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U.S. Land Policy
Founding Choices and Outcomes, 1781–1802

Farley Grubb

Independence brought a vast amount of land within the grasp of the new nation—land unsettled by nonindigenous Americans. Choices had to be made regarding which governments had jurisdiction over these lands, how these lands would be used to benefit those governments as well as the public, and how these lands would be transferred to white settlers. Conflicts over which governments had jurisdiction over these lands created the first crisis of disunion. The choice that resolved this crisis led to other choices on how to use these lands to salvage the nation's financial position. How the government would transfer these lands to the public also required choices over lot sizes, shapes, prices, and methods of sale. Between 1781 and 1802, these land policy choices were truly founding choices in that they had lasting effects on the economic and political trajectory of the nation.

This short chapter cannot adequately address all the land policy controversies that arose in the founding era. Instead, the focus will be on the key choices that affected economic development for which economic analysis can enhance our understanding. The essay begins by documenting the conflicting claims over the trans-Appalachian territories post-Revolution. As a condition of political unity, states without land claims required states with claims to cede them to the national government for the benefit of all. Adopting the U.S. Constitution as drafted in 1787 may not have been possible without this prior solution to western land claims. The timing and amount of lands ceded to the national government from 1781 through 1802 is also documented, with the total being roughly 222 million acres worth

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about $215 million by 1802. The U.S. Federal Government was born land rich and land-asset-value rich.

The national government's choices over how to use its lands are addressed next. The public, Founding Fathers, and states all expected the ceded lands to be used to satisfy the debts incurred fighting the Revolution. A government budget constraint model linking revenue and spending flows with stocks of land assets and debt is developed to show the options available for using land assets to service the national debt, that is, (a) swap all the land at once for as much debt as possible or (b) sell the land slowly over time at good prices with the proceeds pledged to redeeming debt principal. The Federal Government was solvent when land prices were valued at their long-run constant-dollar equilibrium price but insolvent if valued at prices likely to prevail if all the land was dumped onto the market at once. In 1790, option (b) became the founding choice, which, in turn, helped salvage the government's credit position.

Finally, the essay describes the choices made regarding how the land would be sold, that is, lot sizes and shapes, and discusses the economic benefits of these choices. The Land Ordinances of 1784, 1785, and 1787 that were carried forward largely intact after the adoption of the Constitution are discussed. The choices made in these ordinances enhanced the value and, thus, the sale price of the land. The rectangular property grid imposed on land buyers rationalized land boundaries making property rights more secure. The required purchase of minimum lot sizes far larger than the typical farm reduced the cost of surveying and allowed purchasers to capture the positive externalities of their initial development efforts. The chapter ends with a brief epilogue summarizing the results and linking the subsequent Louisiana Purchase in 1803 directly to the founding choices made regarding the initial land cessions to the national government.

8.1 The First Crisis of Disunion: Who Should Get the Spoils of War?

With George Rogers Clark's victories over the British in the Ohio territories and the pending triumph of the American Revolution, British claims and restrictions over the trans-Appalachian territories were removed, and these lands fell into the hands of the revolutionaries.[1] This transfer was codified in

1. Being the victor in the French and Indian War (Seven Year's War), Britain acquired in 1763 French Canada and French claims to the upper Ohio and Mississippi regions—claims that conflicted with those of several British colonies whose royal charters encompassed some of these lands. With the Proclamation of 1763, Britain declared British treaties with the Indians in these regions superior to any made by the American colonies and forbade, with a few exceptions, further white incursions into these lands. American colonists worked to evade this proclamation, which they viewed as an attempt by prominent Englishmen to execute their own land patents in the region. Prominent Americans formed land companies and moved to lay claim to these regions. With the 1774 Quebec Act, the British also attached the lands west of the Alleghenies and north of the Ohio River to the colony of Quebec for administrative purposes and to reaffirm the Proclamation of 1763—in part to counter the American land company incursions into these regions (Friedenberg 1992, 104–42; Livermore 1939, 74–122; Sakolski 1932, 1–28).

1783 with the Treaty of Paris that recognized U.S. sovereign independence from Britain, but not without effort and controversy. For example, Spain sought surrender of U.S. claims to the eastern Mississippi region and to free navigation of the Mississippi River through New Orleans in exchange for aid during the Revolution and trade concessions to the Americans, mostly to northern shippers, after the Revolution. These Spanish intrigues were fended off by the southern states, effectively stopping northern commercial interests and their political allies in Congress from trading away these navigation rights and land claims. In addition, U.S. efforts to claim Canadian lands were dropped in the final 1783 treaty.[2]

The new lands acquired in the Treaty of Paris represented a vast territory stretching from the Appalachian Mountains to the Mississippi River between the southern shores of the Great Lakes and Spanish Florida. Which government should get these lands? Initially several states, for example, Massachusetts, Connecticut, Virginia, North Carolina, South Carolina, and Georgia, claimed these lands based on old colonial grants and Indian treaties. Many of these claims were overlapping. Other states, for example, Maryland, Delaware, Pennsylvania, New Jersey, Rhode Island, and New Hampshire, were hard pressed to make claims to these lands.[3] See figure 8.1. Conflicting land claims created discord among the states. For example, as early as 1775, Connecticut claims to the Wyoming Valley in Pennsylvania were brought before an otherwise busy Continental Congress by Pennsylvania for redress—an issue Congress failed to resolve fully even by 1785. Similarly, from 1780 through 1786, a jurisdictional dispute between New Hampshire, Massachusetts, and New York was brought before Congress for redress.[4]

Of greater concern were state claims to the trans-Appalachian territories. Many of these claims overlapped creating potential discord; see figure 8.1. In addition, states that did not have claims feared that the states that did have such claims would become economically and politically dominant. The sheer size of these enlarged states would give them economic power, and any move toward a representative national government based on population or land area would give them political dominance. States without western land

2. See Adams (1960, 3:209–19); Dougherty (2001, 139–40); Friedenberg (1992, 203–12); Henretta et al. (1987, 186, 218, 228, 231); Jensen (1981, 8–18, 171–73); Ford et al. (1904–1937, 13:239–44, 263–65, 329–30; 14:955–67; 15:1084–85; 18:900–902, 935–47, 1070–71; 19:151–54; 21:853–54; 22:207–8, 219–20; 24:243–51; 26:23–29; 27:489–89, 529–30, 687–90, 705–6, 616–24; 30:85–87; 31:469–84, 509–10, 537–52, 565–70, 574–613; 32:184–204, 210, 216–20; 34:319, 527, 534–35).

3. See Donaldson (1884, 30–88); Feller (1984, 3–4); Henretta et al. (1987, 201, 227–28); Jensen (1981, 8–18, 25–26, 44–45, 64); Ford et al. (1904–1937, 6:946, 1076–79, 1082–83; 17:806–8; 18:915–14; 22:184, 191–94, 223–32; 23:694–96: 25:554–64).

4. See Donaldson (1884, 4, 85); Jensen (1981, 330–36); Ford et al. (1904–1937, 3:321, 335–36, 435, 439–40; 5:656; 13:821, 827–28; 20:770–72; 21:823–24, 838–39, 892–93, 1115–16; 22:57–60, 108–13, 166–73, 186–88, 282–86, 389–92; 23:461; 24:7–32; 26:45, 283–27; 27:532–36, 547–50, 603–5, 666–72; 29:721, 725–31, 777; 30:196–97; 31:636–69, 653–54).

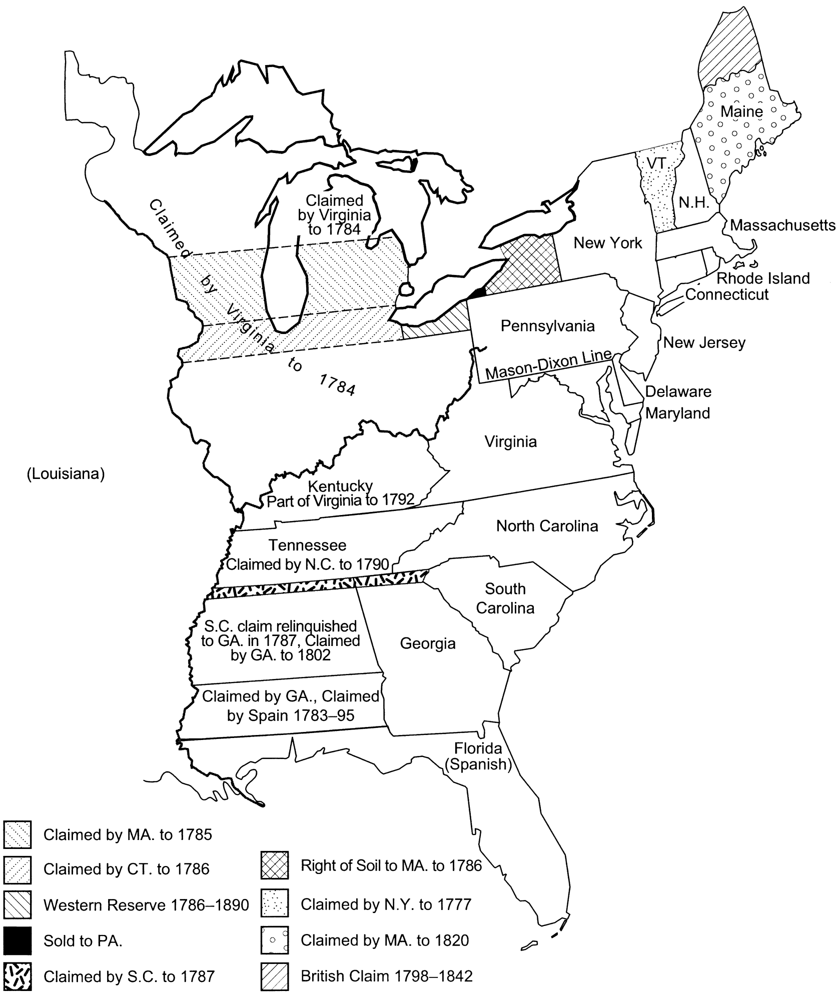

Fig. 8.1 Western lands claimed and then ceded to the U.S. Federal Government by the thirteen original states, 1784–1802

Sources: Stephenson (1934, 248). For similar maps, see Friedenberg (1992, 199); Henretta et al. (1987, 201); Hughes and Cain (2007, 94); and Tindall (1988, 266).

claims brought these concerns to Congress. If a solution could not be found, disunion was likely.

