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Developing SWVA's Labor Market

POLICY SOLUTIONS FOR INCREASING THE NUMBER OF WORKING AGE INDIVIDUALS WITH A BACHELOR'S DEGREE

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DISCLAIMER

The author conducted this study as part of the program of professional education at the Frank Batten School of Leadership and Public Policy, University of Virginia. This paper is submitted in partial fulfillment of the course requirements for the Master of Public Policy degree. The judgments and conclusions are solely those of the author, and are not necessarily endorsed by the Batten School, by the University of Virginia, or by any other agency.

HONOR CODE

On my honor, I have neither given nor received unauthorized aid on this assignment.

Kyle Stiltner

Client Profile: Shannon Blevins, Vice Chancellor for UVA WISE Economic Development and Strategic Initiatives.

The Office of Economic Development and Strategic Initiatives at UVA Wise seeks to support Southwest Virginia through partnership, forms, and fostering discussions of economic development and opportunity for the region. They are uniquely positioned and qualified for this mission as they are the only four-year public school located in Southwest Virginia.

Their Mission per Their Official Website:

"Support SWVA by:

- Connecting the resources available at the University of Virginia to opportunities in Southwest Virginia
- Linking the community to critical resources such as faculty, staff and students through strategic partnerships
- Serving as a source of professional and leadership development
- Supporting the economic development of the community" – UVA WISE

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1.EXECUTIVE SUMMARY

Southwest Virginia, SWVA, has an inadequate supply of educated laborers. As of 2012, only 2.61% of individuals in the region hold a bachelor's degree or higher and are between the ages of 25-34. This is much lower than the statistic statewide (5.25%) or nationwide(4.21%) (US Census ACS 5-Year Estimate (2010-2015). Consequently, the area has high unemployment, low median income, an inability to attract firms in growing sectors of the economy, and an inability to attract and retain future individuals with a bachelor's degree (Morgan, 2014).

Accordingly, this paper examines the policy alternatives available to the state and region to incentivize college educated workers to relocate or remain in the region. The options that were evaluated were constructed by examining strategies that areas facing a similar challenge have deployed. The three options that were evaluated were:

1. Contingent Scholarships for Area Community College Students:
   2-year, $15,812 per year, scholarships offered to 100 SWVA area community college students contingent upon their completion of a bachelors and return to the area for 4 years.

2. Direct Cash Payments for Relocation:
   Up to $10,000 dollars per year for 2 years offered as direct cash transfer to 100 individuals with bachelor's degrees and either a remote job or job offer from a local firm whom relocate to the area.

3. Establishing SWVA as a Tax and Debt Relief Zone:
   Establish SWVA as an opportunity zone, where anyone with a bachelor's degree who moves to the area qualifies for state income tax waivers for up to five years and student loan repayments of up to $15,000 ($3,000 per year) for five years.

The three policies were evaluated on the following criteria and weighted accordingly:

1. Effectiveness- by what degree does the policy increase the number of individuals in the region with a bachelor's degree. Weighted 40% and measured in individuals.
2. Cost- what is the NPV, net present value,[1] of the costs associated with each alternative. Weighted 20% and measured in dollars.
3. Cost Effectiveness- what is the NPV of the costs per individual incentivized to the area. Weighted 20% and measured in dollars per individual.
4. Political Feasibility- how likely is each option to garner the political support necessary to be implemented. Weighted 20% measured as high, medium, or low.

[1] The value of the flow of cash payments in current dollars.

The findings for each alternative are summarized in the table below:

Policy	Effectiveness	Cost	Cost Effectiveness	Political Feasibility
Scholarships	66-75 additional individuals with a degree	$3,003,225	$ 40,043 - $45,503 per individual	High
Direct Cash Payments	66 additional individuals with a degree	$3,904,762-$4,880,952	$59,164-$73,954 per individual	Medium
Tax & Debt Relief Zone	111 additional individuals with a degree	$16,708,446	$150,527 per individual	Low

The findings in each criterion were converted to an individual score, weighted as previously mentioned, and added together to create a total policy score. The policy with the highest score was the scholarship alternative with a score of 1.84-2.08. This was followed by the direct cash payment alternative with a score of 0.6-1.08.

Therefore, this report recommends that SWVA adopt the scholarship alternative in order to raise the number of individuals in the area with a bachelor's degree.

2. THE PROBLEM

PROBLEM STATEMENT

There are too few working age individuals with bachelor's degrees in SWVA, restricting labor market opportunities, economic growth, and long run economic development.

Southwest Virginia has an inadequate supply of educated laborers. As of 2012, only 2.61% of individuals in the region hold a bachelor's degree or higher and are between the ages of 25-34. This is much lower than the statistic statewide (5.25%) or nationwide(4.21%). (US Census ACS 5-Year Estimate (2010-2015). Coupled with the already small relative population of the region, this small percentage translates to a very small number of young, college educated individuals within the region's workforce (US Census ACS 5-Year Estimate). As a result, the region has suppressed median income, ($37,663 in 2014 compared to $102,499 in Northern Virginia) high unemployment (6.1% in 2016, the highest in the state), predominantly declining industries (manufacturing/mining), and struggles to attract new, growing firms and industries to the region (Shanoltz, 2019;Lombardi,2019;Khine,2019).

BACKGROUND

Education

In order to understand the extent of the issue and to quantify the problem, we will first examine the recent education statistics of SWVA and the other 7 regions of Virginia.[2] When we examine educational attainment by region we see the Southwest Virginia area (defined here as Wythe County and those to the West of Wythe County) had the lowest number and share of individuals with a bachelor's degree or higher in 2017 (unitedwayswva,2018). In 2017, only 15% of the total population of the region had a bachelor's degree or higher (unitedwayswva,2018). The region lagged considerably behind in this indicator when compared to Virginia as a whole, 38.7%, Northern Virginia ,50%, and Central Virginia, 35% (Adams, 2014). This trend has persisted across multiple prior years. This is especially troubling for economic development in the region as higher educational attainment in a region typically leads to higher incomes, and many executives cite local workforce skill as an important factor in firm location/relocation decisions (Schwartz,2018).

When examining the shortcomings of the region in regard to its population's educational attainment, one might question whether this statistic characterizes the region's inability to attract (or retract) students, or whether it characterizes an inability to send students to 4-year institutions. In order to explore this distinction, we examined educational attainment by student region of origin in 2017 adjusted for population. During the 2016-2017 school year, Southwest Virginia produced

[2] Central, Eastern, Hampton Roads, Northern, Southside, Southwest, Valley, West Central. Regions were taken from data acquired from the UVA Weldon Cooper Center for Public Service.

