AGRICULTURAL LABOR MARKET INTEGRATION IN THE ANTEBELLUM NORTHEAST: EVIDENCE FROM TWO NEW YORK FARMS

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What determined the value of labor in the past? While acknowledging the power of custom and social obligation to affect terms of exchange, this essay provides suggestive evidence that efficient markets for short and long term farm labor were flourishing in antebellum New York State. The remarkable aspect of this claim is that the hiring was done by people who to outward appearances had not the slightest desire to entangle themselves in external market relations. These were Christian communalist sectarians known as the Shakers, people who removed themselves from the World (their term for everywhere outside Shakerdom) to maintain a spiritual purity. Even so, systematic variations in contract characteristics, wage premia, and wage correlation over time seem to have arisen more from labor market conditions in the northeastern United States rather than local moral-economic considerations.

The Shakers were a Christian communal group.[1] Some of their distinctive beliefs included the existence of a male and female Godhead, from which followed sexual equality, and continuing revelation guided by active communication between Believers (a Shaker term for members of the sect) and denizens of the spirit world. Practices of the Society (their official name is the United Society of Believers in Christ's Second Appearing, the second appearing being

Advances in Agricultural Economic History, Volume 2, pages 145–161.

ISBN: 0-7623-1001-4

in the body of their foundress, an illiterate Englishwoman named Ann Lee) included pacifism, celibacy, confession of sins to elders, and joint or communal ownership of the Society's assets. Each Shaker received the same return for his or her labor: room, board, clothing, and the experience of divine proximity in a community of like minded Believers. From the handful of English Shakers who arrived in America in 1774, the Society grew to number about 4,000 by 1840, living in 18 communes that covered an arc from western Kentucky to Maine. This essay will concern the Shaker communities at Groveland, New York, which was about 30 miles south of Rochester, and New Lebanon, New York, about 20 miles east of Albany.

Leading Shakers regretted their need to hire non-member labor. Elders detested their lack of belief in Shakerism and feared their occasional rowdiness. When the South Union, Kentucky, Shakers built a new office in March and April 1841, the trustees ordered that the doors and windows be made in Louisville and sent to South Union "so as not to be compelled to have too many hirelings about."[2] Hired hands were a necessary evil to Isaac Newton Youngs, scribe of the New Lebanon Shakers. In his enormous manuscript history of the Society, he described the many businesses of the New Lebanon Shakers and observed, "In order to carry on all those concerns and to do our own farming and building, we are under the necessity to hire much help of the world without, which we are willing all should know is undesirable to us, and injurious to our spiritual travel." By the turn of the century, drunkenness of hired men was a frequent complaint at several communities.[3]

When the journalist Charles Nordhoff surveyed the Society in 1874 he reported opposing opinions on the hiring of outsiders. The New Gloucester, Maine, Shakers were pleased that children of nearby farmers who had once been hired hands of the Shakers were becoming promising young members of the Society. However, the leading Eastern Elder, Frederick Evans of New Lebanon, described the hands as a burden because the Society assigned its ablest members to supervise them. Most Shaker leaders found that the necessity to hire non-members outweighed their deleterious effects. According to figures collected by Nordhoff, the hired hands so disliked by Elder Evans were employed at every Shaker community, in some places more intensively than others. The ratio of hands to Believers ranged from 1 to 50 at Canterbury, New Hampshire, to over 1 to 5 at Watervliet, New York.[4]

Along with the hiring of non-member labor came the responsibility of recording the frequency of their employment, the tasks they performed, and the wages they were paid. As a result, some Shaker communities such as New Lebanon and Groveland provide remarkably full sets of data on hired labor.[5]

Entries in Shaker account books provide date of payment, number of months and days of labor, the value of the wage paid, and occasional references to debits accrued by the workers as they bought items from the Shakers.

It is useful to distinguish between workers hired by the day and by the month, as these seem to have been separate labor markets in the antebellum United States, the distinction being made according to the frequency with which the workers were paid.[6] Figure 1 shows the total number of adult work days per year provided by hired hands and the share of these work days provided by monthly laborers. The number of work days per year increased slightly over the time covered by the account books. The share of monthly labor, which is given here by a moving average, declined up to the late 1840s and then recovered and stabilized at about 70%. The years around 1848 clearly saw a large increase in the number of day laborers hired, and this occurred at both communities. I have not been able to determine the reason for this anomaly.[7]

The dates of these records fill an implicit gap in our understanding of Shaker history. Stein dated the onset of hiring outsiders at Groveland to 1860, but the

