*Time on the Ladder: Not what you know but whom you know?**

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ABSTRACT

Increased difficulty in moving up the farm job ladder came to be seen as a problem in the United States in the early decades of the twentieth century as the fraction of farm operators who were owners fell. Concerns were voiced about the continued viability of American agriculture as the number of renters, sharecroppers, and laborers rose. Commentators feared for the quality of the soil and for the quality of the nation's farmers, as the "agricultural ladder" (the progression from laborer to cropper to renter to owner) seemingly became more difficult to ascend. Similar concerns motivate much of the interest in farm tenancy and land reform in developing countries today.

In this paper we begin to address these issues. We use individual-level data for McLean County from the 1920 Census of Agriculture along with a uniquely detailed survey of farmers conducted in 1938 (both linked to the 1920 Census of Population) to explore the dynamics of the agricultural ladder. The survey data contain information on each individual's complete career history (their tenure status at each date back as far as 1890), their location, and a variety of their personal and farm characteristics. We develop hypotheses to explain the time spent as a tenant or cropper/wage laborer. Our preliminary examination of the data from 1938 indicate that, contrary to the pessimism of commentators at the time, we do not find dimmer prospects for farmers in the 1930s than the previous two decades. For our sample, farmers fared worse (in terms of job mobility) in the 1920s than the 1930s. Consistent with expectations, the 1910s proved to be years of general ascent up the agricultural ladder. We also find evidence consistent with the importance of intergenerational transfers. In Jefferson County black farmers were less likely than white farmers to inherit land or rent from relatives. In McLean County the speed of ascension up the ladder was determined by residence in the state. Presumably, those farmers born outside of Illinois were less likely to inherit land or rent from relatives than those yeomen born in the state.

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I. INTRODUCTION

> …movement from rung to rung has been predominantly in the direction of descent rather than ascent…[There is] an increasing tendency for the rungs of the ladder to become bars—forcing imprisonment in a fixed social status from which it is increasingly difficult to escape. National Resources Committee, *Report of the President's Committee on Farm Tenancy* (1937)

The polity in the United States relative to Europe may accept greater income inequality because there exists a greater likelihood in the United States that individuals may increase their income status over time.[1] In short, the United States has been (and is) perceived as the "land of opportunity." This popular notion has much anecdotal support but it is difficult to test. The notion of the U.S. as a land of opportunity came under attack in the early part of the twentieth century as the agricultural sector suffered through two decades of high farm failures in the 1920s and 1930s.[2]

Though tenancy rates had been climbing consistently from the late 19th century, the distress in the agricultural sector in the 1920s and 1930s provoked alarm among social commentators and policymakers that the U.S. was becoming a country of absentee farm ownership. There was considerable variation across regions with tenancy remaining low in the Northeast while reaching 42% in the South by 1930.[3] The concern over tenancy prompted numerous reports in the 1920s by researchers in the U.S. Department of Agriculture. Analysts in the 1920s generally reached sanguine conclusions regarding tenancy.[4]

In the 1930s the reviews of tenancy were mixed. As shown by the quote above, the *Report of the President's Committee on Farm Tenancy* in 1937 was the most alarmist. The President's report, in turn, stimulated a reaction by researchers as to the causes of farm tenancy. Most notable among the research efforts were: "The Growth of Farm Tenancy in the United States" (1937) by John D. Black and R.H. Allen, and "Social Status and Farm Tenure – Attitudes and Social Conditions of Corn Belt and Cotton Belt Farmers" (1938) by E.A. Schuler, writing under the auspices of USDA, the Farm Security Administration and the Bureau of Agricultural Economics. Black and Allen attributed a large part of the rise in tenancy to the increased use of croppers instead of farm laborers in the South.[5] Black and Allen believed that there was little social or economic distinction between croppers and laborers whereas Schuler considered croppers to be on a higher rung of the agricultural ladder than laborers though still closer to the rung of laborer than that of share or fixed-rent tenants.

Consistent with the economists in the USDA in the 1920s, both Black and Allen and Schuler believed that to understand the tenancy issue required looking at all the rungs of the agricultural ladder (wage laborer, cropper, tenant, and owner) and then assessing the causes of movements up, down, and off the ladder. On the basis of census data (or at times educated guesswork), Black and Allen reached several conclusions: 1) the rate of ascending the agricultural ladder was relatively constant over the first three decades of the 20th century, but entrants started at lower rungs over time; 2) there is considerable variation across regions (mostly accounted for by differences in crops) in the number of farmers on each rung; 3) prosperity (1900-1920) or depression (the 1890s and the interwar period) are major determinants of the

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[1] On the trade-off between mobility and redistribution see the review by Putterman, Roemer and Sylvestre (1996).
[2] On the magnitude and causes of farm distress in the interwar period see Alston (1983).
[3] If we include sharecroppers as tenants the percentage of tenancy in the South reached 56% in 1930. See Alston and Kauffman (1997) for estimates of croppers in 1900 and 1910 and revised estimates of "true tenancy."
[4] See for example the excellent studies by L.C. Gray et al. (1924) and E.A. Goldenweiser and Leon E. Truesdell (1924).
[5] Most scholars in the 1920s and 1930s were well aware of the important distinction between croppers and tenants, but the census continued to consider croppers as a subgroup of tenants, "yet nothing could be more misleading than such a grouping." [Brandt (1938), p. 24].

number of farmers on each rung; and 4) croppers were on the decline in the 1930s as a result of tractorization, relief work, and the policies of the Agricultural Adjustment Acts. Black and Allen had to rely on their intuition for several of their conclusions because the Census has never systematically collected data on full-time laborers. This issue has hampered research on the agricultural ladder because changes in tenancy (including sharecroppers) could result from either movements out of or into the wage labor category or movements into or out of the ownership category. On these movements rest many welfare implications concerning not only the farm sector in the historical U.S. but also in developing and transition economies.