183 in- state bachelors students per 100,000 residents (Shanholtz,2019). This was the lowest number of any region in Virginia. For comparison, the two highest regions were in the Northern (514) and Central (435) regions respectively (Shanholtz,2019). Even the second lowest region (Eastern) was notably higher than SWVA, producing 266 (45% more than SWVA) bachelor's degree recipients (Shanholtz,2019). This indicator provides evidence that SWVA's lack of an educated workforce is likely, at least in part, due to the regions shortcomings in *producing* a comparable portion of students pursuing a bachelor's degree (Shanholtz,2019). It may also be the case that this statistic is a bit misleading and more students from SWVA attend local institutions in nearby regions of Tennessee (some of which have agreements to offer in-state tuition to students in SWVA) and therefore the region may not lag as far behind in this indicator as it would seem. However, it could also be that students in the region are more likely to pursue an associate's degree.

During the 2016-2017 school year, Southwest Virginia produced 290 in state associate's degree students per 100,000 residents[3](Shanholtz,2019). This was the most of any of the 8 regions in the state (Shanholtz,2019). For one reason or another, this suggests students from SWVA are more likely to get an associate's than a bachelor's degree. The statistic reveals that SWVA is struggling to send students to in-state bachelor's programs and higher but is doing well at sending students to in-state associates programs through Community Colleges. The result is surprising as one would assume many students whom get an associate's degree would continue their studies and finish their bachelor's degree in the following years since many community colleges in Virginia have Guaranteed Admissions Agreements (GAAs) with in-state 4-year Universities. These programs guarantee community college students admission to in-state universities where they will be able to complete their bachelor's with an additional two years of study. These programs should allow Community Colleges to function as pipelines for rural students to in-state Universities, however these statistics suggest students from SWVA are not utilizing these programs as one might expect.

Though the region produces few bachelors students, as seen in the previous statistics, even more troubling is their inability to incentivize the bachelor's students they do produce to return to the SWVA region after graduating. Researchers at the Weldon Cooper Center for Public Service examined where the graduates from rural regions like SWVA were going. They found that a large share of the students from SWVA were not returning to the region, and instead were relocating to Northern Virginia and urban areas (Shanholtz,2019). Why are these students less likely to return? The prevailing notion is financial incentives, high paying jobs, and perceived better opportunities are driving relocation to urban areas(Shanholtz,2019). This incentive is particularly powerful for students with debt they feel pressured to pay off (Shanholtz,2019).

These statistics suggests that there are two powerful factors that contribute to the disparity that exists in educational attainment within SWVA. One factor is that SWVA has not created an adequate pipeline for students from the region to state Universities. Despite success in sending students to associates programs, they have failed to incentivize these students to utilize guaranteed admissions programs to finish their degree. Second, the region fails to incentivize the few bachelor's degree students it does produce to return. The region is not retaining the talent they develop, and instead many of these students are relocating to areas like Northern Virginia and other urban centers.

[3] 149 received an Associates in a technical program 1st in the state and 141 received an Associates with corresponding bachelor's credit, 3rd most in the state

Employment

One reason commonly cited for why rural areas, like SWVA, struggle to retain and attract educated individuals is a lack (or perception of a lack) of labor opportunities. From 2010 to 2017, the SWVA region was one of only two regions of VA Workforce Investment Boards (of which there are 15) to net lose jobs (Lombard,2019). The region *lost* 10% of jobs from 2010 to 2017 (Lombard,2019). The only other region to experience a decline in jobs, South Central, lost only around 1% of jobs (Lombard,2019). This decline is often attributed to two explanations, an aging and declining population and the economic decline of industries that were historically the largest employers in the region (Lombard,2019).

Further evidence of a lack of incentivizing opportunities is the regions high unemployment. In 2016, Southwest Virginia had an unemployment rate of 6.1%, the highest in the state (U.S. Bureau of Labor Statistics, Local Area Unemployment Statistics). These findings suggest that the region is limited in job opportunities in comparison to the rest of the state. This decline in jobs and high unemployment likely also further restricts the regions ability to attract and retain educated workers. It is a reasonable assumption, that for most newly educated graduates who are seeking first time employment, all else equal, they prefer an area with an increasing number of jobs and a low unemployment rate. If students grew up in the area, they likely bore witness to the region's economic decline during this period. Growing up in a region during a period in which 10% of jobs were lost over just a 7-year period, these students likely had some indication or prior knowledge of the declining employment even if they did not have access to the statistics themselves. As a result of this perceived decline, it is likely these students from the area factored that perception of decline into their decision-making calculus for where to apply for jobs and deciding if they would return to the region.

Another factor influencing employment and relocation decisions amongst graduates is wages. While wages in SWVA as a whole did increase by around 4% from 2010-2017, this was the smallest increase in wages over that time period of any region in the state (Lombard,2019). All other regions in VA experienced an increase in wages between 11% and 19%. In addition, from 2012-2017, within the LENOWISCO & Cumberland Plateau Planning District (the district that is the furthest Southwest and includes Tazewell, Russel, Wise, Dickenson, Buchannan, Scott, and Lee counties) household income actually declined by 2% (Lombard,2019).

The lack of wage growth is even more concerning when one examines the median incomes of the area. In 2017, that same LENOWISCO & Cumberland Plateau Planning District had a median household income of only $35,223 (Lombard,2019). The Mount Rogers Planning District Commission, which includes Bland, Pulaski, Wythe, Smyth, Grayson, Carroll, and Washington counties, experienced an increase in household income of 16%, but still only had a household median income of $44,062 by 2017 (Lombard,2019). This lags considerably behind the state as a whole, whose median household income was $71,535 in 2017 (Lombard,2019). No other planning districts besides those within SWVA had median household incomes under $40,000 (Lombard,2019). These stats lead credence and credibility to the claim that there may not be sufficient existing financial incentives necessary to attract individual with bachelor's degree to the area.

These figures combine to support the idea that the region lacks opportunities and the perception of a healthy economy. The region also lacks ample financial incentives to lure graduates to the

area. The lack of opportunities and financial incentive restricts the regions ability to attract and retain relatively educated and skilled individuals whom can attain higher financial incentives in other regions with seemingly less risk of unemployment. This suggests policies crafted to address this issue will likely need to subsidize graduates in order to alleviate or partially alleviate this gap in financial incentive and opportunity.

Industry Composition

To further investigate the claim that there is a lack of opportunities for individuals in the region, we next examine the industrial composition of SWVA. Historically, the largest sectors of the economy of SWVA were based in sectors like manufacturing, mining, and retail (Khine, 2019). In 1998, the largest employer for all counties in SWVA was one of those three industries (manufacturing being the largest employer in the majority of counties) (Khine, 2019). By 2012, the landscape had changed some. While manufacturing was still the largest employer for a large number of counties in the region (and the largest for the region as a whole), retail had grown and overtaken manufacturing as the largest employer for many other counties in the region. In addition, healthcare employment emerged as a major industry player in the region (Khine, 2019). However, despite being the largest employer, manufacturing employment had still sharply declined since 2000 (Khine, 2019). From 2000 to 2012, manufacturing employment in the region contracted by 39% (Khine, 2019). This, in conjunction with the high unemployment, suggests that the decline of the manufacturing industry within the region was not adequately replaced by new growing industries.

