The Philadelphia Numbers Game: An Analysis of Philadelphia’s Eighteenth-Century Population

A DEARTH of detailed sources often causes problems for the student of eighteenth-century Philadelphia. This truism is simply and frustratingly demonstrated by the fact that we cannot, with precision, say what the population of the city was before the first federal census of 1790.¹ Because Philadelphia, unlike some other major American cities of the period, did not conduct periodic censuses, historians have had to use a variety of means to arrive at estimates of the city’s population.² Historians, and careful contemporary observers, have in fact had to engage in what can accurately be called a numbers game. Gross estimates provided by travelers and Philadelphians of the period have been collected and cited.³ Multipliers have been developed to use the number of houses and taxables as bases from which to compute population estimates.⁴ General statements on the growth of Philadelphia have been used to support different estimates of population.⁵ Not surprisingly the population estimates produced by such numbers games have been less than consistent.⁶

The Philadelphia numbers game, despite the mixed results it has

¹ The accuracy of the census of 1790 is itself open to question as will be discussed later.
² Censuses were periodically taken in New York, Boston, and Newport during the eighteenth century. See U.S. Bureau of the Census, A Century of Population Growth From the First Census of the United States to the Twelfth 1790-1900 (Washington, D. C., 1909), 13, 14.
⁵ Carl Bridenbaugh, Cities in Revolt, Urban Life in America, 1743-1776 (New York, 1971), 224.
produced, is a game that must be played. We should obtain the most accurate population estimates possible if we are even to attempt to answer such basic and important questions as how many blacks lived in Philadelphia; how many Philadelphians were poor.\(^7\) Because of the problems inherent in the sources and because of the obvious desirability to estimate accurately Philadelphia’s pre-1790 population, the Philadelphia Constables’ Returns of 1775, as analyzed by Sam Bass Warner, have taken on great importance.\(^8\)

Warner observes that the 1775 Constables’ Returns offer “unique record opportunities” for a population estimate of Philadelphia.\(^9\) This is true because the Constables’ Returns purported to record all people living in Philadelphia as it was legally defined.\(^10\) Thus, while these records were not designed as a census, the Constables’ Returns can be made to yield a census count. By carefully tabulating the lists provided by the Constables’ Returns, Warner determined that the total population of Philadelphia proper was 16,560.\(^11\) Because “urban” Philadelphia extended beyond its legally defined limits to include Southwark and the Northern Liberties, Warner also had to obtain a population count for those areas.\(^12\) But, because there were no Constables’ Returns for them, he had to use a multiplier to estimate their population. He did this by computing the number of persons per dwelling in Philadelphia proper. (The total of 16,560 persons to 3,723 occupied structures yielded a figure of 4.44 persons per dwelling.)\(^13\) Having obtained this figure, Warner


\(^8\) Nash, “Slaves and Slaveowners,” 236n.

\(^9\) Warner, 225.

\(^10\) The law which authorized the Returns of 1775 said the Constables should record “the names of all freemen, inmates, hired servants and all other persons residing or sojourning in every of the said wards [of Philadelphia] . . . .” James T. Mitchell and Henry Flanders, comps., *The Statutes at Large of Pennsylvania from 1682 to 1801* (Harrisburg, Pa., 1896-1911), VIII, 105. This act was passed in 1771.


\(^12\) *Ibid.*, and see also Alexander, “Philadelphia’s ‘Other Half’,” 51, 163.

\(^13\) Warner, 225-226, compiled his total of occupied dwellings for the city and suburbs from the seventeenth levying of the eighteen penny provincial tax list for 1774 which is available at the Pennsylvania State Archives in Harrisburg. This totaling is supported by other counts, as noted below.
multiplied it by the number of occupied structures in the Northern Liberties and Southwark and obtained a population estimate of 7,179 for these areas. Thus he arrived at the figure 23,739 as urban Philadelphia's "maximum" population in 1775.14

Despite the illusion of concreteness inherent in the hard estimate produced by Warner's calculations, his explanation of why we should accept that estimate is less than convincing. This can be seen, in part, by his use of other censuses to support the accuracy of his estimate. Warner concludes that his total of 23,739 "fits well" with the 1790 census count of 44,09615 as it represents a growth of 79 per cent in population from 1775 to 1790.16 But Warner offers no evidence or explanation as to why we should expect Philadelphia to have increased 79 per cent in that fifteen-year period. Moreover, the growth rate of the other major colonial areas in approximately the same period shows that such a growth rate would be unusually high.17 New York was in terms of size, general growth over time, and economic power the colonial city most similar to Philadelphia.18

