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THE VOLUNTARY PROVISION OF PUBLIC GOODS? THE TURNPIKE COMPANIES OF EARLY AMERICA

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The turnpike companies of early America (roughly 1795–1840) were very unprofitable but conferred vast benefits to communities served. Purchasing stock was like paying for the road since such purchases were necessary to complete the road and unprofitability was foreseen. Thus the turnpikes would appear to have been public goods. Yet hundreds of turnpikes were provided through voluntary association. The free rider problem was overcome by an almost vigilant impulse to participate and to see that your neighbor did likewise.

I.

The heroic role of the agent called “government” in the simple public-goods model is clear enough, but the relevance of the model is still in dispute. A long history of doubters has challenged the premises that the government has the needed information, acts efficiently, and acts in the public interest. Also, doubters have contended that the free-rider problem of many social services is not as ineluctable as others often seem to suggest. Historical studies have shown the potency of voluntary association in such fields as lighthouse provision (Coase [1974]), education (High & Ellig [1988]), bee pollination (Cheung [1973]), law and order (Anderson & Hill [1979]; Benson [forthcoming]), neighborhood infrastructure (Beito [1990]), agricultural research (Majewski [1989]), among others (see Cowen [1988]; Wooldridge [1970]).

To help weigh the relevance of the simple public-goods model I discuss the American experience of private turnpike roads. The turnpike companies got started in the 1790s and were in sharp decline in the 1830s, though many turnpikes were operating at the turn of our century.¹ I treat turnpikes in New England, New York, Pennsylvania, New Jersey, and Maryland (the last four are called the “Middle Atlantic

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1. Especially in New Jersey, Maryland, and Pennsylvania. In later days turnpikes were numerous but shorter.

states"). Except in Pennsylvania,² the turnpikes were almost entirely financed by private subscription to stock,³ while those in most other states were mixed enterprises.⁴

Extreme publicness marked the turnpikes, both in jointness of consumption and in nonexcludability.⁵ The excludability problem was partly the result of legal restrictions on toll collection. These restrictions were one cause of turnpike unprofitability, which was discovered quickly. The turnpikes afforded enormous indirect and external benefits, however, to the nearby farms, landholdings, and businesses. Since unprofitability was usually foreseen, stock subscription—necessary to construct the road—was essentially a means of paying for road benefits. There were two excludability problems: people could use the road without paying a toll, and people could indirectly benefit from the road without buying stock. Though related, the latter is the crux of the public-goods problem at hand.⁶

II.

Turnpike Creation and Operation

The end of the 18th century saw a transition in road management. Until then, the roads were built and maintained, poorly, by towns and counties. As settlement expanded and the large Eastern centers sought improved trade routes, pressure for road improvement brought forth a radical alternative: turnpikes, a pay-as-you-go means of financing. A number of publicly operated turnpikes were organized, patterned after

2. In 1806 the Pennsylvania state government began subsidizing turnpikes by purchasing stock. In 1822 it held about 30 percent of the collective stock of the turnpike companies. See Durrenberger [1931, 55, 102].

3. According to Durrenberger, there were four minor instances of state aid made in the states of New Jersey, New York, and Maryland, which combined amounted to \$42,500, a minuscule sum relative to private investment (a small fraction of one percent) [1931, 98]. The city of Albany subscribed to 100 shares of the (First) Great Western Turnpike Road, which accounted for no more than 7.5 percent of the company stock as of the middle of 1802; see Book I of Subscribers (BV Sec. Great Western), New York Historical Society. Parks [1966, 72-73] mentions a "few instances" of town aid in New England.

4. G. Taylor [1951, 23-26] gives summary information on the turnpikes of Virginia, South Carolina, Ohio, Kentucky, and the lower South. The turnpike literature on the states outside New England, the Middle states, Maryland, and Virginia is minimal. Delaware seems to have had a few turnpikes which may well have been entirely privately financed. The best work on Virginia's substantial system of mixed enterprise is Hunter [1957].

5. These two factors combined with an omniscient, omnipotent, and Paretian government and no further complications constitutes "the simple public goods model." The classic presentations are of the model in Samuelson [1954] and [1955].

6. For a discussion of the political decisions concerning the turnpikes, see Klein and Majewski [1988b].

the British turnpike trusts of the day,⁷ but even this method of road improvement demanded too much from the existing public administration. States turned to private initiative.⁸

The turnpike companies were legally organized like corporate businesses of the day. The first, connecting Philadelphia and Lancaster, was chartered in 1792, opened in 1794, and proved a significant advantage in the competition for trade. Regional rivalries led state legislatures to take a favorable view toward petitions to establish turnpikes. By 1800, sixty-nine companies had been chartered in the states under investigation.⁹

While legislators readily sanctioned road provision by private associations, they wrote extensive regulation into company charters. Charters usually specified the company's total stock, but this merely reflected the company's recommendation and could be changed easily. Powers of eminent domain were stipulated, existing trails or public roadbeds were usually granted to the companies, and monopoly assurance against new parallel routes was sometimes granted. Details for construction were given, and, of course, toll rates and toll collection were tightly controlled. In most cases turnpikes were individually regulated, but on the major points all the states imposed similar regulations. Inspection and enforcement were assigned to state-appointed commissioners or county officials. While the companies abided strictly by the financial regulations, maintenance often did not live up to stipulations, and the local inspection machinery was known to be lenient.¹⁰

In some states the theory was that toll rates would be increased if dividends fell short of the low mark (usually 6, 8, or 10 percent of investment) or decreased if dividends surpassed the high mark (usually 10, 12 or 15 percent) (Durrenberger [1931, 111]). In fact, in all states dividends persisted far short of the low mark; but, with rare exception, toll rates remained at their initial levels (Taylor [1934, 152]). The legis-

7. Like the American system, the British system of turnpike trusts was decentralized. However, the trusts were public bodies, borrowed to construct their roads, and performed better financially. See Pawson [1977].

8. On road management prior to the turnpikes and the beginning of the turnpike era, see the two most important work on the turnpikes: Durrenberger [1931, 9-26] and Taylor [1934, 1-135]; see also Ringwalt [(1988) 1966, 22-27]. on the attempt at public turnpikes see Durrenberger [1931, 97]; Taylor [1934, 122-25]; and Hollifield [1978, 2-3].

9. See Klein and Majewski [1988b] for a table of turnpike chartering from 1792 to 1845 in the states under consideration.

10. On lax inspection see Durrenberger [1931, 94] and Taylor [1934, 112]. For greater detail on the regulation of the turnpikes, see Klein and Majewski [1988b].

lature did not renege on its promise.¹¹ Rather, it was common for a company simply not to apply for toll increases.

There are two possible explanations for the absence of rate increases. The first is that the companies may have been responding to the unseemliness of making a profit from turnpike stock; this interpretation can be seen behind some of the discussion to follow.

Second, turnpikes could not have much enhanced returns by increasing toll rates because of the many concessions to local travelers. Charters required that toll gates be five or, more often, ten miles apart, permitting much traffic to go toll-free. Another means of free travel was the proliferation of informal routes bypassing the gate, known as shunpikes.¹² The location of a gate was set by the legislature and could be altered only by separate legislative enactment. Had turnpikes been free to multiply and relocate gates they could have better combatted shunpiking. Finally, there was the toll exemption. Typical exemptions included those traveling "on the common and ordinary business of family concerns," to or from public worship, a town meeting, a grist-mill, a blacksmith's shop, and on military duty and those "residing within one mile of ...[the] gate."¹³ Gatekeepers found it troublesome to deny exemption and were forced to adopt a lenient attitude (Taylor [1934, 147]). Under such conditions, higher tolls would not have increased revenue because travelers passing for free would not have paid higher tolls, and those inclined toward toll evasion would have done so more often. In addition, a small fraction of the through-traffic would have opted for public roads or other forms of transportation.

