The Privately Funded Warships of the U. S. Navy: Blowing Holes in Public Goods Theory

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March 2006

Introduction

"Public goods" are conventionally defined as being both "non-excludable" and "non-rivalrous". That is, these are goods whose benefits, once the good is provided, cannot effectively be restricted only to those willing to bear its cost. Since the benefits gained by one person do not diminish the benefits gained by others, whether or not those persons pay for the good, then many individuals will be unwilling to bear that cost, despite the allegedly obvious benefits. In short, many will become "free riders". As a result, in a free market such goods will supposedly prove to be unprofitable and thus the supply will be suboptimal. The usual conclusion of this line of reasoning is that, in order to ensure that a sufficient quantity will be provided, government must step into the picture. It must take upon itself the responsibility of supplying the public good, and tax all citizens to cover the expenses of doing so. This public goods phenomenon is taken to be a manifestation of "market failure", a deficiency in a capitalist system.

Without doubt, the paradigmatic example of a public good has long been thought to be national defense. Earlier work on privateering by Sechrest (2003) has already demonstrated that, at least insofar as naval warfare is concerned, there need be no government monopoly on defense services. For some seven centuries, privateers---private ships of war---constituted an effective, reliable, and highly profitable means of crippling the maritime trade of an enemy nation. So effective were privateers' techniques that they appear to have been emulated during both world wars by the commerce raiders---both surface ships and submarines---that the Germans sent to sea[1].

[1] See Garitee 1977, pp. xv-xvii and Hough 1983, pp. 172-74.

Skeptics might grant the overwhelming evidence on the effectiveness of privateers, but still question their overall value on two grounds. First, one might insist that privateers would be of little worth unless the enemy depended to a significant extent on the transportation of goods by sea[2]. This follows from the fact that the profitability of privateering was principally derived from selling the enemy ships and cargoes which the privateers captured[3]. Second, one might claim that the deciding factor in a naval war is always the defeat of the enemy's warships in formal battle, not the destruction or capture of commercial ships. Privateers were seldom designed to engage in combat with naval vessels. They were usually small, fast, highly maneuverable craft which could readily capture merchant ships, but which were often too lightly armed with cannon to engage powerful ships of war. Thus one could conclude that privateering does not obviate the need for a public navy.

Granting, for the sake of argument, the need for a public navy, must such an organization unavoidably be funded via compulsory taxation?[4] Certainly public goods theory would conclude that it must, and in particular for the largest expense of all---the ships themselves. But what if there were historical precedent for utterly voluntary funding of such capital projects? Surely that would call into question the applicability of

[2] Of course, if the issue is naval warfare, then damage to commercial shipping will indeed be of importance. The principal motive for having a navy is to protect the nation's commercial shipping. Indeed, as long as war is truly *defensive*, that would seem to be the only motive. Naval powers are always nations with significant maritime trade.
[3] In some cases, privateers also were awarded per capita bounties for the persons they captured.
[4] For a discussion of the redistributive problems that stem from funding certain defensive services via compulsory taxation, see Sechrest 1999.

public goods theory. It is fascinating to discover that just such precedent does exist.

The Initiatives of 1798

At the end of the eighteenth century, in the midst of their long wars against the British, the formerly friendly French began to intercept and confiscate American merchant vessels that were trading with the British. In response, on June 13, 1798 President John Adams went so far as to sign a law ordering American vessels not to sail toward any port under the control of France. The penalty would be the confiscation and sale of the ship and its cargo by the U. S. government, with half the value going to the government and half to whomever informed on the violator [5] (www.yale.edu/lawweb/avalon/quasi.htm). With the onset of this Quasi-War with France (1798-1800), citizens in a number of American cities responded in a fashion radically different from that of Congress and Adams. Instead of banning intercourse with France and its territories, they decided to retaliate. They spontaneously initiated "subscriptions" whereby they sold stock in very unusual capital projects: the building of warships, whose mission was to protect American property at sea. The motivation was clearly patriotic at the same time that it was self-serving. The subscribers were often merchants, shippers, or shipowners whose incomes were being adversely affected by the depredations of the French.