The Articles of Confederation were drafted and approved by Congress and sent to the states for ratification in November of 1777 (Ford et al. 1904–1937, 9:906–28). Ratification, which required unanimous consent of the states, was held up until the land issue was resolved. For example, by 1780, Maryland was still refusing to ratify the Articles of Confederation until this issue was solved by the states claiming western lands ceding them to the national government for "the general benefit." The problem of western land claims was viewed in Congress in 1780 as the "only obstacle to final ratification of the articles of confederation."[5]

States without claims to western lands pressed states with such claims to cede their claims to the national government. In 1779, congressmen from Delaware and Maryland asserted that the western territories were "gained from the King of Great Britain, or the native Indians, by the blood and treasure of all, and ought therefore to be a common estate, to be granted out on terms beneficial to the United States." In 1780, congressmen from New York asserted that the ". . . uncultivated territory within the limits or claims of certain States ought to be appropriated as a common fund for the expenses of the war. . . ." A congressional committee in 1780 argued that these lands were "essential to public credit and confidence . . . and so necessary to the happy establishment of the federal union . . ." and that they could not "be preserved entire" by the claiming states "without endangering the stability of the general confederacy. . . ." Later in 1780, Congress resolved that all lands so ceded by the states to the national government "shall be disposed of for the common benefit of the United States. . . ."[6]

An important controversy over state land cessions was the status of claims made by land speculators to lands north of the Ohio River based on their acquisition of Indian deeds. Many of these speculators were prominent individuals from states that had no claims to the western territories. Virginia insisted that such claims be voided. Virginia did not want to surrender these lands to the general public just to have them fall directly into the hands of prominent New York and Philadelphia land speculators. The political battle in Congress between these land speculators and Virginia held up the major land cessions until 1784 when Virginia got its way. By contrast, speculative land claims by Virginians in Kentucky and by North Carolinians in Tennessee were held valid. As such, Kentucky and Tennessee lands never really came under alienable Federal possession. These regions were the first two trans-Appalachian states to join the union—in 1792 and 1796, respectively. Last, Virginia and Connecticut retained sizable portions of their cession of Ohio as their "western and military reserves" to satisfy their commitments during the Revolution to pay their soldiers in land bounties.[7]

As these conditions were hammered out, states one by one from 1781

5. See Donaldson (1884, 61–64); Feller (1984, 3–5); Gates (1968, 50–57); Jensen (1981, 8–18, 25–26); Ford et al. (1904–1937, 17:806–8).

6. See Donaldson (1884, 61–64); Gates (1968, 50–57); Jensen (1981, 8–18, 25–26); Ford et al. (1904–1937, 17:806–8).

7. See figure 8.4; Adams (1960, 3:214–19); *American State Papers: Public Lands* (1834, 1:1, 12, 17, 112, 164, 193–99, 283); Donaldson (1884, 67–70, 82, 86–87); Feller (1984, 3–5); Friedenberg (1992, 143–221, 248–60, 275–83); Gates (1968, 50–57); Jensen (1981, 8–18, 25–26, 44–45, 64, 112–14, 171–73, 330–36, 350–59); Ford et al. (1904–1937, 17:806–8; 18:914–16; 21:1057–58, 1076–78; 22:184, 191–94, 223–32; 25:554–64; 26:110–17; 28:234–36; 34:133, 270–71, 331–34, 476); Livermore (1939, 74–122); Sakolski (1932, 1–123); Tindall (1988, 268). Negotiations over the future status of Kentucky and Tennessee as separate states also slowed the Virginia and North Carolina land cessions.

through 1802 ceded their western lands to the national government. The commitment to so cede these lands in 1781 opened the door to the final ratification, by Maryland, of the Articles of Confederation (Ford et al. 1904–1937, 19:208–24). These lands did not come into the alienable possession of the Federal Government all at once. It took over two decades to complete the transfer (Donaldson 1884, 30–88). Table 8.1 lists the timing and amount of land ceded by the states to the national government. Figure 8.2 shows the cumulative total alienable acres from 1784 to 1802, net of overlapping claims and past sales, in the possession of the national government. By the 1787 Constitutional Convention, the question of who would possess the spoils of war—the western lands—had been settled, though the Georgia cession was yet to be executed. The new national (federal) government representing all the nation's citizens would own, control, and determine the distribution of these lands. It seems unlikely that the Constitution as written in 1787 could have been created if not for this prior solution to the problem of western land claims.

The shift in the sectional balance of power between the southern, middle, and northeastern states that would have likely breached the union in the early

Table 8.1 **Land cessions to the Federal Government by the 13 original states, 1781–1802**

Year	State	Acres	Notes
1781	New York	202,187	Jointly claimed by Massachusetts.
1784	Virginia	229,917,493	Some acres jointly claimed by other states, excludes Kentucky, and includes lands reserved in Ohio to Virginia.
1785	Massachusetts	34,560,000	Jointly claimed by other states.
1786	Connecticut	25,600,000	Jointly claimed by other states, but with 3,800,000 of Ohio held back as a reserve.
1787	South Carolina	3,136,000	Solely claimed
1790	North Carolina	26,679,600	Mostly Tennessee which had already been alienated and so is typically not counted.
1802	Georgia	56,689,920	Solely claimed.
Gross total		376,785,200	Simple sum.
Net total ceded to the national government[a]		221,989,787	Minus overlapping claims, the North Carolina cession, and Virginia and Connecticut reserve lands in Ohio.

Sources: Figure 8.1; *American State Papers: Public Lands* (1834, 1:1, 12, 17, 112, 164, 193–99); Donaldson (1884, 11, 86–88); Gates (1968, 57); Grubb (2007b, 146–47); Hibbard (1939, 13); *Historical Statistics of the United States* (1975, 1:428); Ford et al. (1904–1937, 19:208–13; 26:110–17, 142–43, 315–17; 28:271–75, 280–84, 382–87, 408–10; 30:159–60, 307–08, 310–11; 31:654–55; 33:466–77, 692–93; 34:320–06).

[a]The net total is not consistently estimated across the sources; see Grubb (2007b, 147).

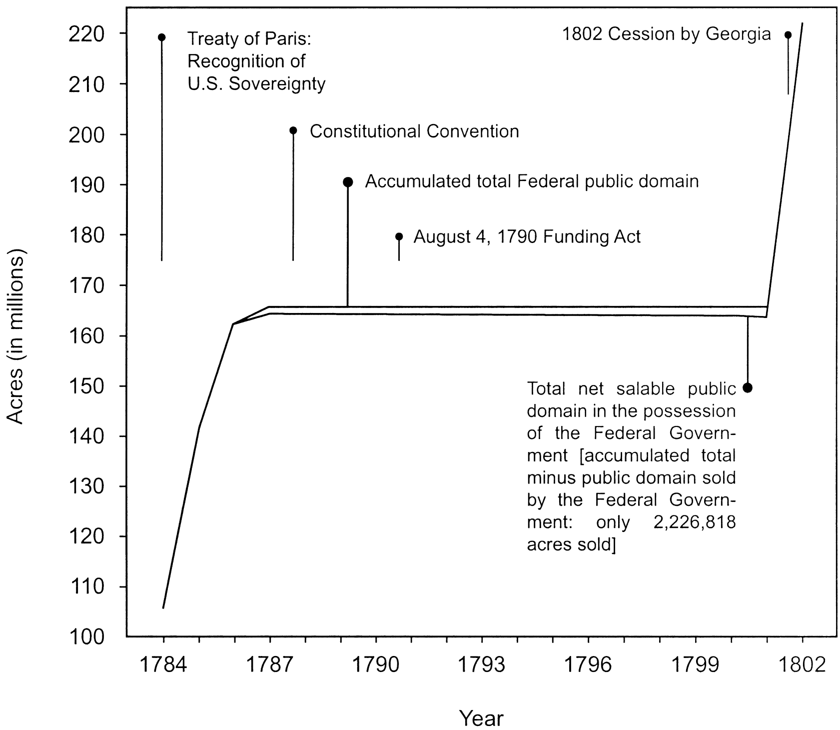

Fig. 8.2 Total and net (total minus sales) accumulated salable acres possessed by the Federal Government

Source: Derived from Grubb (2007b, 146–47).

decades of the Republic (if, for example, states like Virginia were allowed to retain all their western lands) was averted by the cession of these lands to the national government. The sectional conflict within the national government was shifted to competition over the admission of new states carved out of these territories—a peaceful though spirited competition that would only devolve into a breach in the union some seventy years later.

Between 1784 and 1802, the national government acquired a treasure trove of assets amounting to 222 million acres of potentially salable land lying between the Mississippi River, the Great Lakes, Florida, and the current western borders of the original 13 states (see figure 8.1). Congress adopted the Constitution in 1789, replacing the Articles of Confederation with this new government. The new Constitution reaffirmed congressional control over the ceded western lands. Article IV, section 3, paragraph 2 of the Constitution stated, “The Congress shall have Power to dispose of and make all needful Rules and Regulations respecting the Territory or other property belonging to the United States . . .” The Supreme Court would later determine that this power vested in Congress was without limitation

(Donaldson 1884, 13; Gates 1968, 73–4). The new Federal Government was born land rich!