Unprofitability

The first piece of our public-goods story is the nearly universal and well-documented poverty of the turnpikes.¹⁴ Of the Middle Atlantic

11. New England states did not always set explicit profit margins, but the states were willing to change tolls for companies in financial distress. The Massachusetts General Turnpike Law, 1805, Chap. 79, for example, makes no mention of legal profit margins. For an example of margins explicitly set in New England, see Wood [1919, 218]. On the legislature not renegeing see Durrenberger [1931, 155]; Taylor [1934, 140, 152]; Handlin and Handlin [1947, 120].

12. Durrenberger [1931, 178] and Taylor [1934, 200-204] discuss the role of shunpikes. Turnpike president Fisher Ames reported that his company's revenues would be about 60 percent greater if not for shunpikes (Parks [1966, 154]).

13. The first quote comes from "General Powers of Turnpike Corporations," Law of Mass., 1805, Chap. 79, 649; the second is from New York's general law, 1807, Chap. 38, 56.

14. A small number of turnpikes managed to consistently pay dividends above 3 percent; See Taylor [1934, 277]; Durrenberger [1931, 113-15]; Hollifield [1978, 4]; and Parks [1966, 127-32]. Due to low initial expenditures, Connecticut turnpikes did much better than those elsewhere according to Taylor [1934, 190] and Parks [1966, 91-99].

states, Durrenberger [1931, 112] says, "[c]onsidered from the standpoint of dividends, turnpike stocks were exceedingly poor investments," and of the many turnpikes of New England, Taylor [1934, 266] says, "it is doubtful whether more than five or six paid their proprietors even reasonably well." Though information from the period is fragmentary, Taylor [1934, 281] finds that turnpike dividends in New England were far below those of other enterprises:

[I]t is quite obvious that no possible selection of turnpike companies could compare in earning power...Between the years 1825 and 1855, six of the largest textile factories in Massachusetts produced average yearly dividends ranging from 6.48% to 12.79%. The Massachusetts bank averaged 6.53% annual return on its capital investment from 1785 to 1855, while the Union bank produced an average of 6.91% between 1795 and 1855. Three Boston insurance companies doing fire and marine business produced annual dividends averaging 8.38%, 15.44%, and 20.34% during the period 1818-1855.

In contrast, even the undiscounted total net payment of a turnpike was commonly negative. References to average yearly dividends usually put the figure barely above zero.¹⁵ In Pennsylvania the state held a peak of two million dollars in turnpike stocks, but "annual dividends accruing from that investment invariably totalled less than five thousand dollars" (one-fourth of one percent; see Hartz [1948, 92]). Once we take into account assessments (occasional company demands on stockholders for additional payments), it is not clear whether yearly

15. Tufts [1834, 867], a Massachusetts correspondent of Albert Gallatin (U.S. Secretary of Treasury, 1801-1813), said in 1807 that aside from two turnpikes, "all the other turnpikes in the State will not, upon an average, yield more than 3 per cent per annum, net income." In 1828, a report on Pennsylvania turnpikes said, "[n]one have yielded dividends sufficient to remunerate the proprietors. Most of them have yielded little more than expenditures for repairs" (quoted in Durrenberger [1931, 113-14]). Bloodgood [1838, 97] remarks of the turnpikes of New York: "Generally they have never remunerated their proprietors, nor paid much more than the expense of actual repairs."

The fragmentary statistics in Taylor [1934, 270-71, 276-77] for fifteen companies show dividends for a combined 427 years of operation. All the companies are from Massachusetts, Connecticut, and Rhode Island; the figure for the Hingham & Quincy corporation is excluded because it operated a lucrative toll bridge in connection with a short piece of road. I calculated the average annual dividend to be 2.9 percent; Taylor evidently felt it was meaningless to calculate a summary figure, the reason surely being that the sample is undoubtedly biased. It is much more likely that records would be preserved in a case where dividends were paid than where they were not. A strong indication of the bias is that for nine other companies in the tables no dividend figures are recorded, but in a separate column each one reports such comments as "\$9660.35 net loss," "income...ceased to pay expenses," "have never been able to make but one dividend, and that at the rate of two percent," and "...of but Little Profit to your Petitioners."

Thus, the fragmentary evidence and, more importantly, the impressions of contemporary observers, suggest that throughout the states under consideration turnpikes on average paid no more than two percent per year, *not counting the loss of capital value.*

"earnings" for many turnpikes were even positive.¹⁶ Moreover, the capital value of the stock was usually completely lost. The little trading that occurred was almost always on terms well below par. "Turnpike stock within a few years usually sold at far below its original cost."¹⁷

Turnpikes usually reverted to public control through abandonment. By that time the stock was usually worthless, and the owners were eager to relieve themselves of the responsibility of maintaining the road. Rarely was any compensation made to road investors. It appears that in all of New England only two turnpike companies recouped their original investments when they reverted to the public.¹⁸ In fact, only 5 percent of the New England turnpikes received any compensation whatever when they surrendered their franchises.¹⁹ It is quite safe to say that in the vast majority of cases turnpike stock was an abysmal investment.

"Clear from the Beginning"

[I]t seems to have been generally known long before the rush of construction subsided that turnpike stock was worthless (Wood [1919, 63]).

[T]he turnpikes did not make money. As a whole this was true; as a rule it was clear from the beginning (Kirkland [1948, 45]).

If we wish to show that the turnpikes were public goods and that stock subscription was, in essence, a voluntary contribution, it is incumbent to show not only that turnpike stock was a bad investment but also that investors expected as much. Investor expectations resist hard documentation, but a combination of factors strongly supports the two quotations above.

It is unlikely that investors knew from the very beginning that turnpike stock would be unremunerative. The first private toll-bridge com-

16. On assessments, see Taylor [1934, 159-160]. Many companies simply issued no-par stock and demanded assessments as required. If assessment payments were delinquent, eventually the shares would be revoked and auctioned off. Long lists of delinquent shares can be found in *The Courier of New Hampshire* (Concord), June 11, 1804; October 23, 1808.

17. Parks [1967, 19]. Taylor [1934, 273] and Parks [1966, 119-120] detail rapidly falling stock prices. The great Pennsylvania auction of state-owned assets in 1843 gives a clear picture of the capital value of turnpike stock at that time. A total of 48,956 shares in scores of turnpike companies were put up for auction, and 32,224 of them were not sold because they could not command a price of one dollar. The 16,732 shares that were sold commanded an average price of \$3.40. The state had paid \$25, \$50, or \$100 for them (\$50 was most common). See Hartz [1948, 104, 232-28] for details of the auction.

18. There is ambiguity on this point in that Wood [1919, 181] refers to a company which was fully compensated which Taylor [1934, 324] does not list. Since Taylor uses Wood, perhaps he found an error in Wood's report, leaving only one company that recouped its investment.

19. The calculation is based on Taylor's figures [1934, 324], using the figure of 238 for total operating turnpikes, as explained in note 29 below.

pany, the Charles-River Bridge, opened in 1786, was called "the greatest effect of private enterprise in the United States."²⁰ Its investors were rewarded with a return of 10.5 percent annually for its first six years. Davis says, "[i]ts clear promise of financial success, justified by the dividends of its early years, drew attention to the profits awaiting claimants in similar fields" [1917, II: 189; see also 216]. Through 1798, about fifty-nine bridge companies were chartered in the states under consideration, principally in New England. Many of them failed and some were unprofitable, but a considerable number, especially in the Boston area, had proven themselves lucrative by the end of the century. In contrast to the turnpikes, the bridges did not suffer from toll evasion and liberal exemptions, and when profits were low they commonly obtained toll increases (Davis [1917, II: 229]). Investors may not have anticipated the special problems that would plague turnpikes, so perhaps the bridge companies were an encouraging example. Also, early turnpike investors could not foresee the competitors that were to be: the steamboat, the canal, and the railroad.