Incredible though it may sound to modern ears, the goal was to build the vessels and then *give them* to the U.S. Navy ! Some have suggested that the ships were merely

[5] It is ironic that part of the official method of coping with the French confiscation of private American vessels was to threaten American shipowners with confiscation by their own government.

loaned to the Navy, but that was not the case. Once completed, the ships "became government property" (Leiner 2000, p. 27). Moreover, these projects were in every sense true private initiatives:

> The private American citizens who conceived of these ships put up the money, arranged for the designs, selected the timber and materials, laid the keels and planked up the hulls, selected the officers, and sent the ships off to war. Into each ship they put their experience, belief in their country, and their confidence in the future. The subscription warships were a compelling expression of that society's projection of itself. (p. 2)

But was not this outpouring of intense "civic spirit" the result of an incentive created by the young republic's national officials, and therefore not truly spontaneous? Historians tend to reach just that conclusion, because they focus on the Act of June 30, 1798. This statute authorized the federal government to 1) accept any armed vessels offered to it by private citizens and 2) compensate those donors with "certificates" that were general obligations of said government and which yielded six percent interest (pp. 26-27). This certainly makes it appear as if the subscription efforts were induced by government action. Nevertheless, that is false. The reason is that "the statute merely reflected what American citizens were doing on their own" (p. 24).

> In diverse parts of the United States, thousands of dollars were being raised by citizens without government sanction or direction. The Senate bill did not pass before subscriptions in Newburyport [Massachusetts] , Philadelphia, and New York were well underway, and the Senate bill was not printed in newspapers until Baltimore had begun its list. The House did not take up the bill before Norfolk, Richmond, and Petersburg, Virginia, had also entered the subscription frenzy. (p. 25)

It is perhaps not surprising to discover that the cities involved were almost all seaports. In addition to those mentioned above, the list includes Salem and Boston in Massachusetts; Providence, Rhode Island; Charleston, South Carolina; and Norwich,

Connecticut. What is remarkable is what large sums of money were generated in such a short time during that summer of 1798. For instance, Bostonians raised $115,000 in two days and $136,000 altogether (Canney 2001, p. 56). In Philadelphia $ 101,000 was contributed in one week. In Baltimore $100,000 was raised, most of it in less than two weeks (p. 116). Salem brought in $75,000 and Richmond $32,000 (Leiner 2000, pp. 192, 194). To more accurately gauge these magnitudes, one must first convert them into present-day terms. Officially, consumer prices are about twelve times higher now than they were in 1800 (see http://minneapolisfed.org/research/data/us/calc/hist1800.cfm). Therefore, the $136,000 from Boston would equal roughly $1.63 million today, Baltimore's $100,000 would be $1.2 million, the $75,000 in Salem would be $ 900,000 today, and so forth.

In addition, one cannot afford to overlook the fact that the populations of these cities were still quite small at the end of the eighteenth century. By today's standards, none of these was more than a large town. As of 1800, the residents of New York City numbered 60,515, Philadelphia 41,220, Baltimore 26,514, Boston 24,937, Charleston 18,824, Salem 9,457, Providence 7,614, Newburyport 5,946, and Richmond 5,737 (see http://www.census.gov/population/documentation/twps0027/tab03.txt).Therefore, in today's terms these subscription efforts brought in approximately $65 for each man, woman, and child in Boston, $95 in Salem, $45 in Baltimore, $67 in Richmond, and $29 in Philadelphia. An even more revealing measure might be the mean average amount offered by each person who subscribed, rather than per resident of each city. On that basis, the results are nothing less than amazing (Leiner 2000, pp. 185-94). In current

dollar terms, each of the Richmond subscribers contributed $2,349, each one in Philadelphia $6,915, each one in Salem $8,929, and each one in Boston $15,879 [6]. "In an era when a skilled ship carpenter earned a dollar and a half per day in wages and a common laborer a mere dollar, the sums raised practically overnight to build warships for the navy were extraordinary" (p. 25).