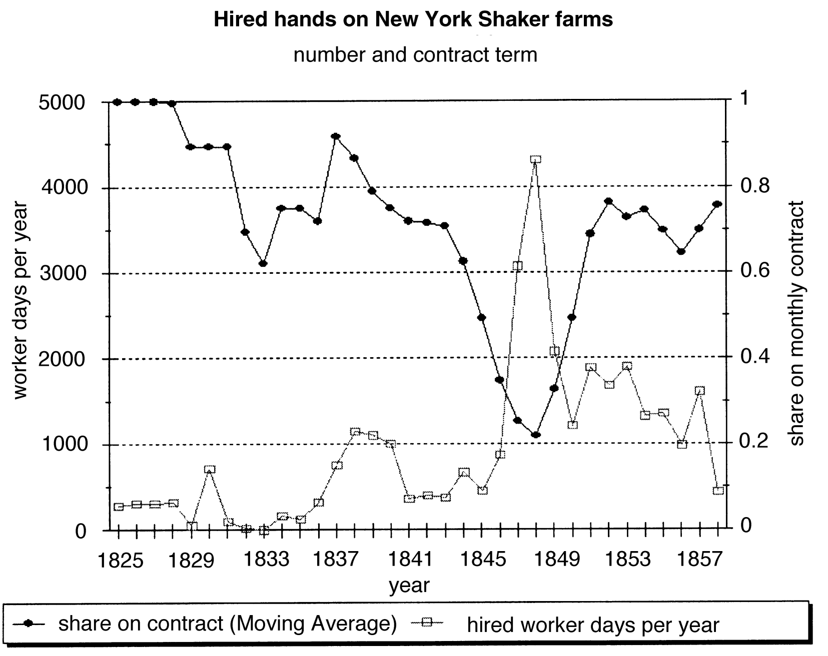

Fig. 1.

Groveland Shakers had been hiring non-Shaker laborers from a much earlier date.[8] The Shakers had initially settled on the Sodus Bay of Lake Ontario, and then relocated the entire community to Groveland during the year and a half after January 1837. The first monthly wages were paid to a hired hand in October 1837 for unspecified "work," and hired labor was employed regularly thereafter. The quantitative record thus aids in establishing that the use of hired labor was a long-standing practice there, and should help dispel the notion that hiring of hands was associated with Shaker decline.[9]

At New Lebanon, contract labor can be documented as early as the middle 1820s. The antebellum period in general, and the years 1837–1850 in particular, are sometimes referred to as a "golden age" of Shakerism, especially for New Lebanon.[10] During this period the New Lebanon Shakers enjoyed economic prosperity and growing intensity in their spiritual activities. Thus, even during what some would consider the community's best days, contract labor from the World was employed. The presence of such non-member workers who were hired from the outside coincided with, rather than thwarted, communal growth and prosperity, even in religious terms.

MONTHLY WORKER WAGES

Table 1 gives summary statistics of information on contracts and workers culled from the monthly worker account book entries. Tasks of monthly workers at Groveland were grouped into three categories: *carpenter* for those described as carpenter or joiner, *miller* for the many different mill related tasks, and *laborer* for the remaining descriptions of "labor" or "work." About a fifth of Groveland contract workers provided skilled labor, either at a carpentry or joinering or a mill related task. Skills specified in the sample of monthly New Lebanon workers included milling (24%) and blacksmithing and hatting (5% together); all other entries were for unspecified work or labor. About half of the New Lebanon monthly workers were required to sign a receipt book for their wages, so it is possible to determine the signature literacy of these workers. Five of 26 monthly workers (19%) were unable to sign their name, a high proportion in an era when the census reported literacy rates of 95% or so among male New Yorkers.[11]

To calculate average wages, only dollar payments, whether cash or accounting IOUs, were included. That is, those few cases in which the Shakers compensated their workers with in-kind payments such as a saddle, whiskey, shoes, and bricks, were omitted. Since the workers were paid only after having worked several months, we can consider the duration of employment as constituting an implicit contract. The average length of contracts at Groveland was just over

Table 1. Sample Characteristics of Contract Monthly Workers.

	Groveland, N. Y., 1837–1858		New Lebanon, N. Y., 1825–1860	
Variable	Mean	Standard deviation	Mean	Standard deviation
monthly wage	$15.86	5.52	$13.51	4.77
blacksmith/hatter	0.00		0.05	
carpenter/joiner	0.08		0.00	
miller	0.11		0.24	
unskilled labor	0.82		0.69	
literate	N A		0.36	
duration of contract	2.99	3.29	7.12	8.66
1820s	N A		0.15	
1830s	0.07		0.30	
1840s	0.53		0.08	
1850s	0.40		0.47	
N	134		59	

three months, while the New Lebanon contracts were somewhat longer, lasting on average over seven months. Elsewhere, contemporary Massachusetts farm labor contracts averaged five to six months in duration.[12]

