NEW LAND ACQUISITION IN THE COLONIAL CHESAPEAKE, 1660-1706 : A TEST OF THE MALTHUSIAN AND STAPLES HYPOTHESES

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ABSTRACT

This study statistically tests the two dominant theories of early American economic growth and development--staples theory and Malthusian theory--in a study of new land acquisition in the colonial Chesapeake for the years 1660-1706.

The theories are examined first to discern the key elements of each, drawing upon comparative studies of the antebellum North and South and colonial New England. These key elements--population density for Malthusian theory and tobacco prices for staples theory--are then combined in one econometric model and subjected to a rigorous hypothesis test which ultimately rejects the staples model in favor of the Malthusian model of land acquisition.

However, additional analyses of population changes, immigration, and tobacco price fluctuations indicate that the relationship between economic and demographic variables in the colonial Chesapeake is complex and not at present sufficiently understood. In particular, the study identifies the need to further examine the effect of immigration and population pressure in early American economic and demographic development.

The study of new land acquisition also reveals that, in late seventeenth century Virginia, small patentees and large patentees responded to the same pushes and pulls. Planters, large and small, were more concerned with maintaining a steady income level than making quick profits. Most patentees did not use the patenting process to speculate in land, but rather accumulated land through a variety of methods. What land speculation and engrossment there was did not as a rule preclude general land availability.

A study of population density shows that the number of acres per tithable increased dramatically up to the 1670s, levelled off in the 1680s, and declined in the 1690s, but always maintained a level high enough to preclude any subsistence crisis.

All tests reject the notion that an economic transformation occurred in late seventeenth century Chesapeake, which puts into question syntheses of the colonial Chesapeake which revolve around such a transformation.

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INTRODUCTION

The social sciences have contributed much to the most recent developments in the historiography of early America. Whether called "social science history," "new social his-tory," "new economic history," or "quantitative history," the more rigorous and demanding methodologies of the social sciences have opened up heretofore reticent historical sources and have begun to make sense of the massive amounts of historical data which have randomly survived from the colonial era. However, in contrast to the significant role of social science "methodology," social science "theory" has played a rather negligible role in this "new" history of the colonial era. Traditionally atheoretical, history for the most part continues to focus on the unique and particular of each historical period.

Nevertheless, colonial historians have adopted two theoretical approaches from the social sciences--the Malthusian (frontier) approach

and the staples (export-led) approach--to help put in perspective the overall growth of colonial America. Each of these theories has various proponents, but neither approach has been able to claim total support. Demographic historians have tended to support the Malthusian hypothesis and economic historians the staples hypothesis. There also exists a North-South split with New England historians favoring a Malthusian explanation and Chesapeake historians favoring a staples explanation.

Neither of these theories has been subjected to any rigorous test in the study of early America. "Almost all the work in the field now completed and most of that currently under way is descriptive, aimed at measurement and narration, at getting the facts right, rather than at econometric analysis" (McCusker 6). The purpose of this thesis will be to test these two models in an econometric analysis of land acquisition in the colonial Chesapeake.

Although social science theory could help colonial historians take maximum advantage of the historical data which already exists, most historians would argue that insufficient data survives from the colonial era to test social science theories. The cliometricians, who have contributed so much to testing our conclusions about other historical eras, have shied away from the colonial era with its paucity of numerical data. This paucity may have been true previously, but the tremendous explosion in data gathering in recent years has made this no longer the case. For the colonial Chesapeake, reasonably good annual data is available for tobacco prices, population, and patented land acreage. In any case, historians should not shrink from subjecting their theories to

test for fear of incomplete data. Adopting the rigorous rules of hypothesis testing from the social sciences, the historian simply should test the quality of the data at hand rather than bemoan the absence of perfect data.

A good way to test any social science theory is to deve-lop, from the general theoretical model, a specific mathema-tical model which can be tested using standard statistical tools. For the colonial era, we could develop two models representing the two theoretical approaches and put each to the test and see which gives better statistical results. However, although colonial historians may believe one of the two models offers a better explanation, all recognize that economic and demographic forces are not unrelated. The two models are, in reality, just ways of simplifying historical processes which are due to many varied forces: economic, demographic, military, political, ideological, socio-cultural, biological, etc.

