MONOPSONY AND MINIMUM WAGES: EVIDENCE FROM THE TOBACCO LEAF-PROCESSING INDUSTRY

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ABSTRACT

This paper uses evidence compiled by the Bureau of Labor Statistics and the Tobacco Industry Committee to examine the impact of the initial implementation of the Fair Labor Standards Act. It is shown that the minimum wage was heavily binding, but employment in a BLS sample of Virginia and North Carolina firms actually increased following its passage. This employment increase can not be explained by traditional models but is consistent with the monopsony model. Finally, it is shown that the industry met two important assumptions of the model: workers could not easily relocate to alternative employment and wages were less than marginal revenue product.

In his account of the transformation of the southern economy, Gavin Wright identifies New Deal labor policy as a catalyst for the post-war change in the southern growth path.[1] As a consequence of the New Deal "high-wage mentality" the South could no longer pursue the "low-wage expansion path" that it had embarked upon following the abolition of slavery. Perhaps no other piece of New Deal legislation epitomized the high-wage mentality than the Fair Labor Standards Act of 1938 (FLSA), which established the first long-lived federal minimum wage. The FLSA established a $0.40 minimum; however, as part of a political compromise this was to be phased in between 1938 and 1945. A minimum wage of $0.25 was established in October 1938. This was increased to $0.30 in October 1939. Thereafter, Industry Committees comprised of representatives of employers, employees and the public were given the mandate of bringing the industry-specific minimum rate up to $0.40 as quickly as possible without causing significant unemployment, but no later than October 1945. To help them determine the effects of the $0.30 minimum wage, the Committees commissioned industry studies by the Bureau of Labor Statistics (BLS) and the United States Department of Labor (USDL).

This paper examines the impact of the initial establishment of the minimum wage on the southern tobacco leaf-processing industry. Leaf-processing was an intermediate stage in which tobacco passed from farmers to manufacturers of cigarettes, cigars, and other tobacco products. In addition to acting as intermediaries, leaf-processors redried and normally stemmed the tobacco leaves. Most leaf-processors were independent operations, although some were affiliated with large cigarette companies. The industry was heavily segregated and was one of the largest employers of black workers outside of agriculture. Wright singled out the independent leaf-processing industry, along with textiles and lumber, as having among the most severe wage increases due to the FLSA.[2] A BLS study showed that during the 1940-41 season over 70 percent of the workers in indepen-

dent leaf-processing firms earned within one cent of the minimum rate. The other stages of tobacco production are of less interest for a minimum wage study. Agriculture was exempt from the minimum wage provisions of the FLSA, while tobacco manufacturing was almost fully mechanized and paid hourly wages well over $0.40 prior to the implementation of the FLSA.[3]

The methodological approach taken here is closely akin to that used by several recent studies of the minimum wage. Rather than examining noisy aggregated cross-sectional or time series evidence on wages and employment, the approach examines wages and employment at unskilled labor-intensive industries prior and subsequent to the imposition of a binding minimum wage. This empirical approach closely corresponds to the predictions of the neoclassical model, whereby the imposition of a minimum wage will have two separate effects that unambiguously reduce firms' demand for unskilled labor. First, there will be a substitution effect, in which unskilled labor is replaced by skilled labor or capital, and second, there will be a production effect, in which the increased production costs result in higher prices and thus lower demand for the product. Evidence from "quasi-experimental" studies has been mixed. David Card and Alan Krueger find from survey evidence that recent increases in state-level minimum wages had no effect or even a small positive effect on the employment of low-wage restaurant employees.[4] On the other hand, David Neumark and William Wascher find from personnel records that these increases were associated with reduced employment of these workers.[5] In a study similar to this article, Andrew Seltzer uses BLS and USDL data and evidence from Industry Committee Hearings to analyze the effect of the initial implementation of the FLSA on the seamless hosiery and lumber industries. He finds that these industries were highly competitive and the binding minimum rates had adverse effects on low-wage southern firms.[6]

The outline for this paper is as follows. After the introduction, section 1 examines the characteristics of the tobacco leaf-processing industry. Section 2 outlines the wage effects of the initial $0.30 minimum rate imposed by the FLSA. Section 3 examines substitution in the production process, changes in the level and composition of output, and changes in employment for the industry following the implementation of the minimum wage. Section 4 evaluates the evidence of the wage changes and adjustment to the wage changes in the context of the neoclassical and monopsony models of the labor market. Section 5 concludes. It is shown that the minimum wage was strongly binding for the industry. However, low-wage employers did not respond in the manner predicted by the neoclassical model. Employment in a survey of low-wage firms actually increased in the two years following the implementation of the minimum wage despite a reduction in the tobacco harvest. Moreover, the female share of employment increased despite the fact that the FLSA had a far larger effect on the female wages than male wages. Workers in the industry strongly supported the minimum wage, even though they were typically paid piece rates and thus had the opportunity to earn more than the proscribed minimum wage even before the implementation of the FLSA. Finally, the testimony from the Industry Committee hearings provides evidence of two important predictions of the

monopsony model: workers in the industry were immobile and wages appear to have been less than marginal revenue product.