The Groveland Shakers paid their monthly workers at rates somewhat above those paid by other employers, but the New Lebanon Shakers did not. The Groveland mean monthly pay of $15.86 was well above Lebergott's estimates of $10.00–13.00 for New York at this time.[13] McNall found that by the mid-1840s the monthly rate for hands in the Genesee Valley – a region of New York that included Groveland – was also in the range of ten to thirteen dollars a month. Days off there were deducted at a rate of 50 cents a day, which implies a pay rate of thirteen dollars a month. Bidwell and Falconer extended the pay range to $10–15 a month by the end of the 1840s. The New Lebanon Shakers paid, on average, thirteen and a half dollars a month to its contract work force, well within this range, although slightly higher than Lebergott's estimates.[14]

The higher Groveland Shaker wage could have been due to simple supply and demand factors. McNall reported numerous Genesee Valley farmer complaints about the scarcity of hired labor, especially at harvest time. Brooks made similar inferences about the region in New York just to the west of Groveland. The Groveland Shakers may have experienced the same acute labor shortages as did neighboring farms. Stein and Wisbey both described the community as being undermanned in the late antebellum period. The wage premium for long term workers may thus have been a symptom of the community's historic need for hired manpower, or of a chronic shortage of labor in the Genesee Valley, or both. Testing the association between wages and contract length, discussed below, lends support to a role for some kind of labor shortage.[15]

To determine influences on the wages paid to monthly labor, hedonic wage regressions were estimated. The dependent variable was the natural log of monthly wages. Since each regression includes indicator variables for decades, which adjusted for long term inflationary or deflationary changes, logarithm of nominal wages rather than real wages was used as the dependent variable. Coefficient estimates give the percentage change in nominal wages associated with each independent variable. Wages for Shaker monthly laborers varied systematically according to characteristics of the worker and the contract, providing evidence of the sophistication with which the Shakers approached factor markets.

Table 2 gives the results of these regressions. Skill premia were noticeable at both locations. At Groveland, carpenters and mill workers received wages two-thirds and two-fifths again as much as common laborers, respectively. At New Lebanon, blacksmiths and hatters were paid half again as much as laborers. A skill premium estimated by Margo and Villaflor in the Northeast at this time – albeit not among farm workers – was one-half to two-thirds the unskilled wage, about the same as that paid by the Shakers. Although the New Lebanon Shakers hired their monthly workers to perform mostly manual labor, a statistically significant premium for literacy of about one-fifth was detected, suggesting that literacy may have stood as a proxy for other work related habits, or perhaps that literacy was in fact useful in a rural setting.[16]

The Groveland Shakers paid a premium of about 2% for each additional month for which a worker was willing to extend his contract. One explanation for this premium is based upon the possibility of labor shortages in the Genesee Valley. Whether greater duration of employment induced a wage premium or discount is determined in part by the expectations and risk aversion of each of the employer and the worker. If the employer fears being unable to find workers in the future more than the worker fears being unable to find employment, longer term contracts will pay a premium to lock in worker availability. In the Groveland case, wage premia for longer term workers are consistent with the claims that this region was chronically short on hired manpower. Wage premia in exchange for longer commitments by workers suggest that the Groveland Shakers' strong demand for hired men predated the Census of 1860, which found 33 males aged 14–80 operating a farm of some 1800 acres.[17] Thus dependence on hired labor was typical of Groveland's agricultural operations during its earlier, more prosperous years as well as its later declining years.

Table 2. Wage Regressions for Contract Monthly Workers.

	Groveland, N. Y., 1837–1858			New Lebanon, N. Y., 1825–1860		
Variable	parameter	std error	p-value	parameter	std error	p-value
intercept	2.34	0.05	0.0001	2.33	0.25	0.0001
blacksmith/hatter	na			0.49	0.26	0.07
carpenter	0.66	0.07	0.0001	na		
miller	0.43	0.08	0.0001	0.06	0.21	0.79
literate	na			0.23	0.11	0.04
months worked	0.02	0.006	0.0005	–0.004	0.007	0.59
harvest	na			0.38	0.20	0.06
spring	0.05	0.05	0.38	na		
summer	0.38	0.06	0.0001	na		
fall	0.08	0.05	0.13	na		
1820s	na			0.41	0.30	0.18
1830s	0.25	0.07	0.001	–0.13	0.24	0.58
1850s	0.13	0.04	0.001	0.14	0.24	0.58
R^2	0.62			0.34		

Notes: Dependent variable is logarithm of monthly wage. Seasonal dummies are for month or season in which contract ended. Omitted categories: unskilled, winter, literacy unknown or illiterate, 1840s. Each observation was weighted by the number of months at a given pay rate and task.
Sources: Shaker manuscripts. See text.

Premia paid by season reflected changing demands for labor through the farm year. Indicator variables were defined in terms of the season in which the contract ended. The Groveland Shakers paid a premium of over a third to summertime workers relative to winter workers. Since the New Lebanon contracts were so long and to conserve degrees of freedom, only one seasonal indicator variable, for contracts ending in July, August, or September, was included in the regression. The skill premium for contracts ending during this time, 38%, was identical to that paid to Groveland summer workers. As noted below, this is consistent with seasonal premia paid to Shaker and other day laborers at that time.