Schuler more systematically addressed the tenancy question through a survey in 1938 of 2,700 farmers in two of the major farming regions in the U.S.: the cotton and corn belts. The surveys produced occupational and locational histories of the farmers along with individual characteristics of the farmers: year and place of birth, father's tenure status, years of schooling, age at leaving home, years and amounts of any inheritance, marital status, and relationship to the landowner. By looking at aggregated regional averages and using bivariate ocular regression techniques (i.e., eyeballing the data), Schuler reached several general conclusions: 1) there is considerable variation across regions and between races in movements up and down the agricultural ladder; 2) inheritance causes a substantial boost up the agricultural ladder; and 3) education provides more of a boost for black southern farmers than for northern or southern white farmers.

Prior to Schuler, L. C. Gray et al. (1924) addressed the issue of farm mobility. Using data from the 1920 Census of Agriculture, the authors found that for the U.S. as a whole 42% of farmers who became tenants between 1915 and 1920 had previously worked for wages, while 47% started their careers as tenants [Gray et al. (1924): 553-554]. The percentage of tenants who never worked for wages is much higher in the South because of the census classification of croppers as tenants. Consistent with this interpretation, Gray et al. found that the average ages at which farm laborers became farm tenants was lowest in the South, though counting croppers as tenants. The authors also found signs of falling down the agricultural ladder: in 1920 for the U.S. as a whole, 11 percent of the farm tenants had once been owners, reaching as high as one-third in some of the Rocky Mountain and desert states [Gray et al. (1924): 556]. The authors also track the length of time spent in various stages of the agricultural ladder prior to reaching ownership. Typically, the longer a state had been settled the longer it took to become an owner. The authors caution not to attach welfare implications to the varying periods of time it takes to reach ownership. They argued that several factors can account for the increase in tenancy: time spent in education prior to farming, different capital requirements, and different age structures of the resident populations.

In our own work, we can better assess the determinants of movements on the agricultural ladder than our predecessors could in the 1920s and 1930s, or our contemporaries today.[6] Our approach will rely principally on two data sources: 1) individual-level data from the 1920 Census of Agriculture for McLean County Illinois, a typical corn-belt county; and 2) the remaining manuscripts from the study produced by Schuler in 1938. The 1920 Census of Agriculture is ideal for studying the agricultural ladder because of its detailed questions on farm experience. Indeed, according to the Census:

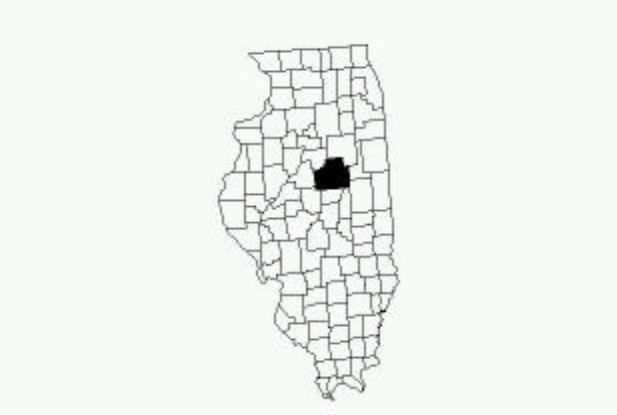
> The information with regard to the length and character of the farm experience of farm operators, obtained at the Census of 1920 for the first time, was intended to show, first, what proportion of all farmers climb the so-called agricultural ladder, from wage hand to tenant and from tenant to owner; second, the average length of time spent in each of the preliminary stages; and third, the relation between the age of the farmers and their status with regard to farm experience. The data on farm experience were obtained by means of the following inquiries on the farm schedule: How many years, if any, did you work on a farm for wages ? How many years have you been or were you a tenant? How many years have you farmed as an owner?

[6]The best treatment of movement on the ladder is the work of Atack (1988 and 1989) but Atack was forced to draw inferences from cross-sectional data.

The census data contain tenure information on: the prior farming experience of tenants and owners, the time spent on various rungs of the ladder prior to becoming owners, and whether a current tenant had previously been an owner or wage worker.

From the Schuler study we have located 227 individual manuscripts from Jefferson County, Arkansas, one of the cotton counties surveyed by Schuler. As we will demonstrate in the next section, Jefferson County is quite representative of the overall tenancy situation in the South. In addition to analyzing the Jefferson County data on their own we will be able to make them comparable to our data for McLean county from the 1920 Census of Agriculture by each individual's reported career history through 1920 fro those who reported they had been present in Jefferson Coiunty in 1920. With the individual level data for McLean and Jefferson Counties and better statistical techniques than our predecessors, we can control for the multivariate determinants of the agricultural ladder. Before turning to hypotheses and tests, we will first address the extent to which McLean county represents the corn-belt and Jefferson County represents the cotton-belt.

II. McLean County and Jefferson County As Representative of the Corn and Cotton Regions



The data for McLean County, Illinois are a random 1-in-10 sample of the surviving Agricultural Schedules taken as part of the 1920 Census of Population.[7] McLean County -- in the corn belt -- was chosen for the analysis because it represented a logical comparison for the other county on which we have detailed tenure histories, Jefferson County, Arkansas -- in the cotton belt. The 1920 Census is particularly useful for our purposes because it included questions on how long each farmer had occupied each rung on the agricultural ladder.

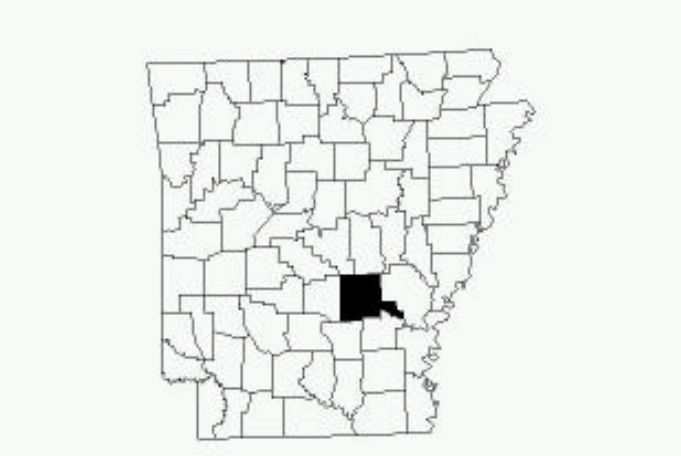
Table 1 compares the characteristics of McLean County to the rest of Illinois and the rest of the corn belt (Illinois, Indiana, Iowa, Ohio, and Missouri). Farmers in McLean were somewhat more prosperous than the average Illinois farmer in 1920, and more prosperous than the average corn belt farmer in 1920: McLean farms were both larger and more valuable than elsewhere in Illinois or the corn belt. The fraction of farms operated by tenants was considerably higher on McLean than the averages for both Illinois and the corn belt.