14 Ibid., 225-226.
15 Ibid., 225. Warner obtained the 44,096 total by adding the populations for the city of Philadelphia, Southwark, and the Northern Liberties as listed in U.S. Bureau of the Census, Heads of Families at the First Census of the United States Taken in the year 1790 Pennsylvania (Washington, D. C., 1908), 10. However, 42,520 is the figure given in the official returns for the "city & suburbs" of Philadelphia. (See Return of the Whole Number of Persons within the Several Districts of the United States, according to "An Act Providing for the Enumeration of the Inhabitants of the United States," Passed March the First, One Thousand Seven Hundred and Ninety-one [sic, 1791], 45.) The official returns, having listed "urban" Philadelphia's total, then merely gave a total for the "Remainder of Philad. County," (Ibid.) It seems logical that the census taker counted those areas of Southwark and the Northern Liberties that were clearly a part of the city in his Philadelphia total while consigning the other areas to the remainder of the county. And such is the case. George A. Baker, who took the census in the Northern Liberties, did not include in the greater Philadelphia totals that part of the Northern Liberties that was "beyond the suburbs." Pennsylvania Gazette, Sept. 7, 1791. Thus 42,520, rather than 44,096, more accurately reflects the population of what Warner called "urban" Philadelphia.
16 Warner, 225. Using the population figures cited by Warner—23,739 in 1775 and 44,096 in 1790—the rate of growth is 85 per cent, not 79 per cent. However, if one compares the 1790 census figures of 42,520 to 23,739, then the growth rate is 79 per cent. Warner apparently did use the 42,520 figure when compiling his growth rate which, as note 15 indicates, appears to be the proper census total for "urban" Philadelphia.
17 I have followed Carl Bridenbaugh in considering the major colonial urban areas to be Philadelphia, New York, Boston, Newport and Charleston. Bridenbaugh, Cities in Revolt, 3 and passim.
18 For the similarity of New York and Philadelphia which included by the 1780s a keenly developed sense of rivalry between the two cities, see ibid., 5, 17, 43-53, 66, 67, 69, 83, 85,
But New York's rate of growth—51.5 per cent for the period 1771 to 1790—was far lower than that of Philadelphia's if Warner is correct.\(^{19}\) And Charleston, Newport, and Boston had a growth rate much lower than that of New York.\(^{20}\) The differences in the rate of growth of the leading colonial cities does not prove that a Philadelphia growth rate of 79 per cent is inaccurately high, but the differences do call for explanation.\(^{21}\)

Warner's claim that his calculation is "consistent with General Cornwallis' enumeration" of 1777, which showed a population of 21,767, is even less convincing.\(^{22}\) That census of Philadelphia was conducted when, as Warner notes, "an unknown number, perhaps several thousand, had fled the city to escape the British occupation."\(^{23}\) If several thousand Philadelphians had fled the city, the 1777 enumeration might well contradict Warner's estimate. And there is evidence to support the belief that a great many Philadelphians had left the city. In September of 1777, Major Baurmeister, who was in the city, observed: "At present it is only sparsely populated, because many inhabitants left with the enemy army. . . ."\(^{24}\) More important, a duplicate of the enumeration manuscript which was sent to Lord Dartmouth had this note added after the total


\(^{19}\) New York's population in 1771, as determined by a census, was 21,863. Its 1790 census population was 33,131. See U.S. Bureau of the Census, A Century of Population Growth, II, 13, and Return of the Whole Number of Persons, 37.

\(^{20}\) From 1773 to 1790, Charleston increased in size from 12,000 to 16,359 or 36.3 per cent. Newport's population increased from 5,299 in 1776 to 6,716 in 1790, or 21.5 per cent. Boston increased a mere 16.2 per cent from 1770 to 1790 as its population grew from 15,520 to 18,038. U.S. Bureau of the Census, A Century of Population Growth, II.

\(^{21}\) Note concluding paragraph of article.


\(^{23}\) Warner, 225.

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of 21,767: "It is computed that about 10,000 Souls quitted the Town upon the approach of the King's Troops." If this "computation" is correct, Philadelphia's 1777 population was more than 31,000—which is indeed not consistent with Warner's estimate of 23,739 in 1775.