I. Industry Characteristics

Tobacco leaf-processors acted as intermediaries between farmers and manufacturers. The industry comprised auction warehouses (which purchased tobacco from farmers, redried it and sold it to independent stemmeries or to manufacturers) and independent stemmeries (who stemmed tobacco and sold it to manufacturers or exporters). Auction warehouses tended to be small operations with only a few employees. Independent stemmeries tended to be larger operations, in 1940-41 averaging 227 employees in North Carolina, 125 in Virginia, and 105 elsewhere.[7] In 1940 independent processors handled about 95 percent of tobacco produced, the remainder being purchased directly by cigarette manufacturers.[8] In 1938 leaf processing was in many ways typical of southern industry: it was an intermediate process between production of raw materials and final manufacturing, it relied heavily on low-wage labor, and it was atomized and highly competitive. The industry relied heavily on export markets, which collapsed in the late 1930s because of the Second World War. Between 1935 and 1938 exports averaged 419.75 million pounds. This dropped to 327 million pounds in 1939 and 217 million pounds in 1940.[9] Despite the effects of the War, exports amounted to approximately one third of the tobacco crop in 1940, although by 1941 all of the major foreign buyers had drastically reduced or entirely cut off their imports of tobacco.10 However, this created minimal employment disruptions because the Commodity Credit Corporation bought processed tobacco from exporters who lost their markets at 85 percent of parity.[11]

The industry exhibited strong seasonal variation as a consequence of its dependence on agriculture for raw materials. Most plants were open four months or less each year and relied almost exclusively on local agricultural labor.[12] Workers typically were local farmers taking temporary jobs to supplement their income after the harvest. J. C. Lanier, Executive Secretary of the Leaf Tobacco Exporters' Association described the workers as "itinerant labor, raw unskilled labor and seasonal labor... [W]hen the factories open, the laborers come in from the farms, some of them never having worked in a factory before... and [after the active season] they go back to their farm."[13]

Independent dealers employed over 50,000 people in peak season 1940-41, compared to 4,644 people in 19 processing plants affiliated with manufacturers.[14] Blacks were the traditional workforce throughout the industry, comprising virtually all workers in independent firms and approximately 80 percent in manufacturing affiliated stemmeries.[15] Women comprised approximately 90 percent of the stemmers, 37 percent of other workers, and 47 percent of the industry total.[16] The industry was one of the largest employers of black labor covered under the FLSA. Table 1 shows the number of black employees in several covered industries.

In the highly segregated economy of the time, the leaf-processing industry was probably the largest covered employer of black women and one of the largest covered employers of black men. Agriculture, domestic services, and retail trade, which were specifically exempt from the minimum wage, were by far the largest employers of black labor, employing approximately 63 percent of black workers.[17]

Table 1
Major Employers of Black Labor Covered Under the FLSA

Industry	Industry Committees	Black Male Emp.	Black Female Emp.
Textiles	1, 1A, 5, 25, 28, 32, 39	22291	4588
Apparel	2, 3, 4, 7, 8, 20, 21, 27, 28, 31, 32, 40	5702	13632
Shoes	6, 35	974	15291
Railroad Carriers	9	95064	15092
Leather	10, 13, 41	2519	15805
Paper	11, 14	12287	14946
Rubber	22	3241	4880
Iron	23	68690	3477
Clay	24	18295	5266
Furniture	29	7518	3632
Lumber	30	136373	3915
Motor carriers	33, 34	76834	2930
Tobacco Man.	37, 38	11953	2243
Tobacco Leaf-Proc.	37	26375	23625

Source: U.S. Bureau of the Census, *Sixteenth Census*, the figures for tobacco leaf-processing are extrapolated from Bureau of Labor Statistics, "Hours and Earnings of Employees," pp. 216, 219.

Note: The remaining Industry Committees (luggage, embroideries, portable lamp and shade, jewelry, enamelled utensil, and pharmaceuticals) covered industries that employed few black workers and were not listed as separate industries in the *Census*.

II. The Effects of the FLSA on Wages and Employment

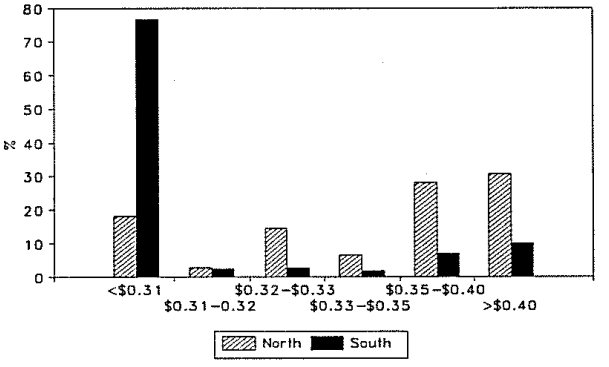
The BLS mailed out wage and employment surveys to all 1,803 establishments licensed to deal in leaf tobacco during the 1940-41 peak season.[18] Useable surveys were returned by 382 firms that employed 38,703 workers, about three quarters of the industry total.[19] Figure 1 shows the distribution of wages after the imposition of the $0.30 minimum.