Table 1
Characteristics of the McLean County, Illinois, and the Corn Belt, 1920

	McLean County	Illinois	Corn Belt
Avg. Farm Size (acres)	165.8	134.8	123.2
Avg. Improved Land (acres)	158.7	115.1	98.6
Avg. Value of Land & Bldgs.	$57,936.5	$25,288.7	$18,697.4
Tenure Status (percent)			
Owners	40.6	56.7	65.0
Renters	59.4	43.3	35.0

Source: U.S. Census Bureau, *Fourteenth Census of the U.S.* (Washington, D.C., 1922).

[7]Manuscripts of the original Farm Schedules for only six counties were preserved from this census. They are housed in the National Archives.



The data for Jefferson County, Arkansas are the result of a survey conducted in 1938 by E.A. Schuler for the Farm Security Administration. Schuler collected detailed data on the careers of 2,700 farmers in each of fourteen counties, four in the corn belt, nine in the cotton belt, and one in a tobacco producing area. The survey included detailed information on each operator at the time of the survey (including all aspects of the farm's operation and most economic and social aspects of the farmer's life) and detailed career histories that recorded the tenure status and location of each operator back to 1890. Surveys were conducted in Illinois (McLean County), Iowa (Jones County), Missouri (Gentry County), Ohio (Mercer County), Alabama (Hale County), Arkansas (Jefferson County), Louisiana (Red River Parish), North Carolina (Union and Wilson Counties), Oklahoma (Beckham County), South Carolina (Greenville District), Tennessee (Crockett County), and Texas (Collin and Natcogdoches Counties). Corn belt counties were those in Illinois, Iowa, Missouri, and Ohio. The tobacco county was Wilson County, North Carolina. The rest were cotton belt counties. So far we have located and microfilmed the 227 surveys from Jefferson County, Arkansas (Figure 2).

To see the representativeness of the Jefferson County data, Table 2 compares the characteristics of farmers in the sample to all the farms in Jefferson County, to all the farms in Arkansas, and to the cotton belt states (Arkansas, Alabama, Tennessee, Georgia, Mississippi, Louisiana, and South Carolina). In most respects, the sample straddles the data for the county and the state. This is the result of the sampling strategy used by Schuler's team: it sought responses from tenure classes that corresponded to the shares of those classes in the total farm population.

Table 2
Characteristics of the Sample, Jefferson County, Arkansas, and the Cotton Belt, 1930

	Sample	Jefferson County	Arkansas	Cotton Belt
Avg. Farm Size (acres)	52.6	42.8	66.2	67.8
Avg. Improved Land (acres)	41.1	27.5	32.6	31.5
Avg. Value of Land & Bldgs.	$2,037.0	$1,926.0	$2,260.0	$2,288.0
Tenure Status (percent)				
Owners	26.0	17.4	40.0	
Renters	26.0	22.9	34.1	
Croppers	48.0	59.7	25.9	

Source: Sample (see text) and U.S. Census Bureau, *Fifteenth Census of the U.S.* (Washington, D.C., 1932).

We can also compare our sample to that from the U.S. Census Public Use Samples for Jefferson County for the period 1900 to 1920 (Table 3). Except for percent born out of state, our sample matches up fairly well with the census.[8] This is important because the data in the Schuler study were collected retrospectively, so only those still in agriculture in 1938 were at risk to have their career histories recorded. A farmer who began farming in 1910, but who moved out of agriculture by 1930 would not

[8] We stress, though, the small sample size (6) from the Public Use Sample for 1900.

show up in Schuler's data.[9] If the characteristics of those in the Schuler data at census dates in the past are similar to those in the county population generally at those dates, then we can have some confidence that the retrospective nature of the survey is not causing us to miss farmers "falling off" the agricultural ladder who differ systematically from those who remained on the ladder and whom we can observe. The close correspondence between the characteristics in the Schuler data in 1900, 1910, and 1920 and the population of the county's farmers at those dates suggests that this bias is not substantial.

Table 3
Comparison of Male Farm Household Heads in U.S. Census Public Use Samples for Jefferson County and Sample, 1900-1920

	1900	1910	1920
Percent Black			
County	100.0	90.0	85.1
Sample	100.0	90.2	87.7
Ratio	1.0	1.0	1.0
Percent Born Out of State			
County	33.3	45.0	46.3
Sample	13.0	17.7	21.0
ratio	2.6	2.5	2.2
Age			
County	32.8	38.1	41.6
Sample	28.0	33.8	39.3
ratio	1.2	1.1	1.1
Percent Married			
County	100.0	100.0	98.1
Sample	91.3	92.2	95.1
ratio	1.1	1.1	1.0
N			
County	6	20	54
Sample	23	51	81

Note: A ratio closer to one indicates a closer correspondence between the characteristics of the county and the characteristics of the sample

The career mobility seen in our Jefferson County sample data is also representative of mobility in the rest of the South as well. When the extent of career mobility among tenure classes in our sample data from Jefferson County is compared in Table 4 to tenure mobility for the entire South in Schuler's published tables, it is clear that Jefferson County looks much like the rest of the South. For example, in both Jefferson County and in the whole South, 85 percent of those who started their careers as owners remained owners at the end of their careers, while just under a third of those who started as renters ended up in a higher status (as owners). An unpublished survey by Harold Hoffsommer in 1933 provides an additional comparison. Hoffsommer examined the careers of nearly a thousand Alabama farmers. His results are compared in Table 5 to those from Jefferson County. In both samples, roughly 45 percent of farmers were croppers at the beginning and end of their careers, while about 6 percent began as croppers and moved up to ownership over their careers. Eleven percent were renters throughout their careers.