In order to investigate that claim, we examined the industries that were growing during that period. During that same period, the fastest growth was in the healthcare/social assistance industry and the hospitality/food industries (29% and 13% respectively) (Morgan,2014).
Surprisingly, there was also considerable growth in the Professional, Scientific, and Management/Administration sector (21%) (Morgan,2014). This industry represents a large number of potential employment opportunities for graduates. Thus, it seems some areas in SWVA are finding ways to attract individuals with bachelor's degrees and attract growing firms. The growth in this sector, however, was heavily concentrated in a handful of counties. Most notably, Giles who saw employment in the sector increase by 354% from 2000-2012 (Morgan,2014). During this same period, educational attainment in Giles also increased. Giles saw an increase of 339% in the number of individuals with a college degree and whom were ages 25-34 (Morgan,2014). This suggests that the two are likely highly correlated, and that attracting individuals with bachelor's degrees could improve the areas ability to create and attract firms in growing sectors.

The general trend of a sharp contraction of manufacturing jobs and a growing number of jobs in healthcare and retail/food services matches statewide trends. There has been an overarching loss of middle income (defined as jobs that pay 30,000-60,000) jobs across the state from 2007 to 2016 (Crespin,2017). During this same period the state experienced growth in high and low paying labor. This is evident in the SWVA region. Their largest industry, manufacturing is declining and typical middle-income jobs which would have historically been seen as natural fits for these workers are also on the decline (Crespin,2017). Industries such as construction, manufacturing, extraction, maintenance/repair, and transportation/shipping have all declined in the state since 2008 (Crespin,2017). This has created a hollowing out of middle-income industries suited for individuals from the SWVA area that lack a bachelor's degree (Crespin,2017). Instead, the jobs

that are replacing these declining industries are either in high-income sectors that require further education or low-income sectors such as retail and food services (Crespin,2017). Since SWVA has so few individuals with a bachelor's or higher, the majority of the area is largely not benefitting from the creation of these high-income jobs and struggling to create or attract firms in these sectors. Instead, the region is largely replacing middle income jobs in declining industries with a majority of low-income jobs (Crespin,2017). Job polarization like this is most harmful for former middle-income earners without a four-year degree (Crespin,2017). Since this describes a large number of individuals in SWVA, this job polarization trend has been especially harmful for SWVA (Crespin,2017). This trend further explains the hardships of the area and the mechanisms working to keep unemployment high and regional incomes low.

Aging Demographics

When previously examining the industrial composition of the region, we found one of the fastest growing industries was within the healthcare/social assistance industry. In order to investigate why the healthcare/social assistance industry has experienced such an increase in employment we examined the demographics of the population in SWVA. SWVA has an older and declining population relative to the rest of the state (Holzman, 2017). In 2016, every county within SWVA had an age distribution that was concentrated in the older ages (Holzman, 2017). This is likely one of the reasons for the increase demand for healthcare and social assistance laborers, as the population continues to become older and older more and more individuals need living assistance and require more frequent healthcare (Holzman, 2017). This also depicts a consequence of the regions inability to attract young, educated individuals to the region,- a declining population. The region's population declines as many residents are reaching their final stages of life and there is not an adequate number of young individuals moving or staying in the area to replace the residents lost. From 2010 through 2017, every county in SWVA experienced population decline. Most areas in the region saw a population decline of over 5% (Holzman, 2017). In comparison to the rest of the state this trend was abnormal. As a result, SWVA contained a preponderance of the counties within Virginia whose populations declining by more than 5% (Holzman, 2017). These statistics show that SWVA's population in comparison to the rest of the state is declining and aging. It also further evidences the need for intervention and for policies aimed to increase the number of individuals with a bachelor's degree in the area.

CONSEQUENCES

Many of the consequences of the problem are self-reinforcing and have already been seen within our background section. Many of the factors contributing to the problem like lack of opportunities, an aging population, and stagnating regional industrial configuration, are also consequences of the regions' lack of individuals with a bachelor's degree. As seen in the previous section, the area fails to attract or retain young, college graduates. A commonly cited reason for this is the lack of financially appealing career opportunities. This lack of opportunities, or the perception of the lack of opportunities, was verified in the previous background section when we explored employment statistics for the region. These employment hardships are likely only further exasperated by this lack of college graduates. As manufacturing jobs and other middle-income jobs suited for individuals without a college degree decline as previously suggested, many of these individuals are whittled from the labor market completely, flee the area to somewhere with middle

income opportunities, or are forced to take jobs in growing low income industries such as retail and food services. For areas like SWVA that are constrained by the number of educated laborers in the labor market the scenario like the one above increases the unemployment rate, decrease the labor participation rate, and holds down median income as the region cannot fully benefit from the process of creative destruction.[4] Indeed, this is exactly what we observed in the statistics of the background section. This process in turn lowers the expected or perceived financial opportunities for recent graduations, these graduates then take such factors into account when deciding where to look for a job and are less likely to return or relocate to the area.

This further constrains the number of college graduates in the area. As a result, the region is then unable to attract growing firms that supply high income jobs. This idea is reinforced by a number of firms citing established and well skilled labor forces as reasons for choosing a location for relocation. This creates a cycle in which areas like SWVA need college educated laborers to attract firms to employ college educated workers, but to attract college educated workers they typically already need financial opportunities to draw them to the region.

This process also further limits SWVA's ability to produce a greater number of college graduates as socioeconomic factors are corelated with the probability of a child graduating from a bachelor's program (NCES,2015). Individuals with college degrees and high paying jobs are typically in better positions to provide the environment necessary to raise a college graduate. By examining this relation, it is not surprising that SWVA struggles to produce a great deal of college educated individuals given the area's low income and a low number of educated individuals living in the area.

This is the system by which the typical "brain drain"[5] also functions. Such a cycle leaves rural areas such as SWVA in a seemingly perpetual state of underdevelopment and impoverishment relative to other areas of the state. Income stays suppressed relative to other regions, unemployment stays elevated, individuals with the skills to transition to high-income jobs leave, the individuals that are left are less equipped to support a college student, and the area cannot attract firms that pay high wages to attract the educated workers needed to break the cycle. These factors combine to produce the consequences you see in the region today; low income, limited economic growth, low number of educated individuals produced, high levels of migration out of the region by young individuals, a primarily old population, and high unemployment.

These issues create various costs that the individuals in the area and the government must bear. Firstly, they suffer an opportunity cost of all the foregone income and tax that is lost as a result of a declining population. In addition, there is an opportunity cost of lost tax revenue due to individuals working primarily lower income jobs. In addition, lost income also translates to lost consumption of goods in the area that support the employment and incomes of other individuals in the area. This consumption would have supported local small businesses and made more businesses viable sources of employment and income in the area.