After the first decade of turnpike construction all save the most foolhardy realized what turnpikes held in store. As early as 1800 the president of the First Massachusetts Turnpike wrote a letter cautioning other investors not to expect remuneration from turnpike stock (Parks [1966, 73]). Similarly, former Federalist Congressmen and turnpike president Fisher Ames wrote in 1802, "[t]urnpikes with fairest prospect of success have seldom proved profitable" (quoted in Parks [1966, 74]). In Connecticut, where, viewed comparatively, turnpike dividends were enviable, a newspaper article in 1805 suggests that turnpikes receive "annually on their capital, little, if any, more than half the common and established interest on money."²¹

The examples of unprofitable companies were plain as day. The few moderately profitable companies were graced with a combination of advantages: low cost in land acquisition, good condition of the pre-existing roadbed, minimal bridge building, and substantial traffic volume.²² Any moderately alert investor could easily discover whether

20. *Massachusetts Centinel*, May 13, 1786; quoted in Davis [1917, II, 188].

21. *Connecticut Courant* (Hartford), June 19, 1805, 3.

22. Compared to the others, the Derby Turnpike, running between Derby and New Haven, was outstanding in financial performance, averaging dividends of 5.1 percent annually from 1801 to 1896 and recouping its capital investment when reverting to the public in 1897. (Note that in comparison to other businesses this performance is mediocre at best; see the Taylor passage on p. 792 above.) Taylor [1934, 279] ascribes its success to "a combination of factors—monopolistic situation in a productive area, no land damages, and therefore low capital investment, existence of a gate almost within the limits of a large city, careful control by a close corporation—[which] combined to make this a profitable enterprise."

his town's project had similar advantages. Almost invariably it did not.²³

Perhaps the best reason for rejecting the claim that turnpike investors were searching primarily for direct remuneration is that an alternative hypothesis presents itself.

The Quest for Indirect Benefits

Although dividends were meager, indirect and external benefits were copious. Improved roads lowered transportation costs, stimulated commerce, and increased land values. Henry Clay did not overstate the point when he said

I think it very possible that the capitalist who should invest his money in these objects [turnpikes] might not be reimbursed three percent annually upon it; and yet society in various forms, might actually reap fifteen or twenty per cent. The benefit resulting from a turnpike road made by private association is divided between the capitalist, who received his toll, the land through which it passes and which is augmented in its value, and the commodities whose value is enhanced by the diminished expense of transportation (quoted in Durrenberger [1931, 125]).

The quest for indirect benefits is abundantly evident in contemporary writings. An essay advocating turnpike roads in New York, appearing in 1795, says that such an improvement "lays open all the unexploited resources of a country to come forth to daylight, and to a market."²⁴ In 1797 we find a discussion in five installments of roads and turnpikes by "A Philanthropist." He expounds at great length on the social importance of good roads and argues that turnpikes are the best means of achieving them. Benjamin De Witt, writing in 1807 of New York's turnpikes, said that turnpikes "encourage settlements, open new channels for the transportation of produce and merchandise,

23. Philip Taylor, I should note, departs appreciably from all other turnpike historians on the question of investment motive. He agrees fully that turnpikes were unprofitable, and he says, "[i]n the smaller towns, the spirit of civic unity and progress played a part not unimportant," but his central claim is thus: "First and foremost, however, remains the fact that the prospect for respectable earnings on capital investment in tollroads was good, and most investment in turnpike stock was made with that in view" [1934, 102]. Taylor's support for this claim is meager—he emphasizes a few hopeful remarks about early companies and says that investors underestimated upkeep cost [1934, 99–102, 267]. There is no evidence that turnpikes suffered from rapid deterioration or that maintenance needs were systematically underestimated. Taylor's work, a Ph.D. thesis in economics, views the period almost exclusively in terms of speculative fanaticism; it shows no awareness of the fanaticism for community uplift. Notice that the quotations opening this section are written by scholars who, like Taylor, are treating only New England and who straddle Taylor chronologically.

24. "Turnpike Roads," by A Friend to Turnpikes [Elkanah Watson], *Albany Gazette*, December 27, 1795; reprinted *Albany Register*, June 13, 1796, 2.

increase the products of agriculture, and facilitate every species of internal commerce" [1972, 215]. The 1811 tract by William J. Duane "Addressed to the People of Pennsylvania" challenged the notion that

you are more benefited by having a paltry interest from the bank, than if your money was invested in stocks for roads and canals... [M]oney invested in bank stock is waste in comparison with its employment in enabling you to carry your produce and manufactures to every market; and in raising the value of your woods as well as your cleared lands [1811, 5].

Likewise, Fisher Ames in New England said most turnpikes were built "to facilitate country produce on its way to market."²⁵

Less explicit evidence for the "indirect benefits" interpretation is ample. Foremost is that "[s]hares in the various companies were almost invariably owned locally, that is, in the towns through which the road passed" (Taylor [1934, 165]; see Durrenberger [1931, 102]). Naturally, the people in the vicinity of the turnpike would reap the most benefits. In the few cases where a sizeable portion of the stock was owned by outsiders, the quest for indirect benefits is still evident. Businessmen in larger commercial centers supported routes that would bring trade. For instance, "[m]erchants and traders in New York sponsored pikes leading across New Jersey in order to tap the Delaware Valley trade which would otherwise have gone entirely to Philadelphia" (Lane [1939, 156]). It might be argued that local ownership was simply a consequence of marketing the shares locally, but the "indirect benefits" interpretation seems undeniable when we consider a second factor: those who contributed were generally those who most stood to gain from the project. "With but few exceptions, the vast majority of the stockholders in turnpike were either farmers, land speculators, merchants or individuals and firms interested in commerce."²⁶

As Wood notes [1919, 63],

The conclusion is forced upon us that the larger part of the turnpikes of New England were built in hopes of benefiting the towns and local business conducted in them, counting more upon collateral results than upon the direct returns in the matter of tolls.

Similarly, Durrenberger [1931, 104] says of the Middle Atlantic states,

subscribers were usually more interested in the possible benefits the new lines of communication would bring than in the profitability of the investment. In other words subscriptions were frequently looked upon as contributions to effect some public

25. Quoted in Parks [1966, 71]. See also Reed [1964, 59-61, 125, 135-37].

26. Durrenberger [1931, 104]; see also Ringwalt [(1888) 1966, 31] and Lane [1939, 168].

improvement that would pay its chief return in an indirect manner rather than in dividends.²⁷

A Public Goods Problem?

To what extent can we expect private initiative to have been successful in providing roads? Despite the large social benefits of the roads, it would seem that the individual could find no advantage in supporting them. Since citizens knew that turnpike stock was a poor investment, purchasing stock was like paying for the road. Once stock subscriptions were sufficient to construct the road, there would be no way to withhold the benefits of the road from those who did not contribute. The input of a single individual would not make the difference, or so it would seem. For an arbitrary sample of fifty-four turnpike towns, the average population in 1810 was 2,153, 38 percent of which had reached twenty-seven years of age.²⁸ If, say, half of these people stood to gain significantly from a turnpike and a turnpike engendered benefits for two towns, then 818 people were the prospective beneficiaries of a turnpike (which typically had a construction cost of \$1,000 to \$2,000 per mile and a length of fifteen to forty miles).²⁹ This is hardly a small-group situation. On the basis of narrow self-interest it would have been foolish for any one person to make a voluntary sacrifice. Turnpike stock subscription appears to have been a free rider problem par excellence and we would expect to find the lamentable results of the simple public-goods model.

Turnpike Provision

In view of the apparent free rider problem, the success was striking. The movement built new roads at rates previously unheard of in America. Over \$11 million was invested in turnpikes in New York, some \$6.5 million in New England, and over \$4.5 million (excluding state investment) in Pennsylvania (Durrenberger [1931, 61, 102]; Taylor [1934, 211]). Wood [1919, 63] informs us that, based on the population of 1830,

27. Legal historian James Hurst agrees: "these highways...principally served the need of local economies for low return, , overhead capital beneficial much more to other activities dependent on the facilities than to the immediate gain of the providers" [1982, 103].