The top panel shows the distribution of wages by region for independent firms. It is evident that the minimum wage was binding for southern firms, but considerably less binding for independent northern firms.[20] Hourly earnings in southern firms averaged $0.343, and 76.6 percent earned less than $0.31.[21] These figures varied considerably across southern states, the percentage of employees earning less than $0.31 ranged from 49.2 in Virginia to 83.0 in North Carolina and 80.9 in other southern states (Florida, Georgia, Maryland, South Carolina, Tennessee and West Virginia).[22] The bottom panel shows the distribution of wages by region in manufacturing affiliates. It is evident that

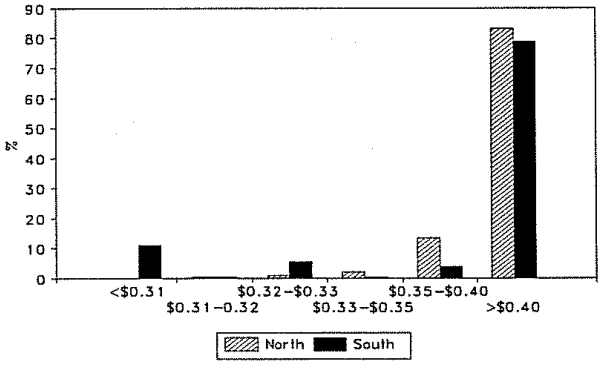
only a small percentage of workers in the South and virtually no workers in the North were affected by the minimum rate. Hourly earnings in manufacturers' affiliates averaged $0.440 and only 9.5 percent earned less than $0.325.

Figure 1
Distribution of Wages in the Leaf-Processing Industry

Independent Firms, Peak Season 1940-41



Manufacturing Affiliates, December 1940



Source: Bureau of Labor Statistics, "Hours and Earnings of Employees," p. 220 and Bureau of Labor Statistics, "Earnings and Hours in Manufacture," p. 196.

In 1935 and 1940 the BLS surveyed 11 identical firms in North Carolina and Virginia that collectively employed about 10 percent of the industry's workforce.[23] In 1935 virtually all workers were paid a piece rate, and nominal wages in these firms averaged $0.160 per hour. Only 2.5 percent of employees earned over $0.28 per hour. By 1940 most workers were paid the $0.30 minimum wage and average wages had more than doubled to $0.325 per hour. Real wages for the 11 firms increased by 98.8 percent for the five year period. There can be little doubt that the FLSA was responsible for most of the wage increase. According to data from the *Monthly Labor Review*, nominal entry-level wages across all industries nationwide increased by only 17.9 percent over the same period.[24] Furthermore, both male and female wages in the industry converged to the minimum rate. In 1935 men earned an average of $0.207 per hour, over 50 percent more than the female average hourly earnings of $0.135. By 1940 these figures were $0.335 and $0.320, a gap of less than 5 percent.

III. Adjustment to the Minimum Wage

A. Substitution Effects

Labor economics textbooks typically begin their analysis of the effects of a minimum wage by examining the extent to which other factors are substitutable for unskilled labor in the production process. The Industry Committee hearings reveal that there was considerable substitution of machinery for unskilled labor after the implementation of the FLSA. Less efficient workers were put on stemming machines and paid an hourly rate, typically at the $0.30 minimum in 1940-41.[25] The 1940 BLS survey found that 54 percent of the stemmers worked on machines whereas none had in 1935. Lanier testified that up to 1938 virtually all stemming was done by hand, thus there can be little doubt that mechanization was a direct consequence of the FLSA.[26] The extent of substitution would likely have been greater but for a war-related supply constraint. The metals used to produce stemming machines were often procured for the war effort and J. Mills Pound, General Counsel of the Tobacco Workers' International Union, testified that further mechanization was not possible at the time of the Industry Committee Hearings.[27]

B. Production Effects

The demand for tobacco products ultimately determined the output of leaf-processors. Thus, to determine the overall effect of the FLSA it is first necessary to estimate the effect of the minimum wage on the total cost of manufactured tobacco. Because the minimum wage did not apply to agriculture and was not binding on manufacturing, its total effect on the cost of producing tobacco products can be expressed as the ratio of wage increases in the leaf-processing industry necessitated by the FLSA to the value of

tobacco output. An upper-bound estimate of this ratio can be computed by estimating the total wage bill (WB) using:

WB = wnhl, where
w is the hourly wage rate in leaf processing
n is the number of workers in leaf processing
h is the number of hours worked per week in leaf processing
l is the number of weeks worked each year in leaf processing
If it is assumed that the entire increase in the hourly wage between 1935 and 1940 was due to the minimum wage, then the effects of the FLSA are given by:

$$DWB = (w_{40} - w_{35})\, nh_{35}l$$

BLS statistics show that there were approximately 50,000 workers during peak season in 1940, the average hourly wage was $0.343 in 1940 and $0.160 in 1935, the length of the workweek was 39.6 hours in 1940 and 43.4 in 1935, and the industry operated thirteen weeks per year.[28] This implies that total wages in leaf-processing were $8,828,820 in 1940 and the effect of the FLSA was $3,603,600. According to the *Census*, the value of American tobacco products and gross farm income from tobacco in 1939 were $1,322,189,139 and $271,000,000. Thus the upper-bound estimate of the effect of the FLSA is only 0.273 percent of the total value of domestic tobacco production and 1.3123 percent of the total value of processed tobacco.[29] Coupled with the fact that the consumption of tobacco products is highly inelastic with respect to price, this implies that the production effect of the minimum wage was negligible.[30]

Although the minimum wage had little effect on the overall output of processed tobacco, it is possible that the FLSA reduced the output of low-wage firms covered by the FLSA and increased the output of high-wage firms.[31] As shown in figure 1, the wages of manufacturing affiliates were considerably higher than independent plants, and thus would be expected to expand their share of production. However, data from the *Report of the Commissioner of Internal Revenue* do not support this contention: in the two years following the implementation of the FLSA, the share of the tobacco harvest received directly by manufacturing affiliates declined by over 60 percent.

It is also possible that the FLSA adversely affected independent leaf-processors' ability to compete with foreign firms, which were not covered by the Act. For example, increases in the price of American tobacco may have induced foreign manufacturers and consumers to switch to foreign-grown tobacco. However, American and foreign tobacco (primarily grown in the Middle East) were typically used together in blends, and thus were not close substitutes.[32] Moreover, when European markets returned to normal after World War II, nonmanufactured tobacco exports increased above pre-FLSA levels from an average of 419.6 million pounds in the five years prior to the War to an average of 502.6 million pounds in the five years subsequent to the War.[33]

Finally, it is possible that foreign tobacco manufacturers continued to use American tobacco, but imported less-processed tobacco and did much of the processing themselves. Stemming, which employed approximately 22 percent of workers in independent leaf-processing firms, was the only processing operation that could be done abroad; other operations had to be performed shortly after harvest in order to avoid spoilage. A profit maximizing foreign tobacco manufacturer would have stemmed its own tobacco if it cost less than importing stemmed tobacco, that is if: $C_U + F_U + S_F > C_S + F_S$, where S_F is the foreign cost of stemming, F_U and F_S are the freight rates on unstemmed and stemmed tobacco, and C_S and C_U are the costs of stemmed and unstemmed tobacco. If the wage increase due to the FLSA were passed on to tobacco buyers, C_S would increase and thus some foreign companies would find it more profitable to stem their own tobacco. This type of substitution was regarded as being sufficiently important that the NRA codes were never applied to independent leaf-processors.[34] However, there is no evidence that the FLSA resulted in this type of substitution. According to Bureau of Internal Revenue figures, the ratio of the weight of stemmed to unstemmed tobacco exports actually increased following the passage of the FLSA, going from .103 in 1936-38 to .110 in 1939-43.[35]

C. Employment Effects

In addition to the survey questions about wages, the BLS also collected data on employment at the 11 Virginia and North Carolina firms. Despite the fact that the minimum wage was clearly binding, these firms actually increased their workforce by 27.0 percent from 4,085 to 5,188 between 1935 and 1940.[36] Although average weekly hours decreased by 11.6 percent from 43.4 in 1935 to 38.3 in 1940, total hours of work increased by 12.1 percent.[37] The female employment share at sample firms increased from 69.1 percent of employment in 1935 to 69.6 percent in 1940. The increase in female employment share was not due to a shortage of male workers. Lanier testified that the industry had "a whole lot more" labor than it needed. The increase in employment was also not driven by agricultural output. Between 1935 and 1940, the Virginia harvest declined by 4.1 percent and the North Carolina harvest declined by 8.8 percent, although nation-wide the harvest increased by 11.9 percent.[39]

IV. The Monopsony Model

Several of the above findings are difficult to reconcile with the neoclassical theory of competitive labor markets. The neoclassical model assumes that workers are always paid their marginal revenue product and thus predicts that a minimum wage will simply truncate the left-hand tail of the wage and productivity distributions. Employees producing less than the minimum rate will be dismissed, capital and high-wage workers will be substituted for low-wage workers, and employment and output of low-wage regions and firms will unambiguously be reduced. The spike at the minimum wage evident from