For each graduate they fail to incentivize back to the area, the region also loses all the resources invested in that student by the community education system and gains none of that students' income through consumption or tax. Further, there is the opportunity cost of those resources dedicated to students that will not return. Those same resources could have been put towards aiding a student in a skill or trade that stayed in the area and would have generated additional income and tax for the area. The area also must bear the cost of having a high ratio of

[4] A process defined in economics as the destruction of certain industries due to innovation. These industries are then replaced by new growing industries.

[5] Movement of skilled, educated, talented individuals from rural areas to urban areas.

elderly to young individuals. An old and declining population restricts property values since the demand for houses won't be able to keep up with the supply. Since various factors of education are also often funded through taxation of property, this lowers the financial resources available to the education system. Thus, costing the area down the line by having fewer resources to create students with the knowledge and skills necessary to make high wages.

Lastly, this lack of an educated workforce creates an opportunity cost of being unable to attract growing, desirable, high paying firms looking to build new facilities or relocate existing ones. The lack of an educated workforce drastically lowers the odds that these firms will look to SWVA as the labor force required is not there and convincing individuals to relocate given this constraint is extremely costly, ineffective, and unlikely (Slattery,2020). This creates additional foregone income, consumption, and tax. It also prevents the economy from diversifying and hampers long run economic development. This limits the type of labor available and exposes the area to greater risk should the few large industries in the area experience further decline. In addition, the lack of diversification works to suppress wages as the existing industries face little competition for their workers from new industries(WTO, 2019). Unemployment is also higher as there are less opportunities available as a result of these foregone industries/firms (WTO,2019). The lack of diversity in industry puts the area in serious risk as shocks to these industries would cause the already dire economic standing of the region to decline even further.

3. POLICY ALTERNATIVES

Below, we outline the details of the alternatives we will evaluate in this report. These alternatives were constructed by reviewing the strategies regions facing similar problems have utilized in the past.

1.Contingent Scholarships

The first potential solution we will examine is for SWVA to create a highly advertised and marketed scholarship for individuals from the SWVA area whom attend one of the five community colleges in the region for two years and then utilize the guaranteed admissions program at a 4-year state University to finish their bachelor's degree.[6] The scholarship will be modeled upon contingent scholarships for teachers, doctors, lawyers, and nurses whom agree to relocate to an underserved, rural area post-graduation. The scholarship will be contingent upon them returning and working in the area for four years, as is standard for like scholarships. The scholarship will be in the amount of the average annual in-state college tuition in Virginia, $15,812 for the 2019-2020 academic year, for two years (College Simply, 2019). Initially, this policy will offer 100 scholarships. Individuals will apply, and a board of volunteer educators from the region will decide upon the recipients.

2.Direct Cash Payments for Relocation

The second alternative is for SWVA to offer direct cash transfers for individuals with a bachelor's degree that move and work from the area. Programs such as this are currently being tested by several cities and states within the U.S. In Tulsa, Oklahoma there is the Tulsa Remote program which was established in 2018 by The George Kaiser Family Foundation. The program received ten thousand applications within 10 weeks of announcement and offered 100 individuals the incentive package in the first year (70 of which accepted and made the move). The package that Tulsa Remote offers is $10,000 dollars, a yearlong membership at a co-working site in the city, and support for identifying housing. The $10,000 dollars is paid out by giving a portion upfront for moving expenses, a monthly stipend, and the remainder once the individual finishes their first year residing in Tulsa. Individuals are eligible if they are 18 an older and have a remote position that allows them to work from anywhere.

Based on a similar model, the second alternative we will examine in our findings is for Virginia to form a similar program for individuals to relocate to SWVA. The second alternative is for the State and region of SWVA to partner to provide financial incentive for workers with bachelor's degrees. The SWVA Relocation Program would offer $10,000 dollars in cash payment for individuals to relocate to the area for each year- up to 2 years. The program requires individuals to have a bachelor's degree and have either a remote job for which they can work from the area or have a job offer in hand from a local firm. The applications will be reviewed and in the first year the program will offer 100 individuals the cash payments.

[6] Mountain Empire Community College, Wytheville Community College, Southwest Virginia Community College, Virginia Highlands Community College, and New River Community College.

The payments will be paid out as: $3,000 dollars upon the initial move, $500 dollars per month for 12 months, and the final $1,000 dollars at the year anniversary of relocation for the first year. The second year will be paid out as: $3,000 dollars upon agreeing to remain for an additional year, $500 dollars per month for 12 months, and the final $1,000 dollars at the year anniversary of resigning.

3.SWVA RURAL DEVELOPMENT ZONE

The final alternative is for the state to offer tax and debt forgiveness incentives to individuals to move to the area. The program would be based upon the Kansas Rural Opportunity Zone currently being utilized in the state of Kansas. The alternative would make SWVA an opportunity zone such that anyone with a bachelor's degree who moves to the area can receive state income tax waivers for up to five years and student loan repayments of up to $15,000 ($3,000 per year) over that same period so long as the individuals move to and remain in the area for that time. Individuals would be eligible for the program if, they have a bachelor's degree, and move to and reside in the SWVA area for 10 of the 12 months they file their taxes. The program essential reimburses the yearly student debt of individuals and makes them exempt from state income taxes for up to five years so long as they move and continue to reside in the SWVA area.

4. CRITERIA

Below, we outline our four criteria for which the policy alternatives will be evaluated upon. Then, we summarize the final scoring system which will be used in order to make our final recommendation.

1.Effectiveness-40%

The first criteria will be effectiveness. We will estimate the resulting increase in persons with a bachelor's degree in the area. This will be accomplished using the existing literature. We will attempt to generalize the results and scale them to the SWVA region. This will give us our estimate of how effective each option is in increasing the number of individuals with a bachelor's degree in the SWVA area. The various assumptions necessary for scaling and generalizing the results will be laid out in our findings explicitly. While this is not the most robust measure, given the constraints on data, time, and funding this methodology though somewhat imprecise, will give us a good relative point of analysis to frame our discussion. In order to keep measurements in like terms we will model the effectiveness assuming the policy is offered for one year and the number of individuals will be measured four years after. The category will be weighted 40% of our final score as it represents the indicator most aligned with the tangible change needed in the area to address the problem.

2.Cost - 20% each

When considering the costs of the programs we will examine only explicit costs. We will not consider opportunity costs. Costs will be calculated and brought to a NPV (net present value) for time period 1, using a discount rate of 5%. Costs will be estimated using like programs as models. We will analyze what similar programs spent and scale the number accordingly to match our SWVA program. Any assumptions will be explicitly listed. This criterion will be weighted 20%. The cost is an integral component of success for the policy and it will play a large role in determining the success of the project.

