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Proceedings

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Growth in Virginia: People and Jobs on the Move

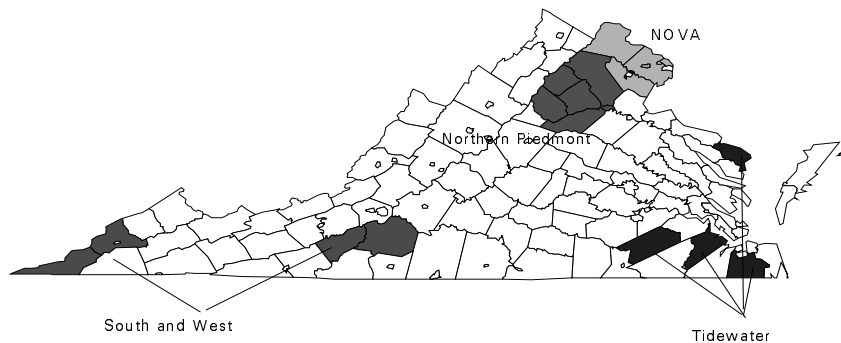
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Growth in Virginia and the ensuing pressure on land is affected by a myriad of factors such as local economic opportunities within the county or city; the pull of environmental amenities within counties or cities; the regional growth in broader non-metropolitan areas; and the pressure of high growth in metropolitan areas on non-metropolitan areas within commuting distance (Figure 1). We want to demarcate four regions of distinct patterns of growth in Virginia. These regions are NOVA (Arlington, Fairfax, Loudoun, and Prince William) region; Northern Piedmont (Culpeper, Fauquier, Madison, Orange, and Rappahannock); south and west (Floyd, Franklin, Lee, and Wise); and Tidewater (City of Chesapeake, Isle of Wight, Northumberland, and Sussex) (Figure 2).

Figure 1. Goal: Demarcate 4 regionally distinct patterns of growth in Virginia

- 1) Population
- 2) Migration by age cohort
- 3) Employment shifts by sector
- 4) Pull of amenities
- 5) Commuting patterns

Figure 2. Jurisdictions Studied



The United States Bureau of Census asks the question, “Have you moved in the last five years?” Because our focus was migration and this information is only available based on the Census, we used the 1990 and 1980 census data rather than the most current population projections available. The period 1985 to 1990 is the base period for the analysis.

The major findings of the study are summarized in Figure 3. First, migration is a major component of population growth in counties and cities in Virginia. However, we see very different migration patterns by age cohorts, particularly patterns for young adults at the beginning of their economic careers and elderly and retired people. Second, employment shows, in most counties, negative rates of agricultural employment growth but high rates of service sector growth. Third, the impact of environmental amenities on migration patterns for population growth is rather limited. It is mainly restricted to retirees, who will move for the amenity values of counties rather than economic opportunities. Fourth, commuting households are an important component of growth on the non-metropolitan fringe. Finally, the incidence and intensity of comprehensive planning tends to depend on the challenges growth presents.

Figure 3. Punch lines

- Migration is the major component of growth
- Age cohorts show different migration patterns
 - strong inflows of young economically active adults into areas with employment growth
- Low rates of agricultural employment growth
- The impact of amenities on migration is limited
- Commuting households are an important component of growth on the metropolitan fringe
- Incidence and intensity of comprehensive planning depends on the challenges of growth

Migration

At the most basic level, population growth equals in-migration minus out-migration plus births minus deaths. As we see in Figure 4, the migration part of the equation is the key to growth throughout most of the state. In NOVA, Northern Piedmont, and Tidewater regions, in-migration rates are much higher than natural growth rates. Only in the south and west do we see negative rates of in-migration, which is somewhat counterbalanced by slightly positive figures for natural growth. Looking at age-cohort migration, however, we find very different trends throughout the state (Figure 5). In NOVA, we have very high in-migration among young people; we have net out-migration among older people. In the south and west, we have almost the opposite situation. We have out-migration of young people and very slight positive figures for in-migration among the older and middle age cohort. In the Northern Piedmont and Tidewater regions, we actually see a more even spread among all the age cohorts. These age cohorts are divided into 15 - 34 (young), 35-54 (middle age), and 55+ (retired and elderly).

Figure 4. Annual Rates of Migratory and Natural Growth, 1985 to 1990.

Region	Migratory Growth	Natural Growth
	-----%-----	
NOVA	3.11	1.53
Northern Piedmont	2.21	0.76
South & West	-0.16	0.33
Tidewater	1.45	1.11

Source: Ciesen County to County Migration Files 1985 to 1990, U.S. Bureau of the Census.