8.2 What Was the Value of These Federally Owned Land Assets?

Establishing the total asset value of the lands held by the Federal Government matters because these lands were to be used in some fashion to service the debts incurred fighting the Revolution, which amounted to $80 million in interest-bearing bonds in 1792. To do this, an average price per acre of the public domain held by the Federal Government is needed. This is hard to come by as land is very heterogeneous, and sales in this period were small and sometimes selective—meaning possibly unrepresentative. Given a true average nominal price, that price still has to be adjusted for inflation and deflation. Between 1784 and 1802, prices experienced large swings so that comparing values over time cannot be done in just nominal or current prices (Bezanson, Gray, and Hussey 1936, 392–3; Grubb 2003, 1782–83). Given a true inflation-adjusted constant dollar average price of an acre, consideration must also be given to what might happen to that price if the Federal Government tried to sell all its land at once versus trying to sell it slowly over time. The Federal Government was such a large landholder that trying to sell a substantial amount at once would likely depress the price. Given these formidable problems, presenting a range of estimates based on some likely average prices is the best that can be done.

Figure 8.3 presents four estimates of the value of the net salable public domain in the hands of the Federal Government in constant dollars over time. Each estimate is based on a different average nominal price for an acre of land that was reported in a different year. Because land is heterogeneous, only the sale or pricing of reasonably large tracts can give some reassurance that the average price observed is close to a true average price. Only one estimate in figure 8.3 uses an actual sale price from the period, while the other three use official published prices, two set by Congress and one used by the Treasury Secretary, Alexander Hamilton.

Land had to be surveyed before being sold at public auction. Surveying and selling the public domain, including administration expenses, cost between three and six cents an acre. These costs were to be paid by the purchaser. Fees for application, registration, and patenting of land were around half a cent an acre and were also to be paid by the purchaser (Donaldson 1884, 189–90, 192, 197, 201–2).[8]

8. Carstensen (1963, xviii) and Hughes and Cain (2007, 98–99) indicate that the cost of acquiring, surveying, and selling the land exceeded the revenue received from land sales. Their source is Donaldson (1884, 17–21, 517–27). However, Donaldson's estimates show that this assessment arises from decisions made post-1830 to purchase new lands and especially to increase spending on Indian affairs (around 85 percent of the total cost), while at the same time revenues from land sales were reduced via giving land to railroads and homesteaders. The cost of surveying and selling the land was a trivial component by comparison. Pre-1830, and especially pre-1813, virtually all the value of its original cession lands was captured by the

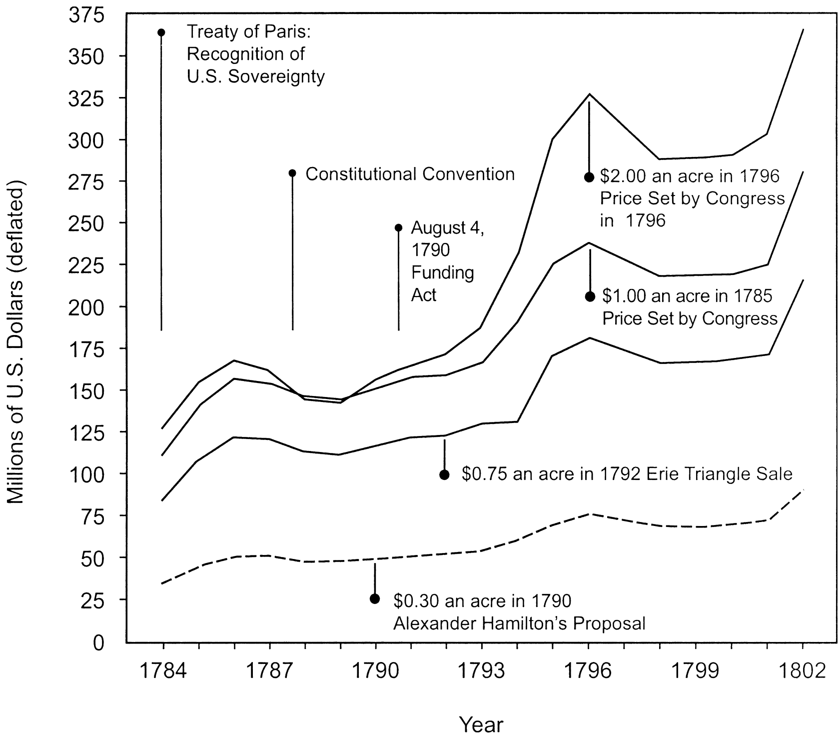

Fig. 8.3 Constant dollar value of salable Federal Government land assets, 1784–1802: Various estimates

Source: Derived from Grubb (2007b, 148–51).

Notes: The estimates multiply the total acres of salable public domain remaining in the Federal Government's possession each year from figure 8.2 by the nominal price per acre for the year that the respective nominal price was mentioned. From the year when the nominal price was stated, each estimate then inflation-adjusts the price to other years using the Bezanson, Gray, and Hussey (1936, 392–93) price index renormalized to the year the nominal price was given.

The official minimum price set by Congress (which was not strictly adhered to) for purchasing the public domain which had to be purchased in large tracts—a minimum purchase of a 640 acre lot—was $1.00 per acre in 1785 and raised to $2.00 per acre in 1796 (Davis et al. 1972, 104–5; Donaldson 1884, 196–98; Robbins 1942, 15–16). If these prices are inflation adjusted from the year they were enacted, they are almost equal at $1.00 per acre in 1785 dollars.[9] In 1781, Pelatiah Webster (1969, 93) also placed the average

United States when sold. For example, spending on Indian affairs pre-1813 amounted to less than one cent, and pre-1830 to about one cent, per acre of the public domain.

9. Interestingly, the sale of the Chickasaw Trust Lands in the central Southern states from 1836 through 1850 (4,025,395 acres for $3,326,404) yields an average nominal price of $0.83 an acre, which, when deflation-adjusted back to 1785, would be approximately $1.00 an acre (Gates 1968, 186; Bezanson Gray, and Hussey 1936, 392). Similarly, the bounty warrants for land given

value at one silver dollar per acre. The time series of real prices based on the nominal $2.00 per acre enacted in 1796 yields the highest overall price series among the official prices enacted by Congress.[10]

The fact that total land sales were not large through 1802 (see figure 8.2) suggests that these official prices may be on the high side. The slowness of sales, however, may have been due to the need to survey the lands before they could be put up for auction (the basic survey scheme not being fully established until the Land Acts of 1796 and 1800) and to several states who retained significant western and northern lands pricing their lands just under that set by the Federal Government. The difficulty of achieving unison of action under the Articles of Confederation also inhibited Congress' ability to adequately curb Indian hostilities in the West, stop squatters from occupying the public domain, dislodge the remaining British in the northern territories, and prevent Spanish blockades of the Mississippi River in the South. These inabilities may have, in turn, depressed the value of western lands until these weaknesses in the Federal Government were remedied by the adoption of the Constitution in 1789. To be conservative, the 1785 price of $1.00 per acre or the 1796 price of $2.00 per acre (inflation-adjusted) will be used here only to illustrate a possible upper-range estimate of the value of the public domain.[11]

The lowest price series based on a large actual sale of the public domain and used here in figure 8.3 as the best-guess estimate of the value of the public domain is for the Erie Triangle land transfer to Pennsylvania in 1792—202,187 acres for $151,640, or an average price of $0.75 an acre. In the same inflation-adjusted range is the average price of all public domain sold prior to 1800 (1,281,860 acres for $1,050,085, i.e., $0.82 an acre), the 23 July 1787 act that temporarily reduced the minimum price to $0.67 an acre, and

as compensation to veterans of the Revolution, War of 1812, and Mexican-American War when thrown onto the land market between 1848 and 1853 sold for an average of $0.85 an acre, or approximately $1.00 an acre in 1785 dollars (Lebergott 1985, 199–200).

10. Under the credit payment system inaugurated in 1800, the United States sold through 1813 a total of 4,520,933 acres and received $7,316,615 in actual cash or $1.62 an acre with $2,114,136 still owed; see Feller (1984, 12). Deflated back from 1813, $1.62 an acre in 1813 is the same as $1.01 an acre in 1785 (Bezanson, Gray, and Hussey 1936, 392).

11. See Adams (1960, 3:155); *American State Papers: Public Lands* (1834, 1:72–3); Davis et al. (1972, 102–3); Donaldson (1884, 189–90, 197, 201); Dougherty (2001, 175); Feller (1984, 9–10); Gates (1968, 128); Henretta et al. (1987, 221–24); Hibbard (1939, 41); Hughes and Cain (2007, 95–96); Jensen (1981, 414); Ford et al. (1904–1937, 30:230–31, 262; 31:685–86; 32:213, 231, 238–41; 34:331); Puls (2008, 200, 246); Robbins (1942, 9); and figure 8.4. A 13 February 1786 congressional report noted "with great satisfaction, the prospect of extinguishing a part of the domestic Debt, by sale of the western Territory of the United States; but [that] a considerable Time must elapse before that Country can be surveyed and disposed of . . ." (Ford et al. 1904–1937, 30:65). In 1788, Congress budgeted $4,000 for surveying western lands and $20,000 for Indian treaties—to extinguish Indian land claims. By comparison, $228,427 was budgeted for the Civil and Military Departments, $58,000 for invalid pensions, and $16,000 for contingencies (Ford et al. 1904–1937, 34:389, 438). When lands did finally go up for auction, some claim that they were worth more than the minimum price set by the government but that collusion among the bidders prevented prices from being offered that were above the minimum (Lebergott 1985, 199).

the proposed one million acre sale of Ohio territory to John Cleve Symmes in 1788 at $0.67 an acre (figure 8.4; Donaldson 1884, 17, 197–98; Hibbard 1939, 51, 55, 100; Ford et al. 1904–1937, 34:480; Rutland 1973–1983, 10:218). The 1792 estimate of $0.75 an acre (inflation-adjusted) yields a total value for the public domain in the Federal Government's possession in 1802 (after the Georgia land cession) of $215 million dollars.[12]

This best-guess estimate is surprisingly close to contemporary guesses. In an essay published in Philadelphia on 25 April 1781 (republished there in 1791), Pelatiah Webster (1969, 493, 497) claimed the government had about 200 million acres of good land that could be sold and valued it at about one silver dollar per acre on average. He also did not think that the "profit from our western lands, when disposed of according to my plan, so very distant as many may imagine." In 1792 Jedidiah Morse, the "father of American geography," estimated that Congress had 220 million acres of "unappropriated western territory" to dispose of which had been "pledged as a fund for sinking the continental debt" (Jensen 1981, 111; Morse 1792, 35).