3.Cost Effectiveness -20%

The cost effectiveness will be calculated by dividing our estimated cost by our estimated effectiveness. This will effectively give us a cost per individual with a bachelor's degree incentivized to the region. This criterion will be weighted 20%. The amount paid per individual attracted offers important data to contextualize the results of our effectiveness and provide information on the scalability of each alternative. This, like cost, will have a large effect on the likelihood of success of each alternative. Thus, we feel cost effectiveness should be weighted the same as cost.

4. Political Feasibility -20%

Lastly, we will consider the political feasibility of each option. This will be a largely subjective measure, measured high, medium, and low. For the purpose of the final score, this measure will be converted to a corresponding numerical value as such: high=3, medium=2, low=1. In order to assign values of high, medium, and low we will consider the political stakeholders in the state legislature. We will examine past statements, sentiments, and the balance of power within the state legislature. We will then use this information to infer each policies' political feasibility. This criterion will be weighted 20% as any of the alternatives require political support for implementation and it is thus an integral component of evaluation.

Score

We will then combine the various criteria into a final score which will inform our recommendation. The final score will be calculated as following. All numbers for effectiveness, cost, and cost effectiveness will be scaled down to 0 to 100. This will be accomplished by multiplying the effectiveness by 0.1, the cost by 0.000001, and the cost effectiveness by 0.0001. For example, if a policy attracted 70 individuals to the area, cost 4,000,000 dollars, and had a cost effectiveness of around 57,000 dollars per person, the components would be scaled down and have individual score components of effectiveness: 7, cost: 4, and cost effectiveness: 5.7. To appropriately consider that all else equal we prefer a policy with a lower cost and lower cost per individual, the scores for cost and cost effectiveness will be scaled as negative numbers, with higher absolute values for cost and cost effectiveness appropriately detracting from the overall score of an alternative. Therefore, in our previous example the cost and cost effectiveness scores would be -4 and -5.7 respectfully. Lastly, we will consider political feasibility with a high, medium, and low measure which will be quantified for scoring purposes as: high =3, medium=2, low =1. Each of these components will then be weighted as follows: 40% effectiveness, 20% cost, 20% cost effectiveness, and lastly 20% feasibility. The overall score will thus be calculated as the summation of respective weights multiplied by each scaled criterion score. In our previous example, a policy attracted 70 individuals to the area, cost 4,000,000 dollars, and had a cost effectiveness of around 57,000 dollars per person, if we add in a feasibility score of high, this translates to a score of: $0.4(7) + 0.2(-4) + (0.2)(-5.7) + 0.2(3) = 1.46$. We will use this final score as a metric to inform our final policy recommendation .

5. FINDINGS

Alternative 1: Contingent Scholarships.

Effectiveness

In order to estimate the effectiveness of the first alternative we will examine evidence from other contingent scholarship programs. In a systematic review of studies that analyzed the effectiveness of scholarships given to medical students contingent upon their return to rural areas, the authors random-effects estimate of the pooled proportion of all eligible programs found 71% of recipients completed their four-year requirement. (95% confidence interval 60-80%) (WHO,2010). In addition, contingent scholarships were linked to impressive retention rates in 18 studies with a number of individuals remaining beyond their four-year commitment (WHO,2010). Another study of service scholarship for physicians who committed to work in underserved communities for a designated period of time found that 93% of participants completed their commitment, and approximately two-thirds remained in these communities for more than eight years (WHO,2010). From those studies we can see a strong pattern of retention for physicians being offered scholarships to work in rural areas post-graduation.

However, these studies only consider contingent scholarships for physicians, a career with relatively high wages and a large amount of potential debt accrued in the absence of scholarships. To enhance the generalizability of these results, we extend our analysis to look at the successfulness of existing scholarships in lower paying careers that require less schooling. Another career that extends scholarships to workers contingent upon living in rural areas post-graduation is scholarships for teachers. A longitudinal study of the North Carolina Teaching Fellows (a scholarship contingent upon teaching for 4-years within the state) found that, more than 90% of Teaching Fellows returned for a third year, and 75% returned for a fifth year (one additional year beyond their commitment) (Poldolsky et al, 2016). A U.S. Government Accountability Office (GAO) study of the TEACH grant program, which provides up to $16,000 in scholarships to individuals contingent upon them working in a low-income school for four years, found that 2/3rds of participants fulfill their requirements (Poldolsky et al, 2016).

Given these results, we see in both cases, full contingent scholarships have a retention rate of around 2/3^{rds} – 3/4^{ths}, 66-75%. As these careers are very different, we will assume that these rates are not career dependent and can therefore be assumed to be the retention rate one would expect for any contingent scholarship program tying an individual to a remote area. We will therefore assume that our 4-year program will have a similar retention rate (66-75%) for those who fulfill their commitment. For each scholarship offered, we will assume we will gain .66 - .75 workers to the region for 4-years (the length of the commitment). If we assume the policy is offered for one year,100 scholarships, four years later we would therefore expect to have attracted 66-75 workers.

Cost

In order to estimate the costs of the program we will need to estimate the costs of the scholarship itself alongside the associated costs to advertise, administer, and establish the program. First, we will look at the costs of the scholarship itself.

The scholarship amount will be $15,812, the average cost of in-state Virginia tuition. We assume that these costs stay the same for the first and second year. We calculate a first-year cost of 100 scholarships by multiplying the value of each scholarship by the number of scholarships offered, ($15,812*100). In doing so, we obtain a total first year cost of $1,508,120. The second year we will assume tuition stays constant and will be the same cost, $15,812, per scholarship, but we will discount this payment by 5% in order to bring the total to net present value. Therefore, we calculate $\frac{1,508,120}{(1+0.05)^1}$, and obtain $1,436,304.76. We then add this total to our total for year 1, and we obtain a total cost of the 100 scholarships themselves of: $2,944,424.76 over the two-year period.

Next, we look at the cost to advertise, administrate, and establish the program. For, a general application site we assume an upfront fixed cost varying between $25,000 to $50,000 given the researched rates of smaller contractors (Yoko,2014). We will assume the higher of the two, $50,000.

Next, we look at the advertising costs required at the community colleges within SWVA. There are 5 community colleges in SWVA for which the scholarship will be eligible (VCCS, 2021). We assume that for each of those colleges we will need to advertise the program by sending an individual to train and educate the career counselors and administration on the logistics of the scholarship. In order to accomplish this, we will hire one individual, to develop and present these materials during the first month of the new school year. At 15 dollars and hour, 40 hours a week, for 2 months this creates a labor cost of $4,800 dollars.

In addition, they will need materials. In the five community colleges eligible, there are around 14,000 students (Community College Review, 2021). We will therefore create 15,000 brochures with all the information on the scholarship for these students. This will cost approximately $1,500 per various online printing sites.

