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THE ECONOMIC GEOGRAPHY OF LAND, PROPERTY AND WEALTH IN THE UNITED STATES, 1850-70

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Abstract: *Using a summary of the comparative wealth ratios for total wealth, the research of Curtis Jr (2018) shows that we can further support the evidence of the absolute differences in black and white wealth, and ascertain the advantages to living in free states in the presence of wealth constraints. Since the ratio exceeds one in 1860 (2.0) and 1870 (3.8), free blacks obtained higher returns to living in free states versus living in slave states, higher than whites living in free states.*

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1. INTRODUCTION

The debate over market/individual regulation and freedom is not a new discussion. However, a clear understanding of the freedoms (or the lack of freedoms) and their economic consequences on early black Americans provides an informative understanding to the freedoms (or the lack of freedoms), and their economic consequences on other, modern ethnic groups. Leon Litwick (1961) and Ira Berlin (1974) provide the most comprehensive historical accounts of free blacks in the north and south, respectively. This study attempts to build upon their successes by presenting one of the first national studies that combine the legal, demographic and economic experiences of free blacks, with an extended analysis of antebellum wealth inequality. In doing so, I investigate the link between the social asymmetry and economic asymmetry among early blacks and whites in the United States of America. For the empirical study, I used cross-sectional variables from the Integrated Public Use Microdata Sample (IPUMS), I developed informative conditional ratios, and I employ the least squares statistical analyses. This study finds that economic differences among ethnic groups, as measured by differences between early blacks and whites, are intertwined with asymmetrical freedoms.

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2. THE MID 19TH CENTURY ECONOMIC GEOGRAPHY OF WHITES AND BLACKS IN THE UNITED STATES OF AMERICA

Johann Heinrich Von Thünen (1966, Wikimedia 2004) was the first to describe the reasoning behind local residency decisions in the book entitled, The Isolated State. Ultimately, the location of residence depended on the return from the trade of the head of household, conditional on the cost of transportation. Hypothetically, those enslaved, or once enslaved, received the lowest concurrent return from their trade and sought the best opportunity [and earliest opportunity] to enhance their returns. Among those that were not able to secure immediate, sustainable property and wealth, this likely required long-distance travel and residence to more socially receptive, locally dense communities, away from the physically, psychologically and economic suppressive spatial areas. This produces the likelihood of group-specific expectations if groups had different mean professions and different ranges in professional opportunities. This analysis likely applies to slave state-free state residency decisions, regional residency decisions, and migration decisions described below.

3. THE MID 19TH CENTURY STATE SLAVERY LAWS AND WEALTH OF WHITES AND BLACKS IN THE UNITED STATES OF AMERICA

Free blacks in free states had nominal real estate wealth and property advantages relative to free blacks in slave states. Table 10a shows that free blacks, living in slave states, possessed $380 in nominal total wealth in 1860 prior to emancipation.

Table 1a: Mid-19th Century State Slave Laws and Mean Wealth of Whites and Blacks

	Overall			Free Blacks		All Blacks	Whites		
Slave States	**1850**	**1860**	**1870**	**1850**	**1860**	**1870**	**1850**	**1860**	**1870**
Real Estate Wealth	839	1,373	651	83	189	33	870	1,456	1,282
Other Wealth		1,784	317		191	42		1,895	598
Total Wealth		3,157	967		380	75		3,351	1,880
Price-Adjusted (1860=100)									
Real Estate Wealth	973	1,545	406	95	206	20	1,010	1,639	800
Other Wealth		2,011	198		205	26		2,137	374
Total Wealth		3,556	604		411	47		3,776	1,173
Sample	10,174	13,732	33,991	408	893	17,188	9,766	12,834	16,798
Free States	**1850**	**1860**	**1870**	**1850**	**1860**	**1870**	**1850**	**1860**	**1870**
Real Estate Wealth	994	1,482	1,902	150	312	288	1,007	1,511	1,963
Other Wealth		633	738		146	121		645	761
Total Wealth		2,115	2,640		458	408		2,156	2,725
Price-Adjusted (1860=100)									
Real Estate Wealth	1,085	1,483	1,307	165	313	197	1,099	1,512	1,349
Other Wealth		631	503		146	83		643	519
Total Wealth		2,114	1,810		458	280		2,155	1,868
Sample	24,928	39,327	52,366	363	809	1,748	24,565	38,408	50,458

Source: Information collected, calculated and compiled by James Curtis Jr (2002); IPUMS

This was lower than the $458 possessed by free black in free states. Using wealth means in Table 10a, free blacks in slave states had 11.3 percent (380/3351) of white total wealth in slave states in 1860 while free blacks had 21.2 percent (458/2156) of white total wealth in free states. Even when ignoring differences in total wealth levels among blacks and whites, blacks earned a higher premium for living in free states than whites. Note that free blacks in Louisiana, which engaged in philanthropic slave-owning activities in order to by free slaves, caused other measures of average wealth in slave states to exceed average other wealth in free states in 1860.

Overall, these results confirm that reduced legal barriers, greater social receptiveness and enhanced economic opportunities contributed to the wealth advantages of free blacks in free states.

4. THE MID 19TH CENTURY STATE SLAVE LAWS AND REAL ESTATE WEALTH IN THE UNITED STATES OF AMERICA: A COMPARISON AMONG BLACK AMERICANS OVERTIME

First, consider real estate wealth differences of blacks living in free states versus blacks living in slave states before and after emancipation. Table 8b shows that free blacks living in slave states possessed nominal real estate wealth amounts of $83 in 1850 and $189 in 1860. This was substantially lower than the $150 (1850) and $312 (1860) possessed by free blacks in free states. Additionally, the ratio of free state-slave state wealth among free blacks did not change much prior to emancipation: Table 10b also shows that the free state-slave state ratio of average real estate wealth among free blacks remained relatively constant at 1.7 in 1850 and 1.5 in 1860. When adjusted for regional prices, the differences here are not significant. Free blacks in slave states held $95 and $206 in 1850 and 1860, respectively, while free blacks in free states held $165 and $313 in price-adjusted real estate wealth. Free blacks in free states were also more likely to hold real estate than free blacks in slave states. Table 9b shows that 22 percent of free blacks in 1850 and 29 percent of free blacks in 1860, who lived in free states, owned positive amounts of real estate wealth.