Last, in part for heuristic purposes, a low estimate of $0.30 an acre is also reported in figure 8.3. This price does not come from an actual sale but is the price Alexander Hamilton used to calculate how much of the national debt could be extinguished by swapping it for western lands in his "Report on Vacant Lands" sent to Congress 22 July 1790. Hamilton also mentioned a price of $0.20 an acre in his January 1790 "Report on Public Credit" (*American State Papers: Public Lands* 1834, 1:1–5; Donaldson 1884, 198–99; Syrett 1961–1972, 6:90–91, 504). The logic Hamilton used to deduce these prices, however, is arbitrage inconsistent.[13] Assuming Hamil-

12. Pennsylvania paid for the Erie Triangle with U.S. public securities, a mixture of 6 percent, 3 percent, and deferred bonds, all taken at face value (par). Albert Gallatin rated the 6 percent bonds at par, but the 3 percent and deferred bonds at 60 and 75 percent of par, respectively (Adams 1960, 100, 197). Using these discounts, the total paid was $119,268 or $0.59 an acre. Inflation-adjusted to 1802 this yields a total value for the public domain of $177 million. Gallatin's assessment, however, is arbitrage inconsistent and so the adjusted values should be used with caution.

13. Hamilton was not proposing a price, but using what he thought would be the true market price. He combined two observations to deduce his true land price (Syrett 1961–1972, 6:91). First, the public domain had been sold for $1.00 an acre, which could be paid either in specie or in public debt at its face value. Second, the public debt had been trading for $0.20 to $0.30 specie per dollar of face value in the mid-1780s. Thus, Hamilton deduced that an acre of land was worth in specie $0.20 to $0.30 and not $1.00. This deduction, however, is arbitrage inconsistent if specie and public debt at face value were both used to buy land—which they were, see *American State Papers: Public Lands* (1834, 1:73); Donaldson (1884, 17, 201); Hibbard (1939, 41). Either anyone paying specie for land at $1.00 an acre was a fool or anyone selling their public debt for $0.30 of specie per dollar of face value was a fool. Hamilton's logic also ignores the appreciation effect that substantial land-for-debt sales would have on the market price of debt. The *Massachusetts Centinel,* 19 May 1787, reasoned that substantial land sales "must give an immediate rise to the current value of the securities of the United States, which are received in payment for lands as specie." Jensen (1981, 384) concluded, ". . . it was the unsettled land of the United States that seemed the best justification for speculation in American [war] debt." However, only about 1 percent of the interest-bearing debt had been pledged to be swapped for land by 1789 with most of these swaps not consummated until the early 1790s. These pre-1790 sales were also for the most part restricted to large negotiated swaps between Congress and

Fig. 8.4 Example of lands not ceded to the Federal Government but retained by the states, plus some early prospective land sales, grants, and reserves, in the Ohio Territory

Sources: Hibbard (1939, 53). See a similar map in Sakolski (1932, 100).

ton was not stupid implies that his price estimates meant something else or were intended to achieve some other political purpose than simply reporting the true expected long-run equilibrium average constant-dollar price of an acre of public domain. Hamilton's rhetorical argumentation often has such

land companies (Grubb 2007a, 281; Donaldson 1884, 197–99, 201; Gates 1968, 69–71; Hibbard 1939, 41–55; Jensen 1981, 354–59; Ford et al. 1904–1937, 34:371–73, 565–66). As such, competitive land auctions did not get the chance to drive security prices up to par before the 4 August 1790 Funding Act solved the security-funding problem causing their prices to re-inflate to face value. In conclusion, something is not right with Hamilton's logic, and his land price estimates should be used with caution (Grubb 2007b, 150).

a disingenuous tone that it is difficult to grasp its true meaning (Ratchford 1941, 52).

In his reports, Hamilton was talking about the possibility of selling or swapping most or all of the public domain at once to extinguish the national debt. Such a large sale or transfer of land in a short time interval would depress its market price. Thus, Hamilton's $0.30 an acre price could represent a guess about what would happen to the price of land if the Federal Government tried to unload all its land too quickly. Trying to gauge the effect on the market price of such a massive land dump is difficult, and Hamilton's estimate, as shown in figure 8.3, will be taken here as a best guess of this.[14]

Given the estimates in figure 8.3, how dollar-asset land rich was the Federal Government? The national debt between 1792 and 1802 hovered around $80 million, and tax revenues per year ranged between $4 and $15 million (Gordon 1998, 206; Grubb 2007a, 281; *Historical Statistics of the United States* 1975, 2:1104). Using the Erie Triangle estimate (inflation-adjusted and securities discounted), the value of the public domain in the possession of the Federal Government was over $95 million in 1786 and over $147 million in 1796. The Federal Government was not just born land rich, it was born dollar-asset rich! Paul Wallace Gates concluded (1968, 56), "The transfer of these territories probably did more than anything else at the time to give prestige to the government."

8.3 What Should Be Done with These Federally Owned Land Assets?

States considered that the lands they had ceded to the national government were to be used to satisfy the debts incurred to gain independence. This was the prominent theme in the congressional debates over ceding western lands to the national government, and after 1780, Congress continued to link its ceded land assets with the national debt (Donaldson 1884, 60–81; Gates 1968, 61–62, 124; Jensen 1981, 58). For example, on 5 September 1782, a congressional committee favored "ceding of the western lands, to be sold to 'discharge the national debt'" (Hibbard 1939, 33). A 1786 congressional report recommended that, "The whole product [from sales of western lands] . . . is [to be] appropriated for the payment of the principal and interest of the national debt, and no part thereof can be diverted to other purposes" (Ford et al. 1904–1937, 30:65).

Prominent Founding Fathers echoed this theme. In a letter to Nathaniel Chipman, 22 July 1788, dealing with how the national war debt might affect

14. The effect of throwing such a large amount of land onto the market at once might be gauged from the Bounty Act of 1847, which awarded 68 million acres of land warrants to war veterans. About 85 percent of these warrants were thrown onto the market for cash between 1848 and 1853 and traded for about $0.85 per acre. The government's minimum price per acre at that time was $1.25. As such, the effective market price was about two-thirds of the minimum government price for an acre of the public domain (Lebergott 1985, 199–200).

Vermont's federal tax obligations if it joined the union, Alexander Hamilton said, "The public debt, as far as it can prudently be provided for, will be by the Western lands and the appropriation of some general fund" (Syrett 1961–1972, 5:186). In a 19 June 1788 letter to Marquis de Lafayette, George Washington remarked, "When the people find . . . the burdens of war shall be in a manner done away by the sale of western lands . . . these blessings will be referred to the fostering influence of the new government. Whereas many causes will have conspired to produce them" (Fitzpatrick 1939, 29:522–26).

In the 1780s, the expectations of both the public and among the Founding Fathers, as well as the political mandates accompanying the land transfers from the states, were that the lands so transferred to the Federal Government were to be used to pay for the cost of the War for Independence (Feller 1984, 6; Jensen 1981, 246, 359, 384). But exactly how this should be done was not made clear. What choices existed for satisfying such expectations and mandates?

8.4 How Are a Government's Debts and (Land) Assets Related?

A government's debts and (land) assets are related through its budget constraint that connects its cash flows to its capital stocks. The government's yearly tax revenue (T_i) minus its yearly expenditures (G_i) must equal the change (Δ) in its contemporaneous stock of net capital assets ($A_i - D_i$), where A are salable capital assets—for example, inventories of specie, bank stock, and land, and D are the face value of its debt liabilities—for the United States after 1790, principally callable perpetuities with the principal payable only at the government's discretion.[15]

$$T_i\,[(t \cdot I_i) + O_i] - G_i\,\{[(1 - k_i) \cdot R_g \cdot D_i] + E_i\} = \Delta(A_i - D_i)$$

For the Federal Government after 1790, the principal tax revenue (T_i) came from a tariff (t) on current imports (I_i), with O_i representing all other

15. Debt liabilities (D) include both interest-bearing bonds (B) and non-interest-bearing fiat paper money (M), i.e. $D = B + M$. The Federal Government did not issue new M after 1779 and the new U.S. Constitution, by convention vote in 1787, prohibited the Federal Government from issuing new M thereafter (Farrand 1966, 2:308–10; Grubb 2006a, 43–44, 60–62). As such, only the B portion of D factors into G. Paying down or retiring any of the face value of the principal, either of B or M, without liquidating assets, however, would still require a current-year budget surplus ($T - G > 0$). As part of the debt restructuring plan of 1790, the Federal Government effectively and irrevocably defaulted on the remaining M issued prior to 1780 that was still outstanding in 1790 (Grubb 2007a). As such, distinguishing between B and M in the model is not necessary. The Federal Government's salable capital assets at a point in time (A_i) are what they are given the current asset prices in the marketplace at that point in time. If D is held constant, then a government budget surplus or deficit must change A_i (ΔA_i) as measured in those current market prices. Now, A can change over time due to changes in asset prices in the marketplace. That does not alter the fact that whatever A is at a given point in time (A_i) it will be changed (ΔA_i) by a current government budget surplus or deficit when D is held constant. A changing over time due to asset price appreciation or depreciation in the marketplace only enhances or reduces, respectively, the government's ability to sustain a given budget deficit in a particular year out of contemporaneous asset sales or its ability to use those contemporaneous assets as leverage for issuing more D at reasonable R_g to sustain that given budget deficit.

current-year tax revenues such as from the whiskey tax. As such, Federal tax revenues would not be affected in the near term by the speed or extent of land transfers to the public. Yearly expenditures (G_i) comprised the interest on the face value of the Federal Government's stock of interest-bearing debt ($R_g \cdot D_i$) not in default ($1 - k_i$), where k_i is the default rate ($0 \leq k_i \leq 1$), with E_i representing all other current-year (such as military) expenditures.