DAILY WORKER WAGES

The other common form of wage labor was that hired by the day. Account books from the Shaker Community at Groveland show that 2105 payments were made to individual workers for daily labor between 1837 and 1858.[18] These were condensed into observations that consisted of month, year, daily wage, task, number of days worked at that task and wage in that month, and number of payments to individual workers. For example, payments for the following days of harvest work were made in August 1837: 8 payments at 10/ (where 8/ = \$1) per day for a total of $12^1/_2$ days of unspecified work, and 7 payments at 8/ per day for a total of 10 days of unspecified work. These combined to make two observations, one at each wage rate. This procedure yielded 797 observations. The number of days worked in each observation was used to weight observations in the regressions.

A few entries were specifically done by youths, who commonly were hired with their fathers as indicated by "work by his son [name]." These boys were always hired at relatively low wages, and were deleted to avoid contaminating the sample of adult men with the few payments to much less productive boys. The use of boys' labor was consistent with Bidwell and Falconer's observation that hired hands in the northeast were typically orphans or children of nearby poorer farmers.[19]

The day workers were occupied with nearly every conceivable task that operation of a large, diversified communal farm could require. One hundred thirty three different tasks were specified. Unspecified work or labor composed 322 observations, or about 42% of the sample (Table 4). Mill related tasks, such as "at the mill," "at the mill race," "fix mill," "in flouring mill," "millwright," and "tending mill" accounted for 8% of the sample. Mason work, which included "cutting stone," "drawing flagstone," "laying brick," "laying stone wall," "quarrying stone," and "tending mason," as well as "mason" and "mason work" described another 76 or 9% of the sample. Work with teams of horses or oxen made up two percent. The category "harvest" consisted of the tasks "harvest" and "harvesting," but inferences concerning harvest work were also based on other harvest-time occupations as described below. Many occupations had too few mentions to justify a separate dummy variable, so the "assorted" category includes, among other tasks, "grubbing," "loading boat," "shovelling," and the mysterious "work in storm."[20]

Figure 2 shows the frequency with which the Groveland Shakers employed their day laborers by month. In a typical year, demand for hired labor was greatest in July through September. The peak number of worker days for those doing unspecified labor was in September, while those with specified jobs were most commonly employed in July, which was also an important harvest month. This is not surprising for a largely agricultural organization, and in fact the monthly employment of hands at a nearby Genesee Valley farm shows a similar pattern.[21]

A much smaller sample of daily wages from New Lebanon is also available, from 1825–1860. The vast majority of these observations consisted of payments

Table 3. Sample Characteristics of Day Workers.

Variable	Groveland, N. Y., 1837–1858		New Lebanon, N. Y., 1828–1861	
	Mean	Standard deviation	Mean	Standard deviation
mean wage	$0.92	0.42	$0.71	0.42
blacksmith	0.01		0.08	
mason	0.09		0	
carpenter	0.10		0	
miller	0.08		0	
teamster	0.02		0	
haying	0.04		0	
harvest	0.05		0	
assorted	0.23		0.08	
unspecified	0.42		0.84	
spring	0.21		0.34	
summer	0.39		0.25	
fall	0.24		0.25	
N	797		62	

Sources: Shaker manuscripts. See text.

Table 4. Wage Regressions for Day Workers.

Variable	Groveland, N. Y., 1837–1858			New Lebanon, N. Y., 1828–1861		
	parameter	std error	p-value	parameter	std error	p-value
intercept	–0.23	0.06	0.0002	–0.50	0.23	0.04
blacksmith	0.46	0.11	0.0001	0.68	0.28	0.02
mason	0.73	0.04	0.0001	na		
carpenter	0.44	0.03	0.0001	na		
miller	0.76	0.04	0.0001	na		
teamster	0.91	0.08	0.0001	na		
haying	–0.16	0.05	0.002	na		
harvest	0.45	0.04	0.0001	na		
assorted	0.34	0.03	0.0001	0.61	0.25	0.02
unspecified	omitted			omitted		
spring	0.05	0.03	0.07	0.25	0.21	0.23
summer	0.14	0.03	0.0001	0.43	0.21	0.05
fall	0.04	0.03	0.13	0.27	0.20	0.18
R^2	0.68			0.30		

Notes: Dependent variable is log of daily wage. Groveland regression included dummy variables for year which are not reported here. New Lebanon regression included dummy variables for decade which are not reported here. Each observation was weighted by the number of days at each pay rate and task.
Sources: Shaker manuscripts. See text.