Table 1b. Mid 19th Century Skill and Mean Property Ownership of Whites and Blacks

	Overall			Free Blacks		All Blacks	Whites		
Slave	**1850**	**1860**	**1870**	**1850**	**1860**	**1870**	**1850**	**1860**	**1870**
Real Property Holders	0.51	0.53	0.28	0.17	0.21	0.05	0.52	0.55	0.51
Other Property Holders		0.84	0.44		0.56	0.20		0.86	0.69
Real or Other Property Holders		0.86	0.47		0.59	0.21		0.88	0.73
Sample	10,174	13,732	33,991	408	893	17,188	9,766	12,834	16,798
Free	**1850**	**1860**	**1870**	**1850**	**1860**	**1870**	**1850**	**1860**	**1870**
Real Property Holders	0.52	0.55	0.54	0.22	0.29	0.24	0.53	0.55	0.55
Other Property Holders		0.79	0.69		0.54	0.36		0.79	0.70
Real or Other Property Holders		0.82	0.75		0.58	0.45		0.82	0.76
Sample	24,928	39,327	52,366	363	809	1,748	24,565	38,408	50,458

Source: Information collected, calculated and compiled by James Curtis Jr (2002); IPUMS

This was greater than the 17 percent of free blacks in 1850 and 21 percent of free blacks in 1860 that lived in slave states and possessed positive amounts of real estate wealth. Table 11b shows that the ratio of free black real estate holders (per hundred free blacks in free states) to the number of real estate holders (per hundred free blacks in slave states) also remained relatively constant at 1.3 in 1850 and 1.4 in 1860. By 1870, the return to living in free states grew dramatically. Table 10c shows that the ratio of free state to slave state average real estate wealth for all blacks which includes ex-slaves who held little or no real estate property grew to 9.6.

Table 1c. Mid 19th Century Comparative Wealth Ratios and Comparative Property Ownership Ratios of Whites and Blacks, Based on State Slave Laws

	All Blacks			Whites			*Black-White Ratio*		
	1850	1860	1870	1850	1860	1870	*1850*	*1860*	*1870*
i) Free/Slave Mean Wealth Ratio									
Real Estate	1.7	1.5	9.6	1.1	0.9	1.7	*1.6*	*1.6*	*5.7*
Other		0.7	3.1		0.3	1.4		*2.4*	*2.3*
Total		1.1	6.0		0.6	1.6		*2.0*	*3.8*
ii) Free/Slave Mean Property-Holding Ratio									
Real Estate	1.3	1.4	4.9	1.0	1.0	1.1	*1.3*	*1.4*	*4.5*
Other		1.0	1.9		0.9	1.0		*1.1*	*1.8*
Total		1.0	2.1		0.9	1.0		*1.1*	*2.0*

Source: Information collected, calculated and compiled by James Curtis Jr (2002); IPUMS

This implies that, on average, ex-slaves living in free states possessed ten dollars for every dollar of real estate wealth owned by an ex-slave living in a slave state. Yet the relative sample sizes suggest that approximately one in ten (1748/17188) blacks took advantage of the large free state premium in 1870. Similarly, Table 10c shows that the ratio of black property holders per hundred in free states to property holders per hundred in slave states was 4.9 for every free black real estate holder (per hundred free blacks) in a slave state, there were five (per hundred free blacks) who owned real estate in free states.

5. THE MID 19TH CENTURY STATE SLAVERY LAWS AND REAL ESTATE WEALTH IN THE UNITED STATES OF AMERICA: A COMPARISON OF WHITE AND BLACK AMERICANS OVERTIME

The real estate wealth advantage of blacks in free states was observed when comparing the average real estate wealth of blacks to average real estate wealth of whites before and after emancipation. Using wealth means in Table 10a, free blacks in slave states had 9.5 percent (83/870) of white real estate wealth in 1850 and 13.0 percent (189/1456) of white real estate wealth in 1860. The situation was better for free blacks living in free states: Free blacks had 9.8 percent (150/1007) of white real estate wealth in 1850 and 20.6 percent (312/1511) of white real estate wealth in 1860. White nominal real estate wealth was larger in free states than slave states in 1850 and 1860. However, 1860 whites in slave states ($1639) had slightly more price-adjusted real estate wealth whites in free states ($1512). Unpaid labor in the south began to provide macroeconomic advantages in 1860 to southern real estate holders due to the lower price environment.

The proportion of free black property holders, living in free states, relative to white property holders, living in free states exceeded the same proportion for slave states. Using results in Table 10b the ratio of free black property holders (per hundred free blacks} to white property holders (per hundred whites) in slave states was approximately 1:3 (0.17:0.52) in 1850 and 2:5 (0.21: 0.55) in 1860. In free states, the ratios rose to approximately 2:5 (0.22: 0.53) in 1850 and 1:2 (0.29: 0.55) in 1860.

By 1870, the ratio of black to white average real estate wealth and property holders fell significantly with the inclusion of ex-slaves in the sample but the advantage of free states remained. Using wealth means from Table 10a, 1870 blacks living in slave states held 2.6 percent (33/1282) of the real estate wealth of whites while blacks living in free states held 14.7 percent (288/1963) of the real estate wealth of whites. Similarly, using the percentage of property holders, the ratio of black real estate property holders (per hundred free blacks) to white property holders (per hundred whites) was approximately 1:10 (0.05:0.51) in slave states and approximately 2:5 (0.24:0.55) in free states in 1870.

Using the *comparative wealth ratio* for real estate wealth, we can ignore the absolute differences in black and white real estate wealth and ascertain the advantages of living in free states in the presence of wealth constraints. Since the ratio in Table 10b exceeds one in 1850 (1.6) and 1860 (1.6), free blacks obtained a higher return to living in free states versus living in slave states than whites living in free states. The ratio in Table 10c grew to 5.7 in 1870 suggesting a dramatic growth in the premium to living in free states after emancipation. This interesting result may suggest that federal-level emancipation guidelines were not fully executed in the former slave states causing higher returns to live in free states, which were already complying with state-level emancipation guidelines. Similar results were obtained using the *comparative property ownership ratio* for real estate property in Table 10c. Since the ratio exceeds one in 1850 (1.3) and 1860 (1.4), free blacks obtained a higher return to living in free states vs. slave states than whites living in free states. The ratio grew to 4.5 in 1870, again, suggesting a dramatic growth in the premium to living in free states after emancipation.

6. THE MID 19TH CENTURY STATE SLAVE LAWS AND OTHER WEALTH IN THE UNITED STATES OF AMERICA: A COMPARISON AMONG BLACK AMERICANS OVERTIME

A surprising empirical result was that blacks in slave states had advantages in other measures of wealth before emancipation. However, these advantages were reversed after emancipation. Table 10a shows that free blacks, living in slave states, possessed $189 in nominal other wealth in 1860 prior to emancipation. This was slightly higher than the $146 possessed by free blacks in free states. Thus, free blacks in free states possessed 70 percent of the wealth of free blacks in slave states in 1860. When adjusted for regional prices, the differences here are not significant. Free blacks in slave states held $191 in 1860 while free blacks in free states held $146 in price-adjusted real estate wealth.

Free blacks in slave states were also more likely to hold other property than free blacks in free states. Table 10b shows that 56 percent of free blacks, living in slave states, possessed positive amounts of other wealth in1860. This was slightly greater than 54 percent of free blacks who lived in slave states in 1860 and possessed positive amounts of other wealth.