When the government has a budget surplus ($T_i - G_i > 0$), it has excess revenue and, assuming that it is not in default on its interest payments (i.e., that $k_i = 0$), it must either increase its stock of assets ($A_{i+1} > A_i$) at current market prices or pay down and retire some of the principal on its debt ($D_{i+1} < D_i$). When the government has a budget deficit ($T_i - G_i < 0$), then the shortfall in revenue must be covered either by selling some assets ($A_{i+1} < A_i$) at current market prices or borrowing more ($D_{i+1} > D_i$) or increasing its default on its interest payments ($k_{i+1} > k_i$). If an important goal of the government is to protect its creditworthiness by keeping $k_i = 0$, then increasing k is not an option but a last resort. If the government has no assets (A), then it has to increase its debt liabilities (D). However, increasing D via interest-bearing liabilities raises G in the future $[(R_g \cdot D_{i+1}) > (R_g \cdot D_i)]$, which puts increased pressure on the budget to stay in deficit ($T_{i+1} - G_{i+1} < 0$), particularly given that in this period the Federal Government's ability to raise taxes in the near future was tightly constrained; that is, it is likely that per capita $T_i \geq T_{i+n}$. This scenario puts the government in an unsustainable long-run position, putting pressure on the government to increase k, that is, to default in the near future (Taylor 1950, 5). This pressure on future k would be incorporated into current expectations and so lead to an increase in R_g today, thus further constraining the government's ability to escape its current budget deficit anytime soon and further increasing the likelihood of a near-future default.

This last scenario fits the United States in the late 1780s as James Madison explained it to Thomas Jefferson on 24 October 1787:

> Such is the state & prospect of our fiscal department that any new loan however small, that should now be made, would probably subject us to the reproach of premeditated deception. The balance of Mr. Adams' last loan will be wanted for the interest due in Holland, and with all the income here, will, it is feared, not save our credit in Europe from further wounds. It may well be doubted whether the present Govt. can be kept alive thro' the ensuing year, or untill the new one may take its place. (Rutland 1973–1983, 10:218; Swanson 1963, 36)

As such, the government's contemporaneous net asset position ($A_i - D_i$), and expected position in the near future, should be important factors in assessing its creditworthiness. A positive net asset position functions as a safety valve that could potentially relieve the pressure to default when the budget unexpectedly falls into deficit. It is not the actual current revenue or contemporaneous cash flow from the sale of A that matters to assessing the government's creditworthiness but A's potential salability to cover or back the government's current and future debt position. As a sovereign entity, the Federal Government could not be forced to liquidate its assets to pay off its debts when in default. Nevertheless, default is costly to sovereign entities in terms of lost reputation, a lowered credit rating, and reduced access to borrowing in the future—a cost that the sale of assets could avert.

Between 1781 and 1790, the U.S. Federal Government made almost no interest or principal payments on the domestic portion of its debt (Taylor 1950, 2). In effect, $k = 1$ over the recent past so that even when the Federal Government started paying interest in full ($k = 0$) after 1790, its reputation for paying the interest on its debt would likely not fully recover until sometime after 1790—until after it had established a firm track record for always meeting interest payments. Expected budget surpluses did not look promising after 1790—even after the new Constitution gave the Federal Government an independent power to levy taxes directly on the public (Taylor 1950, 5). The government's revenue expectations were in doubt given its inability to prevent smuggling and enforce tariff (t) payments; in doubt given fluctuations in tariff revenues (the main source of tax revenue) due to ubiquitous fluctuations in foreign trade (I_i); and in doubt given questions about the government's ability to raise other taxes (O_i) considering the public's willingness to engage in violent large-scale tax revolts, for example, Shay's Rebellion 1786 to 1787, the Whiskey Rebellion 1794, and Fries' Rebellion 1798.[16]

All three rebellions were tax revolts that involved calling out the regular army on a substantial scale to confront its own citizens. The Whiskey Rebellion witnessed the only time a sitting U.S. president as commander-in-chief has taken the field at the head of an army. The Founding Fathers were aware that public resistance was a constraint on raising new taxes. In late 1789, James Madison, Congressman from Virginia, wrote to Alexander Hamilton, the Secretary of the Treasury, that, "In my opinion, in considering plans for the increase of our revenue, the difficulty lies, not so much in the want of objects as in the prejudices which may be feared with regard to almost every object. The Question is very much What further taxes will be *least* unpopular?" (Syrett 1961–1972, 5:439).

Hamilton may have also doubted the government's ability to raise enough revenue to meet expenses. In late 1789, as Secretary of the Treasury he broached the possibility of quietly approaching the French to see ". . . if the installments of the Principal of the debt [the U.S. owed France] could be suspended for a few years, [as] it would be a valuable accommodation to the U.S." (Syrett 1961–1972, 5:426, 429). Letters between Hamilton, as Secretary of the Treasury overseeing the tariff revenue tax, and his port agents often alluded to the problem of smuggling, the difficulty of enforcing the tariff, and the difficulty of collecting tariff revenues. As one customs officer put it in late 1789, "The difficulties that have occurred in the Execution of the laws

16. See Bouton (1996); Dougherty (2001, 103–28); Edling and Kaplanoff (2004); Richards (2002); Syrett (1961–1972, 17:2–6, 9–58, 61–72, 77–78); Szatmary (1980); Tindall (1988, 320–21, 333–34).

respecting the Customs have been infinite, and present themselves daily. The System itself is the most complicated and embarrassing of anything that has employed my attention . . . [and] the Owners pay with reluctance . . . others not at all without compulsion; and the law provides none" (Syrett 1961–1972, 5:422, 427, 459–64; 17:6–7).

The first full year of tariff revenues, 1 October 1789 through 30 September 1790, yielded $1,903,709. This sum was less than half of what was needed to pay the interest on the nation's $77 million interest-bearing debt, let alone meet any other expenses of government (Syrett 1961–1972, 6:87; 9:3). Hamilton expected revenue shortfalls from the tariff to continue and suggested new taxes, such as the Whiskey Tax. This in turn sparked the 1794 Whiskey Rebellion (Tindall 1988, 301, 320; Syrett 1961–1972, 7:225–36). The yearly value of imports fluctuated greatly between 1789 and 1811, making tariff revenues uncertain and difficult to forecast (North 1966, 19-32, 228). This was due in part to the problem the United States had, as a new nation, establishing trade treaties with foreign powers (Tindall 1988, 316–18, 330–31). In 1786, James Madison decried ". . . the present anarchy of our commerce . . ." and Hamilton expressed a similar sentiment in 1794 in a letter to President Washington (Rutland 1973–1983, 8:502–3; Syrett 1961–1972, 16:261–79). The next Secretary of the Treasury, Oliver Wolcott, in his communication to Congress on 14 December 1796 regarding implementing new direct taxes, recounted the past volatility and future uncertainty of tariff revenues that were in part due to the unpredictable course of European wars (Wolcott 1796). Albert Gallatin, who would be Secretary of the Treasury under Thomas Jefferson, reached a similar conclusion in 1796 regarding past and expected future deficits and the risk of constantly covering such through new loans (Adams 1960, 3:100–101, 105).

The annual Federal budget actually incurred deficits between $1.4 and $2.1 million in 1792, 1794 to 1795, and 1799, and came close to being in deficit in 1793, 1798, and 1800 (Gordon 1998, 206; *Historical Statistics of the United States* 1975, 2:1104). These deficits were not unanticipated. Creditors had to be concerned about the effects these deficits would have on the Federal Government's ability to meet its future debt obligations purely from current tax revenues. As such, the net asset position of the Federal Government ($A_i - D_i$) in this period may have been especially important to establishing and sustaining the government's creditworthiness. A positive net asset position would have been viewed as a safety valve to the pressure of increasing k to balance budget shortfalls in a world where the government's yearly tax revenue capacity was still in doubt.

8.5 But How Should the Public Domain Be Used to Support the National Debt?

The preceding budget constraint model suggests that there were two basic options for using the public domain to support the national debt. The first option would be to sell or swap land (A) for debt (D) as quickly as possible, thereby reducing D to zero or as close to zero as possible. This would take pressure off the budget by reducing the current yearly expenditure of (G_i) by reducing ($R_g \cdot D_i$). In essence, this would be like starting with a clean slate by clearing the books of as much old war debt as possible. The second option would be only to sell the land (A) when a good price could be had to pay down D and in the meantime hold the land in reserve as backing for D—a safety valve for when yearly tax revenues might fall short and meeting the interest payments on D purely out of current revenues was in doubt. Gallatin articulated these two options in his *Sketch of the Finance* in 1796 (Adams 1960, 3:155–56).