28. For no particular reason, I listed proper nouns that appeared in the names of Massachusetts turnpike companies chartered from 1800 to 1810 which looked like the names of townships. I then searched for their populations in the 1810 census; those which I did not find presumably are not towns or are towns in other states. I excluded Boston (population 33, 250) from the list; the largest in the list was Salem (12, 613).

29. There is great variance in construction costs. A key factor was whether the turnpike took over a preexisting road bed so construction would be reduced and land damages minimal. Also important was the extent to which bridges were necessary. Taylor [1934, 210] estimates the average cost per mile to have been \$4,500 in Massachusetts, \$1,065 in New Hampshire, \$1,000 in Vermont, \$700 in Rhode Island, and \$640 in Connecticut. See also, Taylor [1934, 185-90, 348-40] and Durrenberger [1931, 84-95].

per-capita turnpike investment was approximately \$3.90 in Massachusetts. Between 1794 and 1840, 238 private New England turnpike companies built and operated about 3,750 miles of road.³⁰ New York led all other states in turnpike mileage with over 4,000 as of 1821. Pennsylvania was second, reaching a peak of about 2,400 miles in 1832. New Jersey companies operated 550 miles by 1821; Maryland's operated 300 miles of private road in 1830 (Durrenberger [1931, 61, 56, 74, 70]). Turnpikes also represented a great improvement in road quality (Taylor [1934, 334]; Parks [1967, 23, 27]).

The local turnpike was supported by the more prominent citizens, but it is not as though a handful of affluent landowners paid for the project. Stock subscription was broad-based. In most cases upwards of fifty people contributed, usually over 100 for a larger turnpike, no one with more than 15 percent of the stock.³¹

After the most travelled routes had been converted to turnpikes, it became more difficult to raise money for their construction,³² nonetheless turnpikes continued to be built, even though, by 1810, hope of direct remuneration had disappeared. Yet between 1810 and 1845 over

30. Taylor [1934, 208]; note that Connecticut's two public turnpikes chartered in 1792, one of which was taken over by a private company, are excluded (see Taylor [1934, 122-25]; Wood [1919, 334-36]), and that Taylor made arithmetic errors (see note 32 below for details).

31. There were cases of concentrated holdings, particularly in New England. Unconcentrated stock holding was fostered in part by installment purchase with a very small down payment and, particularly in the Middle Atlantic states, restrictions on stock purchase and voting rights. See discussions in Durrenberger [1931, 103-107] and Taylor [1934, 101-102, 156, 158-65].

Glazer [1972, 164, 166] finds that a relatively successful "minority of interested citizens dominated most voluntary associations" in Cincinnati in 1840 and concludes that such associations were as "pervasive and important, but probably not as popular, as Tocqueville observed." A disproportionate number of the activists in Glazer's sample, however, were settlers from New England, the focus of de Tocqueville's observations.

32. Of the 385 private New England turnpike companies chartered through 1842, 147 failed to build roads, or 38 percent. These numbers come from Taylor [1934, 208, 237-46] and Reed [1964, 75]. Some errors in Taylor to account for: the sum of the incorporations listed on p. 208 is 241, not 230; Table VII, p. 208, disagrees with the individual listing (pp. 337-44) for 1796, 1800, 1801, 1804, and 1834. For incorporation of successful roads, I have used three for 1796, thirteen for 1800, ten for 1801, seventeen for 1804, and five for 1834; Appendix III, p. 346, lists one for Vermont for 1804; I have used zero. These alterations are all based on Taylor's own individual listings, which are corroborated by Wood. For total incorporation in Connecticut I have used Reed's figures, which differ from Taylor's for 1797, 1805, 1806, and 1818. I am assuming that the additional incorporations from Reed failed to build their road.

The figures given by Taylor [1934, 164, 337-41, 346] for Massachusetts, Rhode Island, and Connecticut show that of the companies chartered between 1794-1800 three of thirty-five failed to build roadway (9 percent stillborn); between 1801-1807, twenty-nine of 103 (28 percent) (the 1801 incorporation entry on page 164 should be twelve); between 1808-1814, thirteen of thirty-five (37 percent); between 1815-1842, thirty-one of eighty-five (36 percent). Of the Middle states and Maryland, Durrenberger [1931, 107] says, "it is safe to say that at least one-third of the turnpike corporations chartered never built a mile of road, due chiefly to their inability to raise necessary capital."

400 turnpikes were chartered and built, each one representing a separate instance of public-good provision.³³ I make no claim that private association overcame the free rider problem in every case, or that turnpike construction satisfied blackboard Paretian conditions. Rather, I claim that, even though the turnpikes offered enormous nonexcludable benefits, far outweighing the costs of the project, a straight application of the simple public-goods model would lead us to doubt that many turnpikes were built and that a single one was built after 1810. Why doesn't the model apply?

III.

The literature on turnpikes is old and primarily narrative. It is not surprising that, while emphasizing the inducement of indirect benefits in supporting turnpike construction, turnpike historians have failed to point out, much less address, the free rider problem involved. In taking up the matter, we must rely on more than narrow turnpike history.

Towns, Independent and Vigorous

Towns of the early nineteenth century were independent and strong, characteristics that have since perished. Through the colonial period the town had become the organizing principle of society. In the first three decades of the republic, the township held almost all of the administrative power of government. The states had uncontested law-making powers, and economies of scale dictated that the counties attend to a few services (courts, prisons, and road commissioners), but the towns governed their own affairs and executed the directives of the state. Alexis de Tocqueville, in his masterful opus *Democracy in America*, says the towns "are independent in all that concerns themselves alone; and among the inhabitants of New England I believe that not a man is to be found who would acknowledge that the state has any right to interfere in their town affairs." When carrying out state laws, "[s]trict as this obligation is, the government of the state imposes it in principle only, and in its performance the township resumes all its independent rights" [(1835) 1945, I: 68]. The participatory nature of town government in early America has been well noted. This feature

33. Arriving at the lower bound of 400. Adding up individual listings in Taylor [1934, 337-44] we find 71 successful New England companies chartered between 1810 and 1845. For those years New York chartered 337 turnpike companies, Pennsylvania 305, New Jersey 28, and Maryland 69, but we do not know how many of these successfully built roads. Even if we suppose a 50 percent mortality rate for these incorporations, probably an overestimate, they would represent 370 turnpikes built after turnpike unprofitability was quite obvious.

often makes it pointless to draw lines separating private and public works.³⁴

The unity and effectiveness of towns in part arose from their commercial and social isolation. Until the 19th century, people traveled rarely and traded little with those of other towns (Taylor [1934, 31-32]). Self-sufficiency nurtured multitudinous social ties between the townspeople.

Certain historical currents may also have contributed to the spirit of participation. In Revolutionary times religious doctrine in the individual and religious organization in the community usually ran deep. After the Revolution religious fervor intensified in the movement known as the Second Great Awakening, which was probably helped along by the passage of general incorporation laws for religious congregations (such as New York's in 1784). Whether the "New Light" denominations or those of longer tradition, religious congregations often showed a penchant for making themselves busy in various improvement endeavors, such as schools, libraries, and poor relief. By generating the requisite social relations, or "social capital" (Coleman [1988]), as well as human capital, as noted by Seavoy [1978, 60], the religious and benevolent activities not only incited but empowered the application of voluntary efforts to community goals (Matthews [1969]; Brown [1973, 68]). A related thesis, advanced by Elkins and McKittrick [1954], associates local activism with the pervasiveness of leadership roles in a young community.

The Cooperative Citizenry

The strong cooperative spirit of Americans especially fascinated de Tocqueville.³⁵ In the 1830s, he wrote:

In no country in the world do the citizens make such exertions for the common weal. I know of no people who have established schools so numerous, places of public worship better suited to the wants of the inhabitants, or roads kept in better repair [(1835) 1945, I: 95].

The citizens' cooperation with government efforts is noteworthy, but more significant is the willingness to forge public improvements by voluntary association.