Not only did these subscribers subject themselves to significant costs, but "once completed and handed over to the federal government to prosecute the Quasi-War against the French navy and privateers, the benefits from a given city's ship would not accrue to that city alone [much less to the individual contributor] but to America generally. Despite modern economic theory, Americans voluntarily contributed warships for the national good, highly suggestive of an earlier concept of citizenship" (p. 3)[7].

That being the case, one might expect such dramatically patriotic efforts to have become a standard part of the history of the U.S. Navy. Unfortunately, that has not come to pass. For example, one modern work---whose preface describes it as "a chronology of significant events in the history of the United States Navy and Marine Corps from their foundation to the present day"---reviews the 1797-1801 period without ever mentioning the private funding of warships (Sweetman 1984, pp. 17-19). Clearly, to that naval historian the subscription drives of 1798 did not constitute a significant event. In one sense, that is quite understandable. If one begins with the premise that national defense is ineluctably a classic public good, then it is easy to dismiss the initiatives of 1798 as an

[6] There exist data on the number of individual subscribers only for a few of the cities (Leiner 2000, p. 185).

[7] Such a concept of citizenship might be more readily understood if one thinks in terms of Albert Jay Nock's distinction between Government and the State (1983 [1935]).

aberration which deserves no particular attention. If, on the other hand, one is willing to question the conventional view of national defense, then one can see the initiatives of 1798 as the prototype for an alternative paradigm. And that paradigm has enormously important implications for history and politics, as well as economics.

Additions to the Fleet

One could grant that substantial sums were collected in the manner outlined above, but still question the efficiency of such voluntary funding. Were the funds used to build vessels which constituted meaningful additions to the firepower of the Navy? Were these vessels well designed, solidly constructed, and speedy? Or were they the defective products of inspired but inept amateurs? In short, was the money wasted? Would these funds have served the nation better if they had been tax revenues funneled directly into the hands of Navy officials?

To gauge the impact of these ships one must both review the types of warships used at the time and examine the size of the U.S. Navy in terms of those types. The largest fighting ships were known as ships-of-the-line[8]. They carried 64-120 guns, were as much as 175 feet long, measured up to 2000 tons or more, had crews of 500-800 men, and were, in World War II terms, the battleships of their day. In today's terms, they would be comparable in stature to an aircraft carrier. They were "capital" ships, that is, they were expected to bear the brunt of the fighting whenever fleets met in battle. The U.S. Navy possessed no ships-of-the-line until after the War of 1812 (Chapelle 1949, pp. 312-16).

[8] HMS *Victory*, launched in 1765 and currently preserved as a museum ship at Portsmouth, England, is a 100-gun ship-of-the-line.

Next in size and power were frigates[9]. They carried 24-60 guns, might be as long as a ship-of-the-line, measured up to 1600 tons (though many were under 1000 tons) (Chapelle 1949, pp. 40, 42, 55, 62, 127-28, 132-33), had crews of 200-450 men, and were comparable to the cruisers of World War II. With rare exceptions, no frigate could survive one-on-one combat with a ship-of-the-line. However, since frigates were faster than ships-of-the-line, they could usually escape from those more powerful vessels. Due to their combination of speed and significant firepower, frigates were often used as scouts for the battle fleet, as escorts for convoys of merchant ships, or as commerce raiders acting independently. In 1800, the most powerful warships of the U.S. Navy were the 44-gun frigates *Constitution*, *President*, and *United States*.