Warner's efforts to dismiss alternative, higher estimates of Philadelphia's 1775 population are similarly less than convincing. He argues that "the large 40,000 estimate for Philadelphia's population in 1775 seems to be based upon an extrapolation of Mease's unexplainably high 1769 population estimate of 28,042 for urban Philadelphia and upon Captain Montresor's 1777 statement of 45,000 inhabitants for the same area." John Montresor's claim of a September, 1777, population of actually only 35,000—which he said was based "upon the Poll"—has been less influential than Patrick M'Robert's estimate of a population of 40,000 in 1775. But this fact is less than critical for the important question is not whether Philadelphia had a population of 40,000 in 1775; rather the important question is: was the city's population significantly higher than Warner's estimate indicates? (One does not have to accept the 40,000 estimate to believe that Warner's estimate is too low.) Given this fact, an analysis of James Mease's work is most revealing.

Mease's estimate of a Philadelphia population of 28,042 in 1769 is not "unexplainably" high. When giving his population figures, Mease cited Robert Proud's History of Pennsylvania. In that work, Proud noted that there were 4,474 dwellings in urban Philadelphia in 1769. And he said "which, at the most moderate computation, being multiplied by six, gives twenty-six thousand eight hundred and forty-four; but they were supposed to average nearer

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25 Stevens, no. 2085.
26 Warner, 225.
27 For Montresor's estimate see G. D. Scull, ed., "Journal of Captain John Montresor, July 1, 1777 to July 1, 1778," PMHB, V (1881), 414. For M'Robert's estimate see Patrick M'Robert, A Tour Through Part of the North Provinces of America . . . in the Years 1774 & 1775, Carl Bridenbaugh, ed. (New York, 1968), 31 and corresponding note 85. This work as edited by Bridenbaugh first appeared in PMHB, LIX (1935), 134-180 and the relevant items are on p. 166. For the influence of M'Robert's estimate see ibid.; Bridenbaugh, Cities in Revolt, 216-217, 472; Warner, 225.
seven to a family, which makes thirty-one thousand three hundred and eighteen. . . .” Mease’s estimate is certainly explainable given Proud’s claims.  

Mease’s population estimate and Proud’s use of a house multiplier of six to seven is buttressed by other contemporary estimates and counts. The Philadelphians who counted the houses in Philadelphia in December of 1769 also offered their estimate of the city’s population. “Reckoning 8 persons to each house,” they calculated Philadelphia’s population to be 35,792. Benjamin Davies, whose 1794 publication Mease may have seen, noted that a comparison of the 1790 Census with the house count showed there were slightly more than six persons per dwelling. Davies was correct. As noted, the federal census of 1790, listed Philadelphia’s population as 42,520. The number of houses in Philadelphia at that time was 6,784. Thus, the number of persons per dwelling unit was almost exactly 6.27.

The use of a multiplier of six or more times the number of houses to arrive at a population estimate of colonial cities is supported by more than the Philadelphia example. James Henretta calculated that in the Boston of 1687 there were 7.05 persons per dwelling.

30 Mease, whose footnoting is at best quite thin, did not specifically cite the Proud material quoted above. However, since Mease used Proud’s work, it seems likely that he had read Proud’s thoughts on the use of a multiplier.
33 It is quite possible that the 1790 census was inaccurately low, as noted below.
34 Clement Biddle, who as Marshal of the Pennsylvania District was director of the census takers, said that Philadelphia’s 1790 population “is found by the late census to be 42,400, and the number of houses 6,651, and stores or work shops 415.” Clement Biddle, *The Philadelphia Directory* (Philadelphia, 1791), ix. Biddle’s *Directory* was copyrighted on Mar. 18, 1791, and his official census returns were dated Aug. 19, 1791. *Ibid.*, ii and *Return of the Whole Number of Persons*, 45. Also, Biddle’s total of 42,400 as printed in the *Directory* is slightly lower than the final official totals. Thus his statement of 6,651 houses may have been a preliminary total. Davies (ibid., 16) similarly said that the 1790 census showed 6,651 houses and 415 stores and work shops. However, Davies (ibid., 17) also printed a ward by ward plus the suburban areas listing of the census data. That list yielded 42,520 as the population of “urban” Philadelphia. But the house total was 6,784. Given the above information on Biddle’s work and the fact that the 6,784 figure is based on a detailed totaling of the data, I have accepted the 6,784 figure as the accurate one.
Lemuel Shattuck computed the number of persons per dwelling to be 9.53 in 1741, 9.26 in 1765 and 7.97 in 1790. John K. Alexander July

Joseph Felt, in his attempt to estimate colonial Boston’s population, also used a houses times x formula. He concluded that the multiplier should be 7.15. Finally, Greene and Harrington maintained that, in using a houses times x formula to arrive at pre-1790 population estimates, the multiplier should be “at least 7.”