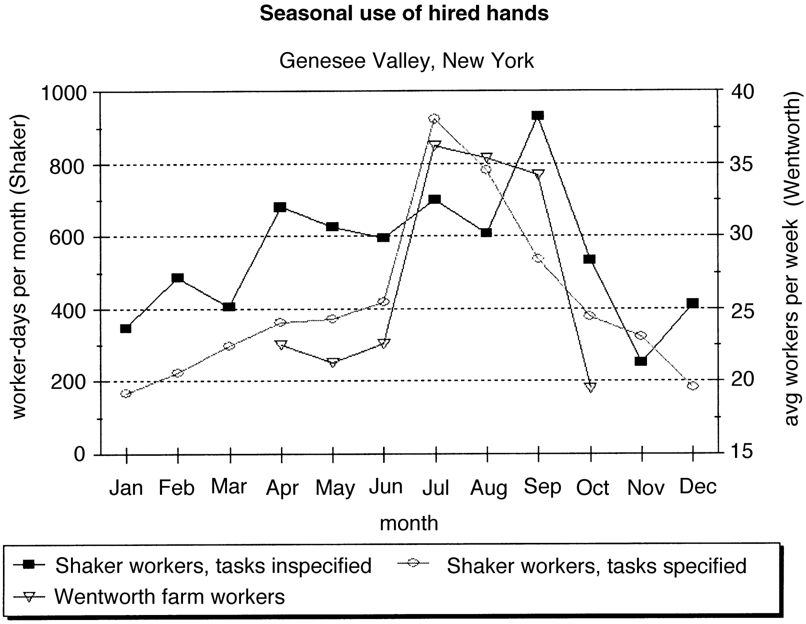

Fig. 2.

for unspecified work, although a few were for blacksmiths or teamsters. Seasonal distributions differed between the two locations as well, with two-fifths of Groveland's day workers, but only a quarter of New Lebanon's workers, having been hired in the summer. Since New Lebanon hired two-fifths of their workers in the spring, we can speculate that they were employed in preparing the fields for planting, but there is no way to know.

Hedonic daily wage regressions revealed regularities in greater detail than was possible with the monthly wage records (Table 5). Masons and millers at Groveland enjoyed substantial wage premia of about three-fourths over unskilled labor. Carpenters, joiners, and blacksmiths were paid about 45% more than unskilled labor. The premium paid to teamsters at Groveland was large as well, twice the payment for unspecified labor, but this sum included an implicit rental payment to the teamster for the use of his capital (the team of horses or oxen). At New Lebanon, work at a specific task, such as blacksmithing, for example, paid a significant premium of more than three-fifths over unskilled labor.

Table 5. Correlation Coefficients for Nominal Daily Wage Series.

Panel A: Unskilled Labor, 1800–1858	Shakers	Massachusetts
Massachusetts	0.15	
Vermont	0.67**	0.75**

Panel B: Skilled Labor, 1837–1858	Shakers
Massachusetts	0.39*

Sources of wage series:
Shakers: daily hired hands, Groveland, N. Y., 1837–1858.
Massachusetts: farm laborers, 1800–1855 (Rothenberg, 1992).
Vermont: farm laborers, 1800–1858 (Adams, 1944).
** = significance at 0.01 level.
* = significance at 0.10 level.

By season, both Groveland and New Lebanon paid a premium for help outside of winter. Comparing wage premia in Table 5 with the proportion of worker-days by season in Table 4 shows that for the most part seasonal premia corresponded to the seasons in which workers were most in demand. At Groveland the largest premium was paid in the summer, when more workers were hired than in any other season. At New Lebanon, the largest premium was paid in the summer, but more of their workers were hired in the spring than in the summer. At both communities, winter work paid the least, and that was when they hired the fewest workers.

Wage premia for skilled work were much larger in New York Shaker payments than were those found by Rothenberg in roughly contemporary Massachusetts farms. Part of the difference may have been due to the greater variety of tasks on the Shaker communes, as they operated not just farms but small manufacturing units as well. In fact, since there were few similar tasks in the Shaker and Massachusetts samples, it is not clear that these samples are in fact completely comparable. But it should be noted that there are similar tasks that reflect little similarity in wages. For example, Massachusetts farm hands working at haying and mowing were paid one-fifth more than those working on unspecified tasks; at Groveland haying paid one-sixth less than did unspecified labor.[22]

Significantly, the harvest premium was about the same in New York and Massachusetts. Rothenberg found that day laborers on Massachusetts farms around this time were paid a premium for harvest work in July and August, the premium being due to the increased demand for hired labor that was relatively inelastic in supply around harvest time.[23] A subsample of Groveland wage payments was created using a methodology similar to that of Rothenberg. Consideration of farm related occupations only (excluding, e.g. carpenters and millers) in July and August yielded 157 observations, 67 of which were specifically for harvest work (including haying related tasks). Harvest wages were then compared to wages for the other tasks performed in July and August. The premium paid to the harvest workers of 27% (90.5 cents/day versus 71.4 cents/day) was very close to the 30% premium found in Massachusetts. The similar magnitudes of the farming-specific harvest premium in New York and Massachusetts suggests that the two labor markets shared important characteristics.