Since most historians recognize that both demographic and economic forces are always at work in society, the true theoretical model should incorporate both forces. The two theories thus can best be tested within the context of one model. Statistical tests may show that one set of forces is more significant in certain situations, thus tending to support one theory over the other. But we should be careful to not let the data dictate the model. The analysis of land acquisition in the colonial Chesapeake can be only one test of the two theories. Much work will remain to be done before we will have an accurate theoretical model of early American development. The results of this analysis will at least

help to reveal something of the complex interrelationship between economic and demographic forces.

CHAPTER I

THEORETICAL BACKGROUND

In The Economy of British America, 1607-1789, McCusker and Menard discuss the two traditional approaches to explaining the growth and development of colonial America:

> The Malthusian, or frontier, approach locates the central dynamic of early American history in internal demographic processes that account for the principal characteristics of the colonial economy: the rapid, extensive growth of population, of settled area, and of aggregate output combined with an absence of major structural change. The second tradition, usually described as the staples approach or, more generally, as an export-led, or "vent for surplus," growth model, attaches fundamental importance to the export of primary, resource-intensive products. It argues that the export sector played a leading role in the economy of British America and maintains that the specific character of those exports shaped the process of colonial development. (18)

As McCusker and Menard admit, "both approaches are essential to understanding the colonial economy, and often it is in the relationships between population growth and external demand that answers to the most interesting questions will be found" (19).

Land and population play a central role in both theories, although

each looks at land and population differently. The Malthusian approach focuses on population pressure on the land. The staples approach focuses on land and population as the two key factors of production. In order to develop an overall theoretical model for land acquistion, we need to examine more closely the factors which affect demand for land according to the two theories.

Staples Approach

Although the staples approach has influenced much of the work on the colonial Chesapeake, we can benefit more from a comparative analysis of the excellent, staples-influenced research done on the cotton economy of the antebellum South. Spurred on by the seminal work of Douglass North, "new economic historians" such as Peter Temin, Gavin Wright, Peter Passell, and Stanley Lebergott have added greatly to our understanding of the antebellum South. This work readily provides an excellent framework for developing a "staples" explanation of land acquisition in the colonial Chesapeake. It is unfortunate that the "new social historians" of the colonial Chesapeake have paid so little attention to the "new economic history" of the antebellum South for the two economies shared many striking features. Douglass C. North emphasizes the importance of cotton in the U.S. economy of the antebellum era. "Cotton was strategic because it was the major independent variable in the interdependent structure of internal and international trade" (67). A similar claim can be made for tobacco in the colonial Chesapeake. In

both, land was abundant and labor was scarce, with capital and technology playing relatively minor roles. Both were dominated by farms basically self-sufficient in foodstuffs which produced essentially one market commodity--tobacco or cotton. This staples environment favored the growth of large plantations employing unfree labor--slaves and indentured servants in the colonial Chesapeake and slaves in the antebellum South. The regional economies were rocked by the vagaries of the dominant European economy.

A general examination of land acquisition and settlement patterns on a local, regional, or national basis reveals similar patterns for both the colonial Chesapeake and the antebellum South. North's statement that "plantations extended up navigable waterways, and as the land closest to water transport was taken up, plantations developed farther from these transport arteries" (64) could just as easily have been made about tobacco as about cotton plantations. Rivers provided the major means of transportation and cities were few and far between. The Southern frontier was always the fastest growing region of the South, both in population and land acquisition. The southern farmer was Virginia's posterity, each succeeding generation pushing further and further to the south and west.

Douglass C. North placed land acquisition at the heart of the cotton economy. "The secular decline in the price of cotton between 1818 and 1845 reflected the fact that, despite the enormous growth in demand..., the supply of cotton grew even more rapidly. This was primarily a result of the expanded acreage (although yields were much higher in the

Southwest) that came about with the great migration into western lands between 1815 and 1839" (123-125). Cotton "booms" were precipitated by the exhaustion of available land capacity which led to higher cotton prices. "During each period of expansion, millions of acres of new land were purchased from the government for cotton production. Once this land had been cleared and a crop or two of corn planted to prepare the soil, the amount of cotton available could be substantially increased" (71).

Peter Temin contested North's assumptions that changes in cotton production could be directly linked to new land sales. Temin instead believed that "cotton-growing capacity was determined by the quantity of labor, not the quantity of land" (468). "If we assume that there was an upper bound to the amount of land a given number of workers could farm efficiently, then the speed at which new land could be settled would depend on the growth of the potential labor force, i.e., the Southern population" (468). Overall, Temin found that the production of cotton was fairly insensitive to cotton prices.