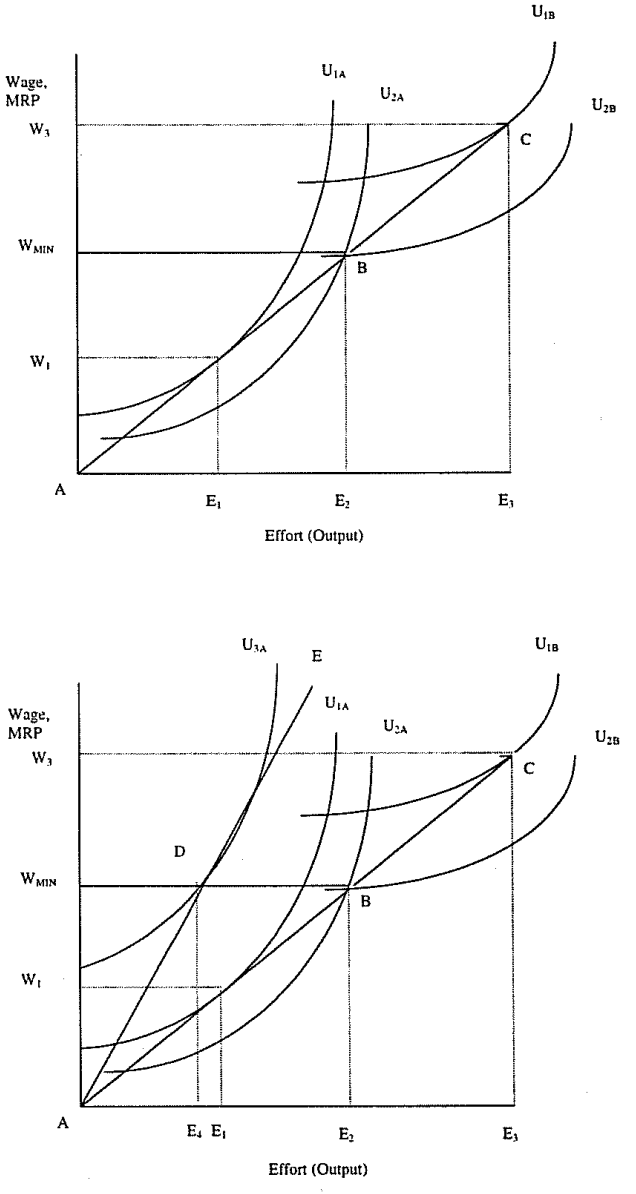
Figure 1 is inconsistent with a truncation of the left-hand tail of the distributions. The increasing proportion of female employees, the increasing share of the tobacco harvest received by independent processors, and the absence of a shift from stemmed to unstemmed tobacco exports are all inconsistent with the expected effects in the neoclassical model. The employment growth at low-wage plants in Virginia and North Carolina, during a period when the tobacco harvests of both states decreased, is inconsistent with the employment predictions of the model. It is difficult to dismiss these results as being the consequence of a small sample because the sample firms employed approximately 10 percent of the industry's workforce. There is no reason to believe that the sample was biased in favor of firms that were better able to adjust to the FLSA because it was selected to be representative of the industry in 1935, two years prior to the initial Congressional debate on the act.[40] Moreover, the sample firms paid wages averaging 5 percent less than the mean for independent southern leaf-processors in 1940.

Stigler's model of monopsony is invariably offered as a potential explanation when a positive employment effect is demonstrated.[41] The model is based on the "company town", where there is a lack of alternative opportunities for low-wage workers, and these workers have little choice but to accept the monopsonist's wage offer or drop out of the labor force. As a consequence, unlike a firm operating in a competitive factor market, a monopsonist faces upward sloping labor supply and marginal factor cost (MFC) curves. The MFC is greater than the wage for any level of output because a monopsonist needs to increase the wage rate paid to all of its workers in order to attract additional workers. The firm hires workers until the marginal revenue product is equal to the MFC and pays a wage from the lower labor supply curve. A minimum wage has the effect of making the supply and MFC curves perfectly elastic up to the intersection with the initial supply curve. Thus a minimum wage that is set between the monopsony wage and the monopsony MFC will result in both increased wages and employment.

The results outlined in sections 2 and 3 are consistent with the monopsony model. The spike at the minimum wage could be a result of most employers operating on the perfectly elastic portion of the new supply curve, with a few paying piece rates on the upward sloping portion of the curve. The increase in employment at low-wage plants and increasing share of female employment are consistent with a minimum wage set between the monopsony wage and the marginal factor cost. In addition, the strong support of minimum wage increases by representatives of workers during the Industry Committee's hearings also supports the monopsony model.[42] Historically, wage labor has always supported minimum wage increases; however, piece rate workers, such as those in leaf processing, would have no reason to support such increases unless they were in a noncompetitive labor market. This is because piece rate workers in a competitive labor market would have had the opportunity to earn wages above the minimum rate prior to the passage of legislation. Those who had earned less than the minimum rate prior to the legislation did so only because their marginal disutility of increased effort levels exceeded their marginal utility of higher wages.

The effect of a minimum wage on piece rate workers and an explanation for why they would only support a minimum wage in the presence of monopsony are shown in figure 2.