Virginia Statistical Abstract 1996-97, Weldon Cooper Center for Public Service, UVA

Figure 5. Annual Net Migration by Age, 1985 to 1990

Region	Age Group		
	15 – 34	35 – 54	55+
NOVA	1.83	0.97	-0.10
Northern Piedmont	0.58	0.73	0.41
South & West	-0.21	0.05	0.06
Tidewater	0.54	0.45	0.12

Source: Ciesen County to County Migration Files 1985 to 1990, U. S. Bureau of the Census

Employment growth

We divided employment growth throughout the state into four sectors: agriculture, mining, and natural resource extraction (AMNR); manufacturing, construction, and transportation (MCT); trade and services (TS); and government (Figure 6). We see very high growth in the MCT and TS sectors throughout most of the state, especially in NOVA. Of course, what also stands out is the very poor showing of the AMNR sector in the same period—a very strong negative rate of employment growth. The NOVA figure for AMNR, which is quite high, comprises a very small percentage of overall employment in NOVA. We are also looking at agribusiness and agricultural advocacy-type jobs. Therefore, we do not get a real picture of what is going on in production agriculture in NOVA. But the figures for Northern Piedmont, south and west, and Tidewater provide a pretty good picture of what was happening from 1985 to 1990 to employment in agriculture across the state.

Figure 6. Annual Employment Growth by Sector, 1985 to 1990

Region	Sector			
	Agriculture Mining	Manufacturing Transportation Construction	Trade & Services	Government
	-----%-----			
NOVA	7.04*	7.35	6.29	1.80
Northern Piedmont	-4.01	3.94	5.61	3.85
South & West	-4.48	2.86	2.64	3.60
Tidewater	-2.27	3.10	7.97	6.15

* This sector comprises a very small percentage of total county workforce and includes agribusiness and agricultural advocacy employment.

Source: Regional Economic Information Systems, U. S. Department of Commerce

Migration and employment growth

Since we were looking at both employment and migratory growth, we show the relationship between these two factors using correlation coefficients, a statistical concept that relates two or more items. Correlation coefficients range from 1 to -1 , which indicate a strong relationship. A correlation coefficient near 0, either positive or negative, indicates little relationship. If the correlation coefficient is positive, the items being compared move in the same direction—increasing or decreasing together. If the correlation coefficient is negative, the items being compared move in opposite directions—one increases while the decreases.

These correlation coefficients clearly tell us that jobs and migration are the keys to growth in Virginia (Figure 7). Among young people statewide, the correlation between MCT and TS sectors and migration is extremely high, almost 1. We also find the correlation between AMNR and migration for young people is low, but positive. In many counties, young people are leaving and agriculture is declining. The correlation between the middle aged and older people and the MCT and TS sectors is also high, although not as high as for the younger people.

Figure 7. Jobs and Migration: Keys to Growth

- * Statewide, among younger people, correlation between employment growth and migration is very high, especially in the construction, manufacturing, and service sectors.
- * Significant declines in agricultural employment spur out-migration of younger people.
- * Migration of middle aged people and employment in construction, manufacturing, and services sectors is highly correlated.
- * Based on a national amenities scale, little or no correlation exists between amenities and migration.

The Economic Research Service (ERS) has published a national amenities scale which measures the presence of things like mountains, coastlines, and climate for every county in the country. We ran correlations between migration for different age cohorts and the scale ERS developed for Virginia. We found no correlation whatever for the 1985 to 1990 period for the younger and middle age cohorts. For the older cohort (55+) we found only slight correlation between the presence of natural amenities and in-migration. We can conclude, for the period studied and the data used, jobs and migration are clearly the keys to growth.

Commuting decisions

Are commuting decisions important (Figure 8)? If we look at rapidly growing non-metropolitan areas, they tend to be on the fringes of rapidly growing metropolitan areas. Commuting decisions reflect, to some extent, the strength of the local labor market. Choosing to work in an area or commuting and incurring the associated costs of working in another area is symptomatic of the match, or lack thereof, between the labor supply and the labor demand. Having large numbers of out-commuting households in your area may have a number of fiscal implications for your jurisdiction. Local expenditures on schooling are usually 50 percent or more of county expenditures. A commonly held belief is that commuting families bring a disproportionate number of children into the community which requires significant increases in educational expenditures. Finally, commuting may increase road congestion.

Figure 8. Why are Commuting Decisions Important?

- * Prevalent on non-metropolitan fringes
- * Reflect strength of local labor market opportunities
- * May have fiscal implications, especially for school expenditures
- * Congestion costs

We looked at commuting patterns between the Northern Piedmont and NOVA and the underlying factors causing people to commute. Do people commute for higher wages or because of a preference for living in non-metropolitan areas? Do commuters have a disproportionate number of children? We found the following non-wage factors to be very important in influencing commuting decisions to metropolitan from non-metropolitan areas (Figure 9). Females in households with children are less likely to commute. But the number of children in the household does not matter. In fact, households living and working in a non-metropolitan area do not have fewer children than households that moved into the area and are commuting into NOVA. Commuting households are not putting a differential impact on local expenditures through demand for schooling for their children. Further, commuting households tend to live in houses with higher property values, potentially providing a higher tax base.