Gavin Wright examined Temin's contentions and showed that cumulative land sales and a time trend (to reflect population growth) explained changes in cotton production better than population growth alone (115). Population growth alone did not necessarily lead to expansion; also required was a willingness to migrate to new lands. "Cumulative land sales serve as an approximate index of the number of such migration-decisions which have been made,...as a reflection of the extent to which expansion occurred" (112). Overall, though, Wright found that "Temin's description of the course of events is more correct than North's" (116-7)

and that there is no evidence of "a periodic 'exhaustion of capacity' as an identifiable phenomenon in Southern development" (117).

Although there is disagreement as to the effect of land acquisition on staple production, for North, Temin, and Wright (and all followers of the staples model), there is no disagreement that staples price determined demand for land. "While there had been little incentive to buy and clear new land for cotton during the period of low prices, rising prices triggered a land boom in the South" (North 73). Whether cotton capacity was exhausted or British demand increased, the subsequent higher cotton prices would have led to greater demand for land (Temin 466). Wright found that "a distributed lag function, with weights assigned to past cotton prices declining geometrically with time" provided the best explanation of land sales (112,116).

Gavin Wright states well the staples model's position on land acquisition: "it was not the physical supply of labor which influenced decisions on settling land, but the expected returns" (112). Likewise, "the price of land was not the major obstacle to migration; the question facing a potential migrant was whether the returns from farming the new land were likely to be great enough to compensate for the expense of migration, settlement, purchase of equipment and bringing land into cultivation" (112). Thus the staples model determines that land acquisition will be mostly a function of staples price, the prime determinant of expected returns in staples theory.

The demographic forces associated with Malthusian theory are not usually considered in "staples" analysis of land acquisition. Gavin

Wright, in his study of annual land sales in the cotton South does include "a time trend to reflect the secular rate of migration" (112). Unfortunately he does not report the significance of the time trend coefficient in his final model, although he indicates that including the time trend improves all of his price elasticities. (112,116). Stanley Lebergott has done the most sophisticated economic analysis of land sales in the antebellum South. Lebergott's model "presumes two basic determinants of the demand for land--the expected money return and the effective supply price. The expected monetary return is a function of the expected income from land, the riskless rate of return, expected capital gains from land, and the variability of expected income. The supply price of land is a function of the supply price of federal land (encompassing the explicit and implicit prices and the terms of sale), the Graduation Act of 1854, and the quality of land, in particular the role of Indian cessions" (197). In this most thorough economic study, Lebergott totally ignores demographic forces.

Although the work on the antebellum South provides much guidance for developing a specific staples model of land acquisition in the colonial Chesapeake, such a model will rest upon a great body of previous staples-influenced research into various aspects of the economy of the colonial Chesapeake. As McCusker and Menard state, "booms and busts in the tobacco trade have been the subject of intense study, particularly in the early colonial period. These studies provide powerful evidence that the Chesapeake economy was export led, for the fluctuating fortunes of the tobacco industry reverberated throughout the entire economy and

affected the pace of immigration, the advance of settlement, the extent of opportunity, government policy, experiments with other staple exports, the spread of manufacturing, and the level of material well-being in the colonies" (125). Probably the most "testable" explanation of the staples model for the colonial Chesapeake can be found in Paul G. Clemens's The Atlantic Economy and Colonial Maryland's Eastern Shore:

> Boom and bust characterized the economic lives of Chesapeake tobacco planters. These cycles of prosperity and recession depended on the relationship among immigration, the price of tobacco, the production of the staple, and the consumption of the crop in England. Booms began with an upswing in the price of tobacco...Generally, production increases followed soon after a rise in the price of tobacco, as English merchants, encouraged by favorable market conditions, shipped large numbers of laborers to Maryland and Virginia. Because tobacco cultivation required little land, planters quickly cleared new fields and set immigrant laborers to work (30).

Clemens's model indicates clearly a strong positive relationship between tobacco prices and immigration, new land acquisition, and tobacco production.