Lastly, the board for deciding whom receives these scholarships will be comprised of 5 volunteer professors from the 5 community colleges. Each will be given a $500-dollar stipend as payment. ($2,500 in total).

These expenses combine to yield a total cost of $3,003,225. The calculations for total costs are summarized in the following table:

Scholarship Year 1, 100 Individuals	**Scholarship NPV Year 2 100 Individuals**	**Cost of application Site**	**Advertising Costs**	**Board Stipend**	**Total Cost**
$15,812 * (100) **$1,508,120**	$\frac{1,508,120}{(1+0.05)^1}$ **$1,436,304.76**	**$50,000**	Labor: $4,800 Materials:$1,500 Total Adv. Cost: **$6,300**	**$2,500**	$1,508,120+ $1,436,304.76+ $50,000+$6,300+ $2,500 **=$3,003,224.76**

Cost Effectiveness

In order to obtain an estimate of the alternatives cost effectiveness, we will analyze the cost per student incentivized to the area. Using our estimation of the effectiveness, we see that if we offer 100 students the scholarship, then we expect 66-75 of those students to follow through with their commitment and reside in the area. Dividing our estimates of the cost by these numbers, we obtain a cost per retained student of: $40,043-$45,504.

Effectiveness	Cost Effectiveness
Low end, 66	$\frac{\$3,003,224.76}{66} = \mathbf{\$45,503.41}$
High end, 75	$\frac{\$3,003,224.76}{75} = \mathbf{\$40,043}$

Political Feasibility

The scholarship policy is assigned a feasibility score of high. We justify this rating for the following reasons. Governor Northam is likely to be a powerful gatekeeper and ally. This summer, he recommended $4.2M in development funding for SWVA projects, this is well over the cost estimate for the scholarship program (Lake, 2020). In 2021, Governor Northam was named the Appalachian Regional Commission States' Co-Chair, an organization which invested more than $160 million in projects associated with Appalachia's economic development during 2020 (Riddle, 2021). On his appointment, the Governor referenced his love of the area, and his want to develop and extend opportunity to the region (Riddle, 2021). In addition, Governor Northam recently signed a bill creating tuition-free community college program for low and middle-income students in the state of Virginia. Northam has a clear preference for educational development and has already used his influence to champion a bill designed at targeted educational development through community colleges (Del Rosario,2021). Given Northam's preference for educational development, his G3, get skilled, get a job, give back, program; would be an ideal fit for such a scholarship policy.

Alternative 2: Direct Cash Transfers to Remote Workers

Effectiveness

In order to estimate the effectiveness of the direct cash transfer alternative, we will analyze the results of similar programs that have been instituted in the past. Therefore, we will analyze the Tulsa Remote Program. According to their executive director, the program has brought more than 600 people to Tulsa, and 90% of individuals stay beyond their yearlong commitment (Ormont, 2021). Offering 100 individuals this relocation, we thereby assume that we retain 90 of these individuals with a 10% reduction per year. To place this into comparable terms with the scholarship, we assume this policy is offered for one year and then we observe a

10% reduction per year. Calculating $100 * 0.90^3$, which yields 66 workers 4 years after the policy is offered.

Cost

Tulsa Remote had an initial cost estimation- (labor, website, advertising, incentive) of $250,00 to $500,000 in 2019 to attract 20-25 individuals per year (Smith,2018). We will use the high end of the estimate for our analysis because after taking out the cost of the $10,000 relocation payment per individual, the lower estimate means they expected to spend only $50,000 dollars on labor, the creation of the website, advertising, and all other administration fees- which based upon our previous cost analysis of the scholarship is unlikely. We therefore assume a cost projection of $500,000 for 20-25 individuals. If we then extrapolate these costs to 100 individuals, we should expect to spend somewhere between $2,000,000- $2,500,000 per year for two years.

Tulsa Remote Projections	**Cost Per Individual, assuming cost of $500,000 per year**	**Extrapolated Cost per year for 100 individuals, assuming constant returns to scale.**
Low End, 20 individuals	$\frac{\$500,000}{20} = \$25,000$	$\$25,000 * 100 = \mathbf{\$2,500,000}$
High End 25, individuals	$\frac{\$500,000}{25} = \$20,000$	$\$20,000 * 100 = \mathbf{\$2,000,000}$

In order to calculate the total cost, we once again take the first-year costs as given but need to discount the second years costs by 5%. We do so by calculating $2{,}000{,}000 + \frac{2{,}000{,}000}{1.05}$ *and* $2{,}500{,}000 + \frac{2{,}500{,}000}{1.05}$. This generates a total cost of $3,904,762- $4,880,952.
A summation of the calculations is provided below:

Yearly Cost:	**First Year Cost**	**Second Year NPV**	**Total Cost**
Low End, $2,000,000	$2,000,000	$\frac{2{,}000{,}000}{1.05} = \$1{,}904{,}761.91$	$\$2{,}000{,}000 + \$1{,}904{,}761.91 = \$3{,}904{,}761.91$
High End, $2,500,000	$2,500,000	$\frac{2{,}500{,}000}{1.05} = \$2{,}380{,}952.39$	$\$2{,}500{,}000 + \$2{,}380{,}952.38 = \$4{,}880{,}952.39$

Cost Effectiveness:

We again calculate cost effectiveness by dividing our total costs by our estimated number of individuals. Doing so, we obtain a cost per 4-year retained individual of: $59,163-$73,954.

Cost Estimate	Cost Effectiveness
Low End,$3,904,761.91	$\frac{\$3,904,761.91}{66} = \$59,163.06$
High End, $4,880,952.39	$\frac{\$4,880,952.39}{66} = 73,953.82$

Political Feasibility

The direct cash payment alternative is assessed a feasibility grade of medium. The cost of this alternative is notably higher than the scholarship option and therefore is likely to face more scrutiny and push back as it will be harder to find room in the budget for the option. Additionally, Northam's past statements and comments towards the region suggest a want to develop the talent and individuals within that region, while comments on drawing outside talented individuals to the area are sparse. However, state officials representing the area have put forth a number of bills designed to try and draw new companies and new individuals to the area. This policy, as with all these policies, would increase their ability to pursue such economic development strategies as they would have a more developed work force to pitch these new companies and industries. In addition, both chambers of the state legislator are controlled by Democrats, none of whom are from SWVA (Vote Smart). This lack of representation for the area amongst the Democratic party may prove to be a barrier for this option. Without the crucial aid of an ally like Northam, the policy is unlikely to be a priority for the majority leadership given this lack of representation.