These surprising results were driven by large free black wealth in the southwest. A majority of blacks resided in the south in 1860 and 1870 and a large number of 1860 of free blacks in the southwestern sample were mulatto owners of slaves. Free black ownership of slaves was not uncommon. The census records show that the majority of the Negro slaves were such from the point of view of philanthropy. In many instances, the husband purchased the wife or vice versa. Most of such Negro proprietors lived in Louisiana, South Carolina, Maryland and Virginia (Woodson 1924, pp.v-viii).

However, by 1870, the return to living in free states grew dramatically. Table 10c shows that the ratio of free state to slave state real estate wealth for all blacks which includes ex-slaves who held little or no real estate property grew to 3.1. This implies that ex-slaves, living in free states, possessed three dollars for every dollar of wealth owned by an ex-slave living in a slave state. Similarly, Table 11b shows that the ratio of black property holders (per hundred free blacks) in free states to property holders (per hundred free blacks) in slave states was 1.9 for every free black real estate holder (per hundred free blacks) in a slave state, there were two free black real estate holders (per hundred free blacks) in free states.

7. THE MID-19TH CENTURY STATE SLAVERY LAWS AND OTHER WEALTH IN THE UNITED STATES OF AMERICA: A COMPARISON OF WHITE AND BLACK AMERICANS OVERTIME

The free state advantage was observed when comparing other wealth of blacks to other wealth of whites before and after emancipation. Using wealth means in Table 10a, free blacks in slave states had 10.1 percent (191/1895) of white real estate wealth in 1860 and 7.0 percent (42/598) of white real estate wealth in 1870. The situation was better for free blacks living in free states: Free blacks had 22.6 percent (146/645) of white real estate wealth in 1860 and 15.9 percent (121/761) of white real estate wealth in 1870.

The proportion of free blacks holding other forms of property and living in free states relative to whites holding other forms of property and living in free states exceeded the same proportion for slave states. The ratio of free blacks (per hundred free blacks) to whites (per hundred whites) with other forms of property in slave states was approximately 2:3 (0.56: 0.86) in 1860 and 1:3 (0.20: 0.69) and 1870. In free states, the ratio rose to approximately 2:3 (0.54 :0.79) in 1860 and 1:2 (0.36: 0.70) in 1870.

Using the *comparative wealth ratio* for other forms of wealth, we can ignore the absolute differences in black and white wealth and ascertain the advantages to living in free states in the presence of wealth constraints. Since the ratio in Table 10c exceeds one in 1860 (2.4) and 1870 (2.3), free blacks obtained higher returns to living in free states versus living slave states than whites living in free states. Similar results were obtained using the *comparative property ownership ratio* for other forms of property. Since the ratio reported in Table 10c exceeds one in 1860 (1.1) and 1870 (1.8), free blacks obtained higher returns to living in free states versus living in slave states than whites living in free states.

8. THE MID-19TH CENTURY STATE SLAVE LAWS AND TOTAL WEALTH IN THE UNITED STATES OF AMERICA: A COMPARISON AMONG BLACK AMERICANS OVERTIME

When summing up real estate and other forms of wealth, empirical results show that blacks in free states were better off before and after emancipation. Table 10a shows that free blacks, living in slave states, possessed $380 in nominal total wealth in 1860 prior to emancipation. This was lower than the $458 possessed by free black in free states. This produces 1.1 to 1.0 ratio of free black wealth in free states to free black wealth in slave states in 1860. Note that free blacks in free states were equally likely to hold total property as free blacks in slave states. Table 10b shows that 59 percent of free blacks, living in slave states, possessed positive amounts of total wealth in1860. This was approximately the same as the 58 percent of free blacks that lived in slave states in 1860 and possessed positive amounts of total wealth. Again, the results were driven by large free black wealth in the southwest where a large number of 1860 free blacks in the southwestern sample were mulatto owners of slaves.

By 1870, the return to living in free states grew dramatically. Table 10c shows that the ratio of free state to slave state real estate wealth for all blacks which includes ex-slaves who held little or no real estate property grew to 6.0. This implies that ex-slaves, living in free states, possessed six dollars for every dollar of total wealth owned by an ex-slave living in a slave state. Similarly, Table 10c shows that the ratio of black total property holders (per hundred blacks) in free states to total property holders (per hundred blacks) in slave states was 2.1 for every free black real estate holder in a slave state, there were two free black real estate holders in free states.

9. THE MID-19TH CENTURY STATE SLAVERY LAWS AND TOTAL WEALTH IN THE UNITED STATES OF AMERICA: A COMPARISON OF WHITE AND BLACK AMERICANS OVERTIME

The free state advantage was observed when comparing the total wealth of blacks to total wealth of whites before and after emancipation. Using wealth means in Table 10a, free blacks in slave states had 11.3 percent (380/3351) of white total wealth in 1860 and 4.0 percent (75/1880) of white total wealth in 1870. The situation was better for free blacks living in free states: Free blacks had 21.2 percent (458/2156) of white total wealth in 1860 and 15.0 percent (408/2725) of white real estate wealth in 1870.

The proportion of free black total property holders, living in free states, relative to white total property holders, living in free states exceeded the same proportion for slave states. The ratio of free black total property holders (per hundred free blacks) to white total property holders (per hundred whites) in slave states was approximately 2:3 (0.59: 0.88) in 1860 and 1:4 (0.21: 0.73) in 1870. In free states, the ratio rose to approximately 7:10 (0.58: 0.82) in 1860 and 6:10 (0.45: 0.76) in 1870.

Using the *comparative wealth ratio* for total wealth, we can ignore the absolute differences in black and white wealth and ascertain the advantages of living in free states in the presence of wealth constraints. Since the ratio in Table 10a exceeds one in 1860 (2.0) and 1870 (3.8), free blacks obtained higher returns to living in free states versus living in slave states than whites living in free states. Similar results were obtained using the *comparative property ownership ratio* for total property. Since the ratio reported in Table 10c exceeds one in 1860 (1.1) and 1870 (2.0), free blacks obtained a higher return to living in free states versus living in slave states than whites living in free states. This is initial evidence of symmetry between the socio-economic environment and socio-economic outcomes.

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APPENDIX

The Economic Analysis of the Condition of Free Blacks in the United States of America Compared to Ex-Slaves and White Americans in the Mid-19th Century

Several anecdotal studies on free blacks in the labor market show that the poor legal and social conditions made it difficult for free blacks to be economically competitive. For instance, free blacks had to compete with slaves, whites and immigrants for employment.