One notch below frigates were sloops-of-war (sometimes called "corvettes" or "ship sloops"). The latter designation identifies the fact that, like frigates and ships-of-the-line, sloops-of-war were normally "ship-rigged". That is, they had three masts with "square" sails on all three[10]. They might be as much as 125 feet long, measured 300-600 tons, carried 18-28 guns, and had crews of 150-200 men. Clearly, in terms of firepower, a large sloop-of-war was about the equal of a small frigate. On the other hand, sloops-of-war were often---in the 1775-1825 period---among the fastest vessels in any navy, so they typically could outrun most frigates. As one might expect, sloops-of-war performed

[9] USS *Constitution*, launched in 1797 and currently preserved as a museum ship at Boston, Massachusetts, is a 44-gun frigate.

[10] "Square sails" means that the sails were rectangular in shape, were hung from cylindrical wooden "yards", which latter were attached perpendicular to the masts, and that these sails were set more-or-less perpendicular to the longitudinal axis of the ship's hull. As a result, a square-rigged vessel could usually sail no better than at a 45 degree angle to a headwind, and sailed best with the wind coming from behind.

many of the same functions as did frigates. Their principal advantage over frigates was that they were less expensive to build, man, and maintain.

All of the ships actually built through the private initiatives begun in 1798 were either frigates or sloops-of-war[11]. There were five frigates, the *Essex*, *Boston*, *Philadelphia*, *John Adams*, and *New York*, carrying 32, 32, 44 (later reduced to 36), 28, and 36 guns, respectively. In addition, four sloops-of-war were built, the *Merrimack*, *Maryland*, *Patapsco*, and *Trumbull*, carrying 28, 26, 24 and 18 guns, respectively. As of 1800, there were eight other frigates in the U.S. Navy, the *Constitution*, *President*, *United States*, *Constellation*, *Congress*, *Chesapeake*, *General Greene*, and *Adams* (a different vessel from the *John Adams*, though, confusingly, also a frigate of 28 guns). The first six of these other frigates had been authorized by Congress as early as 1794 and most were in commission by 1799. The latter two were privately designed and built, and then purchased by the Navy.

Thus, the privately funded frigates represented a 62.5 % increase in the number of warships of the largest type possessed by the United States. The four sloops-of-war represented a full 100% increase in vessels of their type, there being only four others at the time[12]. Viewed in this light, a plausible explanation for the intense enthusiasm seen in the subscription drives emerges. It is likely that many Americans believed that the size of the American fleet was *suboptimal* , that they deemed the U.S. Navy too small to counter the French threat effectively. If so, then public goods thinking is precisely

[11] There was also one smaller vessel, an 18-gun brig, that was planned but never completed (Canney 2001, p. 49).

[12] The other four were all former merchant vessels that had been converted into warships, the *George Washington*, *Herald*, *Delaware*, and *Ganges* (Chapelle 1949, pp. 142-43).

backwards insofar as the events of 1798 are concerned. It was the governmentally-supplied naval forces which were inadequate, and the solution lay with the spontaneous actions of private citizens.

One may note that of the nine privately funded warships, four were small- to medium-size frigates and the other four were sloops-of-war. Only one, the *Philadelphia*, was a really large frigate. Is this indicative of ignorance of strategic issues on the part of the contributors? Why, in other words, did they not choose to build "super" frigates comparable to the existing *Constitution, United States,* and *President* [13]? Or at least 36-gun frigates like the *Constellation, Congress,* and *Chesapeake,* which themselves were "far larger than ships of similar rates abroad" (Chapelle 1949, 128)? First of all, those six vessels were very expensive to build, although admittedly quite impressive. Perhaps more importantly, the conflict with France may have called for a different naval response. Specifically, many of the losses of American ships were to French privateers. Privateers were typically fast, maneuverable craft of modest size and not heavily armed. Large, 44-gun frigates were probably not the ideal weapon against such an enemy. Smaller frigates and sloops-of-war possessed more than enough firepower as well as the requisite speed to defeat the French privateers. As Secretary of the Navy Benjamin Stoddert put the problem, "only fast vessels could be effective against the French" (Footner 1998, p. 84). The hypothesis that nimble, speedy ships were crucial to success in the Quasi-War with France is bolstered by the fact that all the nine ships seem to have been designed to be uncommonly fast. One current naval historian concurs with the above proposal. "Given

[13] The 44-gun ships "were very large for their rates….[Their] dimensions were huge for a frigate at the time the ships were designed" (Chapelle 1949, p. 127).

the character of the conflict at hand, it seems obvious that the smaller ships were of much more utility in dealing with the French privateers and in handling commerce-protection tasks" (Canney 2001, p. 116).