Figure 2
The Wage-Effort Relationship in Competitive and Monopsony Labor Markets



The top panel shows the effect of the imposition of a minimum wage on the utility of piece rate workers in a competitive labor market. Effort is assumed to be a bad and wages are assumed to be a good; thus indifference curves moving up (left) represent higher levels of utility. For two workers A and B, $U_{1A} > U_{2A}$ and $U_{1B} > U_{2B}$. In the absence

of a minimum wage, competitive labor market wages are equal to marginal revenue product and are given by the line ABC, the worker's budget constraint. The budget constraint will have a constant slope assuming a linear relationship between effort and output and a constant piece rate. In order to maximize her utility, worker A chooses effort E_1 and is paid wage W_1. After the imposition of a minimum wage, W_{MIN}, the worker's marginal revenue product remains ABC, but her wage is now given by the line $W_{MIN}BD$. However, at effort levels less than E_2, she would earn more than she produces and will be dismissed in a competitive labor market. Worker A, who has a high marginal disutility of effort, will no longer have the choice of the low effort, low wage outcome (E_1, W_1) and must put in effort of at least E_2 or be dismissed. However, at (E_2, W_{MIN}) her utility is lower than at (E_1, W_1); thus she has been made worse off by the minimum wage. Worker B, who has a lower marginal disutility of effort than worker A, continues to choose the outcome (E_3, W_3) as she did prior to the passage of the minimum wage. In effect, the minimum wage only prevented workers from choosing low effort levels and had no effect on the effort-wage relationship. Workers in a competitive labor market would thus oppose the minimum wage, as it reduces the utility of workers who had preferred effort levels below E_2 and has no effect on the utility of workers who had preferred effort levels at or above E_2.

The lower panel of figure 2 shows the same workers operating in a monopsonistic labor market. Under monopsony wages are less than marginal revenue product. In the absence of a minimum wage, wages are given by ABC and the marginal revenue product by ADE. As with the competitive labor market, the implementation of a minimum wage changes the wage line to $W_{MIN}BD$. However, productivity remains higher than wages and the worker will be retained so long as she puts in effort of at least E_4. At (E_4, W_{MIN}) worker A is better off than at (E_1, W_1). Worker B continues to choose the outcome (E_3, W_3). In this case the minimum wage has fundamentally altered the wage-effort relationship for workers who would prefer to put forth relatively low levels of effort. Low-wage workers who had preferred effort levels less than E_2 will favor the minimum wage (provided they are capable of supplying effort level E_4) because the minimum wage will increase their wages, given the same effort level.

Unfortunately, there does not exist sufficiently detailed data to test all of the predictions of this model. However, the evidence from the Industry Committee hearings shows that prior to the implementation of the minimum wage many workers chose low output and low pay (a point to the left of E_4 in the lower panel of figure 2) and were not allowed to do so afterwards. Lanier testified that prior to the FLSA:

> practically all tobacco that was stemmed by dealers was stemmed by hand, but the method employed, was more or less a community gathering where colored women did all the stemming, and men, would come in and sit down as a sociable gathering, and whatever they stemmed they were paid for. There was no effort to make them produce a certain amount.[43]

After the implementation of the minimum wage the production process was reformed. Lanier testified, "by reason of the minimum wage a [disabled] man can't work in a stemming room because they *can't produce the minimum amount of stemmed tobacco necessary.*"[44] The model implies that workers would have opposed the increased minimum wage and accompanying changes to the production process unless they believed that wages were less than marginal factor cost (i.e. that the lower panel of figure 2 correctly describes the labor market), and thus the minimum wage would alter the entire wage/effort relationship. The following testimony at the Industry Committee Hearings indicates such a perception.

> Committee Member E. J. O'Brien (representing the employers): "If a minimum is established, it is natural that employers select the most capable labor available at that wage scale. What becomes of those who are only capable of earning 30 cents or 35 cents?"
>
> J. Mills Pound, Tobacco Workers International Union: "I am sure that this industry would hold them on at 40 cents because surely if they are not capable of producing and making what they are making now, the industry would not have them. ... I think the question doesn't hit it at all. I think every person in the industry now, particularly in the leaf processing department, [is] capable of earning 40 cents per hour. The only reason they are not getting it, it isn't the wage paid."[45]

Finally, there is considerable evidence of a "company town" labor market, where workers had little mobility because of the temporary nature of the work. Lanier testified that "not over 5 percent" of the workers move from one location to another during the peak season.[46] The following exchange from the Industry Committee hearings shows how limited alternative employment was for tobacco workers.