Once the evidence is examined more thoroughly it is Warner’s estimate—not Mease’s—that calls for explanation. We know that in the Philadelphia of 1790 the census revealed a ratio of houses to population of 6.27 to one. But Warner says that in 1775 the ratio was 4.44 to one. If Warner is correct, a dramatic change occurred in the housing pattern and basic structure of Philadelphia society from 1775 to 1790. Such a change may have occurred, although Warner offers no evidence to support such a view. If, in fact, such a change did not occur, we must conclude that either the census of 1790 or the Constables’ Returns for 1775 are inaccurate.

There is evidence to support the contention that the 1790 Census was inaccurate. Censuses, even modern ones, often fail to record people and thus give an undercount. This tendency to undercount was probably enhanced by the attitudes of contemporary Americans who had long displayed a fear of censuses. Speaking of the first federal census, George Washington noted:

Returns of the Census have already been made from several of the States and a tolerably just estimate has been formed now in others, by which it appears that we shall hardly reach four millions; but one thing is certain our real numbers will exceed, greatly, the official returns of them; because the religious scruples of some, would not allow them to give in their lists; the fears of others that it was intended as the foundation of a tax induced

36 Report of the Committee of the City Council Appointed to Obtain the Census of Boston for the Year 1845 (Boston, 1846), 54.
38 Ibid.
39 It is also possible that the house totals could be inaccurate. But this does not appear to be the case as indicated in footnotes 34 and 50.
them to conceal or diminished theirs, and thro' the indolence of the people, and the negligence of many of the Officers numbers are omitted.\textsuperscript{42}

Washington’s views were supported by a Philadelphian who in 1790 claimed that the census for the city was low because “smaller and poor” families hid members out of fear that they would be taxed per head.\textsuperscript{43} Thus, it seems likely that the first federal census was inaccurately low. But, if this is the case, it means that the 1790 ratio of persons to houses should be higher than 6.27 to one. This makes the 1775 figure of 4.44 persons to one dwelling unit all the more suspect.

We come then to this question: although there is no reason to doubt the accuracy of Warner’s totaling of the 1775 Philadelphia Constables’ Returns, is there reason to suspect the accuracy of the Returns? The answer is, yes. We know that people may have lied to the census takers out of fear that they would be taxed. But the Constables’ Returns were not a census, they served as the basis for Philadelphia’s tax assessors.\textsuperscript{44} If people lied to the census takers, how much more likely were they to lie to the Constables?

Whether or not people lied to them, their Returns were deemed inaccurate by the Philadelphia Wardens who supervised the Constables. In February of 1776, the Wardens petitioned the state legislature. That petition asserted “that the Returns directed to be made to the Wardens and Assessors by the Constables of the City, are very inaccurate and irregular. . . .” The Wardens suggested that this inaccuracy occurred because “the Constables (of the present day) being very illiterate men, many of them not capable of Writing.” The Wardens also observed that the time allowed to the Constables to compile their returns—a mere five days—was “found by repeated Experience to be too short, as many of the Wards in the City are [sic] become very large.” The Wardens, although not citing this fact as a reason for the inaccuracy of the Constables’ Returns, also argued that the compensation provided to the Con-


\textsuperscript{44} Mitchell and Flanders, VIII, 105.
stables for compiling the Returns "proves unequal to the Time employed therein."45

The state legislature agreed with this analysis. Citing the "difficulties and inconveniences" that had arisen from "the inaccuracy and irregularity" of the Constables' Returns, the legislature decreed that "such returns or certificates of the taxables in the respective wards of the said city shall be made by one intelligent freeholder to be chosen for that purpose. . . ." The legislature altered the nature of the Constables' Returns by saying that the people empowered to make those returns were only required to make "true and fair certificates of the taxables in the respective wards. . . ." The legislature also increased the pay for compiling these certificates and allowed ten rather than the former five days to compile them.46

We cannot be sure that the inaccuracies in the Constables' Returns noted by the Wardens and the legislature included an undercount of the city's population. But an undercount seems quite likely for a number of reasons. As noted, the citizens may have lied about the number of people in their families. The extremely short time allowed for gathering the Returns also suggests that the Constables may not have had the time to do a careful and thorough count.47 The reason for the computation of the Constables' Returns also suggests a possible undercount. In levying taxes a "due regard" was to be given to "such as are poor and have a charge of children. . . ."48 Thus, if the Constables failed to record a large but poor family that would not interfere with the assessment of taxes.