Alternative 3: Tax and Debt Forgiveness Zone

Effectiveness

In order to analyze the effectiveness of the tax and debt forgiveness zone option, we will examine studies of Kansas Rural Opportunity Zones. The policy offered state income tax waivers for up to five (5) and student loan repayments of up to $15,000 (3,000) per year for that same period, so long as individuals had a bachelor's degree or higher (Kansas Department of Commerce,2021). According to the Kansas Department of Commerce, between 2012 and 2018 the state spent about $12 million on the Rural Opportunity Zones program and awarded benefits to roughly 2,000 individuals over that time frame (Smith, 2021). In order to study the program, the Kansas Department of Commerce surveyed 522 participants in the program. The survey showed that 83% would have moved to the area even without an incentive (Smith, 2021). If we assume that that number is accurate and can be extrapolated, that means Kansas paid $12,000,000 and attracted 340 additional workers over that time frame.
The calculation for which is shown below:

Number of Individuals Total	Number of Individuals that wouldn't have moved without incentive
2,0000	$2{,}000 * 0.17 = 340$

Furthermore, the survey found that 70% of those individuals receiving the benefit moved from urban areas within the state of Kansas, that means they incentivized 238 individuals from urban areas in the state to move to rural areas and 102 individuals to relocate from other states.

Individuals incentivized	Individuals from in-state attracted	Individuals from out of state attracted
340	340*0.7=238	340-238= 102

To estimate how a similar policy would shift the behavior of individuals in Virginia, we will assume that a similar portion of individuals from within the state would be incentivized to move, scaled up by population. Virginia has a population of 8.5 million, while Kansas has a population of 3 million (U.S. Census Bureau). We assume that the policy results in the same portion of the population being attracted to the area over an 8-year period. In doing so, we find that 238/3,000,000 =.0.007933% of the population of Kansas was incentivized to move from within the state to a rural area. Assuming Virginia would attract the same rate, and thus multiplying that percentage by 8.5 million (the population of Virginia), we obtain an estimated 674 individuals within the state over the 7-year period. We will assume the 102 relocations from other states is consistent between the two. That provides a total relocation of 776.33 individuals over the course of 7 years, or roughly 111 additional workers with a bachelor's degree if only offered to individuals for 1 year assuming an equal spread of individuals per year.

The calculations are summarized below:

% of State Incentivized to relocate	Population of Virginia	Number of Virginians Estimated to be Incentivized to relocate to SWVA over 7-year period	Number of Individuals Outside the State Estimated to be Incentivized to Relocate over 7-year period	Total Number of Individuals Estimated to be Incentivized to Relocate over 7 years	Individuals per Year
0.007933%	8,500,000	8,500,000*0.00007933=674.3	102	102+674=776	$\frac{776}{7} = 110.8$

Cost

In order to calculate the cost, we first consider how many individuals will actually claim the incentives. We found previously that we would *incentivize* roughly 111 individuals to relocate to the area. However, just as the state of Kansas found with their program we would also need to pay out incentives to individuals who would have relocated anyway but still take advantage of this policy. As we did with the effectiveness we assume that only 17% of the individuals who we gave incentives to are actually incentivized to move and would not have done so otherwise. Therefore, we assume that the 111 individuals represent only 17% of the individuals that will claim these incentives. Therefore, we calculate that the total number of individuals that would claim the incentives to be around 653(111/0.17) individuals per year.

We then examine the costs of the incentives. We first examine the cost of tax waivers for 5 years. We assume that each individual makes the median income of individuals with a bachelor's degree in the state of Virginia, $60,520. (U.S. Census Bureau mined by Data Commons, 2020). We than calculate an expected income tax payment using the marginal rates and find that for each individual their yearly state income tax were they to have to pay would be $2,910 (Virginia Tax). For 653 individuals, this gives us a total of $1,900,230 per year.

Then, we consider the costs of the student loan repayments portion of the incentive. The incentive is $3,000 per individual per year. We assume all individuals again take advantage of all five years of the benefit. For 653 individuals, this amounts to a cost of $1,959,000 per year. Thus, the incentives have a total cost of $3,859,230 per year.

We then want to find the NPV of these payments over the five-year period the government would be liable to pay these individuals for moving. As outlined in the policy this translates to a string of payments for five years. We offer these individuals the incentive for the entire five years, and we assume the individuals attracted in year one stay for the full benefit. We do so by calculating a five-year annuity and obtain a total NPV cost of $16,708,446.25. We assume this is the total cost as administrative costs should be relatively inconsequential given that it would simply add a few lines to VA tax forms, and the debt-repayments to only 653 individuals would simply be sent out similarly to tax returns with no new systems for distribution required.

A table outlining the calculations is presented below:

Cost of Tax Waivers Per Year	Costs of Loan Re-payment per year	Total Cost Per Year	NPV of Total Incentive Package
$1,900,230	$1,959,000	$1,959,000+$1,900,230=$3,859,230	$\$3{,}859{,}230\left(\frac{1-(1.05)^{-5}}{0.05}\right)=\$16{,}708{,}446.25$

Cost Effectiveness

We can then calculate our cost per individual with a bachelor's degree incentivized to the area. In order to do this, we take our total cost: $16,708,446.25 and divide it by our total number of individuals we actually incentivized(not including those that would have moved anyway), 111.

We therefore obtain $\frac{\$16,708,446.25}{111}$ =$150,526.54 per individual actually incentivized to relocate.

Political Feasibility

The option is given a feasibility score of low. This is in large part due to the high yearly cost of such a program. It is also due to the likely opposition of state officials from other areas, especially those also struggling. Other areas that are struggling, are unlikely to support such a program designed at developing only SWVA. Officials from these areas would likely resist such a policy unless their struggling county or region was also included in the plan as otherwise, the forgone state tax dollars would impact them negatively and they would receive no benefit. The zone might also worsen the conditions of the other areas of VA as the program is expected to incentivize a number of talented individuals from other areas to leave and move to SWVA. Officials from these regions are thus unlikely to support specialized treatment of the region in this manner that siphons talent from their surrounding areas.

As previously discussed, any policy will likely need staunch support from Northam as the legislature is controlled by Democrats, none of whom are from SWVA. Unlike the scholarships, there is not adequate evidence to assume support from Northam. This lowers the feasibility as with no representation in the Democratic party, the region is unlikely to gain a large degree of support. In addition, Republicans from other rural areas may oppose the policy given the cost and special treatment of the region, and it again may not be a priority for Democrats given none of them are tied to the region

The findings for all the alternatives are summarized in the table below:

Policy	Effectiveness	Cost	Cost Effectiveness	Political Feasibility
Scholarships	66-75 additional individuals with a degree	$3,003,225	$ 40,043 - $45,503 per individual	High
Direct Cash Payments	66 additional individuals with a degree	$3,904,762-$4,880,952	$59,164-$73,954 per individual	Medium
Tax & Debt Relief Zone	111 additional individuals with a degree	$16,708,446	$150,527 per individual	Low