The preference of employers for white or slave labor forced free Negroes to underbid whites and work on the same terms as slaves. By accepting lower wages and longer hours, many free Negroes found employment, but they aroused the ire of white workingmen, who complained that free Negroes depressed their standard of living (Berlin, p.229). Immigration put free Negroes in the same position: The influx of Irish and German workers speeded the exclusion of Negro freeman from many occupations. The competition free Negro workers faced from newly arrived immigrants in Baltimore was a typical example of how white immigrants limited the free Negros opportunities (p.231).

They tended to earn wages and income that were much less than whites. One local study shows that: Racial prejudice relegated many free Negro workers to the meanest drudgery at the lowest pay even at these low levels of employment, free Negroes were often paid less than whites. The standard wage for day laborers in the Norfolk shipyards (for example) was one dollar, but free Negro workers rarely earned more than seventy-five cents a day (Berlin, p.227).

But studying racial differences in factor market supply decisions and prices, as reflected in the literature on labour supply, wages and income present only a subset of the factors that determine the accumulation and storage of assets over the lifetime of black and white households. Therefore, this study will focus on differences in wealth between blacks and whites in the middle of the 19th Century.

Related Studies: A Review of the Literature on the Study of Free Blacks

The source of antebellum free black-white wealth differences has not studied. Researchers (e.g., Bodenhorn (1999), Eggert (1997), Hershberg (1997), Berlin (1974), Litwick (1961), Jackson (1939), and DuBois (1899)) and Philadelphia abolitionist society studies in 1849 and 1838 attempted to address free black-white wealth differences often using a piece-mill approach. Foremost, Leon Litwick (1961) and Ira Berlin (1979) provided a historical account for the experience of northern and southern free blacks, respectively. After surveying past research efforts, compiling county records and compiling census manuscripts, Berlin found that free blacks in several states possessed more property over time. But these results are obscured by the aggregate measures of wealth. For instance, he found that the aggregate wealth of free blacks living in fifteen counties in Georgia nearly doubled between 1850 and 1860. But we do not know why their wealth increased because correlations with explanatory variables were not calculated.

Luther Jackson (1939) also analyzed the property and real estate wealth of free blacks in the South. He used tax books, deeds, orders, legislative petitions, agricultural manuscripts and census manuscripts from Virginia to show that the amount of property held by free blacks in 1830 tripled by 1860. Even though Jackson provided a brief statistical analysis, the inference of his study is limited to Virginia and he did not employ methods to explain what drove his observations.

Bodenhorn (1999a) used 1860 US census data to analyze southern wealth differences among darker and lighter free blacks. Based on censored quantile regression results using data from

Maryland, Virginia, North Carolina, Kentucky and Louisiana, mulattos had wealth advantage to darker free blacks. Similarly, Bodenhorn (1999b) employs data stature of darker and lighter free blacks. He also found that mulattos had an advantage to darker free blacks when analyzing stature data from Virginia. While Bodenhorn did employ modern statistical analyses, inference from this study is limited to several states.

Some research has also been conducted on free black wealth in localities within Pennsylvania. Gerald Eggert (1997) linked US Census records of blacks in Harrisburg, Pennsylvania from 1850-60 to estimate property values of free blacks. He found stagnant wealth among a large percentage of the population but growth among those who did not migrate. However, his study did not compare results to migrants and was limited to one locality. Theodore Hershberg (1997) employed abolition society data on the socioeconomic conditions of free blacks in Philadelphia to show that real and personal wealth fell ten percent between 1838 and 1847.

Similarly, W. E. B. Dubois (1899) used these records and tax receipts to show that free blacks in Philadelphia often held less property than whites. However, Hershberg and Dubois do not use the analytical tools needed to fully explain their results. Their studies lack a full description of the data collection procedures in their research. To analyze the link between these social conditions and economic outcomes of free blacks, I employ wealth and cross-sectional variables from 1850, 1860 and 1870 Integrated Public Use Microdata Samples (IPUMS).

Descriptive Statistics: An Analysis of the IPUMS Data Employed for the Study of the Economic Condition of Free Blacks in the United States of America, Compared to Ex-slaves and White Americans

This study uses data from the Integrated Public Use Microdata Sample (IPUMS). IPUMS data are based on national representative samples and supplemental over-samples of minorities from the population schedules of the US census manuscripts. The US conducted its first census in 1790 and its first modern census in 1850. By 1850, the census had improved such that we can now investigate the past with new insights. Modern census data is a rich set of cross-sectional, individual-level data on American families and individuals.

Magnuson (1995a) and Steckel (1991) recommend that researchers pay careful attention to enumeration the procedures before investigating this data. Magnuson reports that the U.S. Census is not a pure reflection of general societal trends (p.11). The census is composed of questions, which have and have not persisted over time. Between 1790 and 1840, the unit of enumeration was the household, based on a given set of characteristics, i.e. Colored-Male-Over Age 16. The 1850 U.S. Census was considered the first modern Census when the unit was changed to the individual. Magnuson also noted that a proposed slave schedule would have collected extensive information on the ancestors of modern-day African Americas. In 1840, Congress formed the Census Board that unsuccessfully recommended a slave schedule for the 1850 U.S. Census--which would have included the names of slaves, the birthplace of slaves and number of children (Magnuson 1995a, p.19).

Steckel reminds us that the original purpose of the US census was for taxation and US House of Representatives appropriations. However, a growing desire for statistical information, curiosity about society, and heightened interest in international and regional comparisons led to the expanded collection by the federal census (Steckel 1991, pp.582-83). Steckel suggested that the likelihood of error increases as early census data is more disaggregated. He noted that under-enumeration, over-enumeration and misreporting are errors that affect the quality of census data and led to the creation of the Census Bureau. Some of these errors may be attributed to the poor training of early enumerators and lower quality of early census administration. He found that larger households, lower-educated persons and persons with poor English-language skills tended to be omitted from the census. Steckel (1991) provided several examples of underenumeration in census data collected on blacks. He recommended using census comparisons, census matching, and consistency checks to evaluate errors and improve the quality of samples from the early census.

This study analyzes US census samples from 1850-70. These census manuscripts contain responses to important socioeconomic inquiries including age, sex, color, marriage status, literacy, whether the individual attended school during the year, occupation, state or country of birth, the value of real estate, and value of the personal estate (1860 and 1870 only).

Real estate value was enumerated based on guidelines specified in the Circular to Marshals. It specified that "under heading 8 insert the value of real estate owned by each individual enumerated. You are to obtain the value of real estate by inquiry of each individual who was supposed to own real estate, be the same located where it may, and insert the amount in dollars. No abatement of the value is to be made on account of any lien or encumbrance thereon in the nature of debt" (Magnuson 1995b, p347) Personal estate value was also enumerated based on guidelines that specified "Personal estate is to be inclusive of all bonds, stocks, mortgages, notes, livestock, plate, jewels, or furniture, but exclusive of wearing apparel" (p.349)

Economists have conducted an extensive amount of research based on national samples from the early US census manuscripts (see e.g. Ferrie 1999, 1994; Steckel 1990; Becker and Tomes 1986 and Soltow 1975, 1972). The sample studied in this paper was restricted to heads of households. Investigating the wealth from a random sample of household heads is more productive than investigating a random sample of individuals. Wealth is often used to purchase durable goods and durables are more likely to benefit the entire household rather than one individual in a household. Furthermore, census enumerators tended to sum up the wealth of a household and report it under the head of household. The final sample includes a 1-in-100 random sample from the 1850-70 censes and supplemental samples of 1-in-50 blacks in 1860 and 1870. The racial breakdown of the pooled sample is 21,416 blacks and 154,569 whites.