As straight forward as this interpretation of the tobacco economy is, staples enthusiasts are often contradictory about planter behavior. Clemens notes that "the price of tobacco remained strong enough to drive up the level of production," but, in the same paragraph argues, "as prices continued to fall, the pressure to increase farm production and

maintain profit levels intensified" (35). Menard also recognizes this contradiction between the staples thesis and actual planter behavior:

> Indentured servants were a short-term investment; returns had to be realized within a few years of purhase if they were to be realized at all. During periods of high tobacco prices, planters may have tried to boost production by purchasing servants in hope of making quick profits; when tobacco prices were low planters perhaps avoided investments that demanded immediate returns. This is an attractive argument, but it does not fit the available evidence. Prices for indentured servants were not consistently higher in boom times than in depressions. Small planters, furthermore, had fixed expenses and debts to pay; when tobacco prices declined they felt pressures to expand production in order to maintain the income of their farms. (1975,349-351)

According to both Menard and Clemens, only the English tobacco merchants were efficient capitalists and only the merchant-controlled supply of servants and credit saved the colonial Chesapeake from economic disaster. Contrary to staples theory, planters left to themselves would have continued to expand production through good times and bad.

But this analysis of planter behavior is not new. Lewis C. Gray said the same in his seminal analysis of Agriculture in the Southern United States to 1860:

> While producers' prices were subject to great fluctuations, the production of tobacco was essentially inelastic. This was

> partly due to the fact that it was the sole money crop...Practically the only alternative of the planters, therefore, was to resort to a greater degree of self-sufficiency. Inelasticity of production was partly due also to the characteristic inability of farmers to control production because of seasonal fluctuations. A considerable part of the crop, moreover, was produced by backwoods farmers, employing largely their own labor and producing with little reference to conditions of prices and costs...Returns from tobacco were employed to meet charges on account of capital, usually of indebtedness, or to satisfy wants of planters. Consequently it was observed that low prices, far from inducing voluntary limitation of production, actually operated for a time to spur planters, especially those deeply in debt, to extra efforts to enlarge their product. (276)

Overall, "proof" of the staples model for the colonial Chesapeake rests on rather meager evidence. Much of the analysis has been restricted to descriptive graphs and tables with no rigorous statistical analysis. Some historians have noted the strong correlation between changes in taxable population and tobacco prices (Clemens 53). Others have noted the correlation between unindentured servant registration and tobacco prices (Menard,1973,326-8; 1977,363-5; 1988, 115-117; Walsh,197,26-27). Others have even noted a strong correlation between premarital sex and tobacco prices (Gladwin 63-65). However, no rigorous statistical test has yet proved the staples model works in the colonial

Chesapeake.

On the other hand, there is at least one rigorous statistical test which tends to cast doubt on the staples thesis. Charles Wetherell is one of the few scholars who have criticized the general acceptance of the staples model for the colonial Chesapeake. Using a Box-Jenkins time series approach, Wetherell found only a very weak, if any, relationship between English tobacco imports and farm tobacco prices (1984,203). Wetherell argues that "customary behavior among some planters (cultivate as much tobacco as possible because the opportunity exists) could account for any volume of production as easily as instrumental behavior among other planters (buy more land and labor to plant more tobacco because the price is rising)" (1984,209).

Wetherell uses English import data as the best data ex-tant to test the staples thesis and he is justified in using the production data for a test since the staples promoters have so often quoted the import data in their behalf (e.g., Clemens 35). However, I do not believe these English import data (basically Port of London data) serve as a good proxy for Chesapeake tobacco production. Intuitively, I would expect that Chesapeake tobacco production would have showed much greater variation than that indicated by the English import data. As Wetherell himself states, the "arguably important Scottish trade" is ignored. It is possible the London market was a relatively fixed demand market and all other production was diverted to other British or even other European ports.

Wetherell sees the central focus of the staples thesis in the

relationship between price and production. "[I]ncreases in European demand pushed up prices, which led in turn to increased investment in land and labor, and eventually to greater production" (201). As he states, "these arguments are all potentially verifiable. The quantitative relationship between tobacco prices, land sales, immigration, and perhaps even slave purchases could be examined if the relevant data were available" (201). Although a test of the relationship between price and production may be the only "true" test of the staples model, the lack of any good proxy for production makes such a test, at present, impossible. However, this does not mean that the staples model can not be tested; reasonably good data exists for both land and population. Considering the necessary intermediate link between price and production, a test of the relationship between price and land acquisition will serve adequately. Such a test is the purpose of this study.

