government in census taking. Furthermore, who

2. John Hoyt Williams, "Observations on the Paraguayan Census of 1846," *Hispanic American Historical Review* 56, no. 3 (Aug. 1976):424–37, 425; Olinda Massare de Kostianovsky, "Historia y evolución de la población en el Paraguay," in *Población, urbanización y recursos humanos en el Paraguay*, edited by Domingo M. Rivarola and G. Heisecke, 2d ed. (Asunción: Centro Paraguayo de Estudios Sociológicos, 1970), 220; and Anneliese Kegler de Galeano, "Alcance histórico-demográfico del censo de 1846," *Revista Paraguaya de Sociología* 18, no. 35 (Jan.–Apr. 1976):92. Also see Vera Blinn Reber, "The Demographics of Paraguay: A Reinterpretation of the Great War, 1864–70," *Hispanic American Historical Review* 68, no. 2 (May 1988):289–319, 295.

3. Reber, "Demographics of Paraguay," 299–304.

4. *Ibid.*, 300. I had data for a few districts in 1868 and 1869, but they were statistically meaningless.

would have taken the census, and could they have obtained an accurate count for each of the districts? Were there even *jefes políticos* and *jueces de paz* in the districts to conduct such a census? If the population was as low as Whigham and Potthast suggest, it is doubtful that many Paraguayan officials were functioning. In a country that had just lost a devastating war, the political issues of census taking were many. Nineteenth-century censuses missed many more individuals than do modern ones, and census undercounting remains a serious issue even at the beginning of the twenty-first century.⁵

Whigham and Potthast's analysis of the 1870 count becomes more questionable on comparing it with the 1886 census. In 1886 under the government of General Patricio Escobar, José Jacquet, director of the Oficina General de Estadística, conducted the first official Paraguayan census. Because of undercounting, he was forced to revise the initial 1886 census upward by 37 percent in 1887 to 329,645. The validity of the upward revisions was confirmed by the 1899 census, which indicated the Paraguayan population to be 490,719. Even Jacquet's highest estimate requires an unrealistic 3.1 percent growth rate.⁶ If one accepts both the Whigham and Potthast 1870 count and Jacquet's upwardly revised census for 1886, the Paraguayan population would have grown in sixteen years from 166,351 to 329,645. No country can possibly double its population in sixteen years without heavy immigration. No such record exists for Paraguay. A population growth rate of more than 2 percent is high and 8 percent is unheard of.⁷ Whigham and Potthast themselves argue that the growth rate for Paraguay was only 1.7 percent between 1792 and 1846 (p. 178).

Setting aside the political and demographic issues, the most disturbing assumption in their essay is that the 1870 enumeration was complete. In fact, it included only thirty Paraguayan districts out of the ninety-five existing in 1864. The population of twelve districts (including the four Asunción districts) is either incomplete or estimated based on other censuses. Several locations were part of larger districts. Data are missing for fifty-three

5. Many recent articles have discussed the problems involved in taking the U.S. census in 2000. For examples, see Peter Skerry, "Sampling Error," *New Republic* 220, no. 22 (31 May 1999):18–20; "Census Short-Count," *Nation* 268, no. 6 (15 Feb. 1999):3; and Tommy Wright, "A One-Numbered Census: Some Related History," *Science* 283, no. 5,401 (22 Jan. 1999):491–92.

6. Emmanuel de Bourgade la Dardye, *Le Paraguay* (Paris: E. Plon, Nourrit, 1889), 104–8; and Gabriel Carrasco, *La población del Paraguay, antes y después de la guerra: Rectificación de opiniones generalmente aceptadas* (Asunción: A. Tall, Nación de H. Kraus, 1905).

7. Eduardo E. Arriaga, *New Life Tables for Latin American Populations in the Nineteenth and Twentieth Centuries* (Berkeley: Institute of International Studies, University of California, 1968); Richard E. Boyer and Keith A. Davies, *Urbanization in Nineteenth-Century Latin America: Statistics and Sources, Supplement to the Statistical Abstract of Latin America* (Los Angeles: Latin American Center, University of California, 1973); and Nicolás Sánchez-Albornoz, *The Population of Latin America*, translated by W. A. R. Richardson (Berkeley and Los Angeles: University of California Press, 1974).