Prior to 1865, blacks were not only stratified by skin color--black and mulatto--but they also functioned based on heterogeneous legal rights. Blacks were either bounded in slavery or free, contingent on appropriate documentation. The 1850 and 1860 IPUMS samples only include free blacks. As reported earlier, no detailed individual-level data is available on slaves. Thus, averages of wealth and property holding in the descriptive statistics were weighted based on (*i*) the size of the free black population relative to slave population in 1850 and 1860 and (*ii*) the assumption that slaves had no personal and real estate. Blacks were 15.7 percent of the US population in 1850 and 14.2 percent of the population in 1860 (Cramer 1997). But free blacks represented 11.9 percent and 11.0 percent of the black population, respectively. The unweighted averages in 1850 and 1860 represent the experience of (*i*) the average free black and (*ii*) the average black if slaves were freed earlier.

The decade before the Civil War was a ripe environment for economic prosperity. Thomas Weiss (1992) found that Gross Domestic Product (GDP) grew by 1.96 percent between 1850 and 1860--higher than any other decade in the pre-war era. He suggested that although perishable output and shelter were the primary components of the gain, residual output also increased significantly. The residual was the portion of output beyond apparent necessities this was the output needed for industrialization, and of course, provided the discretionary items as well that are the fruits of economic progress. In this light, Americans were advancing in style (Gallman, p.30).

The Descriptive Statistics of the IPUMS Data Employed to Study Free Blacks in the United States of America

Tables 7b-1, 7c-2 and 7d-3 describe the means of the variables in the IPUMS sample:

Table 7b-1. The Sample Means of the IPUMS Data, 1850 through 1870

Race:	Black					White			Overall		
Year:	1850		1860		1870	1850	1860	1870	1850	1860	1870
	Free	All	Free	All	All						
Wealth Variables											
Personal Estate			208	(23)	53		1,404	1,112		1,363	880
Real Estate	171	(20)	277	(30)	71	1,336	1,975	2,436	1,311	1,916	1,919
Total Estate			484	(53)	124		3,379	3,548		3,280	2,799
Price-Adjusted Personal Estate			215	(24)	34		1,506	741		1,462	586
Price-Adjusted Real Estate	189	(22)	286	(31)	47	1,486	2,050	1,643	1,458	1,990	1,294
Price-Adjusted Total Estate			501	(55)	81		3,556	2,384		3,452	1,880
Personal Estate > 0			0.551	(0.061)	0.211		0.811	0.703		0.801	0.595
Real Estate > 0	0.194	(0.023)	0.245	(0.027)	0.067	0.531	0.557	0.546	0.524	0.546	0.441
Total Estate > 0			0.585	(0.064)	0.235		0.838	0.758		0.829	0.643
Farm ownership	0.114	(0.014)	0.119	(0.013)	0.194	0.506	0.445	0.410	0.498	0.434	0.363
Wealth Ratio (to Whites)											
Personal Estate			0.148	(0.016)	0.048					0.97	0.79
Real Estate	0.128	(0.015)	0.140	(0.015)	0.029				0.98	0.97	0.79
Total Estate			0.143	(0.016)	0.035					0.97	0.79
Price-Adjusted Personal Estate			0.143	(0.016)	0.046					0.97	0.79
Price-Adjusted Real Estate	0.127	(0.015)	0.139	(0.015)	0.029				0.98	0.97	0.79
Price-Adjusted Total Estate			0.141	(0.015)	0.034					0.97	0.79
Personal Estate > 0			0.679	(0.075)	0.300					0.99	0.85
Real Estate > 0	0.366	(0.043)	0.440	(0.048)	0.122				0.99	0.98	0.81
Total Estate > 0			0.698	(0.077)	0.310					0.99	0.85
Farm ownership	0.225	(0.027)	0.267	(0.029)	0.473				0.98	0.98	0.88
Race Variables											
Black	1.000		1.000		1.000	-	-	-	0.022	0.032	0.217
Black	0.677		0.635		0.881	-	-	-	0.015	0.020	0.191
Mulatto	0.323		0.365		0.119	-	-	-	0.007	0.012	0.026
White	-		-		-	1.000	1.000	1.000	0.978	0.966	0.781
Other	-		-		-	-	-	-	-	0.002	0.002
Chinese	-		-		-	-	-	-	-	0.001	0.001
Indian	-		-		-	-	-	-	-	0.001	0.001
Schooling Variables											
Literacy	0.527		0.583		0.146	0.903	0.913	0.885	0.895	0.902	0.724
Occupation Variables											
Labor Force Participation	0.656		0.823		0.890	0.873	0.910	0.887	0.868	0.907	0.888
Unskilled	0.371		0.509		0.705	0.100	0.146	0.230	0.106	0.158	0.333
Skilled	0.166		0.191		0.071	0.218	0.233	0.227	0.217	0.232	0.193
White-Collar	0.018		0.019		0.009	0.085	0.107	0.119	0.083	0.104	0.095
Farmer	0.107		0.112		0.187	0.475	0.431	0.395	0.467	0.420	0.349
Student or Retired	-		0.001		0.000	0.000	0.002	0.009	0.000	0.002	0.007
Other	0.338		0.167		0.027	0.122	0.082	0.020	0.127	0.085	0.022

Source: Information collected, calculated and compiled by James Curtis Jr (2002); IPUMS