Because of its good representation of a cotton county, we will use the Jefferson County data along with the data for McLean County to assess differences in mobility. To do so, it will be necessary to make the Jefferson County data more consistent with the 1920 Census of Agriculture data. We can do this by examining the 1920 characteristics of the farmers in the Schuler data as they reported them in 1938.

[9] The same "retrospectivity" problem occurs with our sample for McLean County.

For example, in order to compare the age-tenure gradient, we will use the age profiles as they appear in our data from the 1920 Census of Agriculture, but use the ages of Jefferson County farmers in 1920 and the tenure status they reported themselves as having occupied in 1920.[10]

Table 4
First vs. Last Tenure Status

	South (1938) First Status			Jefferson County (1938) First Status		
Last Status	owner	renter	cropper	owner	renter	cropper
higher	–	31.9	39.0	–	32.5	26.8
same	85.4	55.1	55.0	85.2	47.5	59.0
lower	14.6	13.0	6.0	14.8	20.0	14.2
Obs.	247	477	723	27	40	134

Source: South from Schuler (1938); Jefferson County from sample (see text).

Table 5
First vs. Last Tenure Status

	Alabama (1933) First Status			Jefferson County (1938) First Status		
Last Status	owner	renter	cropper	owner	renter	cropper
owner	14.6	2.8	5.8	12.9	7.3	6.2
renter	2.7	11.1	11.4	1.7	10.7	14.0
cropper	1.4	4.8	45.7	0.6	2.3	44.4
Obs.		982			178	

Source: Alabama from Hoffsommer (1933); Jefferson County from sample (see text).

II. HYPOTHESES

The literature on agricultural tenancy is vast but the hypotheses can be divided into 5 categories: 1) supervision costs arising from endowments; 2) enforcement costs; 3) risk; 4) agricultural distress; and 5) government policies. We present an overall assessment of the hypotheses at work even though in this paper, we will test only a subset of the hypotheses. We will be most interested in the impact of age (experience), race and birthplace (impact of relatives) on tenure status

1. Supervision Costs

One of the essential differences in contracts as farmers ascend the agricultural ladder is that landlords have a decreasing need to supervise the labor effort of farmers. As labor moves from

[10] One source of inconsistency about which it will be possible to do little is the difference in the specific calendar year in which the data were collected (1920 for the census data, and 1938 for the Schuler data). This is a problem only if the 18 year gap between the surveys has led to some types of farmers disproportionately falling off the agricultural ladder in Schuler's survey compared to then census. Our examination of the characteristics of farmers in Schuler's study and of the characteristics of farmers generally in Jefferson County in 1900, 1910, and 1920 leaves us confident that this bias is likely to be unimportant.

wageworker to cropper to tenant and ultimately to ownership, residual claimancy to the operator increases, which increases the incentive for work effort. Thus, the contractual form determines the incentive for the landowner to monitor for work effort. It is not only labor effort in the fields that needs to be monitored. Individuals have an incentive to monitor the use of all assets that they bring to the production process, though labor-monitoring costs can be considered a residual to the monitoring of the other assets.[11]

Consider the following simplified production process for corn or cotton. Output is a function of land (quantity and quality), physical capital (a mule/horse or tractor), human capital of the farm owner and operator, and labor effort. We assume that the market for inputs is competitive and endowments vary across farmers, e.g., some farmers have land and mules, and are looking to hire labor and some labor has farm experience and a mule and is searching for land. How do suppliers and demanders of inputs match-up? This is best illustrated with an example. Suppose a resident farm owner with considerable farming experience and a mule is looking for a laborer. He is willing to supply all the inputs except for labor effort. Given his endowment, what would be the best match? He would search for a laborer who has no capital and little farming experience. In this way, he would get the best return on his human and physical capital. In this situation, the farmer has an incentive to be in the fields to monitor his physical capital (the mule in particular) to prevent its depreciation, and to furnish directions (human capital). Given the presence of the landlord for these reasons, the marginal cost of monitoring labor effort is low; there are economies of scope across monitoring.[12] When workers are endowed with more physical or human capital, the landlord cannot benefit from such economies of scope; as a result the direct costs of monitoring the labor effort of these workers is greater than for workers with less capital. In order to reduce these costs of monitoring better-endowed workers, landlords will negotiate contracts higher on the agricultural ladder with them. Similarly if certain crops are more soil-depleting, e.g. row crops compared to grain crops, then owners will have an incentive to limit the output. One mechanism is to negotiate more share relative to fixed-rent contracts because the tenant will have less incentive to maximize short-run yields at the expense of long-run soil fertility.[13]

From our data we can construct several proxies for the human and physical capital characteristics of landlords and workers. For our McLean County data set we have the following measures of human capital: age, marital status, literacy, ages of members in the household, and whether the farmer was born in the state.[14] In addition to giving farmers local knowledge of agricultural conditions, being born in the state most likely increases the likelihood that your parents (or other relatives) reside in the state, which in turn increases the likelihood of being higher on the agricultural ladder. Our data for Jefferson County is more detailed; for measures of human capital we have: age, marital status, schooling, years on farm, and years in the county. Workers who are older, married, better schooled, longer on their present farm, or longer in the county or state should be at higher rungs on the agricultural ladder. For the physical capital of labor and landlords, we have the following measures: inheritances (for Jefferson County) and ownership of work stock or tractors. For our census data we know whether landlords are resident or absentee. To the extent labor has greater capital, they should be on higher rungs, whereas if landlords supply more capital then they should hire workers on lower rungs of the ladder to take advantage of the economies of scope in monitoring.

2. Enforcement Costs

Enforcement costs of labor effort result from efforts to ensure an adequate labor supply during peak demand, which for cotton is the harvest. During peak demand, piece rates and day wages increase

[11]If a single farmer supplies all inputs to the production process then all costs of stinting or abuse are internalized so monitoring costs disappear.

[12]Alston and Higgs (1982) developed the hypotheses about economies of scope in monitoring.

[13] Allen and Lueck (1992) found evidence consistent with this hypothesis.