EXTENT OF AGRICULTURAL LABOR MARKETS

In general, significant wage premia by season and skill indicate Shaker awareness of prevailing market conditions, to which they responded in ways that enabled them to hire the quantity of labor that they desired. In that sense, wage premia that reflected greater productivity or seasonal demand indicate that the labor markets in which the Shakers participated were reasonably efficient. If, as it appears from wage data, the Shakers were participating in efficient markets for day and monthly laborers, it is natural to ask how extensive this market was. Economic theory proposes that a single market for a particular factor or product can be identified by the area within which the good sells for the same price, less transport costs. Holding such costs constant, it is generally easier to mark the path of integration by observing trends in prices over time rather than cross-sectional differences in absolute levels of prices. If several regions are in fact integrated into one market for a good, prices of that good, while possibly differing by region due to transport costs, should move together over time.

While antebellum commodity markets in the northeast have been shown to have been highly integrated, the state of integration among antebellum labor markets is not as clear.[24] Positively correlated prices (or wages) are a necessary condition for markets to be integrated, but they are not sufficient. If two or more segmented markets subject to the same shock, prices in those markets will correlate just as if they had been integrated markets. Thus, some evidence of actual labor mobility from region to region is needed to confirm the integration of northeastern labor markets. In fact, migration of farm labor in antebellum New York seems to have been quite common.[25] If labor was mobile, and the northeast formed a single market, then wages for labor in different parts of the northeast should be positively correlated with each other.

The Groveland daily wage data, combined with other farm wage samples from the antebellum northeast, provide an opportunity to test for correlation of northeastern farm worker wages over time. The Groveland data were divided into two subsamples, one for unspecified work or labor and the other for skilled labor, which can be defined conveniently as all the other, specified tasks. To minimize the effects of compositional changes, separate regressions were estimated using each subsample. Annual Shaker wage series were then formed as indices derived from coefficients of annual indicator variables, which thus prevented changes in skill or seasonal composition of the hired work force from affecting annual average wages.[26]

Two other series of wages for antebellum farm workers are available. Rothenberg's data consisted of day laborer wages recovered from account books of Massachusetts farms, which were separated into two series of higher and lower paying tasks. Component wages in the construction of these wage indexes were weighted to reflect different values added from different tasks. Adams's well known data on Vermont agriculture did not distinguish between skilled and unskilled wages for farm workers.[27]

Estimated correlation coefficients suggest that antebellum New York and New England may have formed one integrated market for farm labor.[28] Table 6 shows estimates of correlation coefficients that indicate a high degree of mutual correlation among the series of wages. Vermont farm wages were significantly and positively correlated with both Massachusetts unskilled farm wages and Shaker unskilled farm wages. Massachusetts and New York Shaker unskilled wages were positively but not significantly correlated. Wages for skilled workers among the New York Shakers and Massachusetts farms were positively and significantly correlated. It appears that Shaker wage setting over time was quite similar to that of farms elsewhere in the northeast.

Consider a possible cause of the wage patterns described above, which implies that conclusions reached here can be generalized to the world beyond Shakerdom. The Shakers did not offer wage premia to summer labor and to more skilled workers because they knew that Jesus had taught that "The laborer is worthy of his hire."[29] They did it because they knew that if they did not pay a worker according to his productivity, a competing employer would, and thereby hire away an important part of the Shakers' work force. It seems reasonable to suppose that, from the perspective of the laborers, there were many such employers where they would be found worthy of their hire. Those employers were the demand side and the laborers, skilled and unskilled, on long-term contracts and in spot markets by the day, formed the supply side of an efficiently functioning labor market.

Evidence that indicates the extent of a market economy for labor in the middle third of the nineteenth century addresses issues raised in historical writings about the nature of labor markets. Some historians of antebellum rural New York have suggested, implicitly or explicitly, that at some earlier time rural labor and products were exchanged according to custom and social obligation rather than market considerations. At some later point market considerations became paramount, marking the entry of the region into a "market revolution." Typically, the rise of market forces has been viewed dimly by these historians. For example, wage earners who worked on the Erie Canal have been described as victims of "an economic and social revolution," which exposed them to powerful, impersonal market forces, not usually for the better.[30]

Markets for agricultural labor crystallize many of the points stressed in recent histories of rural antebellum New York. Sheriff distinguished between unsystematic methods of compensation in canal work, and agricultural wage labor, in which workers stood in a "genuinely paternalistic relationship with their employers." This formulation would seem to question the possibility of systematic wage setting in agriculture, such as that suggested by the Shaker data. McMurry chronologically ordered the process of increasing market orientation, beginning with agricultural production and then proceeding to wage labor, a position in accord with Brooks' claim that "agrarian attitudes toward labor may have legitimized wage labor and industrial capitalism," both of which suggest that waged farm labor was a characteristic of the economy after the rise of markets. This transition to markets boded poorly for those who lived through it, as in their prior state of life they enjoyed a "dignity and worth" conferred by their relationship to the land. Participation in labor markets, on the other hand, made them "vulnerable to impersonal, wage-based, low-status employment," which was neatly summarized by the common use of the word *degraded* to describe laborers' work for pay.[31]

One sign of a moral economy as emphasized in these histories is a lack of cash. Would-be market participants resorted to barter or credit exchanges, which were subject to cultural rather than economic forces. Sheriff even indicates that traders *preferred* not to use cash "because they saw no use for assigning monetary values." In some circumstances, the issue of cash and credit is of great importance: Brooks found landowners in western New York eager to force their tenants into debt peonage whereby the tenants' first priority would have been to produce for market in order to gain cash for rental payments.