Table 7b-2. The Sample Means of the IPUMS Data, 1850 through 1870

Race:	Free Blacks			Whites			Overall		
Year:	1850	1860	1870	1850	1860	1870	1850	1860	1870
Demographic Variables									
Male	0.750	0.727	0.820	0.910	0.908	0.893	0.907	0.902	0.877
Number of persons in the household	4.581	4.684	4.705	5.532	5.267	5.166	5.511	5.247	5.064
Number of families in the household	1.295	1.263	1.194	1.382	1.354	1.371	1.380	1.352	1.335
Married	0.639	0.613	0.716	0.830	0.822	0.818	0.826	0.814	0.794
Number of children > 0	0.688	0.715	0.746	0.818	0.810	0.804	0.815	0.806	0.790
Number of children	2.023	2.117	2.233	2.819	2.619	2.504	2.802	2.600	2.442
Number of children under 5 years old	0.589	0.553	0.682	0.752	0.750	0.662	0.748	0.742	0.665
Youngest child	4.916	5.675	4.413	5.239	5.173	5.750	5.232	5.187	5.452
Oldest child	9.366	10.521	9.462	11.372	10.852	11.317	11.328	10.834	10.899
Age	42.450	42.890	39.839	41.525	41.384	42.806	41.546	41.424	42.146
< 20 years old	0.009	0.007	0.018	0.003	0.004	0.004	0.003	0.004	0.007
20-29 years old	0.182	0.176	0.258	0.197	0.195	0.172	0.197	0.194	0.191
30-39 years old	0.274	0.254	0.248	0.301	0.304	0.276	0.300	0.302	0.270
40-49 years old	0.225	0.244	0.214	0.231	0.233	0.243	0.231	0.233	0.236
50-59 years old	0.171	0.170	0.146	0.149	0.151	0.172	0.149	0.151	0.166
60-69 years old	0.085	0.093	0.080	0.082	0.080	0.093	0.082	0.080	0.090
70-79 years old	0.035	0.035	0.026	0.029	0.027	0.033	0.029	0.028	0.032
80-89 years old	0.009	0.018	0.007	0.007	0.006	0.006	0.007	0.006	0.006
90+ years old	0.009	0.004	0.003	0.001	0.001	0.000	0.001	0.001	0.001
Region Variables									
Rural	0.621	0.615	0.863	0.802	0.753	0.718	0.798	0.749	0.749
Metropolitan area	0.224	0.258	0.066	0.122	0.172	0.196	0.125	0.175	0.168
Slave state	0.528	0.525	0.908	0.286	0.255	0.249	0.291	0.263	0.391
Northeast	0.054	0.050	0.006	0.145	0.121	0.106	0.143	0.118	0.084
Mid-Atlantic	0.304	0.253	0.033	0.293	0.276	0.252	0.293	0.275	0.204
Midwest	0.113	0.153	0.052	0.263	0.320	0.361	0.260	0.314	0.294
Southeast	0.493	0.474	0.747	0.256	0.215	0.208	0.261	0.223	0.324
Southwest	0.035	0.050	0.161	0.031	0.040	0.041	0.031	0.040	0.067
West	0.001	0.019	0.002	0.012	0.028	0.032	0.012	0.030	0.027
Moved to Northeast	0.023	0.023	0.003	0.023	0.029	0.031	0.023	0.029	0.025
Moved to Mid-Atlantic	0.097	0.079	0.012	0.106	0.117	0.109	0.106	0.116	0.088
Moved to Midwest	0.102	0.118	0.037	0.210	0.244	0.251	0.208	0.239	0.204
Moved to Southwest	0.010	0.013	0.102	0.026	0.033	0.033	0.026	0.033	0.048
Moved to Southeast	0.006	0.006	0.006	0.025	0.026	0.027	0.025	0.025	0.023
Moved to West	0.001	0.016	0.002	0.009	0.025	0.029	0.009	0.025	0.024
Stayed in Northeast	0.031	0.028	0.003	0.123	0.092	0.075	0.121	0.089	0.059
Stayed in Mid-Atlantic	0.207	0.174	0.021	0.187	0.158	0.144	0.188	0.158	0.117
Stayed in Midwest	0.010	0.035	0.015	0.053	0.076	0.110	0.052	0.075	0.090
Stayed in Southwest	0.025	0.038	0.058	0.005	0.006	0.008	0.005	0.007	0.019
Stayed in Southeast	0.486	0.469	0.741	0.230	0.190	0.180	0.236	0.198	0.302
Stayed in West	-	0.002	0.000	0.004	0.004	0.003	0.004	0.005	0.003

Source: Information collected, calculated and compiled by James Curtis Jr (2002); IPUMS

Table 7b-3. The Sample Means of the IPUMS Data, 1850 through 1870

Race:	Free Blacks			Whites			Overall		
Year:	1850	1860	1870	1850	1860	1870	1850	1860	1870
Region Variables (continued)									
Migrated to a different state	0.340	0.343	0.359	0.545	0.594	0.597	0.540	0.586	0.546
Migrated to a different region	0.241	0.255	0.162	0.398	0.474	0.479	0.395	0.467	0.411
Born in Northeast	0.035	0.038	0.004	0.174	0.134	0.108	0.171	0.130	0.085
Born in Mid-Atlantic	0.225	0.197	0.024	0.266	0.242	0.223	0.265	0.240	0.179
Birn in Midwest	0.012	0.037	0.020	0.058	0.084	0.120	0.057	0.083	0.099
Born in Southeast	0.682	0.669	0.886	0.325	0.274	0.254	0.333	0.286	0.391
Born in Southwest	0.026	0.041	0.063	0.005	0.007	0.009	0.006	0.008	0.021
Born in West	-	0.002	0.000	0.004	0.004	0.003	0.004	0.005	0.003
Born in other US Territory	0.001	0.001	0.000	0.001	0.000	0.000	0.001	0.000	0.000
Born in foreign country	0.019	0.015	0.002	0.168	0.256	0.282	0.165	0.248	0.222
Price Index									
Regional Price Index	88.45	93.53	158.32	90.15	97.46	149.86	90.11	97.34	151.69
Number of Observations	773	1,703	18,940	34,671	51,776	68,122	35,444	53,594	87,227

Source: Information collected, calculated and compiled by James Curtis Jr (2002); IPUMS

Five years after emancipation, blacks made gains in the total wealth. Total wealth includes the value of personal and other wealth. The value of the southern total estate was inflated by the value of slaves. Slave owners included the value of slaves in their personal estate.

On average, the value of black total wealth, adjusted by regional prices, was $124 in 1870 while whites held $3,548 in the total estate. Total estate wealth grew by 47 percent between 1860 and 1870 among blacks while white total estate wealth fell 33 percent between 1860 and 1870. See the empirical results section for a complete discussion of black-white wealth differences.

Black-white differences in schooling and employment were also quite large in 1870. 14.6 percent of the black population was literate while 88.5 percent of the white population could read and write. While 89 percent of both, blacks and whites, were employed, occupation concentrations were different. In 1870, 70.5 percent of blacks had unskilled jobs, compared to 23 percent of whites. In contrast, 18.8 percent of blacks were either white-collar workers or farmers, compared to 53.8 percent of whites.

White occupational concentrations changed quite dramatically between 1850 and 1870. The portion of white unskilled workers grew 46.2 percent between 1850 and 1860 and 57.3 percent between 1860 and 1870 while the portion of the white-collar worker grew less dramatically during this period. The portion of white-collar workers grew 25.8 percent between 1850 and 1860 and 12.1 percent between 1860 and 1870. Simultaneously, the portion of white farmers fell 9.3 percent between 1850 and 1860 and 8.4 percent between 1860 and 1870. Naturally, this coincided with a continual decline in farm ownership among whites over the twenty-year period.