[14] We obtained the data on literacy, ages of members in the household, and whether the farmer was born in the state by linking the individuals in the agricultural census to the population census.

giving an incentive for some workers to abandon their current employment. Higher tenure status decreases the incentive for abandonment because higher tenure status brings with it expected higher post-harvest remuneration. The enforcement costs to landlords increase as labor becomes scarcer. As such, boom times, e.g., the war years, should be associated with ascension up the agricultural ladder and conversely depression years should be associated with movements down the ladder. Of course we need to control for increases and decreases in physical capital that accompany good and bad times in agriculture. For both our survey data and census sample we can examine the impact of the war years. Conversely, we can examine the impact of the lessening of off-farm opportunities associated with the increasing unemployment during the 1930s.[15]

Allen and Lueck (1999) argue that yield variability affects the ability of share tenants to cheat landlords by underreporting the output. As such, they expect to observe more fixed-rent contracts where yields are more variable. We will be able to examine yield variability but only at the county level. Holding yields constant, we expect cheating to be more difficult with cotton than most other crops because of ginning at central location. Therefore, ceteris paribus we should see more share contracts for cotton.

3. Risk

Although price and yield risk have long been suggested as a reason for sharing output, we need to posit relatively greater risk aversion by one party to the contract in order to derive testable hypotheses, because both parties have an incentive to shed risk, e.g., fixed renters would prefer to be share renters and landlords would prefer to have more fixed renters relative to share tenants. Most of the authors in the principal-agent literature assume risk-neutral landlords and risk-averse tenants.[16] We expect that in a riskier environment there will be a movement from fixed rent to share rent and when risk decreases we expect a movement from share rent to fixed rent. To measure yield risk for our Jefferson County sample we have the years of boll-weevil infestation in the region. Price risk will be captured by the years following the introduction of the Agricultural Adjustment Act, which set a floor on the price of cotton. We can calculate yield risk between cotton and corn for Jefferson and McLean Counties but this evidence will only be suggestive.[17]

4. Agricultural Distress

The war years brought boom times to agriculture whereas the inter-war years witnessed unparalleled levels of farm failures. Prosperity on the farm should affect all rungs of the ladder. Prosperity should enable wage workers and croppers to accumulate the capital necessary to become a tenant. Farm distress in the form of farm foreclosures affects the highest levels of the tenure ladder. When foreclosure rates are high, we should see some of our owners fall to the tenant rung or at times all the way to wage laborer. Correspondingly, high foreclosure rates bring low farm prices and some of our tenants may ascend to the ownership rung. Whether falling down or rising up the agricultural ladder dominates is an

[15] Alston (1981) found that wage contracts were more prevalent in regions with a more abundant supply of farm supply.

[16] For a discussion of the role of risk in agricultural contracts see Allen andLueck (1999). They find little evidence for the role of risk in shaping tenancy arrangements. Our analysis of the South, where credit institutions were less fully developed and methods other than tenancy arrangements for sharing risk were less often available, will provide a useful contrast to their study. Another difference between our sample and that of Allen and Lueck (1999) is differences in wealth between landlords and tenants. In their sample there are few differences in wealth between tenants and landlords but there is considerable difference in our sample particularly for Jefferson County. Our sample will have more implications for the role of risk in developing countries where the differences in wealth between landlords and tenants are high.

[17] In future work we plan to utilize county-level observations for the entire agricultural U.S. For that study we will be able to test for the importance of yields. The 1920 Census also includes a breakdown for the South between standing renters (who paid rent with a fixed amount of output) and cash renters (who paid a fixed amount of cash). For the northern counties the Census also provides a breakdown on share and share-cash tenants.

empirical question. With our sample from Jefferson County we will be able to compare the time spent as a wage earner or cropper compared to time as a tenant for good years versus bad years.

5. Government Policies

Throughout the period of our study, blacks lacked civil rights. Local and state governments condoned if not assisted in maintaining the South as "an armed camp for intimidating black folk."[18] Under these conditions, blacks had an incentive to enter into a paternalistic relationship in which a powerful patron would provide protection from physical abuses in return for good and faithful labor (Alston and Ferrie, 1999). To maintain a paternalistic relationship, blacks may have foregone some opportunities for advancement that would require relocation. The safest and surest ways for blacks to ascend the ladder was to have a longstanding paternalistic relationship with a landlord. The implication is that blacks would ascend the agricultural ladder at a slower rate than similarly endowed whites. For our Jefferson County sample we will be able to compare the tenure experiences of whites versus blacks.

The Agricultural Adjustment Act of 1933 was the federal government's answer to the woes of farmers in the Great Depression. Under the AAA, the federal government paid participating farmers a minimum price for their cotton for setting aside acreage. The initial program in May 1933 (affecting contracts in 1934) mandated that benefit checks be divided between landlords and their tenants (fixed-rent and share) and sharecroppers. Whatley (1983) and Wright (1986) argued that this provided an incentive for landlords to negotiate more wage contracts and fewer tenant and cropper contracts. Alston (1981, 1987, and 1989) has argued that demotion down the ladder alters the distribution of risk and supervision such that it may have been less costly to either "cheat" labor or adjust some other margin of the contract, e.g., adjust downward the share of the share contracts or adjust downward the size of plots, rather than negotiate more wage contracts.[19] Simply changing the rules does not change the value of labor and the benefit checks should accrue to the most inelastically supplied factor to the production process, namely land.

In 1934 (affecting contracts in 1935), the Agricultural Adjustment Administration stipulated that benefit payments should only go to fixed-rent and managing share tenants, thereby excluding croppers. If the rules mattered, we should see a decline in tenants for 1935. In 1935, the Agricultural Adjustment Administration again changed its program. Once again, the rules stipulated that benefits were to go to croppers as well as tenants. As a result, if the rules could be enforced at low cost, we should observe an increase in wage labor at the expense of croppers and tenants in 1936 and 1937.[20]

III. TESTS OF THE DETERMINANTS OF WAGE/CROPPER VERSUS TRUE TENANT CONTRACTS

Our data from McLean County are more limiting than the data for Jefferson County. But we can fashion the data from Jefferson County to match the data from McLean County. A significant step on the agricultural ladder is that separating wage workers from tenants. As noted earlier, legally and socially analysts in the 1920s and and 1930s considered sharecroppers as wage workers. From our data we can construct a measure of the time spent as a tenant as a percentage of time spent as a tenant, cropper or wage worker, conditioned on being a tenant in 1920. This will be our dependent variable. For explanatory variables we have: age in 1920; a dummy (1) for birth in either Arkansas or Illinois; a dummy (1) for married; for literacy: for McLean County a dummy for whether a person could read and write and for or

[18] DuBois (1961, p. 86) used this phrase in describing the conditions in the South at the turn of century. Our sense is that little changed during our period of investigation.