Figure 9. Significant Results

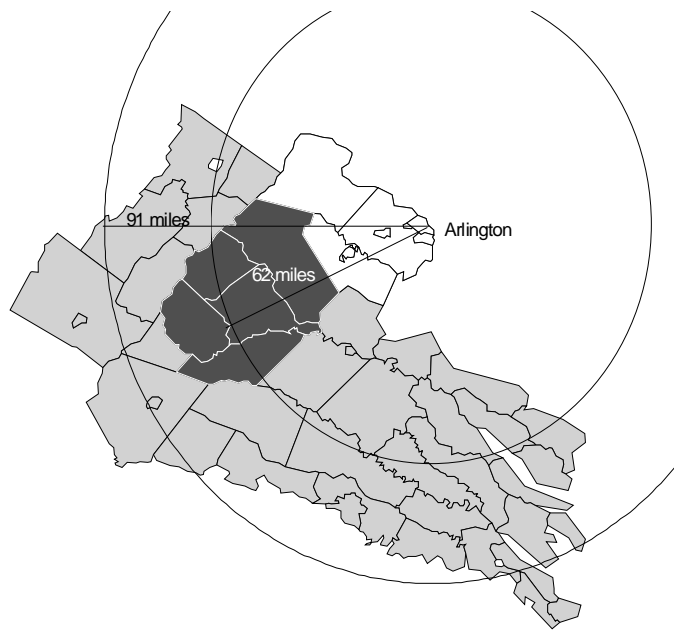
- * Non-wage factors influencing commuting
 - Gender
 - Females with children
 - Not number of children!
 - Property Value

An examination of the relationship between individual characteristics and earnings in the local, non-metropolitan area and the metropolitan area showed that commuters received different returns for their education (Figure 10). Non-metropolitan labor markets pay less overall. We calculated that difference to be \$7 to \$10 per hour less based the individuals' characteristics like age, education, and work experience. Therefore, we can say that differences in potential earnings in metropolitan and non-metropolitan areas remain a significant factor underlying commuting decisions. The opportunity cost of commuting is defined as the wage that could be earned in that metropolitan area while sitting in the car commuting from the non-metropolitan area to Arlington. The wage gap between non-metropolitan and metropolitan areas compensates individuals for commutes up to 62 miles (Figure 11). Thus, the draw of metropolitan labor markets goes well past Fauquier County and into Orange and Rappahannock counties. If we consider the opportunity cost as the lowest wage that could be earned in a non-metropolitan area, the draw of metropolitan labor markets extends much farther into the Piedmont region.

Figure 10. More Significant Results

- * Commuters receive fundamentally different returns to personal characteristics in non-metropolitan and metropolitan labor markets
- * Non-metropolitan county labor markets pay much less overall

Figure 11. Distance of NOVA Labor Market Draw in Northern Piedmont Area



Comprehensive planning

Each county in Virginia is required to prepare a comprehensive plan (Figure 12). Comprehensive plans vary widely over the regions we studied. In metropolitan areas, comprehensive planning is seen as an important tool for managing growth and in non-metropolitan areas for encouraging growth. In general, we can say that NOVA has long history of comprehensive planning and strong planning capacity in place. In the Northern Piedmont, we see considerable success with planning, although it has varied somewhat with the pressures of growth that have been put on the individual counties. In south and west, the issue of planning is still being questioned as an acceptable tool to manage growth. In the Tidewater area, a large variation occurs in planning.

Figure 12. Comprehensive Planning

- * Each county in Virginia is required to prepare and adopt a comprehensive plan
- * Focus, form, and function of local comprehensive planning varies across regions in response to pressures of growth

Summary

We showed that migration is a major component of growth, particularly migration among young, economically active adults (Figure 13). The movement of people and jobs tends to be highly correlated. For agricultural employment, we need to be concerned both because the rate of employment growth is negative, in most cases, and associated with the out-migration of young, economically active people. County environmental amenities, however, have a fairly limited impact on migration and that effect is mainly among retirees. Commuting households are an important component of growth on the metropolitan fringe, particularly in rapidly growing non-metropolitan areas. Finally, we find the incidence and intensity of comprehensive planning is highly related to the challenges of growth. Essentially, we plan when we have to. We do not plan for the sake of planning; we plan when we face significant change and challenge in our communities.

Figure 13. Punch lines - Revisited

- * Migration is the major component of growth
- * Age cohorts show different migration patterns
 - strong inflows of young economically active adults into areas with employment growth
- * Low rates of agricultural employment growth
- * The impact of amenities on migration is limited
- * Commuting households are an important component of growth on the metropolitan fringe
- * Incidence and intensity of comprehensive planning depends on the challenges of growth