> Committee Member Douglas Maggs (representing the public): "Are there other industries competing for the abler workers in this class? Let us take a sub-class, the colored workers... What other industries are there that are now paying colored workers more than the tobacco companies are paying?"
> Mr. Pound: "Practically any defense industry."
> Mr. Maggs: "In the region at Durham, where I live, there isn't much defense industry... Do you know whether at Durham, North Carolina it is true that there are any other industries in which fairly able colored men can get larger wages than they are offered in the tobacco plants?"
> Mr. Pound: "I can't state that."[47]

Relocation to seek year-round employment was not an easy option for these workers due to the institutions of Southern agriculture. Despite not owning their land, black southern farmers typically faced considerable pressure to remain at the same location year after year. Southern agriculture in the late 1930s was still dominated by a paternalistic relationship between landlords and their tenants. Tenants relied on landlords for a range of non-wage benefits such as medical treatment, old-age care, protection from

violence, and intervention with the legal system.[48] In return they were expected to supply "good and faithful labor" continuously to the same landlord. Relocation in order to seek alternative employment would mean giving up accrued paternalistic benefits with one landlord. In addition, black workers had few opportunities to obtain high-wage industrial jobs because of extensive occupational segregation in southern manufacturing.[49] This absence of seasonal employment alternatives provided tobacco firms the opportunity to pay wages less than marginal revenue product without the fear that they would lose their workers to other employers.

V. Conclusions

This paper uses data compiled by the Bureau of Labor Statistics and the Tobacco Industry Committee to examine the effects of the Fair Labor Standards Act on the southern tobacco leaf-processing industry. The minimum wage prescribed by the FLSA was strongly binding: approximately 70 percent of the workforce in independent plants earned less than $0.31 when the minimum rate was $0.30. Average nominal wages at a sample of 11 firms increased by 102 percent between 1935 and 1940. Both male and female average wages converged to just over the minimum rate in 1940, whereas in 1935 male wages average over 50 percent more than average female wages. Despite the considerable wage effects of the FLSA, between 1935 and 1940 there was an increase in total employment at the 11 firms in the BLS sample and the proportion of female workers increased slightly.

The finding of a positive employment effect cannot be explained by standard neoclassical models, but is consistent with Stigler's monopsony model. There is other evidence to support the monopsony view. Leaf-processing was often the only temporary work available after the harvest for black tenant farmers in the rural south. These farmers faced significant relocation costs due to paternalism in southern agriculture and discrimination in southern industry; thus there existed a wedge between the wages in the leaf-processing industry and those in other industries. Finally, the testimony from the Industry Committee hearings suggests piece rate workers strongly supported the minimum wage and believed that wages in the industry were less than marginal revenue product.

Notes

1. Gavin Wright, *Old South, New South: Revolutions in the Southern Economy Since the Civil War* (New York: Basic Books, 1986).

2. Wright, *Old South*, 219.

3. Only 1.2 percent of tobacco manufacturing (cigarette, chewing and smoking tobacco, and snuff) employees earned less than $0.325 in 1940, when the minimum rate was $0.30. United States Department of Labor, Wage and Hour Division, *The Tobacco Industry* (Washington, DC: GPO, 1941).

4. David Card and Alan Krueger, "Minimum Wages and Employment: A Case Study of the Fast Food Industry in New Jersey and Pennsylvania," *American Economic Review* 84 (1994): 772-93. David Card and Alan Krueger, *Myth and Measurement, The New Economics of the Minimum Wage* (Princeton: Princeton University Press, 1995).

5. David Neumark and William Wascher, "The Effect of New Jersey's Minimum Wage Increase on Fast Food Employment: A Re-Evaluation Using Payroll Records," *NBER Working Paper 5224*, 1995.

6. Andrew Seltzer, "The Effects of the Fair Labor Standards Act of 1938 on the Southern Seamless Hosiery and Lumber Industries," *Journal of Economic History* 57, no. 2 (1997): 396-415.

7. United States Department of Labor, *The Tobacco Industry*, 9.

8. United States Bureau of Labor Statistics "Hours and Earnings of Employees of Independent Leaf-Tobacco Dealers," *Monthly Review* (1941): 215-21. United States Bureau of Labor Statistics, "Earnings and Hours in Manufacture of Cigarettes, Chewing and Smoking Tobacco, and Snuff, December 1940," *Monthly Review* (1942): 184-209.

9. United States Treasury Department, *Annual Report of the Commissioner of Internal Revenue*, (Washington, DC: GPO, various issues).

10. Industry Committee No. 38, the Tobacco Industry, *Digest of Transcript, Hearing of the Committee*, National Archives Record Group 155, Entry 16, Box 92, 1941.

11. Industry Committee No. 38, *Digest of Transcript*, 26, 66, 69.

12. United States Bureau of Labor Statistics, "The Negro in Industry: Earnings and Hours of Negro Workers in Independent Tobacco Stemmeries in 1933 and 1935," *Monthly Review* (1937): 1153-1172.

13. Industry Committee No. 38, *Digest of Transcript*, 28.

14. Bureau of Labor Statistics, "Hours and Earnings of Employees," 216, 217; Bureau of Labor Statistics, "Earnings and Hours in Manufacture," 193; and Bureau of Labor Statistics, *The Tobacco Industry*, 9.

15. Bureau of Labor Statistics, "Hours and Earnings," 216; Bureau of Labor Statistics, "The Negro in Industry," 1153; and Industry Committee 38, *Digest of Transcript*, 5.