[19] Through crop restrictions the AAA reduced the demand for labor and this may have increased the number of negotiated wage contracts by lowering enforcement costs. Other New Deal agricultural programs subsidized farm credit, which may have encouraged mechanization. Mechanization reduced supervision costs and encouraged wage contracting (Alston, 1981).

[20] In future work we will attempt to test for the impact of the AAA on the tenure experience of agricultural workers. Ideally we will be able to compare corn-belt and cotton-belt farmers.

for Jefferson County years of schooling; and for Jefferson County, a racial dummy (1) for blacks.

To make our data set for Jefferson County comparable to McLean County we will initially use the work history of farmers present in Jefferson County in 1920 and before. This set of regressions will enable us to hold constant time and compare the differences in coefficients between a corn-belt and cotton-belt county. After this comparison we will run the same test for Jefferson County conditioned on being a tenant in 1938. This will allow us to make inferences about the impact of agricultural distress over the interwar years.

In Table 6 we present ages by tenure status (tenants, part-owners and owners) broken down by birthplace for McLean County. We broke the data by age because climbing the ladder is associated with the accumulation of human and physical capital. Chroniclers of the time noted the high association of renting to relatives in the Midwest, along with the high degree of inheritances. Believing that the likelihood of renting from a relative and inheriting a farm is greater if one is born in the state in which they now reside, we broke the data into birthplace and age. As expected tenure status increases with age. More interesting is the differences in ages between those born in and out of state. In-state tenants and part-owners born in Illinois are six years younger than those born outside of Illinois. For full-owners the difference increases to nine years. It appears as if relatives may be giving the in-state farmers a boost up the ladder.

In Table 7 we present ages by tenure status (wage workers, croppers, tenants and owners) broken down by race for Jefferson County. Assuming that it was less likely blacks would receive a boost up the ladder from relatives and additionally may have faced other discriminatory hurdles, we broke down age by race. Like farmers in McLean County, farmers in Jefferson County moved up the ladder with age. Except for wage workers, blacks are older at every rung, being almost six years older for tenants.[21] The owners for Jefferson County are considerably younger than the owners in McLean County. This should come as no surprise because many of the older owners would have retired or died by the time of the survey in 1938 . Despite the bias tenants in Jefferson County were older than tenants in McLean County suggesting that the time on the ladder before reaching ownership is greater in the cotton belt than the corn belt.

Table 6
Ages on the Ladder by Birthplace – McLean County, Illinois, 1920

	Mean	*Std. Dev.*	*Min*	*Max*	*N*
Tenant					
All	37.51	10.40	14	70	259
Born in State	35.09	8.99	14	61	170
Born Out of State	41.16	10.74	19	70	82
Owns Part					
All	43.89	10.43	23	72	64
Born in State	42.46	7.98	23	58	41
Born Out of State	48.41	12.97	25	72	17
Owns All					
All	54.19	11.61	25	87	131
Born in State	50.41	10.03	31	87	71
Born Out of State	59.13	10.51	25	83	46

[21] Because of the small sample size for whites, the inferences that we make can only be conjectural.

Table 7
Ages on the Ladder by Race – Jefferson County, Arkansas, 1920

	Mean	*Std. Dev.*	*Min*	*Max*	*N*
Wage					
All	27.22	9.97	20	50	9
White	31.50	6.36	27	36	2
Black	28.40	12.32	21	50	5
Croppers					
All	37.29	12.14	20	57	28
White					
Black	37.92	11.88	21	57	27
Tenants					
All	42.13	10.31	22	59	24
White	43		43	43	1
Black	42.09	10.54	22	59	23
Owners					
All	44.09	9.63	23	62	33
White	43.22	11.87	23	57	9
Black	44.42	8.91	25	62	24

In Table 8 we present regression results for McLean County: 1) conditional on being a tenant in 1920, the determinants of time spent as a tenant relative to time spent as a wage worker and tenant; 2) conditional on being an owner in 1920, time spent as an owner relative to time spent as spent as a wage worker, tenant and owner; and 3) conditional on being an owner or part-owner in 1920, time conditional on being a tenant in 1920, time spent as spent as a wage worker, tenant, part-owner and owner.

Table 8
Determinants of Time on the Ladder - McLean County

	Tenant /Wage+Tenant Years	Owner /Wage+Tenant +Owner Years	Owner + Part-Owner / Wage+Tenant + Part-Owner +Owner Years
Constant	-0.35	-1.18	-1.24
Age	0.04	0.04	0.04
	(1.65)*	(1.60)	(1.77)*
Age x State	-0.03	-0.06	-0.05
	(0.92)	(1.38)	(1.51)
Age2	-0.0004	-0.0003	-0.0003
	(1.40)	(1.21)	(1.36)
Age2 x State	0.0002	0.0005	0.0004
	(0.55)	(1.13)	(1.29)
State	0.93	1.93	1.54
	(1.56)	(1.70)*	(1.83)*
Married	-0.07	-0.11	-0.07
	(1.22)	(1.51)	(1.11)
Literacy	0.08	0.40	0.43
	(0.37)	(0.72)	(0.88)
N	242	116	166
Adj R-squared	.09	.04	.05

Notes: t-statistics in parentheses; State =1 if born in Illinois; Married = 1; and Literacy = 1 if the respondent could read and write.

The results suggest that there were two ways to climb the agricultural ladder. For those born out of state, experience and capital acquired over time enabled farmers to ascend from wage worker to tenant to owner. Farmers born in Illinois climbed the ladder faster but experience did not speed their ascent. Our results are supportive of the conjecture that relatives gave in-state farmers a boost up the ladder.