Malthusian Approach

In contrast to even this rather haphazard testing of the staples thesis by economic historians, as McCusker and Menard note, "the Malthusian model is largely untested" (33). Historians who have worked with New England data, stressing the importance of demographic factors in the development of early America, have done the brunt of the work. Daniel Scott Smith, Edward M. Cook, Jr., Kenneth A. Lockridge, Philip J. Greven, Jr., and Darrett B. Rutman have explored many of the interrelationships between population size, density, growth and wealth

inequality.

Of these New England studies, Rutman's examination of the peopling of New Hampshire towns provides the most explicit model for testing the Malthusian approach. Rutman intertwines demographic, economic, and socio-cultural forces in a model which tries to capture the "systematic link between the level of economic opportunity and migration" in Anglo-America (1975,273-4). Rutman hypothesizes a homeostatic governor, "continually reading the atmosphere of the system, specifically the population density, and testing density against an optimum established by the level of economic opportunity. When the governor senses that density is below optimum, it triggers in-migration much as a thermostat sensing a temperature below its setting triggers a heating device; when the governor senses density above the optimum, it calls for out-migration" (1975,275). Rutman recognizes that socio-cultural attitudes towards mobility affect this "optimum density."

Rutman's focus on the effect of the "level of economic opportunity" on optimum density stresses the importance of the move to "economic opportunities other than agricultural." As long as the economy remained basically agricultural, the "optimum density" should remain constant unless attitudes toward mobility change. Rutman finds that "optimum density" was independent of soil type or topography, implying that agricultural efficiency also had little effect, although he admits that his determination of optimum density was based on towns located in the southeastern part of New Hampshire where land "waste" was minimal (1975,291).

Richard A. Easterlin, studying demographic changes in the antebellum North, troubled by the "lack of a plausible explanation of the mechanisms by which these variables ['land availability' or farm population density] exert their effect" (71), proposes a mechanism which links migration, fertility, and population density through farm acreage values. Easterlin's model, stimulated by Greven's work on colonial Andover as well as the work of Yasuba, Forster, and Tucker on the prime effect of population density on fertility, "centers on farmers' concern for giving their children a start in life" and the intricate inverse relationship between acreage values and return on farmers' capital (71).

> Cheap acreage induces in-migration and encourages high fertility among new settlers...This, in turn, leads to a rapid rise in population density, driving up farm acreage values. The rise in acreage values, however, reacts adversely upon the rate of population growth, slowing it down, by lowering both net migration and fertility. As the rate of population growth and increase in density slow down, the rise in farm values moderates, thereby slowing down the declines in fertility, migration, and population change. This goes on, back and forth, until total population, fertility, net migration, and farm acreage values stabilize at a level commensurate with the area's potential. (72)

Easterlin finds that such a model explains "closely linked patterns of economic and demographic change that have reoccurred in state after state," North and South (72-73).

Chesapeake historians have attempted to derive independent estimates of an "optimum density." Most of the work has focused on the minimum amount of land needed to both keep a laborer busy year-round and, at the same time, maintain soil quality. In what has been called the "Chesapeake system of husbandry," a planter cleared some land, planted tobacco for a few years until the soil was depleted and then allowed the tobacco land to return to forest until the soil became fertile again (at which point it could be cleared and replanted in tobacco). At any point, particularly on older farms, a planter could have as much as four-fifths of his land in some stage of reforestation. Since one laborer could work only about 3-4 acres a year and could plant a tobacco crop about 3 years in a row on the same soil before depletion, and since it took about 20 years for reforestation, each laborer required at least 20 acres (Earle 29). However, since not all land was arable and with extra requirements for wood, pasturage, and foodstuffs, "'50 acres of land for every working hand'" was considered the norm among 18th century planters (Kulikoff,1986,48; Earle 210).

Does the Malthusian model imply that a crisis is eventually reached, as Lockridge believes happened in 18th century Massachusetts (1971,468-482)? Not if a "governor" as described by Rutman and Easterlin existed. If pockets of over-crowding existed, it was because atttitudes towards mobility were highly negative. As long as attitudes toward mobility were flexible, such a crisis need not have been reached for there truly was an abundance of land and few barriers to new land acquisition in both the colonial or antebellum era. Malthus himself

understood the uniqueness of America, where the means of subsistence could grow geometrically with the population (Smith,1980,15).