34. Pisani [1987, 751] writes, "[r]ecent scholarship suggests that the line between public and private corporations has been overdrawn: that distinction was not as clear in the eighteenth and early nineteenth centuries as it became once the business corporation reached maturity. Virtually all corporations combined elements of both." See Kammen [1975] and Seavoy [1978] on the overlap of the public and private sectors.

35. De Tocqueville's analytic contributions are nicely summarized in Wade [1985].

Americans...constantly form associations. They have not only commercial and manufacturing companies, in which all take part, but associations of a thousand other kinds, religious, moral, serious, futile, general or restricted, enormous or diminutive. The Americans make associations to give entertainments, to found seminaries, to build inns, to construct churches, to diffuse books, to send missionaries to the antipodes; in this manner they found hospitals, prisons, and schools. If it is proposed to inculcate some truth or to foster some feeling by the encouragement of a great example, they form a society [(1840) 1945, II: 114].

De Tocqueville speaks of another often-cited public good: crime prevention. Although no state police existed, and local public forces were minimal, "in no country does crime more rarely elude punishment. The reason is that everyone conceives himself to be interested in furnishing evidence of the crime and in seizing the delinquent...I witnessed the spontaneous formation of committees in a county for the pursuit and prosecution of a man who had committed a great crime" [(1835) 1945, I: 99]. Similar private, nonprofit institutions for fire fighting or education in early American society have been studied by economists (McChesney [1986]; High & Ellig [1988]).³⁶

The cooperative spirit expressed itself in enterprises much like the turnpikes. In his comprehensive study of American business incorporations up to 1800, Davis [1917, II, 284-85] points out that many enterprises were undertaken to make improvements, and debates whether to count them as business corporations. He readily excludes the marine and agricultural societies, but then come corporations for land improvement, lumber cultivation, and inland navigation. For example, a "case near the line" is the River Machine Company, incorporated in 1790 to dredge the Providence River. "The merchants of Providence had agreed to raise \$1,000 in forty 'equal shares'" for the project. The company was to collect tolls from certain vessels, but any surplus was to be used at the end of twenty years for other improvements. "Thus no dividends were contemplated."

In financing, many turnpikes closely resembled this dredging company: numerous people contributed liberally for the large fixed costs and then just enough revenue was collected to sustain operation. Before it became standard practice to name a turnpike company by the towns it connected, the first private turnpike company chartered in New England (1794) was entitled "The Society for Establishing and Supporting a Turnpike Road from Cepatchit Bridge, in Gloucester, to Connecticut

36. Pisani [1987, 744] argues that "federalism's tendency to disperse power to the local level reinforced the dependence of Americans on quasigovernmental associations, such as commercial federations, civic organizations, and booster clubs, that often served as better forums of collective action than did formal institutions of government."

Line" (Taylor [1934, 125]). Even after being given the standard business-sounding titles, we occasionally find turnpike companies calling themselves a "society."³⁷

Selective Incentives (Social Pressure, etc.)

Economic explanations of cooperation fall into two broad categories. One approach says that, for whatever reason, people have an irreducible demand to cooperate. Following Margolis [1982], we could say that people contributed to turnpikes due to strong group-interest utility functions, or following Sugden [1984; 1986], we could say that people felt they ought to contribute and they therefore behaved according to a system of moral obligations.

The second approach gets into the guts of cooperation by breaking down the situation and revealing hidden private advantages to cooperation. From de Tocqueville's searching discussion of the American devotion to "self-interest rightly understood" [(1840) 1945, II: 129-35], we conclude that the gutsy approach to cooperation is especially fitting to our problem.³⁸ We could view turnpike communities as extended families and apply the Becker [1974] theory of social interaction. Perhaps the residents of a community practiced ongoing gift-giving sustained by the threat of withholding, as in Kurz [1977], or abided by social norms for fear of collective reprisal, as in Kandori [1989]. While formal models could be loosely applied to the turnpike case, instead I will depend on Mancur Olson's discussion [1971; 1982], which emphasizes the role of institutions.

In *The Logic of Collective Action* Olson develops the idea of selective incentives:

[A] "selective" incentive will stimulate a rational individual in a latent group to act in a group-oriented way. In such circumstances group action can be obtained only through an incentive that operates, not indiscriminately, like the collective good, upon the group as a whole, but rather *selectively* toward the individuals in that group. The incentive must be "selective" so that those who do not join the organization working for the group's interest, or in other ways contribute to the attainment of the group's interest, can be treated differently from those who do [1971, 51].³⁹

We are especially interested in negative selective incentives, which are punishments for failing to bear an appropriate share of the collective

37. Two examples are found in *Connecticut Courant*, July 17, 1801, 2, 3.

38. In as much as one's demand or feeling of duty to cooperate is responsive to external prods and pressures—surely a great deal—the two approaches to understanding cooperation are not as distinct as I am making out.

39. See also Olson [1982, 20-23, 32-39, 85-87].

effort.⁴⁰ Selective incentives are particularly effective in closed, homogeneous groups. The failure of some to cooperate will attract attention. "Their friends might use 'social pressure' to encourage them to do their part...and such steps might be effective, for...most people value the fellowship of their friends and associates, and value social status, personal prestige, and self-esteem" (Olson [1971, 60]).⁴¹ Such was the case for the turnpike communities of 1,000 or 5,000 people. For the average turnpike stockholder "those in control [of the turnpike] were his neighbors and personally known to him" (Taylor [1934, 168]). Of voluntary associations in Massachusetts in the turnpike age, Brown [1973, 68] says, "[t]he feelings of personal recognition, self-improvement, and mutual reinforcement that members derived from participation were sometimes as important as the more explicit purposes of the organization."

A number of social pressure tactics were employed in the turnpike case. Foremost was the community gatherings called to make up a plan and sell stock in the company. The town meeting was a central institution in which all important residents were expected to participate. Sly [1930, 107] says that in the early 1800s "[t]he town meeting was...at the highest point of development." The turnpike meetings were well attended and stock pledges were made publicly. For example, Wood [1919, 69] says the Fifth Massachusetts Turnpike "was formally organized at a meeting held in the inn of Oliver Chapin, probably early in 1799, and sixteen hundred shares were issued with a par value of \$100 each." Meetings with attendances of 50 and 100 people have been recorded.⁴² Through introspection, if nothing else, we recognize one's susceptibility to the rousing speeches, pointed inquiries, and side-long glances operating at such fund-raisers.

40. Using a standard of welfare, Olson views negative selective incentives as "coercive." I speak of "coercion" and "voluntarism" using a standard of property rights, with the social pressures presently discussed as *damnum absque injuria*. For a somewhat sanguine treatment of formal positive selective incentives, which Olson calls "tie-ins," see Klein [1987].

41. In *Rise and Decline of Nations* [1982, 24], Olson adds to his discussion of selective incentives the notion that selective incentives are more effective the more homogeneous the group members are in taste, attitudes, and lifestyles. Turnpike communities would certainly be considered homogeneous by today's standards. Landa [1981] discusses the importance of homogeneity in trading groups.

Regarding Olson's emphasis on face-to-face interaction, see Frank [1988] on how true feelings and intentions are reflected in physiological impulses. For an extended discussion of selective incentives and how traditional sociological questions can be addressed using the individualistic reasoning typical of economics, see Hechter [1987]. On the study of community and cooperation, Higgs [1987] alerts economists to the achievements of sociologists and psychologists. For a brief survey touching on how communitarian factors in classroom experiments influence public good contributions, see Dawes and Thaler [1988, 193-95] and Isaac and Walker [1988]. For evidence and discussion of honest preference revelation, see Bohm [1972] and Brubaker [1975].