In Table 9 we present regression results for Jefferson County: 1) conditional on being a tenant in 1920, the determinants of time spent as a tenant relative to time spent as a wage worker, cropper and tenant[22]; and 2) conditional on being an owner in 1920, time spent as an owner relative to time spent as spent as a wage worker, cropper, tenant and owner.[23] The results for time spent as a tenant are disappointing; experience (proxied by age) does not matter. On the bright side, we could argue that the results are similar to McLean County. It could be that relatives give farmers a boost up the ladder. We have reservations about this conjecture because the level of renting to relatives is considerably less in the South. Like our results for tenant years, experience does not increase the time spent as an owner.[24] Interestingly, schooling matters.[25] We are uncertain how to interpret this finding. It may be a proxy for wealth or it could be a proxy for ambition and ability.

Table 9
Determinants of Time on the Ladder - Jefferson County

	Tenant /Wage+Cropper+Tenant Years	[26]Owner / Wage+Cropper +Tenant + Owner Years
Constant	.47	1.76
Age	0.014	-0.07
	(0.334)	(-1.790)*
Age2	-0.00013	0.0009
	(-0.269)	(1.88)*
Literacy	0.004	0.03
	(0.181)	(2.128)**
State	-0.09	0.05
	(-0.717)	(0.343)
N	24	33
Adj R-squared	-0.1394	0.1116

Notes: N=30; t-statistics in parentheses; Race = 1 if Black;
State =1 if born in Arkansas; Married = 1; and Literacy = number of school years completed.
* Significant at the ten percent level
** Significant at the five percent level

[22] The entire sample is married and there is only one white tenant.
[23] Given our small sample, the results can only be suggestive.
[24] The coefficient from interacting race with age was insignificant.
[25] Schuler argued that schooling enabled Southern blacks but not Southern or Northern whites, to ascend the ladder more quickly. An interactive race/schooling variable did not support his hypotheses.
[26] Race was interacted with age, agesquared and school, but returned no significant results.

IV. MOBILITY FROM OUR 1938 SURVEY DATA: OVERALL, OVER TIME AND ACROSS AGE COHORTS

Only with our 1938 survey data can we assess yearly movements up and down the agricultural ladder.[27] In this section we will not test hypotheses but rather look at how time, decades and age influence the transition probabilities of moving from one category to another. In Table 10 we present transition probabilities for mobility over one, five, and ten-year intervals.[28] Except for wage labor, stasis dominates. For example over a five year interval, the likelihood of remaining in the same category is 93 percent for owners, 79 percent for tenants, 82 percent for croppers, and only 38 percent for laborers. For owners who fell down the ladder, the descent was almost equally likely to be to tenant or cropper. Tenants who left the tenant category were as likely to rise as to fall. Croppers, on the other hand, were far more likely to rise (16 percent) than fall (2 percent). Laborers were most likely to rise to the cropper category (37 percent), followed by tenant (16 percent) and owner (9 percent).

Table 10
One, Five, and Ten Year Transition Probabilities

Time t Status	N	Time t+n Status (%)											
		owner			tenant			cropper			laborer		
		t+1	t+5	t+10	t+1	t+5	t+10	t+1	t+5	t+10	t+1	t+5	t+10
own	1218	98.7	93.4	88.6	0.7	3.4	6.2	0.4	2.4	3.6	0.2	0.9	1.6
rent	1266	2.2	10.0	17.6	94.2	79.4	69.3	3.3	10.1	12.3	0.3	0.6	0.8
crop	1635	0.5	2.1	2.9	4.3	13.8	18.7	94.3	82.2	76.8	1.0	1.9	1.6
lab	994	2.0	9.2	15.8	2.7	15.5	26.9	9.9	37.4	47.4	85.4	37.9	9.9

We next examine transition probabilities by decade (Table 11). For the upper tenure categories, the 1920s were the worst. This is consistent with the argument that land prices had a bubble resulting from overly optimistic expectations following World War I (Johnson 1973-1974). Looking at transition probabilities for five-year intervals, for owners, the likelihood of losing the farm was close to 11.5 percent in the 1920s but only 2.5 percent in the 1930s and 5 percent in the 1910s. For tenants in the 1920s, nearly twice as many fell to cropper (14.6 percent) as rose to owner (8.6 percent). In the same period, croppers fared reasonably well: they were as likely to become an owner (2.4 percent) as to fall to laborer (2.6 percent) and the likelihood of rising to tenant was good (11.7 percent). For renters, the 1910s were the best while, for laborers, surprisingly, it was the 1930s. Owners fared about as well in the 1910s as the 1930s. Croppers' mobility was similar across the decades.

[27] With our census data we know the number of years that farmers have spent on each rung of the ladder but not know which years they were on each rung. In future work we will run tests for the determinants of time spent in each category.

[28] In Tables 10-12, each individual can contribute several observations (as many as 48 for someone who remained in farming continuously from 1890 to 1937). The calculations ignore any changes in status in any intervening years (for example, if a cropper in year t became a tenant in year t+4 but returned to the cropper class in year t+5, this individual is counted as remaining in the cropper class).

Table 11
One, Five, and Ten-Year Transition Probabilities By Decade

1910s

Time t Status	N	Time t+n Status (%)											
		owner			tenant			cropper			laborer		
		t+1	t+5	t+10	t+1	t+5	t+10	t+1	t+5	t+10	t+1	t+5	t+10
own	321	99.1	94.7	86.3	0.9	3.7	9.4	0.0	1.2	2.5	0.0	0.3	1.9
ten	286	2.4	10.8	17.8	95.1	79.9	66.7	2.4	9.3	15.2	0.0	0.0	0.4
crop	320	0.3	1.3	2.3	4.4	14.1	17.4	94.4	81.0	74.8	0.9	3.6	5.6
lab	229	2.2	10.5	17.0	3.1	13.8	31.1	7.9	33.8	37.9	86.9	41.9	14.1