8.5.1 Option One

Between 1784 and 1790, there was much discussion and some plans, both executed and yet to be executed, to sell or swap the public domain for national government debt (A for D). The idea of liquidating war debts via land transfers was not strange. For example, one essayist argued in the *Salem Gazette,* reprinted in the *Pennsylvania Gazette,* 22 June 1785, "Our national debt is small, our resources almost untouched, and our means of discharging it, . . . nearly inexhaustible . . . The sale of vacant lands, the property of the continent or state, should not be strained for the highest price, but be immediately sold for the most they would readily bring" (Jensen 1981, 246). In the state cessions of lands to the national government, some states reserved lands for paying their soldiers and war debts; for example, Virginia and Connecticut held on to sizable chunks of Ohio as their "western and military reserve" lands; see figure 8.4. Congress itself had offered land bounties to soldiers as inducements to enlist during the Revolution. In addition, land companies sought to acquire large yet-to-be-surveyed tracts of the public domain in part hoping to exchange war debt obligations for said lands. In 1787, the Ohio Company offered to purchase one and one-half million acres and the Scioto Company another five million acres of the public domain from Congress. In 1788, Judge John Cleves Symmes made a similar offer for two million acres between the Great and Little Miami Rivers, see figure 8.4. Exchanging or selling land for war debt was a prominent theme and seen by many as the solution to the national government's financial distress.[17]

The Founding Fathers were aware of and talked about these possibilities. For example, on 23 October 1787, Edward Carrington wrote to Thomas Jefferson in reference to the land sale schemes just mentioned:

17. See Adams (1960, 3:221); Donaldson (1884, 17, 82–85); Friedenberg (1992); Gates (1968, 62, 70–71); Hibbard (1939, 10–14, 44–55); Jensen (1981, 32, 352–56, 359, 384–85); Ford et al. (1904–1937, 6:946; 17:808; 25:681–94; 32:155–57, 242–43, 276, 345–56, 350–51, 376–77; 33:692–97, 701–2; 34:80–81, 177, 181–82, 213–17, 247–42, 331–34, 371–73, 467–68, 473–74, 476, 540–42, 565–66); Livermore (1939, 74–214); Robbins (1942, 10–11); Sakolski (1932, 1–191); Sumner (1968, 2:251–70).

> This mode of sale will relieve the U.S. of much expense, and the progress of the sales promise to be sufficiently rapid to give our people early relief from the pressure of the domestic debt. I am inclined to believe that some successful experiment might be made for the sale [of] a part of the territory in Europe, and have suggested a trial with a few [of the Seven] Ranges of the surveyed Townships. (Boyd 1953–1955, 12:256–57; figure 8.4)

James Madison wrote to Jefferson on 24 October 1787 on the same issue and, after talking about the woeful state of national government finances and borrowing prospects, said:

> Upwards of 100,000 Acres of the surveyed lands of the U.S. have been disposed of in open market. Five million of unsurveyed have been sold by private contract to a N. England Company, at 2/3 of a dollar per acre, payment to be made in the principal of the public securities. A negotiation is nearly closed with a N. Jersey Company for two million more on like terms, and another commenced with a Company of this City for four million. (Rutland 1973–1983, 10:218)[18]

William Findley, congressman from Pennsylvania, claimed that proposals for large sales of the public domain were still being made in 1790. He said that:

> Flint and Parker had agreed to purchase three millions of acres. To the second session of the New Congress, Scriba made proposals for four or five millions. And Hannibal William Dobbyne proposed to take more than all the others, and to settle it with people from Ireland. These proposals were referred to the secretary of the treasury [Hamilton], while he was privately preparing the funding system: but *he never reported on them*. . . . If the proposals of Messrs. Parker, Dobbyne, and others, which were offered before the funding system was originated, had been accepted, it is a moderate computation to suppose that fifteen millions of dollars would have been redeemed. (Taylor 1950, 62)

Hamilton, himself, in his 1790 "Report on Public Credit" proposed one plan whereby a full third of the national debt would be extinguished by swapping it for land (Syrett 1961–1972, 6:91–92).

The problem with this option—to sell all the land as quickly as possible to reduce D by as much as possible—was that dumping a lot of land on the market at once would likely reduce its price significantly. At \$0.75 an acre in 1790, or even at \$0.50 an acre, there was enough land to completely pay off the interest-bearing debt, but if the price was driven down to Hamilton's estimated \$0.30 an acre there was not enough so that afterward $A = 0$ but

18. Of the last three sales mentioned, the first two were only partially executed and not paid for until after 1792 and the last sale failed to be executed; see *American State Papers: Public Lands* (1834, 1:59–60, 63, 66–68, 73, 115, 236–37); Donaldson (1884, 17, 201); Hibbard (1939, 43–55); Livermore (1939, 134–46).

$D > 0$ (Grubb 2007a, 280–84).[19] Under such an outcome, there would be no asset cushion or safety valve for the Federal Government to utilize. As such, the government's creditworthiness could easily unravel. The Federal Government would also lose leverage over populations in the territories regarding issues of local governance and new state formation if it sold all its land at once.

8.5.2 Option Two

If the public domain could be pledged to back the national debt only, that is, held in reserve to meet budget deficit emergencies only—with the interest on the national debt paid out of current revenues, and the public domain only sold slowly over time at good prices with these proceeds dedicated to retiring debt principal, then the creditworthiness of the Federal Government might be more safely ensured. The basic idea was not strange. The linkage of land assets to the "backing" of public financial instruments was deeply rooted in the American experience. Colonial governments formed land banks where a subject's land served as collateral for loans of government paper money. A colony's paper bills of credit were understood to be backed or collateralized not by specie but by the mortgaged land assets of the colony.[20]

Financiers understood the importance of a "pledge" of security by the government to the backing of its debts to foster public confidence in its debt position. For example, William Bingham, a director of the *Bank of North America,* in a letter to Alexander Hamilton, U.S. Treasury Secretary, on 25 November 1789 explained (Hamilton had solicited advice on how to fund the national debt from leading financiers and politicians such as Bingham):

> The Credit of the Funds [the national debt] must essentially depend on the permanent Nature of the Security; & if that is not to be relied on, they will fall in value, the disadvantage of which, Government will experience by the payment of an exorbitant Interest, whenever it is compelled to anticipate its revenues, by the Negotiation of domestic Loans. . . . If we offer a less Substantial Security, we must Submit to a consequent Depreciation in the Value of our Funds. . . . A Government should therefore pledge every security it can offer, to engage the Confidence of the public

19. In 1790, if all the public domain was exchanged for interest-bearing public debt at \$0.30 per acre that would still leave D = \$28 million (\$77 million in debt [D] minus \$49 million in land [A]). Such a move would also mean that the Federal Government may have had a harder time distinguishing between interest-bearing debt (B), \$77 million in face value in 1790, and non-interest-bearing debt (M), another \$81 million in face value in 1790. Directly swapping land (A) for debt principal (D) makes the interest-bearing distinction between types of D irrelevant. As such, the government would have found it harder to default with impunity on its non-interest-bearing debt (M) in 1790 (the Continental Dollars still outstanding) as they in fact successfully did. See Grubb (2007a, 280–84).

20. See Grubb (2006b); Kemmerer (1939); Perkins (1994, 44–46); Rabushka (2008); Ratchford (1941, 10–12, 18, 21–22).

> Creditors, which, if once impaired, the pernicious Effects can be felt in all its future Dealings. (Syrett 1961–1972, 5:540–41)

Bingham's reference to "security" of a "permanent nature" would seem to mean government capital assets. And the only capital assets the Federal Government possessed at this time in any substantial quantities were its western lands.

Financiers in Congress and among the Founding Fathers also understood the importance of pledging land as security in order to secure loans (Jensen 1981, 222). In 1784, Congress considered the "vacant territories" in its possession to be a "capital resource" (Ford et al. 1904–1937, 26:315–16). Congress' Board of Treasury recommended in 1786 that the proceeds of the first half-million acres of its western territories surveyed and put up for sale be pledged as "Collateral Security" for a current loan of $500,000 to the national government (Ford et al. 1904–1937, 31:893). They understood that lands were capital assets that affected credit.

Along a similar vein, Hamilton in July of 1782 wrote, "The disposal of the unlocated lands will hereafter be a valuable source of revenue, and *an immediate one of credit.*" (Syrett 1961–1972, 3:105—italics added) As Secretary of the Treasury he said in his January 1790 "Report on Public Credit":

> It is presumable, that no country will be able to borrow of foreigners upon better terms, than the United States, because none can, perhaps, afford so *good security.* Our situation exposes us less, than that of any other nation, to those casualties, which are the chief causes of expense; our incumbrances, in proportion to our real means, are less, though these cannot immediately be brought so readily into action, and our progress in resources from the early state of the country, and *the immense tracts of unsettled territory,* must necessarily exceed that of any other. The advantages of this situation have already engaged the attention of the European money-lenders . . . (Syrett 1961–1972, 6:89—italics added)

Option Two became the founding choice. With the 4 August 1790 Funding Act, Congress restructured its debt position by turning all its interest-bearing national debt into callable perpetuities with the yearly interest paid out of current-year revenues. The public domain was pledged to back that debt. In particular, the proceeds from any sale of the Federal Government's western lands were dedicated to retiring the national debt. There was no rush, no pressure, and no mandate to reduce D via land sales immediately. The salient feature of the act with respect to the use of the public domain reads:

> That the proceeds of the sales which shall be made of lands in the western territory, now belonging, or that may hereafter belong, to the united states, shall be, and are hereby appropriated towards sinking or discharging the debts, for the payment whereof the United States now are, by virtue of this act may be, holden, and shall be applied solely to that use, until the

said debts shall be fully satisfied. (United States Congress, *The Debates and Proceedings in the Congress of the United States,* 2:2251)

Hamilton sent this act to William Short, U.S. agent in Europe—principally Holland—for securing U.S. loans, who reported that "the acts of Congress were well known here." Dutch bankers who advised and interacted with Short in 1790 would also engage in American land speculation within the next two years as the Holland Land Company (Livermore 1939, 205–14; Syrett 1961–1972, 7:6, 176, 178). The importance of this part of the funding act is revealed in Hamilton's notes that he prepared 1 December 1790 to aid President Washington in his second annual message to Congress. Therein, Hamilton's states as his first item:

> Confidence that measures for the further support of the public Credit and for the payment of the interest and gradual extinguishment of the principal of the public debt will be pursued with zeal & vigour. And that as one mean to this a plan for the sale of the Western lands will be adopted, which will give them the effects intended, appropriating them to the sinking fund . . . (Syrett 1961–1972, 7:172–72)

The importance of land-backed debt can also be seen in William Short's May 1791 letter to Hamilton where he suggests in reference to potential European lenders that "It is possible also that it might be an agreeable circumstance to them to render them bonds for these loans or any part of them receivable in the land office of the U.S. for the purchase of lands agreeable to the prices fixed by law. This is only an idea which occurs as being an additional security against depreciation." In August 1791, Hamilton answered Short with "There can be no objection to making the bonds . . . receivable in payment for lands at the price or prices which *shall* be fixed by law . . ." (Syrett 1961–1972, 8:325, 9:2).