Design and Construction

First of all, one should note which cities produced which ships. Rather obviously, the frigates *Philadelphia, Boston*, and *New York* were constructed at their namesake locales. The frigates *Essex* and *John Adams* were built at Salem, Massachusetts and Charleston, South Carolina, respectively. As for the sloops-of-war, the *Maryland* and *Patapsco* were both products of Fells Point, Maryland. The *Merrimack* was built at Newburyport, Massachusetts; while the *Trumbull* came from Norwich, Connecticut.

Public-spirited citizens may raise significant funds on their own, but are they able to cope with the highly technical problems of naval architecture and ship construction? From the viewpoint of the twenty-first century, it could be tempting to answer in the negative. Some might assume that these warships would exhibit inferior materials and/or workmanship. Others might assume that outmoded, second-rate designs would be used. Nevertheless, the subscription warships of 1798 offer compelling evidence in the opposite direction. Far from being the flawed creations of well-meaning amateurs, these nine vessels proved, on the whole, to be very useful additions to the U.S. Navy. In fact, some of them were deemed superior to most of the tax-funded ships already in service:

> Though most of the large ships built by subscription were completed too late to be of any real service in the trouble with the French republicans of the Directorate, they were excellent additions to the Navy and were of value in the events that

> followed the quasi war with France…..the *Philadelphia*, *New York*, *Essex*, *Boston*, and *John Adams*….were well-built ships on what were then considered very good models. (Chapelle 1949, p. 161)

Moreover:

> The construction of all the new ships was intended to be very strong, with the hope of producing vessels of a very long life. The problem of finding a species of American shipbuilding timber comparable to English oak was thought to be solved by the use of southern live oak, and this timber was therefore used very extensively in the new ships. (p. 168)

The critical task of designing and building these vessels was entrusted to some of the outstanding men in their field. For instance, the sloop-of-war *Maryland* was designed and built by William Price. Price was renowned for the fast privateers he produced, which later included his "great….schooners of 1812, *Von Hollen*, *Revenge*, *Price*, and *Sabine*" (Footner 1998, pp. 9, 14, 103). "His name is prominent in association with the development of the Baltimore clipper" (Canney 2001, p. 116). Although best known for his smaller vessels such as brigs and schooners, Price also built large merchant ships, such as the famous 800-ton *Hannibal* of 1811 (Ahrens 1998, pp. 86-87). "The superior quality of a Price vessel was attested to by the demand for his vessels in Baltimore and in foreign ports over a forty-year span" (p. 105). The "skilled James Hackett" (Chapelle 1935, p. 92) designed the 32-gun *Essex* as well as building---but not designing---the publicly funded 36-gun *Congress* (p. 94). Noted shipwright Josiah Fox, who had designed and built the frigate *Chesapeake* for the government, was employed to design both the 28-gun *John Adams* for Charleston, South Carolina and the 36-gun *Philadelphia* (p. 93). The sloop-of-war *Merrimack* was designed by the respected William Hackett; while the frigate *New York* was designed by Samuel Humphreys,

son of Joshua Humphreys, the man who designed the *Constitution*, *United States*, and *President* (p. 94).

It is important to note that these designers were not constrained by government specifications or oversight. “[T]he navy had little control over the pertinent paperwork and [architectural] plans”….The department of the Navy “had no direct control over the builders” (Canney 2001, pp. 115, 118). These men were free to innovate in any way they saw fit.