1920s

Time t Status	N	Time t+n Status (%)											
		owner			tenant			cropper			laborer		
		t+1	t+5	t+10	t+1	t+5	t+10	t+1	t+5	t+10	t+1	t+5	t+10
own	419	97.9	88.5	84.3	1.2	5.5	7.0	0.7	5.0	7.6	0.2	1.0	1.0
ten	355	1.1	8.6	17.3	93.8	75.6	64.7	4.2	14.6	16.3	0.8	1.2	1.6
crop	463	0.6	2.4	3.4	4.3	11.7	16.4	93.3	83.3	79.2	1.7	2.6	1.0
lab	303	1.3	6.0	9.0	2.0	11.9	19.2	9.9	44.6	64.9	86.8	37.5	6.9

1930s

Time t Status	N	Time t+n Status (%)											
		owner			tenant			cropper			laborer		
		t+1	t+5	t+10	t+1	t+5	t+10	t+1	t+5	t+10	t+1	t+5	t+10
own	333	99.1	97.5	96.0	0.3	1.4	3.2	0.6	1.1	0.8	0.0	0.0	0.0
ten	270	2.6	6.7	4.7	92.6	79.8	81.8	4.8	13.5	13.5	0.0	0.0	0.0
crop	494	0.6	1.8	1.2	3.0	12.2	14.2	96.0	85.2	84.6	0.4	0.8	0.0
lab	123	1.6	11.9	17.1	4.9	15.5	17.1	20.3	58.3	65.7	73.2	14.3	0.0

In Table 12, we present the transition probabilities by age. We focus on five-year intervals. Descent for owners did not vary much by age, but it did for tenants. Tenants in their thirties had the greatest likelihood of becoming an owner, followed by tenants in their forties. Interestingly mobility for tenants in their twenties and fifties was similar. For croppers, youth was not a hindrance. The likelihood of rising to tenant or owner for croppers in their twenties was 20.3 percent, while the likelihood fell to 11 percent for croppers in the thirties, 14.6 percent for croppers in the forties and 13.1 percent for croppers in their fifties. Similarly, young laborers were most likely to rise to a higher class: nearly 3 out 4 laborers in their twenties ascended to a higher rung of the ladder. Our conclusion is that sorting by ability happened rather

early. We speculate that a considerable amount of mobility occurring in later years resulted from receiving an inheritance or a "good" crop year in terms of yields or prices.

Table 12
One, Five, and Ten-Year Transition Probabilities By Age in Year t

Age 20-29

Time t Status	N	Time t+n Status (%)											
		owner			Tenant			cropper			laborer		
		t+1	t+5	t+10	t+1	t+5	t+10	t+1	t+5	t+10	t+1	t+5	t+10
own	156	98.7	89.9	77.0	1.3	6.0	14.4	0.0	3.4	4.3	0.0	0.7	4.3
ten	329	0.9	7.7	20.3	94.5	80.3	65.1	4.0	12.0	13.5	0.6	0.0	1.1
crop	602	0.5	2.3	3.2	5.6	18.0	24.6	93.4	77.9	71.6	0.5	1.9	0.6
lab	311	3.5	11.3	18.4	5.5	23.4	25.0	16.1	40.0	46.5	74.9	25.3	10.1

Age 30-39

Time t Status	N	Time t+n Status (%)											
		owner			tenant			cropper			laborer		
		t+1	t+5	t+10	t+1	t+5	t+10	t+1	t+5	t+10	t+1	t+5	t+10
own	285	98.9	94.6	88.8	0.4	3.1	7.4	0.4	0.8	0.8	0.4	1.5	2.9
ten	368	3.0	15.0	22.4	93.5	73.7	64.0	3.3	9.2	11.8	0.3	2.0	1.8
crop	423	0.2	1.5	2.0	3.8	9.5	14.3	95.3	87.8	81.7	0.7	1.2	2.0
lab	53	5.7	25.6	62.5	3.8	10.3	9.4	9.4	12.8	21.9	81.1	51.3	6.3

Age 40-49

Time t Status	N	Time t+n Status (%)											
		owner			tenant			cropper			laborer		
		t+1	t+5	t+10	t+1	t+5	t+10	t+1	t+5	t+10	t+1	t+5	t+10
own	336	99.1	91.3	84.5	0.6	4.0	6.9	0.0	3.1	7.3	0.3	1.5	1.3
ten	254	3.1	9.5	12.6	94.5	85.2	81.7	2.0	5.3	5.7	0.4	0.0	0.0
crop	280	0.7	1.5	0.8	3.6	13.1	14.3	93.9	81.3	81.3	1.8	4.1	3.6
lab	17	4.0	20.8	25.0	8.0	4.2	12.5	20.0	41.7	50.0	68.0	33.3	12.5

Age 50+

Time t Status	N	Time t+n Status (%)											
		owner			tenant			cropper			laborer		
		t+1	t+5	t+10	t+1	t+5	t+10	t+1	t+5	t+10	t+1	t+5	t+10
own	414	98.1	95.0	95.3	1.0	2.3	2.4	1.0	2.8	2.4	0.0	0.0	0.0
ten	277	1.8	7.4	14.0	94.2	78.6	67.7	4.0	14.0	18.3	0.0	0.0	0.0
crop	246	0.8	4.2	7.3	2.4	9.9	15.0	96.3	85.9	77.7	0.4	0.0	0.0
lab	15	10.5	28.6	44.4	10.5	21.4	33.3	0.0	0.0	0.0	78.9	50.0	22.2

VII. CONCLUSION

The results presented here are a first attempt to assess the causes of movement up the agricultural ladder, at the individual level. There appear to be substantial differences in the dynamics of that mobility in different regions of the country: in the corn belt, a significant force moving farmers up the ladder is inheritance, but in the cotton belt (at least for the predominantly black population examined here), this appears to be less of an influence, with age (a likely proxy for the accumulation of farm experience and physical and human capital) more important. In Jefferson County, the extent of mobility up the ladder was greater and the extend of movement downward was less in the 1910s and the 1930s than in the 1920s, suggesting that at least some of the concern for the lack of tenure mobility seen in the 1930s was a reaction to a phenomenon that can indeed be observed in the data, though its importance had begun to diminish just as it was being recognized by analysts and policymakers.

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