TABLE 1 *Population of Paraguay by Numbered Districts Based on the 1870 Census, with Estimations and Figures on Missing Population*

<i>Departments Districts</i>	<i>1870 Census^a</i>	<i>Estimated^b</i>	<i>Missing Districts^c</i>
Concepción			
1. Salvador			0
2. Aquidaban			0
3. Concepción and Loreto		373	
4. Belén		921	
5. Horqueta		2,564	
San Pedro			
6. Tacuatí			0
7. Lima			0
8. San Pedro			0
9. Rosario			0
Caaguazú			
10. San Estanislao			0
11. Carimbataí			0
12. Curuguaty			0
13. Igatimí			0
14. Yhu			0
15. Caaguazú			0
16. Ajos	1,892		
17. Carayaó			0
18. San Joaquín			0
28. Ytacurubí	1,007		
29. San José de Arroyos			0
Cordillera			
19. Unión			0
20. Caraguatay	3,170		
21. Arroyos y Esteros	1,458		
23. Emboscada			0
24. Altos	3,613		
25. Atirá		1,043	
26. Tobatí			0
27. Barrero Grande	2,844		
30. Valenzuela			0
31. Piribebuy	3,368		
32. Caacupé			0
Central			
34. Ytaugua		1,018	
35. Araguá	2,517		

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36. Luque	6,063		
37. Limpio	3,048		
42. Lambaré			0
43. Aldana y Toledo			0
44. San Lorenzo del Campo Grande	2,491		
45. San Lorenzo de la Frontera			0
46. San Antonio		2,593	
47. Ypané	1,229		
48. Capiatá	6,124		
49. Rojas y Yataity			0
50. Guarambaré	809		
51. Ytá			0
52. Villeta	5,762		
Asunción		17,890	
38. Santísima Trinidad			
39. Recoleta			
40. Catedral			
41. San Roque			
Presidente Hayes			
22. Occidental			0
Paraguarí			
33. Pirayú	1,596		
53. Carapegua	4,150		
54. Yaguarón	2,005		
55. Paraguarí		416	
Tabapy		2,307	
Cerro León		1,298	
62. Ybitimí			0
63. Acahaí			0
64. Quiindí	3,506		
66. Ybicuí	3,079		
70. Mbuyapey			0
72. Quiquío			0
73. Caapucú	962		
Guaira			
56. Hiatí			0
57. Yataití			0
58. Mbocayatí	2,165		
59. Villa Rica	5,978		
60. Yhacaguazú			0
61. Ytape			0

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Caazapa		
67. Caazapa	1,299	
68. San Juan Nepomuceno		0
69. Yuty	3,852	
Misiones		
71. San Isidro		0
76. San Miguel		0
77. Santa María		0
78. Santa Rosa		0
79. San Ignacio		0
88. Santiago		0
Ñeembucú		
65. Oliva		0
74. Villa Franca	201	
75. San Juan Bautista		0
80. Tacuras		0
81. Pilar	8,000	
82. Guazucúa		0
83. Isla Umbú		0
84. Pedro González		0
85. Desmochados		0
86. Laureles		0
87. Yabebirí		0
Itapua		
89. San Cosme		0
90. Bobí		0
91. San Pedro del Paraná		0
92. Carmen del Paraná	29	
93. Jesús	102	
94. Trinidad	93	
95. Encarnación	539	
Unidentified persons	2,947	
Subtotal	77,898	38,423
Total population		116,321 ^d
Missing districts		53

^a Based on table 1, Whigham and Potthast, "Paraguayan Rosetta Stone," 183–85.

^b *Ibid.*

^c Based on Reber, "Demographics of Paraguay," 300–302.

^d In table 1, Whigham and Potthast show a total of 116,351 due to a typographical error (p. 185).

districts (see table 1). Calculating accurately the population of the missing districts is extremely difficult for the war years because the growth rates during the years 1864 to 1870 did not follow a normal pattern. The war also caused population shifts. For example, the population of both Yuty and Paraguari according to the 1870 data is larger than the population of both areas in 1864.

The accompanying map (figure 1) portrays Paraguay divided into districts. The shaded areas represent the districts that provided complete information in 1870. These districts are located primarily in the central region. Census data are missing for the northern, eastern, and southernmost districts. These areas included both districts that had extensive agricultural population in the prewar years (like the region between Asunción and Villa Rica) and those engaged in yerba production in the north and pastoral pursuits in the south. Although the missing districts include some heavily affected by combat, others in the north and west were lightly touched by the hostilities and attracted war-weary migrants. Data are generally missing from the districts that might have been most attractive to those who had fled to escape the war. Moreover, in 1864 these missing sixty-five districts contained 60 percent of the Paraguayan population.