45 Pennsylvania Archives, Eighth Series (1931–1935), VIII, 7387–7388. I do not know if the Constables were in fact "illiterate men." But it is true that many people were willing to pay the £5 fine to avoid serving as Constables. See Philadelphia City Archives, Docket of the Mayor's Court, July Sessions, 1759; July Sessions, 1760; July Sessions, 1761. This record group (number 130.1) is missing the volumes for 1764–1779. I wish to thank Mr. John Daly of the City Archives for pointing out these Mayor's Court records and for other helpful suggestions and assistance.

46 Mitchell and Flanders, VIII, 465–466. This act was passed on April 6, 1776.

47 Apparently not all Constables adhered to the five-day limit. The 1775 Returns are dated from Oct. 17 to Nov. 2, 1775. (See Philadelphia City Archives, Constables' Returns for 1775 filed as record group 96.1.) But those Constables who did try to keep to the five-day limit were probably sorely pressed as the Wardens noted.

48 Mitchell and Flanders, VIII, 105. Single men who were under twenty-one and who had not been out of servitude or apprenticeship for at least six months were also to be exempt from taxation. Ibid., 105–106.
Given all of the evidence, it seems likely that the Constables' Returns for 1775 were inaccurately low as a population count. Thus Warner's estimate of a "maximum" population 23,739 in the Philadelphia of 1775 as derived from those records is probably an inaccurately low figure. The Philadelphia Constables' Returns of 1775, as analyzed by Warner, thus, do not appear to be the key to Philadelphia's pre-1790 population. They are, at best, but one more estimate to be compared to other estimates.

To point out the weaknesses in the 1775 Constables' Returns does not answer the basic question: what was Philadelphia's pre-1790 population? Unfortunately, this question can still be answered in only the most tentative way. And if we are ever to obtain at least a definitive estimate of Philadelphia's pre-1790 population, we must unify our efforts to determine the city's population. Believing this, the following analysis is offered not as a definitive statement but as a point of departure. It is my hope that any scholar possessing new information that will allow us to more accurately estimate Philadelphia's population will submit that information to The Pennsylvania Magazine of History and Biography. By doing this, we can hopefully end the Philadelphia numbers game.

The use of the formula houses x 6.27 seems to be the best way to arrive at reasonably accurate estimates of Philadelphia's pre-1790 population. The multiplier of 6.27 as derived from the 1790 census is, as noted, consistent with both contemporary and modern calculations. Equally important, we possess a number of censuses of the dwellings in Philadelphia taken at various times in the eighteenth century. And while recorders may have undercounted...
the number of people in the city, it seems logical that it would be far easier to arrive at an accurate count of the dwellings.

PHILADELPHIA'S EIGHTEENTH-CENTURY POPULATION BASED ON THE FORMULA HOUSES × 6.27 EQUALS POPULATION

<table>
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<tr>
<th>Year</th>
<th>Number of Dwellings</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1700</td>
<td>700</td>
<td>4,389</td>
</tr>
<tr>
<td>1744</td>
<td>1,500</td>
<td>9,405</td>
</tr>
<tr>
<td>1749</td>
<td>2,076</td>
<td>13,017</td>
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<tr>
<td>1753</td>
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<td>14,421</td>
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<td>1760</td>
<td>2,969</td>
<td>18,616</td>
</tr>
<tr>
<td>1769</td>
<td>4,474</td>
<td>28,052</td>
</tr>
<tr>
<td>1774</td>
<td>5,340</td>
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</tr>
<tr>
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<td>5,460</td>
<td>34,244</td>
</tr>
<tr>
<td>1790</td>
<td>6,784</td>
<td>42,535</td>
</tr>
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</table>

[Actual census count 42,520]

If these population estimates for the period prior to 1790 are accurate, Philadelphia increased 51.6 per cent from 1769 to 1790. New York, as noted, grew by 51.5 per cent from 1771 to 1790. These strikingly similar growth rates do not in themselves prove that the population estimates given above are accurate. But this similarity of growth rate does seem to offer yet another reason to believe that these estimates are reasonably accurate.