Contemporaries knew how much land the Federal Government had, knew its approximate value, and believed the government had pledged the public domain and had the potential to sell chunks of it if necessary to cover and service the national debt. It is the pledge to back and eventually redeem that debt with land assets, rather than any promise to quickly sell those assets to retire the debt right away, that mattered most.[21] Contemporaries could also observe the Federal Government following through on this pledge. Some of the first monies from land sales post-1790 going into the sinking fund created

21. For more on the land-to-debt linkage, see Grubb (2007b, 136–41); Robbins (1942, 15); Taylor (1950, 40); Syrett (1961–1972, 5:526); and the United States Congress, *The Debates and Proceedings in the Congress of the United States,* 1:647–54 (13 July 1789); 2:1345–47 (22 February 1790); 4:1314 (15 December 1794), 1017–18 (23 December 1794); and 5:60 (18 February 1829). Even by 1832, congressmen still referred to the requirement of applying the proceeds from the sale of public lands first to payments on the national debt, and only after the national debt was paid off could they use the proceeds for some other use (United States Congress, *The Debates and Proceedings in the Congress of the United States,* 5:1452 [27 December, 1832], 1475–78 [4 January 1832]). See also Jensen (1981, 414).

by the 1790 Funding Act to redeem public debt were from the 1792 Erie Triangle land sale to Pennsylvania (Adams 1960, 3:113, 197). By the mid-1790s, the Federal Government may have been seen as a good credit risk in spite of its recent checkered past of defaulting on its debt payments because by the early 1790s it had acquired enough land assets and had credibly committed those land assets to fully backing and then eventually redeeming its debt. The Federal Government's land assets made it solvent.

8.6 How Should the Land Be Controlled, Distributed, and Sold?

American Indians occupied much of the western lands ceded by the states to the national government. Land was to be sold by the national government, not by the Indians. As such, the Federal Government via treaty and coercion acquired land cessions from Indians when needed, amounting to about 22 million acres between 1795 and 1802 (Lebergott 1985, 211); see figure 8.5. Federal Government policy was to prevent hostilities between Indians and white settlers, but when conflicts arose, the government was often powerless to stop them. When the government did have the power, it was seldom tolerant of Indian resistance. The de facto policy was to treat Indians like bears and wolves. They were on the land and could be a dangerous nuisance if they did not voluntarily vacate lands coveted by white settlers. In case of hostile resistance, like bears and wolves, Indians were to be forced out or killed. This was often done by local militias, but sometimes by Federal military involvement.[22]

In 1786, Virginia delegates proposed that Congress "destroy [the Indians] if they do not make concessions" in the Ohio territories. In a letter to General Josiah Harmar in 1790, General Henry Knox, Secretary of War, in reference to hostilities by the Indians in the Ohio region said, "No other remedy remains, but to extirpate, utterly, if possible, the said banditti." After a few military setbacks, General "Mad Anthony" Wayne with a force of about 2,600 men broke Indian power over the region at the battle of Fallen Timbers near the mouth of the Maumee River in 1794, thus securing the Ohio and Indiana territories for the U.S. government. The template was

22. See *American State Papers: Public Lands* (1834, 1:21–22, 63, 66, 146, 173); Ford et al. 1904–1937, 5:616–17; 6:1076–79; 1082–83; 25:681–94; 26:134–35, 152–54, 275; 27:453–65, 625–26, 658; 28:88, 118–20, 136–39, 159–62, 172–74, 330–33, 423–26, 431–32; 29:735–37, 806, 822; 30:133–35, 185–95, 257–58, 340, 342–43, 346–53, 368–81, 425–29; 31:490–93, 562–63, 656–58, 760; 32:66–69, 237–38, 266–69, 327–32, 347–49, 365–76; 33:385–91, 407–8, 410–11, 454–63, 477–81, 504–5, 696–97, 707–14; 34:59–60, 108, 124–26, 139–40, 160, 164–65, 267–69, 299–300, 326–27, 342–45, 368–71, 411–14, 423–25, 476–79). The number of militia and Federal troops deployed in battles against the Indians was relatively small and inconsequential in terms of costs and efforts. Being under 2,600 men and often under 1,000 men, their numbers were smaller than the troops employed in major battles during the Revolution, the War of 1812, the Mexican War, and the Civil War. Their numbers were on the order of the forces deployed to crush Shay's Rebellion in 1787 (Dougherty 2001, 107–21; Gates 1968, 59–61; Henretta et al. 1987, 227–30, 239, 243–45; Jensen 1981, 357–59; Puls 2008, 205–9; Tindall 1988, 318–19).

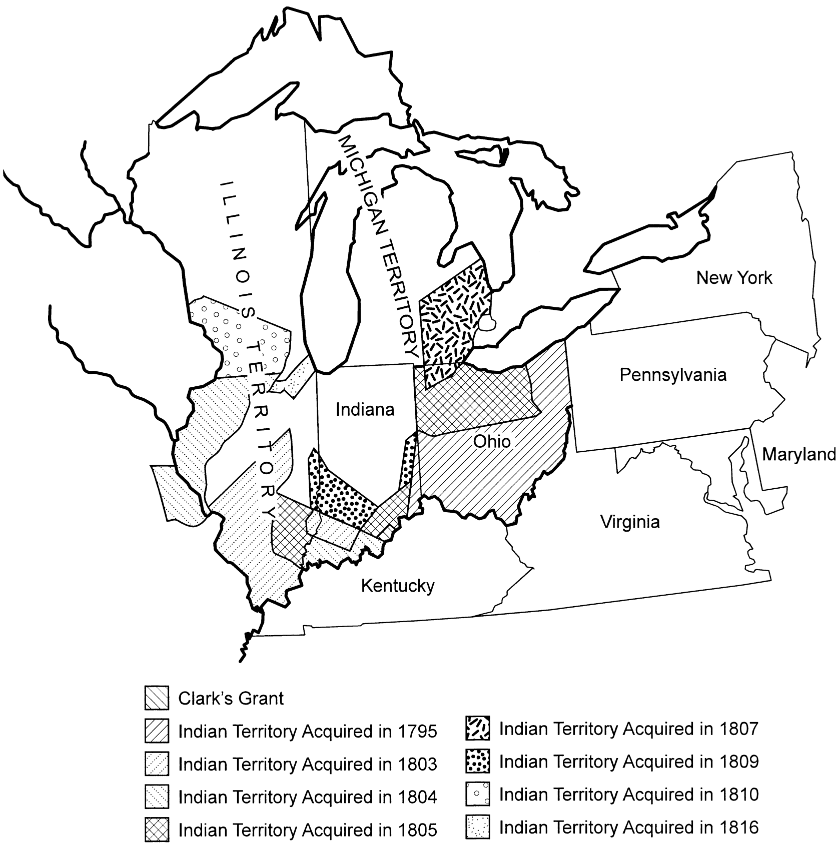

Fig. 8.5 Indian cessions to the Federal Government in the Northwest Territories, 1789–1816

Source: Robbins (1942, 23).

set for Federal Government dealings with Native Americans for decades to come.[23]

For whites, the public domain became a fact in 1784 with the Virginia cession. Between then and 1787, Congress confirmed its authority over the ceded lands and established the basic principles and policies of land distribution and governance for decades to come. This was accomplished by the passage of three great ordinances—the Ordinance of 1784, the Ordinance of 1785, and the Northwest Ordinance of 1787—initiated under Thomas Jefferson and then carried forward by others in Congress—with the 1785

23. See Dougherty (2001, 107–12); Gates (1968, 59–61); Henretta et al. (1987, 227–30, 239, 243–45); Hibbard (1939, 41–42); Jensen (1981, 357–59); Puls (2008, 205–9); Tindall (1988, 318–19).

and 1787 Ordinances superseding the 1784 Ordinance. These ordinances codified many of the intentions stated by Congress as early as 1780 regarding the ceded territories. They established conditions and procedures in the territories for moving from direct federal rule through democratic self-government and finally to the formation and admission as new states into the union under terms of equality of representation with the original thirteen states in Congress. They outlined potential new states. When new states were admitted to the union, however, they did not get possession of the remaining public domain within their borders. The Federal Government retained possession of its unsold lands regardless. This gave the Federal Government continuing leverage over fledgling states. Finally, a provision in the Ordinance of 1784 to ban slavery in all the lands west of the Alleghenies after 1800 was lost in Congress by a single vote, but the subsequent Northwest Ordinance of 1787 was able to prohibit slavery in the territories north of the Ohio River along with life-leases and quitrents.[24]

The 1785 and 1787 Ordinances divided the Northwest Territories into uniform townships measuring six miles square. These townships were subdivided into thirty-six one-mile square sections—one square mile being equal to 640 acres. One section out of every thirty-six was reserved "for the maintenance of public schools." These lands were to be surveyed using the "magnetic needle" to establish "true meridian" boundaries and then sold fee-simple into private ownership through competitive public auctions.