The question remains: based on the partial 1870 enumeration, can one accurately estimate the population of Paraguay in 1870 and calculate the Paraguayan mortality due to the War of the Triple Alliance? Such calculation is in my opinion very difficult. Because refugees probably moved to outlying districts to escape the war, it is doubtful that the 1870 missing districts represented the same percentage of population as in 1864. The percentage of population missed by the census is also difficult to estimate. An accurate count depended on both the ability of the data collectors and cooperation of the respondents. In addition, an unknown number of Paraguayans fled to neighboring countries. Finally, one must take into consideration the official 1886 census. A diverse array of modern and contemporary historians have suggested that the Paraguayan population in 1870 varied from a low of 200,000 to a high of 300,000.⁸

In sum, we do not yet have a Rosetta stone for understanding the Paraguayan postwar population. At best, we now have additional demographic information in 1870 for thirty districts in central Paraguay and evidence from those same districts of the few men available to do agricultural work.

8. Table 2 in Reber, "The Demographics of Paraguay," lists sources and statistics for the Paraguayan population between 1870 and 1873 (p. 296).

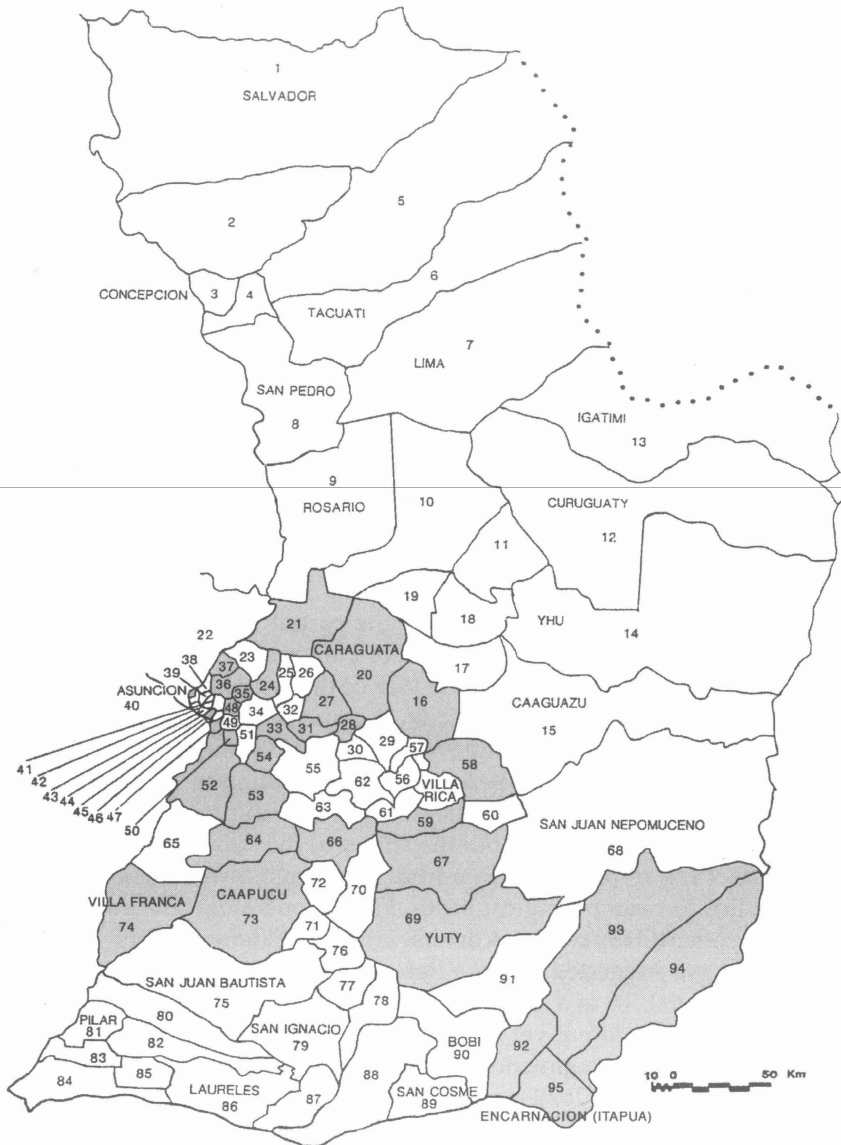


Figure 1 Paraguay divided into districts, with shaded districts indicating complete 1870 census data.