16. Bureau of Labor Statistics, "Hours and Earnings of Employees," 216, 219.

17. United States Bureau of the Census, *Sixteenth Census of the United States, Population: The Labor Force*, "Table 18: Race of Employed Persons" (Washington: U.S. Government Printing Office, 1940).

18. The peak season varied across locations depending on the time of the harvest. Firms reported employment in their peak month between August 15, 1940 and February 15, 1941. Not all licence holders employed labor and larger firms were disproportionately represented in the 382 firms. Bureau of Labor Statistics, "Hours and Earnings of Employees," 217.

19. Bureau of Labor Statistics, "Hours and Earnings of Employees," 217.

20. The nature of work in southern plants differed from that done in northern plants, thus care should be taken when comparing wages. In the South most tobacco was processed for the production of cigarettes, snuff, and chewing and smoking tobacco; whereas in the North virtually all tobacco was processed for the production of cigars. Greater care and skill was required in processing cigar tobacco, thus one would expect that wages would be higher in the North even had there not been significant regional wage differentials. Bureau of Labor Statistics, "Hours and Earnings of Employees," 220.

21. The Bureau of Labor Statistics did not distinguish between those earning exactly the $0.30 minimum wage and those earning slightly more or less. It is, however, doubtful that many earned less than the minimum wage because the large size of the plants and the interstate nature of the business guaranteed that virtually all workers in the industry were covered by the minimum wage provisions of the FLSA.

22. Bureau of Labor Statistics, "Hours and Earnings of Employees," 220.

23. Bureau of Labor Statistics, "Hours and Earnings of Employees" and Bureau of Labor Statistics, "The Negro in Industry".

24. Bureau of Labor Statistics, "Entrance Wage Rates of Common Labor," *Monthly Review* (various issues).

25. During the 1940-41 peak season, average hourly earnings of machine stemmers was $0.302. Bureau of Labor Statistics, "Hours and Earnings of Employees," 218.

26. Industry Committee No. 38, *Digest of Transcript*, 32.

27. Industry Committee No. 38, *Digest of Transcript*, 13.

28. Lanier testified that employment would not average more than three months per year. Industry Committee No. 38, *Digest of Transcript*, 28. Other figures were obtained from Bureau of Labor Statistics, "Hours and Earnings of Employees". There were no figures on total employment available for 1935, and thus all calculations have been based of the figure of 50,000. In order to ensure that the estimates are biased up-

wards, it was assumed that every employee worked the entire peak season and all calculations are based on the 1935 workweek.

29. Domestic tobacco production and processed tobacco are respectively the final outputs for the tobacco export and manufacturing industries.

30. Several studies have estimated the price elasticity of demand for cigarettes or manufactured tobacco. Most estimates are well below unity and there is a clustering between 0.4 and 0.5. Paul Johnson, *The Economics of the Tobacco Industry* (New York: Praeger Publishers, 1984).

31. Seltzer, "The Effects" finds strong evidence for increases in the share of output for relatively high-wage seamless hosiery and lumber firms.

32. United States Bureau of Labor Statistics, *The Tobacco Industry*, 14.

33. United States Bureau of the Census, *Census of Manufacturing* (Washington, DC: GPO, 1939).

34. Bureau of Labor Statistics, "The Negro in Industry," 1155.

35. United States Treasury Department, *Annual Report.*

36. The 11 firms in the BLS sample averaged 371.4 employees in 1935 and 471.6 employees in 1940. This was somewhat larger than typical for the industry.

37. It is difficult to determine whether the change in hours was caused by the FLSA. Although the FLSA mandated a maximum workweek of 40 hours in 1940, there was clearly a trend toward a reduced workweek prior to its passage. According to March 1933 and March 1935 Bureau of Labor Statistics surveys of ten identical firms in Kentucky, Virginia, and North Carolina, weekly hours declined from an average of 50.0 to 44.6. Bureau of Labor Statistics, "The Negro in Industry," 1161. This decline can not be explained by the NRA codes, which never covered independent leaf-processors. Bureau of Labor Statistics, "The Negro in Industry," 1153.

38. Industry Committee No. 38, *Digest of Transcript*, 36.

39. United States Department of Agriculture, *Annual Report on Tobacco Statistics* (Washington DC, 1940 and 1941).

40. Bureau of Labor Statistics, "The Negro in Industry", 1156.

41. George Stigler, "The Economics of Minimum Wage Legislation," *American Economic Review* 38, no. 2 (1946): 358-65.

42. See the testimony of Pound and Benjamin Allen, legislative representative of the United Cannery, Agricultural Packing, and Allied Workers. Industry Committee No. 38, *Digest of Transcript.*

43. Industry Committee No. 38, *Digest of Transcript*, 32.

44. Industry Committee No. 38, *Digest of Transcript*, 38. Emphasis added.

45. Industry Committee No. 38, *Digest of Transcript*, 22.