24. See Davis et al. (1972, 102–6); Donaldson (1884, 63–88, 146–63); Feller (1984, 6–9); Gates (1968, 59–74); Henretta et al. (1987, 202, 214, 224–25); Hughes and Cain (2007, 92–98); Jensen (1981, 348, 352–55); Ford et al. (1904–1937, 26:118–21, 247–52, 255–60, 274–79, 324–30; 27:446–53; 28:251–56, 298–303, 309–17, 335–40, 342–43, 370–81; 30:133–35, 230–31, 255–57, 262, 390–94; 32:281–83, 314–20, 334–43; 34:95–100, 107, 243–46, 277–81, 297–99, 301–3, 306–10); North and Rutten (1987, 25–27); Tindall (1988, 267–70). On 19 April 1784, Congress voted on whether the language banning slavery in all the western territories ceded to the national government should remain in the 1784 Land Ordinance. Votes in Congress were by state, and a majority of the thirteen states were needed to pass the motion. Delaware and Georgia were not present, and New Jersey only had a single delegate present, who while voting "yes" being this state's only delegate present meant, by rule, that New Jersey's vote would not count. That left ten states of which seven were needed to pass the motion. Not only did the six states north of Delaware vote for the motion, but every single delegate from those states (thirteen in total) voted for it. This was, however, one state short of the seven needed for a majority. The motion failed. Maryland, Virginia, and South Carolina voted "no" with every single delegate except Thomas Jefferson from those states (seven in total) voting against the motion. North Carolina was divided with Williamson for and Spaight against. The motion would have passed (received seven state "yes" votes) if any one of the following had happened: one more New Jersey delegate would have attended and voted yes; Spaight from North Carolina would have voted yes; either Hardy or Mercer from Virginia would have voted yes; or Delaware delegates would have been present and voted yes. Finally, if the motion had been worded in the reverse, namely if the motion would have been to remove the words banning slavery from the original draft of the 1784 Land Ordinance, then that motion too would have failed and the ban would have stayed. When the vote is reversed, only three states would have cast yes votes—four short of the majority needed to pass such a motion, and so the ban would have stayed in the ordinance. The razor's edge margins by which the historical trajectory of the nation could have been dramatically and fundamentally changed on 19 April 1784 is a rather sobering consideration (Ford et al. 1904–1937, 26:247).

Settlement was to be a lawful, patterned, and orderly process with secure property rights given to individual owners.

This rectangular pattern of property division and ownership, possibly derived from Dutch, Roman, and some New England precedents, was a rationalization of land-boundary structures. It contrasted sharply with the traditional "metes and bounds" land-boundary configurations found in England and in much of colonial and post-Revolutionary America, such as in Virginia and Maryland. Under metes and bounds, land boundaries typically followed natural contours and breaks, such as creeks, ridge lines, swell impressions, and so on, which in turn led to irregular land-plot shapes and sizes. The choice to replace metes and bounds with rectangular land boundaries had economic advantages. Rectangular patterns reduced survey costs (the government had to survey land before selling it); reduced boundary disputes between land owners by making boundaries clear, unchanged by natural events (e.g., naturally shifting river beds), and easy to adjudicate; and reduced odd lot sizes and shapes that were hard to use and sell. All these advantages increased the overall value of the public domain and, hence, what price the government could command when sold. It did this in part by enhancing the value of an average acre to a private property owner by rationalizing land market transactions with less idiosyncratic qualities to boundaries, thereby creating firmer property rights.[25]

The 1785 and 1787 Ordinances also established minimum acreage sizes for public land sales, that is, 640 acres. In 1800, it was reduced to 320 acres, and in 1804, it was reduced again to 160 acres, where it stayed through 1819. Why was such a large minimum purchase requirement chosen? The average farm size in the northern United States in 1800 was only 125 to 150 acres (Lebergott 1985, 185). As such, a 640 acre plot, or even a 320 acre plot, was several times the size of the typical farm. Therefore, the minimum acre purchase requirement did not reflect some natural economies of scale in farming for this period.

The choice to require these large minimum acre purchases may have been due to economic advantages gained by the government. For example, this requirement reduced survey costs. It allowed more land to be surveyed in a given space of time and so brought land under the auctioneer's gavel more quickly. Surveying a square of 640 acres would amount to "chain" or "pace" measuring four miles of distance. By contrast, if the government divided the 640 acres into four 160-acre squares or into sixteen 40-acre squares, then surveying would amount to chain or pace measuring six and ten miles of distance, respectively. In addition, more corner boundary markers would need to be established—four for one 640-acre square, nine for four 160-acre squares, and twenty-five for sixteen 40-acre squares.

25. See Adams (1960, 3:222); Davis et al. (1972, 102–6); Donaldson (1884, 189–90, 197, 576–78, 615–16); Feller (1984, 6–8); Henretta et al. (1987, 224–25); Libecap and Lueck (2009).

The large minimum acre purchase requirement may have served another economic function, namely allowing purchasers to capture the externality effects of land improvements the purchaser implemented on adjacent acres. In a frontier region where much of the land is initially unoccupied, the value of a particular acre depends on the degree of development of adjacent acres. Selling large lots, much larger than the typical farm, meant that the purchaser would be able to reap some of the spillover value on adjacent acres of his land improvements within his purchased allotment. He could capture that externality effect, being now capitalized into the value of that land, by selling those adjacent acres in the marketplace. If land were sold in smaller lots, buyers would not necessarily know who would own the adjacent lands or what would be done with them. As such, buyers could not gauge the true value of any particular small lot that they were considering for purchase from the government. Large minimum tract sales may have been a way to make sure that initial development externalities could be internalized by the purchaser and so maximize the sale price the government could command at auction.

Finally, the 1785 and 1787 Ordinances also established the minimum price per acre, payment credit conditions, and methods of sale. Minimum prices per acre were discussed in the preceding and appear to reflect a rough guess as to what the deflated long-run equilibrium value of land was given the pace of settlement. The method of sale was to be at competitive public auction venues in the relevant districts where the land was, with the lands sold for fee-simple ownership to the highest bidder above the minimum price. In 1785, only immediate payment was accepted, but over time, the upfront portion was reduced and the length of credit extended. In 1787, payment requirements were amended to one-third upfront and the rest in three months. In 1796, they were further amended to one-half paid within thirty days and the remainder in one year. After 1800, they were amended even further to one-fourth paid within thirty days and the balance over four years including 6 percent interest. The credit system often suffered from abuse, corruption, and nonpayment. The auction system occasionally suffered from corruption and noncompetitive manipulation at the local level. The credit part of this system ended in 1820 with a return to upfront payment only.[26]

The new Constitution affirmed Congress in possession and jurisdiction over the western ceded territories and in its intention to create new states out of said territories. It also protected the border sovereignty of existing states and guaranteed all states, new and old, republican forms of government (Article IV, sections 3 and 4). Congress under the Constitution carried the structure of the Land Ordinances of 1784, 1785, and 1787 created under

26. See Davis et al. (1972, 102–6); Donaldson (1884, 189–90, 197, 576–78); Feller (1984, 8–13); Gates (1968, 59–72, 121–43); Henretta et al. (1987, 224–25); Hughes and Cain (2007, 92–100).

the Confederation forward largely intact, making only minor modifications periodically thereafter.[27]

8.7 Epilogue

Choices made over land policy in the founding era had a lasting impact on the nation. They established the Federal Government as the largest land owner in North America, a role in which it has continued to the present day. The western lands from the Appalachian Mountains to the Mississippi River had been more or less peaceably and successfully transferred from the original thirteen states to the national government. The national government established rules whereby these lands could be acquired by citizens and new states could be formed. The rights to property had been clearly defined. Land would be distributed by the auctioneer's gavel for cash and credit in fee simple ownership to competing citizens and to soldiers who earned their land warrants through service to the nation. There would be no "colonies" of eastern states in the western territories, no life-leases, no quitrents, and, in the Northwest Territories, no slavery. There would be no landed aristocracy given large tracts of the public domain based on nobility of birth, political power, or private treaties with Native Americans. By 1800, some 387,000 Americans lived in the trans-Appalachian territories, about 7.3 percent of the U.S. population, and two new states carved out of these territories (Kentucky and Tennessee) had been formed and admitted to the union. The sectional conflict over power within Congress that threatened to dissolve the union at the end of the Revolution was transformed into a contest over new state formation and admission, a peaceful conflict that would last at least a half century before devolving into civil war (Henretta et al. 1987, 202, 204, 214, 221–29; *Historical Statistics of the United States* 1975, 1:8, 24–37).

The Federal Government was born land rich and asset-value rich. It chose to use its land assets to back the national debt, pledging the proceeds from land sales to be used, by law, only to redeem the national debt and nothing else. This land policy helped stabilize the national government's financial position and put the United States on a sound credit footing by the mid-1790s. The national debt was finally paid off in 1834, and Congress debated what it could now do with its remaining land. Freed from the 1790 Funding Act restriction, Congress could either continue to sell its land but now use the revenues on other projects, or Congress could devise some other land-transfer schemes that did not involve getting significant revenues from land

27. See Davis et al. (1972, 104); Donaldson (1884, 13); Feller (1984, 7); Gates (1968, 73–74). For the debates on these issues at the 1787 Constitutional Convention, see Farrand (1966, 1:22, 28, 117, 121, 202, 206, 226–27, 231, 237, 245; 2:39, 47, 133, 159, 188, 220, 313, 316, 321, 324, 454–66, 470, 628; 3:119–20, 223–27, 404).

sales, such as homesteading, land grants for transportation development, and the creation of national parks.

These early land policy choices led directly and immediately to one unanticipated outcome that dramatically altered U.S. history. By 1800, the Spanish or French obstruction of American navigation through New Orleans threatened not only the value of U.S. western lands, but posed the threat of these areas breaking away to form a separate country or merging with nearby Spanish or French colonies. To retain the loyalty of these western citizens and the value of these lands, Thomas Jefferson sought free navigation of the Mississippi River and the purchase of New Orleans from Napoleon—the current owner. An unexpected change in fortune led the French to offer the whole Louisiana territory to the United States on relatively cheap and easy terms. The 1803 Louisiana Purchase more than doubled the size of the United States with almost all these lands falling under Federal jurisdiction and control to be administered following the policies laid down in the 1780s and 1790s. While not without constitutional controversy—it is unclear that Congress has the power to purchase foreign territory—the end result continued the Federal Government's land possession and management role into the twentieth century (Henretta et al. 1987, 231–34; Lewis 1998, 12–32; Tindall 1988, 347–52).

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