In regard to labor such distinctions between cash and non-cash exchanges seem specious. In the present study, for example, there is no way to know with certainty whether the Shakers paid their laborers with cash. The manuscript evidence suggests that cash payments were rarely made; rather, the Shakers kept running accounts with each of their men, tallying work on the debit side and issuance of clothing, tools, or other household items as credits for which the Society was owed. Thus, payments to workers in kind or in credit were done through implicit wages. A priori such non-cash wages can bear all of the information on scarcity that would be carried by wage rates that were realized through cash exchanges for labor.[32]

And in fact, wages paid by the Shakers through such "book credit" reflected the supply of labor and the Shakers' demand for their services. The wage record of just two farms is a limited amount of data, and the period covered in this study extended back only to the later first quarter of the nineteenth century. Still, some conclusions presented here can be generalized to areas beyond these two, large farms. Shaker communalists, who were committed to isolation from a fallen world and who seem not to have used cash in paying their workers, followed market forces in setting wages in the middle third of the nineteenth century. Wages that reflected supply and demand, and that were similar to those in neighboring states, suggest that agricultural labor markets in mid-nineteenth century New York appeared not *ex nihilo* following a market revolution, but were the gradual elaboration of long established practices.

NOTES

1. In fact, the dozen or so Shakers who live at the Sabbathday Lake, Maine, community still are Christian communalists, but since it is the historical Shakers that concern this paper, the past tense will be used.

2. Manuscript *Shaker Record B*, p. 66, Shaker Collection of the Kentucky Library, Western Kentucky University.

3. Isaac Newton Youngs, *Concise View of the Church of God* . . . (1856). Manuscript no. 861, Edward Deming Andrews Memorial Shaker Collection, Winterthur Museum and Library, Winterthur, Delaware, p. 502; Stephen J. Stein, *The Shaker Experience in America: A History of the United Society of Believers* (New Haven: Yale University Press, 1992), pp. 298, 308.

4. Charles Nordhoff, *The Communistic Societies of the United States from Personal Observations* (New York: Dover Publications, 1966 reprint), pp. 162, 182, 256.

5. Wage records of hired workers can be found in the following sources. For Groveland, see Western Reserve Historical Society Shaker Collection manuscripts II:B-11, II:B-12, II:B-15, II:B-16, and II:B-27. For New Lebanon, see Edward Deming Andrews Memorial Shaker Collection, Winterthur Museum and Library, items numbered 1103, 1108, 1114, 1115, 1116, 1130, 1137, 1152.

6. Winifred B. Rothenberg, *From Market-Places to a Market Economy: The Transformation of Rural Massachusetts, 1750–1850* (Chicago: University of Chicago Press, 1992), pp. 181ff.

7. Nor, in personal communications, could Herbert Wisbey, emeritus professor of history at Elmira College and historian of the Groveland Shakers.

8. Stein, *Shaker Experience*, p. 200.

9. Stein, *Shaker Experience*, p. 200, associates hired labor with communal decline, as do *Andrews and Andrews*, Work and Worship, p. 209.

10. Stein, *Shaker Experience*, p. 380ff.

11. Joseph C. G. Kennedy, *Population of the United States in 1860* (Washington: Government Printing Office, 1864).

12. Rothenberg, *From Market-Places to a Market Economy,* p. 187. Rothenberg also uses the term *contract* to describe the duration of employment.

13. Payments to Groveland workers appear to have consisted of cash and board, as was typical in the market for monthly labor. One worker who lived nearby was paid 14/ extra for three weeks since he did not board with the Shakers (July 1847, WRHS II:B-15). The implied value of boarding, \$0.58 per week, is a good bit less than Bidwell and Falconer's estimate (Percy Wells Bidwell and John I. Falconer, *History of Agriculture in the Northern United States 1620–1860* (Washington, D.C.: Carnegie Institution, 1925, p. 275), of \$1.25 for New York in 1849. In the same volume, however, this man was later reimbursed at a rate of 2/ per day, which yields a weekly equivalent of \$1.50, much closer to Bidwell and Falconer.