However, Lorena Walsh has shown that socio-cultural attitudes towards mobility may have changed as the Chesapeake society matured. "Once natives [Anglo-Americans] became a majority among adult men in the community, outmigration slowed...Family ties became increasingly important and appear to have outweighed economic considerations when a creole man debated whether to stay or leave" (Walsh,1987, 98). For Charles County, Maryland, such a transition had occurred by 1705. Such a transition likely occurred in many other mature counties. According to the Malthusian hypothesis, this change in attitudes would have raised the optimum density (population per square mile) and lowered the demand for new land over time.

So stated, Malthusian theory is quite at odds with staples theory. Staples price fluctuations do not represent true changes in the "level of economic opportunity" and, thus, do not affect "optimum density." For the study of land acquisition, as long as attitudes towards mobility did not change and the economy remained agricultural, land demand was only a function of population density.

Transformation Synthesis

The best attempt to synthesize the recent work on the colonial Chesapeake is Allan Kulikoff's Tobacco and Slaves. Concentrating mostly on the 18th century Chesapeake, Kulikoff takes advantage of the

staples-influenced work of the 17th century to demonstrate a transition from dominant economic to dominant demographic forces around the end of the 17th century.

> Both population growth and the rise of tobacco production rested upon the creation of new plantation households, a process increasingly tied to the availability of land. During most of the seventeenth century, the price of tobacco and English economic conditions determined the rate of household formation...The increase in the percentage of native white adults at the end of the seventeenth century reduced the direct impact of the tobacco trade and increased the significance of land availability for household formation" (1986,45).

For the greater part of the 18th century, Kulikoff believes that the colonial Chesapeake fit the Malthusian model.

Kulikoff is trying to synthesize the staples-directed work of Chesapeake scholars with the Malthusian-directed work of the New England scholars to show that once a native white population established itself, demographic factors became dominant. In Kulikoff's staples view of the 17th century Chesapeake, demographic factors did not dominate because most immigrants could not afford to pay their passage and so came on the demand of Chesapeake planters who were driven by the desire for tobacco profits. High tobacco prices led to greater demand for indentured servants and slaves and thus increases in population. Demographic factors like fertility and mortality, which dominated the 18th century

Chesapeake population growth, were independent of the tobacco economy.

Kulikoff's Chesapeake transition is basically the same as Clemens's Eastern Shore "transformation":

> While through the 1680s economic life had revolved around immigrant male planters who had a penchant for buying and selling labor and land as the market dictated, by the first decade of the new century the economy centered on native-born families who had settled into the routine of making a living from plantations inherited from an earlier generation of colonists...As land filled up, opportunity contracted, immigration shifted elsewhere, the poor left, and second- and third-generation landowners took over. Such a process--settlement, crowding, and out-migration-occurred in virtually every English colony. The rate of the process depended primarily on the population the land could support, which in turn reflected the relationship (or lack of it) of local agriculture to the market (77).

What Clemens identifies as a local transformation at the turn of the century, Kulikoff extrapolates to the whole Chesapeake at the same time period.

However, Kulikoff does not really test either model. Most of his analysis is of a general descriptive nature. Although Kulikoff relies heavily on the concept of "optimum density," there is no statistical test of his assumption of "'50 acres of land for every working hand'" as optimal. Indeed, his graph of acres per taxable person would seem to

indicate that Virginians continued to far exceed that optimum density throughout the 18th century (1986,49). Although Kulikoff provides an interesting synthesis of the two models, he does not really test economic against demographic forces in either the 17th or 18th century. He does not show the interrelationship between the two forces. It was either one or the other.

Higher tobacco prices could just as easily have caused people to move to the frontier in the 18th century as in the 17th century. Population density could have worked as the controlling mechanism in both centuries. Kulikoff's tacit acceptance of the staples model in the 17th century rests on the untested assumption that immigrants came to the Chesapeake when "times were good in the Chesapeake," although he also admits they might have come over because conditions were "depressed in England" (1986,45). Clearly whether immigrants came to the Chesapeake in "good" or "bad" times is a critical test of the staples model, but another test which has yet to be done.