Blacks and whites were also different demographically in 1870. 18 percent of black households had female heads while only10.7 percent of white households had female heads. Similarly, only 71.6 percent of black household heads were married while 81.8 percent of white household heads were married. White households also had more residents, including children. Furthermore, the average age of the white household head, youngest child and oldest child are older than the average ages of the black household head, youngest child and oldest child, respectively. White demographics gradually changed over the twenty-year period. The number of persons in a household, number households with children and number of children all fell. Simultaneously, the number of white male and white married household heads fell. Among free blacks, the proportion that was male and married also fell between 1850 and 1860.

Regional differences were also quite large in 1870. The only dramatic regional differences among whites prior to 1870 were changes in the western and foreign-born population. 12

percent of whites lived in the west in 1850. This portion of the population grew by 129 percent between 1850 and 1860 and 12 percent between 1860 and 1870. Additionally, Joseph Ferrie reports that the portion of the white foreign-born population grew by 52 percent between 1850 and 1860 and 10 percent between 1860 and 1870 (1999). 1850 and 1860 free blacks were regionally different than whites and all blacks in 1870. Only one-in-two free blacks lived in slave states, with the remaining plurality living in the Mid-Atlantic. More than one-in-three free blacks lived in urban areas between 1850 and 1860 significantly larger than whites and all blacks in 1870. One-in-three free blacks were also born outside of the southeast region in 1850 and 1860. Furthermore, 34 percent of free blacks migrated to a different state in 1850 and 1860 and over seventy percent of these migrants migrated to a new region. Only one-in-four whites lived in former slave states while nine out of ten blacks lived in former slave states. As a result, blacks were more likely to live in rural areas than blacks (86.3 percent of blacks to 71.8 percent of whites). This occurred because whites were more regionally mobile than blacks. 35.9 percent of blacks migrated from their birth state and 45 percent these migrants reside in a new region. However, 59.7 percent of whites migrated from their birth state and 80 percent of these migrants changed regions. The key regional difference may be that only 11.4 percent of blacks were born outside the Southeast while the largest birth segment among whites was foreign-born (28.2 percent). Joseph Ferrie conducts a thorough analysis of the immigrant experience during this period (1999).

Five years after emancipation, blacks, on average, held $71 in real estate wealth while whites held $2,437. These estimates are consistent with the estimates of Soltow (1972; 1975). Although Soltow (1972) only collected a sample of 393 non-whites in 1870, he found their average wealth was $73, compared to $2,661 among whites. Soltow (1975) found similar differences in free black and white wealth using a sample of 151 blacks. He conducted one of the first in-depth studies of mid-nineteenth century wealth accumulation patterns using the census population schedules. Note that these schedules were originally are stored on microfilms. He spun the microfilm half-turns to collect random, cross-sectional samples from 1850-1870. He found that average black wealth in 1870 was $74 while average white wealth in $2,691.

Given that blacks held only 2.9 percent of the average white real estate wealth in 1870--up from the 1.5 percent in 1850 and 1860, the fact that the growth of real estate wealth favored blacks over this time period may not be surprising. Among blacks, average real estate wealth, adjusted by regional prices, grew by 28 percent between 1850 and1860 and 33 percent between 1860 and 1870. Among whites, price-adjusted real estate wealth also grew by 28 percent between 1850 and 1860 but fell by 25 percent between 1860 and 1870. This white wealth recession was primarily due to the losses incurred by the southern whites after the Civil War.

Property-holding patterns were similar to real estate wealth patterns. Only 6.7 percent of blacks in 1870 held property (or a positive value of real estate wealth) while 54.6 percent of whites held property in 1870. The growth in black property-holders outpaced the growth of black real estate wealth. Black's property holders grew 17 percent between 1850 and 1860 and 148 percent between 1860 and 1870. Among whites, property holders grew by five percent between 1850 and 1860 and fell two percent between 1860 and 1870. Overall, the ratio of black to white property holders was 12.2 percent in 1870, up from 4.3 percent in 1850 and 4.8 percent in 1860.

Blacks made similar gains in the total estate. The total estate includes the value of the personal estate and real estate. The value of the southern total estate was inflated by the value of slaves. Slave owners included the value of slaves in their personal estate. On average, the value of black total estate wealth, adjusted by regional prices, was $124 in 1870 while whites held

$3,548 in the total estate. Total estate wealth grew by 47 percent between 1860 and 1870 among blacks while white total estate wealth fell 33 percent between 1860 and 1870. Black total estate holders (or blacks possessing a positive value of total estate wealth) grew by 265 percent to 23.5 percent in 1870 while white total estate holders fell by 9.6 percent to 75.8 percent in 1870. Overall, the ratio of black to white total estate wealth was 3.5 percent while the ratio of black to white total estate holders was 31 percent in 1870.

These descriptive statistics document the general improvements in the condition of the average black relative to the average white after the abolition of slavery.

Economic Theory: The Economic Expectations before Investigating Evidence in the Data

The Study of Wealth: Wealth is the accumulation of material resources that have a market value for current or future consumption. Furthermore, savings, initial wealth and the compounded rate of return on the invested savings and initial wealth determine wealth. The following section describes universal and group-based expectations, based on economic theory, in the areas of economic growth (including wealth, property and savings), economic inequality, and comparative economic outcomes. Wealth, property, and measures of classical economic choice characteristic will be employed to measure outcomes, compared to expectations.

Economic Growth and the Parabolic Property Ownership Expectations: To analyze the relationship between age and property, I employ methods developed by Lee Soltow (1975). He expected the old to hold more property than the young: He found that plots of individuals holding property across age groups show a "very rapid rise in the probability of ownership in the first 10 years of adulthood with a tapering affect appearing thereafter" (Soltow, p.28). He suggests that this concavity was affected by the income and savings decisions and distribution of the population.

Soltow used estimates of non-property-holders to develop a parabolic model of property holding over different age rages. This theoretical parabolic behavior is based on an assumption that proportion of non-property-holders is fixed across age groups. Soltow expects that 79.3 percent of thirty-year-olds who did not hold property in their twenties will not hold the property for the same reason as the 79.3 percent who did not hold property when they were in their twenties:

"The .793 is a quantification of the importance of all those characteristics inhibiting ownership, such as lack of knowledge of available land or credit, inability to speak or write English or possibly read any other language, unwillingness to accept the obligations of ownership, inability to save because of low income or high consumption, legarthy because of sickness or poor health, and so on. If quantification of .79 were to operate for the group from age 30 to 39, one would expect the .793 of the property-less at age 30 to remain property-less. Thus, $1-(.793)^2$ would own property in the 30-39 group" (Soltow, 1972, p.30).