14. Stanley Lebergott, *Manpower in Economic Growth* (New York: McGraw-Hill, 1964); Neil A. McNall, *An Agricultural History of the Genesee Valley* (Philadelphia: University of Pennsylvania Press, 1952), p. 88; Bidwell and Falconer, *History of Agriculture*, p. 275.

15. McNall, *Agricultural History*, pp. 88, 228–229; Charles E. Brooks, *Frontier Settlement and Market Revolution: The Holland Land Purchase* (Ithaca: Cornell University Press, 1996), pp. 129, 141; Stein, *Shaker Experience*; Herbert Wisbey, *The Sodus Shaker Community* (Lyons, N.Y.: Wayne County Historical Society, 1987).

16. Robert A. Margo and Georgia C. Villaflor, "The Growth of Wages in Antebellum America: New Evidence," *Journal of Economic History*, *47* (1987), pp. 873–895; for a contemporary European example of literacy and greater agricultural productivity, see Lars Pettersson, "Reading and Writing Skills and the Agrarian Revolution: Scanian Peasants During the Age of Enclosure," *Scandinavian Economic History Review*, *44* (1996), pp. 207–221.

17. Manuscript schedules, U.S. Censuses of Population and Agriculture, Livingston County, New York, 1860.

18. By comparison, Rothenberg, *From Market Places*, used 3018 observations covering a period of about a century, while Margo and Villaflor, "Growth of Wages," had 3555 observations in the Northeast alone for a period of 36 years. Thus, Rothenberg's sample yielded about 30 observations per year, Margo and Villaflor's about 100 per year, and the Groveland sample also about 100 per year.

19. Bidwell and Falconer, *History*, p. 204.

20. My guess is that "work in storm" refers to getting the hired men to milk cows in bad weather. Although Shaker women typically milked dairy cattle, Shaker men would milk in storms. See John E. Murray and Metin M. Coşgel, "Between God and Market: Influences of Economy and Spirit on Shaker Communal Dairying, 1830–1875," *Social Science History*, *23*, pp. 41–65 (spring 1999).

21. McNall, *Agricultural History*, p. 112.

22. Rothenberg, *From Market Places*, pp. 161–163.

23. Rothenberg, *From Market Places*, p. 198.

24. Rothenberg, *From Market Places*, pp. 108–111.

25. Donald Parkerson, *The Agricultural Transition in New York State: Markets and Migration in Mid-Nineteenth Century America* (Ames: Iowa State University Press, 1995), pp. 137–141.

26. Since a reasonable degree of product market integration in the Northeast over this period has been established in Rothenberg, *From Market-Places*, the difficulties of creating a Shaker specific price series with which to deflate the Shaker wage series can be circumvented by considering nominal wages for all available labor markets.

27. Rothenberg, *From Market Places*; Thurston M. Adams, *Prices Paid by Vermont Farmers for Goods and Services and Received by Them for Farm Products, 1790–1940*. (Burlington, VT: Vermont Agricultural Experiment Station Bulletin 507, 1944).

28. Sophisticated statistical models exist for the testing of market integration with price data. Bob Baulch, "Testing for Food Market Integration Revisited," *Journal of Development Studies*, *33* (1997), pp. 512–534, indicates that no one of the following is superior to the others: the Law of One Price, the Ravallion Model (useful for a market with a well defined center region), cointegration tests, and Granger causality tests. Given the mixture of weighted means and regression coefficients, and agricultural and non-agricultural tasks that characterize the available wage samples, the conservative course seemed to be the presentation of simple correlation coefficients, and significance levels thereof.

29. *Gospel According to St. Luke*, chapter 10, verse 7, King James translation.

30. Carol Sheriff, *The Artificial River: The Erie Canal and the Paradox of Progress, 1817–1862* (New York: Hill & Wang, 1996), p. 167.

31. Sheriff, *Artificial River*, pp. 40, 42, 45, 155; Sally McMurry, *Transforming Rural Life: Dairying Families and Agricultural Change, 1820–1885*. (Baltimore: Johns Hopkins University Press, 1995), pp. 45, 70; Brooks, *Frontier Settlement*, pp. 11, 129.

32. Sheriff, *Artificial River*, pp. 11, 110; Parkerson, *Agricultural Transition*, pp. 63–64; Brooks, *Frontier Settlement*, pp. 113, 125; McMurry, *Transforming*, p. 55; on 57 she dates the transition to cash exchanges as having occurred in the 1850s.

ACKNOWLEDGMENTS

I am grateful for the comments of many scholars on previous drafts but especially Metin Coşgel, David Galenson, Joyce Jacobsen, Bob Margo, Mark Ramseyer, Joshua Rosenbloom, Rick Steckel, Werner Troesken, Sam Williamson, and seminar participants at Chicago, Bowling Green, the 1998 Clio/AEA sessions, and the 1998 NBER-DAE Summer Institute. Mingshu Jin provided excellent research assistance. A B. R. Robinson Fellowship from the Winterthur Museum and Library allowed for collection of some of the data analyzed here.