42. Kirk [1912, 22]; *Connecticut Courant*, March 19, 1798,

Turnpike promoters relied of course on the most basic form of selective incentive, person-to-person solicitation. In an 1808 letter regarding the formation of the York and Conewago Canal Turnpike, the writer tells of those who "have with so liberal a hand contributed to the Turnpike feeling a considerable responsibility, having used every exertion with the people of this place to promote it."⁴³

Bearing out de Tocqueville's claim that Americans formed associations no matter how "diminutive," we find cases of turnpike companies organizing solicitation forces. For the Hingham and Quincy Turnpike

[s]everal committees were appointed to solicit subscriptions to the stock of the corporation, and one committee was intrusted with the single duty of so presenting the advantages of the enterprise to Reverend Henry Coleman of Hingham as to give his aid and influence to the undertaking ([Wood [1919, 178)].⁴⁴

Similarly, we find in the minutes book of the Minisink and Montgomery Turnpike Company: "Resolved, That James Finch Jun. and David Mason be a Committee to apply to the People living west of the Shawangunk Mountain for subscriptions..."⁴⁵

Adam G. Mappa, president and chief organizer of the Utica Turnpike, needed no warrant to solicit his fellow townspeople. To win the support of the prominent locals, he "set forth in forcible language and at great length the advantages that would accrue to Utica by completion of the road" (Durant [1878, 177]). Some details of the campaign are provided in the following extract of an 1808 letter from Mappa to a Mr. Walton:

I have begged with all my power & might pro bono publico. you my dear sir I hope will follow my example...[with] our friends Miller and Van Rensselear as soon [as] these gentlemen...return and can be taken hold of. Mr. Hogan informed me that he did not know the Turnpike Road was laid over his lands. How can it be possible that you, my dear Walton, did neglect to inform Mr. H. of this advantage and request (as you promised me) his assistance in subscribing generously towards our wants. O my friend, if you forget us, if you abandon the T. P. [turnpike] interest, all is over, we shall sink in the mud & that very dirty too. Retrieve therefore the opportunity lost on the return of friend Hogan, and do not forget any of all those whom you can reach...(quoted in Jackson [1959, 22]).

43. Letter from Henry Miller to Thomas Willing Francis, January 17, 1808, Conewago Canal Collection, New York Public Library, Manuscripts. The turnpike was chartered and constructed in 1809.

44. That so much energy was expended in securing the "aid and influence" of a clergyman suggests other forms of selective incentives.

45. Minisink and Montgomery Turnpike Company Minute Book (BV. Sec.), entry July 8, 1811, New York Historical Society.

Mappa's letters are prime examples of what de Tocqueville [(1840) 1945, II: 114] called "the extreme skill with which the inhabitants of the United States succeeded in proposing a common object for the exertions of a great many men and inducing them voluntarily to pursue it." Mappa's letters also show that generating selective incentives is itself a costly public good, but some people will eagerly take it upon themselves to provide them.⁴⁶ The Utica Turnpike never paid its stockholders reasonably well, but it lasted until 1848 when it was transformed into a plank road company.⁴⁷

The struggle to gather support is shown in a letter to John Rutherford, a subscriber in several turnpikes, about a newly incorporated turnpike through Trenton: "We open the books on Thursday next—and shall try every means to get the company organized—you know how little spirit prevails with the citizens of this place for any public improvement—but intend pushing them hard." Further, the writer expresses his hope that Rutherford "may think so favourable of [the project]—as to give orders to some friend here to subscribe largely."⁴⁸

De Tocqueville and Olson both speak of another organ of selective incentives used by turnpike communities. De Tocqueville [(1840) 1945, II: 119] says, "nothing but a newspaper can drop the same thought into a thousand minds at the same moment," and by means of a newspaper "you can persuade every man whose help you require that his private interest obliges him voluntarily to unite his exertions to the exertions

46. See Kahneman, Knetsch, and Thaler [1986] for experimental evidence of people's demand to punish wrongdoers.

47. Plank roads are turnpikes with plank surfacing. They came in an enormous wave in the late 1840s and 1850s. They constitute a separate chapter in private road management; see Klein and Majewski [1988a].

48. Peter Gordon to John Rutherford, April 8, 1806, New York Historical Society, Rutherford Papers. Another letter to Rutherford regarding a different turnpike indicates that Rutherford promised to buy eight or ten shares provided that a certain route was settled on. Thus the writer concludes the letter: "The object is so important, that it makes us very solicitous to obtain funds, especially from those who have been so liberal as to offer their aid" (John Doughty to John Rutherford, June 28, 1810).

I have found other bits of evidence of conditional subscription—conditioned, that is, on the route of the road. I am confident that conditional subscription does not pose a challenge to the claim that participatory norms and social pressure account principally for turnpike financing. First, route selection was hardly an issue for most turnpikes, as most were constructed on preexisting road beds. Second, usually directness was an explicit requirement in turnpike laws, and in fact many turnpikes made a fetish of rectilinearity (Taylor [1934, 285]; Durrenberger [1931, 85]). Finally, it must be recognized that by any sensible geometry a turnpike route could be skewed in only a few places, and each possible skew will offer benefits to a sizeable group that would then face a free rider problem in bidding against other groups for their preferred route. But this is not to deny that conditional subscription may have played an occasional role in determining where a connecting stretch would be laid or how a corner would be cut.

of all the others." Similarly, Olson [1971, 63] says that through media propaganda "about the worthiness of the attempt to satisfy the common interest in question," members of a latent group may "develop social pressure not entirely unlike those that can be generated in a face-to-face group."⁴⁹

Newspapers proliferated in America and people took a keen interest in reports on local affairs [de Tocqueville [(1840) 1945, II: 114–122]; Gunn [1988, 52]]. To spur feelings of duty, announcements of the formation of a turnpike company often spoke of the public worthiness of the road. Within a five month period the *Courier of New Hampshire* (Concord) carried communications of three different turnpike companies saying that their project "would be beneficial to the public in general," "would be of great public utility," and "would open extensive communication from West to East through the middle of New Hampshire...and would tend to increase the commerce of our own Metropolis."⁵⁰ In other announcements the element of moral suasion is more pronounced. After announcing that the books of the Great Northern Turnpike are open for subscription, a communication adds: "N.B. the object of the contemplated road is so obviously important to the public and to individuals, (as it will facilitate a direct intercourse between the cities of Montreal and Albany, without a single ferry, and generally over a level country,) that great hopes are entertained of its speedy execution."⁵¹ A 1798 communication of the Hartford and New Haven Turnpike says, "And it being an object of great public utility, it is hoped the citizens of this state will manifest their public spirit on the occasion, and feel themselves disposed to promote it by an advance of the necessary sums of money, and will without hesitation fill up the subscription."⁵²

Between Schenectady and Albany went to work the champion promoter, Elkanah Watson.⁵³ Using the names "A Friend to Turnpikes," "A.Z.," "A Republican," and "The Public Good," Watson appealed to public spirit, patriotism, and commercial interest in his campaigns for turnpikes. Rarely did he appeal to direct remuneration from the stock.

49. A classic study of social pressures exerted through the media is Merton [1946], which is entirely devoted to a marathon warbond broadcast by Kate Smith.

50. April 11, August 1, March 14, 1804.

51. *Albany Gazette*, June 6, 1805, 2.

52. *Connecticut Courant* (Hartford), November 19, 1798, 2.

53. Watson, an early exponent of a great canal through New York, made an avocation of promoting internal and agricultural improvements in the state. His promotionals show a supreme shrewdness, in marked contrast to the tracts by plank-road messiahs in later years (Klein and Majewski [1988a]).

In 1801, in one of his many pieces promoting the Albany and Schenectady Turnpike, Watson writes

[A]s its importance is admitted on all hands, the adventurers are entitled from the public the most decisive and liberal encouragement to complete the road...

As respects the citizens of Albany, especially the mercantile interest, they must be asleep indeed if they can suffer another year to pass over without exerting all their efforts to bring about this important enterprise [p. 40].

In a later article Watson reports on the success of a preliminary meeting to found the turnpike and adds,

As our Citizens appear to be universally impressed with the importance of a Turnpike Road connecting the two cities of Albany and Schenectady, and as the same patriotic spirit prevails in the City of Schenectady, a doubt can no longer exist, but the SHARES will be all taken up in a few hours after the Books are opened... [p. 40].