6. OUTCOMES MATRIX

Outcome Matrix	Effectiveness 40%	Cost 20%	Cost Effectiveness 20%	Political Feasibility 20%	Score
Scholarships	66-75 additional workers Scaled score: 6.6 7.5	$3,003,225 Scaled score: -3.0	$ 40,043 -$ 45,503 Scaled score: -4, -4.6	High Scaled score: 3	0.4(6.6) +(0.2)(-3)+(0.2)(-4)+3(0.2): **1.84** 0.4(7.5) +(0.2)(-3)+(0.2)(-4.6)+3(0.2): **2.08**
Direct Cash Transfers	66 additional workers Scaled score: 6.6	$3,904,762-$4,880,952 Scaled score: -3.9 -4.8	$59,164-$73,954 per worker Scaled score: -5.9 -7.4	Medium Scaled score: 2	0.4(6.6) +(0.2)(-4.8)+(0.2)(-7.4)+2(0.2): **0.6** 0.4(6.6) +(0.2)(-3.9)+(0.2)(-5.9)+2(0.2): **1.08**
Opportunity Zones	111 additional workers Scaled score: 11.1	$16,708,446 Scaled score: -16.7	$150,527 per worker Scaled score: -15.1	Low Scaled score: 1	0.4(11.1) +(0.2)(-16.7)+(0.2)(-15.1)+1(0.2): **-1.72**

7.RECOMMENDATION

Based upon the results of our findings, I recommend SWVA and the state of Virginia offer contingent scholarships to local area community college students to finish their bachelor's degree at an in-state University, contingent upon their return.

Given the scores obtained from out outcomes matrix above, we find that the alternative with the highest score was the contingent scholarship alternative with a final score of 1.84-2.08. The next highest scoring alternative was the direct cash transfer alternative with a final score of 0.6-1.08. Given this, this report offers a final recommendation for the region and state to pursue the contingent scholarship alternative.

Sensitivity Analysis

One possible area of concern for our recommendation is the take-up rate of the scholarship program. Our estimates suggest that for every scholarship given and used, we should expect 0.66-0.75 returning graduates to the area. Therefore, even if we offer 100 scholarships, if only 50 recipients actually utilize these scholarships, instead of 66-75 returning graduates, we would instead expect only 33-38 individuals. Similarly, this would also scale down the cost by around $15,000 dollars per scholarship not used. How low would the take-up rate need for the option to no longer be the recommendation? If we examine the next best alternative, we see the direct cash payments received a best-case score of 1.08. In order to understand how sensitive our recommendation is to the take-up rate of the scholarships, we will examine the necessary take-up rate required for the scholarships.

In order to do this, we will solve the following equation:

$$1.08 = 0.4[(100)(x)(d)]0.1 - 0.2(0.00001)\left[\left(3003305 - 100(1-x)(15812)\right)\right] - 0.2\frac{\left(3003305 - 100(1-x)(15812)\right)}{100(x)(d)}(.0001)$$

$$where$$

$$x = the\ percentage\ of\ the\ 100\ scholarships\ offered\ that\ are\ used$$

$$d\begin{cases} = 0.66\ for\ upper\ bound\ of\ take\ up\ rate \\ = 0.75\ for\ lower\ bound\ of\ take\ up\ rate \end{cases}$$

Solving this system, we find that we need a take-up rate of 84%-98% for the scholarship option to remain our highest scoring alternative. Therefore, we need to award, and have around 84-98 students actually utilize the scholarship in order for this option to still score higher than the best-case outlook for the direct cash transfers.

In order to address this concern, I recommend the state and region collect the necessary data over the course of the program's existence. They should keep track of how many applications were received, how many students were awarded, and what number of those students utilized the scholarship to attend, and how many of those students completed their degree. By tracking that data, the board will know not only if the program is meeting the required take-up rate but will also know whether or not failure to do so is due to lack of

applications, and should thus be addressed via marketing, or is a failure of students being offered, but not utilizing the scholarships to complete their degree due to some other barriers.

8.IMPLEMENTATION

Who are the stakeholders involved in moving the recommendation forward?

The stakeholders whom will play a key role in moving the program forward are: Governor Northam, the community college students in the region, and the staff of the community colleges in the region. Governor Northam will play a crucial role as a political ally who will need to utilize his office and position to move the policy through the political process and to help garner support amongst officials within his party and whom are all elected outside the SWVA region. The community college students will be the individuals that apply and receive the scholarships. These students' decisions will be critical to the success or failure of the policy. The student's perception and reception of the scholarships will determine how many apply, how many accept, and how many actually fulfill their requirement to return to the area for the full four years. To this end, the program should consider this when marketing the scholarship to these individuals and should consider holding regular meetings or outreach with the recipients of these scholarships in order to create fellowship and a sense of community amongst them. Lastly, community college administration and teachers will have influence over the student's perception, awareness, and pursuit of the scholarships. The community college staff should be engaged with in order to induce enthusiasm for the program, ensure accurate information is being distributed, and that they are engaging the student population with the opportunity.

What steps are necessary for your client to move your recommendation forward?

The following steps in the following order are necessary for my client to move forward. Create a one pager and presentation outlining the details of the scholarships, and its justification. This will be a primary tool in the engagement of stakeholders. Create a list of possible funding mechanisms for the policy. Use UVA-Wises development office, and Shannon Belvin's connection to the Appalachian Regional Commission, to engage stakeholders -most notably Governor Northam. Engage with Northam and gauge his interest, what he likes about the program, how does he think it should be funded, and what portions of the proposal give him or his party hesitation. Use this information to continually change and craft a ready to go bill introducing the legislation alongside Northam. Pursue passage of the bill. Once passed, begin engagement of students and school officials. Hire the necessary labor required to develop the website, marketing materials, and trainings. Create the board of SWVA educators that will be responsible for deciding which applicants are offered a scholarship. Begin the training and marketing of the scholarship over the summer prior to the first application period. Continually collect data on applications, usage, and the students once they enter a 4-year university.

9. Conclusion

In order to recommend a path forward for the SWVA region, this report attempts to examine the strategies that other regions have utilized to increase the number of individuals with bachelor's degrees present in their respective communities. We examined three alternatives: contingent scholarships, direct cash transfers, and the creation of a tax & debt forgiveness zone. Each was evaluated based upon the alternatives' ability to increase the number of individuals with a bachelor's degree in the region, the cost of doing so, the cost paid per individual, and the political feasibility of the option. These findings do not utilize the most robust methods, nor do they offer the degree of confidence or certainty likely required for the state to pass such a policy. However, given the constraints on data, time, and man power these findings do offer a rough usable estimate and provides a solid baseline for comparison of the alternatives.

The findings suggest that the scholarship alternative offers the most promise and should be the first alternative the region and state focus additional data collection, analysis, and evaluation efforts upon. As such, this report recommends the scholarships alternative for the region. Though, this report also acknowledges the need for additional research and analysis to be conducted specifically focused on the scholarship alternative in order to gain more confidence and eliminate uncertainty before the region or state seeks to implement such a measure.

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