Performance and Service

Above all, the designers of these warships seem to have concerned with speed. In was in that direction that they chose to make innovations. For instance, the *Philadelphia* “was considered a fast and beautiful frigate”, although she was “not on the same model as the earlier 44’s and 38’s”, such as *Constitution*, *Constellation,* and *President* (Chapelle 1949, pp. 163-64). This frigate began her career on the West Indies station, and there “quickly gained a reputation for speed” (Canney 2001, p. 53). It has been said that *Philadelphia* was “an ornament to the service” and “possessed great potential” (p. 53). Unfortunately, her career was short. She ran aground in the harbor of Tripoli in 1803 while involved in operations against the Barbary pirates. To keep her from being used against themselves, the Americans burned her in a daring action led by Stephen Decatur (p. 53). The 32-gun *Essex* also departed from the existing designs, but yet she was “a very fast frigate” (Chapelle 1949, pp. 165-66). Indeed, a contemporary report stated that “she beat every vessel she has ever had a Tryal [sic] with” (Canney 2001, p. 50). Sadly, “by the time the War of 1812 began the changes made by her various

commanders and by navy yard commandants had spoiled her sailing [abilities]" (Chapelle 1949, p. 166). Nevertheless, during that war *Essex* did enormous damage to the British whaling fleet in the Pacific before being defeated by two ships of the Royal Navy (Canney 2001, p. 51).

The first commanding officer of the frigate *Boston* reported very positively to the effect that she "exceeded even the most sanguine expectations of Bostonians in sailing" (p. 55). Her success during the Quasi-War was considerable. *Boston* captured eight enemy vessels, including the French frigate *Le Berceau* (p. 55). The sloop-of-war *Maryland* quickly established a definite reputation for speed. One of her officers claimed that she outsailed other vessels "shamefully", and that only one ship in the U.S. Navy could equal her in swiftness, the captured frigate *Insurgent*, which was the former French frigate *L'Insurgente* (p. 117). Indeed, the only complaint lodged against the *Maryland* seems to have been that the search for speed so dominated her design that certain fighting capacities had been sacrificed (p. 116). She was described at one point as being "a charming little ship, exceedingly well fitted with the best materials I ever saw" (Ahrens 1998, p. 75). The *Patapsco* appears to have been comparable in design and performance to the *Maryland*.

The sloop-of-war contributed by Newburyport, Massachusetts, the *Merrimack*, "was immediately assigned to convoy duty and gained some reputation for swiftness" (Canney 2001, p. 115). Moreover, *Merrimack* captured four French vessels as well as re-capturing several American and British vessels that had previously been taken by the French. The frigate *New York* had an uneventful career, being kept out of active service from 1804

until she was burned at the Washington Navy Yard in 1814 to prevent her capture by the invading British. She was, however, described as a "satisfactory sailer" (Chapelle 1949, p. 164), though few details are known. The only one of the subscription warships that did not live up to expectations was the 28-gun frigate *John Adams*. Probably due to an error committed during her construction, she was never more than a mediocre sailer (Canney 2001, p. 56). On the other hand, she was very well-built, and lasted longer than any other of the 1798 ships. After serving in three wars, she was finally dismantled in 1829-30 and replaced with a sloop-of-war also named *John Adams* (p. 57).

Conclusion

In 1798 the United States faced an undeclared naval war with France. The existing tax-funded vessels of the U.S. Navy consisted principally of a small number of very large frigates. These were probably not the ideal weapons for coping with the French threat on the seas. Therefore, a number of self-interested citizens took it upon themselves to provide nine additional fighting ships. These privately funded frigates and sloops-of-war served with distinction. Most of them were considered outstanding examples of naval architecture. Some saw action only against France. Others lasted through the Barbary Wars and even the War of 1812.

The lesson to be drawn from this little-known episode in American history seems clear. An effective fighting force can be financed and constructed entirely by means of voluntary contributions. National governments need not direct the process, and involuntary taxes need not be employed. Public goods arguments to the contrary are incorrect.

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