And, indeed, besides copies of these articles in his heavily annotated scrapbook, Watson scribbled, "the happy Moment was here—the foregoing publications paved the way + never anything more spiritedly received."

Watson labored hard for other turnpikes, including a connection between New York and Albany. In an article from 1800, he writes, "[t]he object is so truly important, so desirable, and so popular, that little doubt can be entertained, but that the legislature will grant a charter, and that the 3000 shares... will be immediately taken up [p. 36]." Notice how Watson, by pretending confidence in imminent support, tries to mitigate the assurance problem in securing support and to incite the vigilant do-gooder to take up the call. In his scrapbook Watson penned, "unsuccessful attempts have been made to obtain a charter... It must eventually succeed." Later he adds, "1808—the Road from N.Y. to Albany—has been executed this present year—who began it?" Besides testifying to Watson's self-satisfaction, these annotations testify to the social leverage of the newspaper.

Social pressure seems to have found its way into the assessment and payment of land damages. Right-of-way was commonly paid for in stock rather than money (Taylor [1934, 165]). "A Philanthropist" [1797, No. III] says that those giving up land to a turnpike "will receive an equivalent to their damages, in the appreciate value of their farms and situations, and from other accommodations." Such benefits probably gave the turnpike a moral bargaining chip when coming to an agreement, as indicated in the 1798 announcement of the Hartford and New Haven Turnpike lately cited: "It is hoped that those persons through

whose land said road is laid, will become subscribers to the amount at least of the sum assessed to them in damages."⁵⁴

We could speculate on other forms of social pressure. In the few cases of turnpike-run lotteries it is easy to imagine a role for social pressure in the sale of tickets (Wood [1919, 293]; Lane [1939, 161]). The list of turnpike stock holders was public information and may have circulated to spur contribution.⁵⁵

Even if selective incentives had been prevalent we could not expect them to have been well-recorded. Yet some tangible signs can be found. Supplemented by an understanding of the turnpikes and of the ethos of the day, it is fair to conclude that social pressures played a conspicuous role in the provision of hundreds of turnpikes.

IV.

Local freedom,...which leads a great number of citizens to value the affection of their neighbors and of their kindred, perpetually brings men together and forces them to help one another in spite of the propensities that sever them (de Tocqueville [(1840) 1945, II: 111]).

Early American communities overcame an apparent free rider problem in financing hundreds of turnpike companies. For companies organized after 1810, the hope of a small return surely oiled the willingness to invest turnpikes, but the central explanation for such investment lies elsewhere. Community isolation, citizen familiarity, and weak, decentralized government bred close social ties and an effective participatory ethic.

But does the quaint story of townspeople working together to build a highway have much bearing on modern problems? Hackensack has changed a lot since 1810. Neighbors are often strangers, so how can we expect social pressure and the like to curtail free riding? Two remarks follow.

First, despite the growing interest among economists in non-egoistic behavior, voluntary public-good provision still seems to be one of those areas in which the representative economist suffers from a trained incapacity. It has been shown experimentally that economists are comparatively insensitive to free riding (Marwell and Ames [1981]); often they seem blind to its avoidance as well. Whether it be a block association or the American Cancer Society, suasion tactics often yield results, as reported regularly in *Nonprofit and Voluntary Sector Quarterly*. Such tactics, I am told, are operating for toll road projects underway in Vir-

54. *Connecticut Courant* (Hartford), November 19, 1798, 2.

55. Consider the fraternity magazines and neighborhood March of Dimes drives that reveal the names and contributions of donors.

ginia, California, and the Midwest, where groups of developers are donating land and volunteering to build some of the necessary secondary facilities (see Poole [1988, 511]).

Second, if our voluntary forces are deemed ineffective in providing public goods, that in itself is a policy issue. The ability of voluntary association to provide infrastructure, education, security, and poor relief depends on the exercise and spontaneous development of certain institutions, activities, and sentiments. Since governmental bodies dominate these services it is no surprise that our faculties of sodality remain degenerate. When a problem arises, government is expected to deal with it. Participation does not become a personal responsibility and organizing leadership does not become a source of social esteem. Thus there is a lesson in the broader circumstances of early America which bred potent voluntary forces, as well as in the specific ways those forces established turnpikes.

REFERENCES

- (Supplementary newspaper, statutory, and manuscript sources are given in footnotes.)
- Anderson, Terry and P. J. Hill. "An American Experiment in Anarcho-Capitalism: The Not so Wild, Wild West." *Journal of Libertarian Studies*, 1979, 9-29.
- Becker, Gary S. "A Theory of Social Interactions." *Journal of Political Economy*, December 1974, 1063-93.
- Beito, David, with Brace Smith. "The Formation of Urban Infrastructure through Non-Governmental Planning: The Private Places of St. Louis, 1869-1929." *Journal of Urban History*, May 1990, 263-303.
- Benson, Bruce. "The Evolution of Law: Custom versus Authority." Manuscript, Florida State University, 1989.
- Bloodgood, S. De Witt. *A Treatise on Roads, Their History, Character and Utility*. Albany, N.Y. Oliver Steele, 1838.
- Bohm, Peter. "Estimating Demand for Public Goods: An Experiment." *European Economic Review*, 3(2), 1972, 111-30.
- Brown, Richard D. "The Emergence of Voluntary Associations in Massachusetts, 1760-1830." *Journal of Voluntary Action Research*, Spring 1973, 64-73.
- Brubaker, Earl R. "Free Ride, Free Revelation, or Golden Rule?" *Journal of Law and Economics*, April 1975, 147-61.
- Cheung, Steven N. S. "The Fable of the Bees: An Economic Investigation." *Journal of Law and Economics*, April 1973, 11-34.
- Coase, R. H. "The Lighthouse in Economics." *Journal of Law and Economics*, October 1974, 357-76.
- Coleman, James S. "Social Capital in the Creation of Human Capital." *American Journal of Sociology*, Supplement, 1988, S95-S120.
- Cowen, Tyler, ed. *The Theory of Market Failure: A Critical Examination*. Fairfax, Virginia: George Mason University Press, 1988.
- Davis, Joseph S. *Essays in the Earlier History of American Corporations*. Cambridge, Mass.: Harvard University Press, 1917.
- Dawes, Robyn M. and Richard H. Thaler. "Anomalies: Cooperation." *Journal of Economic Perspectives*, Summer 1988, 187-97.