The Clemens/Kulikoff synthesis model fails most dramatically to explain migration in the colonial Chesapeake. In comparison with Rutman and Easterlin's single set of factors to explain both in-migration and out-migration, the Clemens/ Kulikoff model uses one set of factors to explain in-migration and another set to explain out-migration. (People immigrated because tobacco prices were high but emigrated because tobacco prices were low.) Kulikoff posits that 17th century out-migration was unique because "optimum density" had not been reached anywhere in the 17th century with additional tidewater land so readily available. But

just how different was the motivation of the farmer settling on the 17th century tidewater frontier compared to the farmer settling on the 18th century piedmont frontier or the 19th century southwest frontier? Were immigrants, European or American, so much different from emigrants? Did this behavioral transformation occur simultaneously throughout the Chesapeake, equally in new frontier and older settled counties? Clearly, we need to know much more about the overall process of migration, both in-migration and out-migration, before the economic and demographic history of the colonial Chesapeake can be synthesized.

Anita H. Rutman, without resorting to either the Malthusian or staples models, believes there was much more regu-larity in migration decisions. Each new area went through similar changes in its transformation from a frontier region to a settled community, but there was no simultaneous change throughout the Chesapeake. Opportunity was great for first arrivals. "The wealthiest brought property accumulated else-where in with them, yet both those who entered with little and those who entered with much tended to prosper as land values rose by virtue of settlement, and later arrivals provided ready markets for excess cattle and food crops. On an indi-vidual level, however, fortunes varied" (15). Those who were less successful "either left to try elsewhere or, particularly after the turn to slavery, increasingly settled for relative, but consumer-oriented, poverty" (15).

Although the advent of slavery modified this local process somewhat, the process remained basically the same in Rutman's Middlesex County, Kulikoff's Prince George's County, Clemens's Eastern Shore, Beeman's

Lunenburg County and else-where in the colonial Chesapeake. Indeed, as noted by Carr et al (1988,34), the process is the same as that identified by Wilbur J. Cash as the central theme of the Old South. "For the history of the South throughout a very great part of the period from the opening of the nineteenth century to the Civil War (in the South beyond the Mississippi until long after that war) is mainly the history of the roll of frontier upon frontier--and on to the frontier beyond" (Cash 4). This is a much more appealing hypothesis than Kulikoff's transformation theory.

There is nothing in Anita Rutman's argument which is contrary to either the staples or Malthusian model. Opportunity could be defined in terms of the tobacco market or optimum density. "Push" or "pull" factors could be dominant. How-ever, Rutman's argument runs counter to attempts to synthesize the colonial Chesapeake by saying the 17th century was staples and the 18th century Malthusian. No such transformation for the entire Chesapeake can be supported by the available data. What is required is a more complex model entailing both economic and demographic factors which explains why the two centuries were so similar, not two separate models which explain why they were so different.

For the study of land acquisition in the colonial Chesapeake, the two models have very different implications. The staples model hypothesizes that land acquisition is a function of opportunity in the tobacco economy (tobacco prices, labor productivity, transportation changes, price of land, etc.). The Malthusian model hypothesizes that land acquisition is a function of population density. Expressed either

as a normal density (persons per square mile) or inverse density (acres per person), the Malthusian approach predicts increased population pressure on land drives people to move to less dense areas where land can be more easily obtained. The staples model predicts that people acquire land when staple prices rise. Whereas the staples model states that economic forces precede demographic forces (higher tobacco prices leads to increased immigration to and reduced emigration from the Chesapeake), the Malthusian model states that these economic forces have a mere coincidental relationship. The staples model focuses on "pull" factors and the Malthusian model focuses on "push" factors.

As McCusker and Menard state, the implications of the two models are testable. However, rarely, if ever, are demographic and economic forces given equal status in any objective test. Economic historians tend to lump demographic forces into a time trend and demographic historians tend to ignore short-term economic effects. The "true" model must include both economic and demographic factors because both influence every aspect of the economy. Only when tested within a combined model will historians be able to determine which model, staples or Malthusian, better explains early American development.

Tests of such a model may show that economic forces were more significant in one region (e.g., the West Indies) and demographic forces more significant in another region (e.g., New England). Or such tests may show that one set of forces tended to prevail across all regions and time periods. Or perhaps they will prove, as Daniel Scott Smith claims, that "if staples provided the engine of change, demography acted as the

governor of the system" (1982,281). Identification of the relationship between economic and demographic forces may not be so simple as identifying one as the engine and the other as the governor. More likely, both economic and demo-graphic forces were the engine of change and the governor lay in the complex interrelationship between the two forces.