"The strength of America's system, as seen by nineteenth-century writer, was that an individual had the opportunity to improve his position over time. This opportunity meant that he was not placed in a fixed position in society. He might have had to work hard, but he could expect betterment in his wealth status. We can capture this phenomenon by studying the participation rate (proportion of men who held property) of peoples of different ages in a given year. Sure this rate, as measured by (real estate holding) or (total estate holding) must be higher for the old than for the young...If the majority of individuals in the economy are to experience betterment in economic position during their lifetimes, more and more should rise above the level of being poor, above some minimum wealth amount" (p.27).

Economic Growth and the Linear Growth in Wealth Expectations: To analyze the relationship between age and wealth, I employ additional methods that were first employed by Soltow (1975). He plotted age-wealth coordinates and expected a positive relationship: "Material betterment dominated the economic thinking men. Those with wealth expected to have more each year as they grew older; accumulation was a sign or index of recognition of an individual's past economic activities. Wealth mirrors the past better than income since the pleasures of past consumption may be forgotten. It is only saving from past income that is now reflected in one's wealth" (Soltow, 1975, p.69).

Soltow did, in fact, observe a linear relationship between estate values and age. The parabolic effect of age on property holding was not present when observing average wealth at different ages. "The group average rises strongly from 20-29 to 30-39 and then has its greatest thrust in going from 30-39 to the 40-49 group. The average tapers off but continues to rise rather surprisingly into old age. There is certainly no strong parabolic effect, as can be seen, the in...the proportion of men with property" (p.70). He also suggested that the stability of the 1850 pattern was "proof that the age patterns were established decades before the 1850 and the concepts of economic betterment must have been pervasive" (Soltow, 1975, pp.74-75).

Economic Growth and the Savings Rate Expectations: Finally, I use the method proposed by Soltow (1975) to analyze savings using wealth annualized at each age. Soltow used the differences in wealth at each age to observe the continuity of savings that continued through old ages. Furthermore, Soltow found the average annual savings rate was about 5 percent. This was obtained by [1] averaging the increase in wealth per age groups 20-69 or 90 percent of the adult male population {(582+804+311+303)/4 =500}, [2] annualizing the average increase per age group or decade {500/10=50}, and [3] dividing the average annual increase in wealth by the average wealth in 1850 {50/1001=.05}. Note that this finding of 5 percent is the average for individuals. Since households possess more wealth than individuals, this rate is expected to much be smaller in the forthcoming empirical analysis. "The difference between in wealth levels from one year to the next gives an index of saving for a year" (pp.71-72).

Economic Geography. Johann Heinrich Von Thünen (1966, Wikimedia 2004) was the first to describe the reasoning behind local residency decisions in the book entitled, The Isolated State:

In his theory of "The Isolated State", he started out from Adam Smith's idea of "economic man": that the farmer is expected to maximize his profit ("economic rent") from his farmland. Von Thünen, as a landlord, knew that such returns depend on an optimal use of the land surfaces and the transport costs. In concentrating on the effects of these two variables on profits, removal of other factors results in a homogeneous - and isolated – state.

Transport cost depends on the distance from the market and different kind of products. The gain from farming per unit area (locational rent) decreases with increasing distance from the market. The minimum price of a commodity is calculated by locational rent, transport costs and fixed production costs - the profit is then the difference between the costs and the fixed market price. The idealized pattern of agricultural land use zones in von Thünen's model. Locational rent, a term used by von Thünen in his argument, is to be understood as the equivalent to land value. It corresponds to the maximum amount a farmer could pay for using the land, without making losses. It can be defined as the equation below:

$L = Y((P - C) - DF)$ (such that) L: Locational rent, Y: Yield, P: Market price of the crop, C: Production cost of the crop, D: Distance from the market, and F: Transport cost.

Since locational rent falls with increasing distance from the market, the amount each farmer is willing to pay for agricultural land will shrink and the price of land will eventually decline.

Von Thünen concluded that the cultivation of a crop is only worthwhile within certain distances from the city: beyond that, either the cost of the land becomes too high, with increasing distances transport costs also increase, or, if there is another product having greater yield or lower transport costs. After a distance from the market (the city) the production of a crop becomes unprofitable, either because its profits drop to zero or the profits earned by other crops are higher, as von Thünen calculated them for products having different intensities…: For each product, there is a certain distance from the city where its production would be worthwhile. Locational rent is the highest possible amount one will pay for the use of the land for a certain cultivation and is a relative indicator of the competitiveness of it in the market.

Weaknesses & Criticism: The model was developed in an isolated state and did not take into consideration differences in sites (local physical conditions). It can be modified by relaxing some of the conditions set forth by Von Thunen: differential transportation costs... Like many other models in geography, von Thünen's model was criticized frequently due to its restrictive nature. The basic conditions of the model, however, could be approximated by slight modifications of the respective reality (Wikimedia 2004).

Ultimately, the location of residence depended on the return from the trade of the head of household, conditional on the cost of transportation. Hypothetically, those enslaved, or once enslaved, received the lowest concurrent return from their trade and sought the best opportunity [and earliest opportunity] to enhance their returns. Among those that were not able to secure immediate, sustainable property and wealth, this likely required long-distance travel and residence to more socially receptive, locally dense communities, away from the physically, psychologically and economic suppressive spatial areas. This produces the likelihood of group-specific expectations if groups had different mean professions and different ranges in professional opportunities. This analysis likely applies to slave state-free state residency decisions, regional residency decisions, and migration decisions described in the results.

Convergence to Equality Expectations: To measure economic inequality and compare differences in economic outcomes, I analyze differences in differences in mean wealth between blacks and whites, and property ownership between blacks and whites. The following ratios measure differences in wealth and differences in property ownership among two comparison groups to obtain comparative returns to classical characteristic choices. Foremost, the comparative wealth ratio is $[W_{X\,J\,T}/W_{X\,J\,T}]$ / $[W_{X'\,J\,T}/W_{X'\,J\,T}]$ where $W_{X\,J\,T}$ is the mean wealth of the members of group J who made investment X at time T.

The comparative wealth ratio ignores differences in wealth levels and measures the return to classical characteristic choices among groups. For instance, the ratio measures the schooling premium for blacks relative to the schooling premium for whites. If the ratio is less than one, then blacks with many years of schooling may have lower levels of wealth relative to whites with proportional years of schooling, and, thus, the returns to schooling among whites outpace the returns to schooling among blacks, in terms of wealth.

Similarly, the comparative property ownership ratio is $[\rho_{XJT}/\rho_{XJ'T}]$ / $[\rho_{X'JT}/\rho_{X'J'T}]$ where ρ_{XJT} is the percentage of the members of group J who own property and made investment X at time T.

The comparative property ownership ratio can be interpreted the same as the comparative wealth ratio. The comparative property ownership ratio measures the impact of classical characteristics on property ownership of group J on the impact of classical characteristics of property ownership of group J'.