- DeWitt, Benjamin. "A Sketch of the Turnpike Roads in the State of New York." 1807. Reprinted in *The New American State Papers, Volume One*. Wilmington: Scholarly Resources, Inc., 1972, 215-18.
- Duane, William J. *Letters Addressed to the People of Pennsylvania Respecting the Internal Improvements of the Commonwealth by Means of Roads and Canals*. Philadelphia: Jane Aitken, 1811.
- Durant, Samuel W. *History of Oneida County, New York*. Philadelphia: Everts & Ensign, 1878.
- Durrenberger, Joseph A. *Turnpikes; a Study of the Toll Road Movement in the Middle Atlantic States and Maryland*. Valdosta, Georgia: Southern Stationery and Printing Co., 1931.
- Elkins, Stanley and Eric McKittrick. "A Meaning for Turner's Frontier, Part I: Democracy in the Old Northwest." *Political Science Quarterly*, September 1954, 321-53; "Part II: The Southwest Frontier and New England," December 1954, 565-602.
- Evans, Clinton J. "Private Turnpikes and Bridges." *American Law Review*, 1916, 527-35.
- Frank, Robert. *Passions Within Reason: Prisoner's Dilemmas and the Strategic Role of the Emotions*. New York: W. W. Norton, 1988.
- Glazer, Walter S. "Participation and Power: Voluntary Associations and the Functional Organization of Cincinnati in 1840." *Historical Methods Newsletter*, September 1972, 151-68.
- Gunn, L. Ray. *The Decline of Authority: Public Economic Policy and Political Development in New York, 1800-1860*. Ithaca: Cornell University Press, 1988.
- Handlin, Oscar and Mary Flug Handlin. *Commonwealth; A Study of the Role of Government in the American Economy: Massachusetts, 1774-1861*. New York: New York University Press, 1947.
- Hartz, Louis. *Economic Policy and Democratic Thought: Pennsylvania, 1776-1860*. Cambridge, Mass.: Harvard University Press, 1948.
- Hechter, Michael. *Principles of Group Solidarity*. Berkeley: University of California Press, 1987.
- Higgs, Robert. "Identity and Cooperation: A Comment on Sen's Alternative Program." *Journal of Law, Economics, and Organization*, Spring 1987, 140-42.
- High, Jack and Jerome Ellig. "The Private Supply of Education: Some Historical Evidence," in *The Theory of Market Failure: A Critical Examination*, edited by Tyler Cowen. Fairfax, Virginia: George Mason University Press, 1988, 361-382.
- Hollifield, William. *Difficulties Made Easy: History of the Turnpikes of Baltimore City and County*. Cockeysville, Maryland: Baltimore County Historical Society, 1978.
- Hunter, Robert F. "The Turnpike Movement in Virginia, 1816-1860." Ph.D. dissertation, Columbia University, 1957.
- Hurst, James W. *Law and Market in United States History: Different Modes of Bargaining Among Interests*. Madison: University of Wisconsin Press, 1982.
- Isaac, R. Mark and James M. Walker. "Communication and Free-Riding Behavior: The Voluntary Contribution Mechanism." *Economic Inquiry*, October 1988, 585-608.
- Jackson, Harry F. "The Utica Turnpike." *New York History*, January 1959, 18-32.
- Kahneman, Daniel, Jack L. Knetsch and Richard H. Thaler. "Fairness and the Assumptions of Economics." *Journal of Business*, Supplement, 1986, S285-S300.
- Kammen, Michael. "A Different 'Fable of the Bees': The Problem of Public and Private Sectors in Colonial America," in *The American Revolution: A Heritage of Change*, edited by J. Parker and C. Urness. Minneapolis: Associates of the James Ford Bell Library, 1975, 53-68.
- Kandori, Michihiro. "Social Norms and Community Enforcement." Photocopy, Stanford University, 1989.
- Kirk, Edward R. "Turnpike Road from Buckingham to Newtown." *Bucks County Historical Society*, 1912, 20-24.

- Kirkland, Edward C. *Men, Cities and Transportation; a Study in New England History, 1920-1900*. Cambridge, Mass.: Harvard University Press, 1948.
- Klein, Daniel. "Tie-ins and the Market Provision of Collective Goods." *Harvard Journal of Law and Public Policy*, Spring 1987, 451-74.
- Klein, Daniel and John Majewski. "Private Profit, Public Good, and Engineering Failure: The Plank Roads of New York." Working Paper 88/3, Institute for Humane Studies, George Mason University, 1988a.
- _____. "Privatization, Regulation, and Public Repossession: The Turnpike Companies of Early America." Photocopy, University of California, Irvine, 1988b.
- Kurz, Mordecai. "Altruistic Equilibrium," in *Economic Progress, Private Values, and Public Policy: Essays in Honor of William Fellner*, edited by Bela Balassa and Richard Nelson. New York: North Holland, 1977, 177-200.
- Landa, Janet T. "A Theory of the Ethnically Homogeneous Middleman Group: An Institutional Alternative to Contract Law." *Journal of Legal Studies*, June 1981, 349-62.
- Lane, Wheaton J. *From Indian Trail to Iron Horse: Travel and Transportation in New Jersey, 1620-1860*. Princeton: Princeton University Press, 1939.
- Majewski, John. "Farming and the Public Good: Social Incentives and Agricultural Research in England, 1600-1850." Photocopy, Department of History, University of California, Los Angeles, 1989.
- Margolis, Howard. *Selfishness, Altruism, and Rationality*. New York: Cambridge University Press, 1982.
- Marwell, Gerald and Ruth Ames. "Economists Free Ride, Does Anyone Else?" *Journal of Public Economics*, June 1981, 295-310.
- Matthews, Donald G. "The Second Great Awakening as an Organizing Process, 1780-1830: An Hypothesis." *American Quarterly*, Spring 1969, 23-43.
- McChesney, Fred C. "Government Prohibitions on Volunteer Fire Fighting in Nineteenth Century America: A Property Rights Perspective." *Journal of Legal Studies*, January 1986, 69-92.
- Merton, Robert. *Mass Persuasion: The Social Psychology of a War Bond Drive*. New York: Harper & Brothers, 1946.
- Olson, Mancur. *The Logic of Collective Action: Public Goods and the Theory of Groups*. Cambridge, Mass.: Harvard University Press, 1971.
- _____. *The Rise and Decline of Nations*. New Haven, Conn: Yale University Press, 1982.
- Parks, Roger N. "The Roads of New England, 1790-1840," Ph.D. dissertation, Michigan State University, 1966.
- _____. *Roads and Travel in New England, 1790-1840*. Sturbridge, Mass.: Old Sturbridge Inc., 1967.
- Pawson, Eric. *Transport and Economy: The Turnpike Roads of Eighteenth Century Britain*. London: Academic Press, 1977.
- Philanthropist, A. "Roads and Turnpikes." Five installments, *Connecticut Courant* (Hartford), "No. I," May 1, 3; "No. II," May 8, 2; "No. III," May 22, 1; "No. IV," May 29, 1; "No. V," June 26, 1. All 1797.
- Pisani, Donald J. "Promotion and Regulation: Constitutionalism and the American Economy." *Journal of American History*, December 1987, 740-68.
- Poole, Robert W., Jr. "Resolving Gridlock in Southern California." *Transportation Quarterly*, October 1988, 499-527.
- Reed, Nathaniel. "The Role of the Connecticut State Government in the Development and Operation of Inland Transportation Facilities from 1784 to 1821." Ph.D. dissertation, Yale University, 1964.
- Ringwalt, John L. *Development of Transportation Systems in the United States*. 1888. New York: Johnson Reprint Corp., 1966.

- Samuelson, Paul A. "The Pure Theory of Public Expenditure." *Review of Economics and Statistics*, November 1954, 387-89.
- _____. "Diagrammatic Exposition of a Theory of Public Expenditure." *Review of Economics and Statistics*, November 1955, 550-56.
- Seavoy, Ronald E. "The Public Service Origins of the American Business Corporation." *Business History Review*, Spring 1978, 30-60.
- Sly, John F. *Town Government in Massachusetts, 1620-1930*. 1930. Hamden, Connecticut: Archon Books, 1967.
- Sugden, Robert. "Reciprocity: The Supply of Public Goods through Voluntary Contributions." *Economics Journal*, December 1984, 772-87.
- _____. *The Economics of Rights, Co-operation and Welfare*. New York: Basil Blackwell, 1986.
- Taylor, George R. *The Transportation Revolution, 1815-1860*. New York: Rinehart and Co., 1951.
- Taylor, Philip E. "The Turnpike Era in New England." Ph.D. dissertation, Yale University, 1934.
- Tocqueville, Alexis de. *Democracy in America*. 1835, 1840. New York: Vintage Books, 1945.
- Tufts, Cotton. Letter on Turnpike Roads of Massachusetts (1807), in Appendix to Gallatin's report on Roads and Canals, in *American State Papers, Miscellaneous*, Vol. I, 866-67. Washington, D.C.: Gales and Seaton, 1834.
- Wade, L. L. "Tocqueville and Public Choice." *Public Choice*, 47(3), 1985, 491-508.
- Watson, Elkanah. "Commonplace Book, 1758-1842." Manuscript, in his papers, pkg. 1, v. 12, New York State Library, Albany.
- Wood, Frederick J. *The Turnpikes of New England and Evolution of the Same through England, Virginia, and Maryland*. Boston: Marshall Jones Co., 1919.
- Wooldridge, William C. *Uncle Sam, the Monopoly Man*. New Rochelle, New York: Arlington House, 1970.