Table of Contents

Introduction  ..................................................................................................................3
The Issue: Why has this not been solved already?....................................................3
Majors Players .................................................................................................................4
What is Impact Investing? ............................................................................................5
Our Solution ...................................................................................................................6
Individual Companies ....................................................................................................7
Investments and Metrics ...............................................................................................7
Conclusion .....................................................................................................................8
Introduction

Our main topic in this report is the neglected healthcare in the southeast region of the United States and the potential for improvement with the growth of biotechnology through venture capital. Biotechnology is a field of breakthrough research that is changing the way we approach healthcare. Simply put, biotechnology “harnesses cellular and biomolecular processes to develop technologies and products that help improve our lives.” Biotechnology encompasses pharmaceuticals, companies that develop various drug treatments using chemical engineering, medical devices, and telemedicine which all involve solving problems organically, using living organisms to combat deficiencies, and technology. Biotechnology comprises a small percentage of the greater healthcare industry, with a market cap of $30.5B USD. Despite being a relatively small player in the healthcare sector, biotechnology provides great opportunity for investors. In the last year, biotechnology has generated a 56% return, the second-best return by an industry in the healthcare sector. As the health of the southeast has failed to show major improvements, demand for medical breakthroughs is increasing, positioning biotechnology in the region for strong performance.

The Issue: Why has this not been solved already?

Southerners have the highest rates of chronic illnesses such as diabetes, heart disease, infant mortality and cancer. As a result of these disparities in health outcomes, certain regions of the South have been coined the diabetes belt, the stroke belt and the black belt. According to the Center for Disease Control and Prevention (CDC), the diabetes belt encompasses 15 states, with West Virginia, Alabama and Mississippi ranking the highest in type 2 diabetes. Of the individuals who live in the diabetes belt, 11.7% are diagnosed with type 2 diabetes whereas only 8.5% of people who live outside of the belt are diagnosed. The stroke belt consists of 11 southern states with Alabama, Mississippi and Tennessee ranking the highest in stroke death rates. For individuals who live in the stroke belt, their chance of dying from a stroke is a staggering 34% higher than those who live in other regions of the United States. The black belt is a region approximately 300 miles long that runs from central Alabama to northeastern Mississippi. It received this name because it was known for its dark and fertile soil which ultimately attracted many colonists and plantation owners. To this day, this region is referred to as the black belt because it is home to a large number of African American communities. Unfortunately, the oppression and disparities that existed in the past are still evident in the underserved and poverty stricken regions of the black belt today. Of all 50 states, Mississippi has the highest infant mortality rate at 8.8 deaths per 1000 live births with Alabama following close behind at 8.5 deaths per 1000 live births. Both rates are notably higher than the national average of 5.9 deaths per 1000 live births.
births. In addition, rural counties in the black belt have rapidly declining populations and subsequent deterioration in healthcare infrastructure.

![Image](image.png)

*Figure 1: Shows the percentage of adults with diagnosed diabetes within the United States.*

The root cause of these health issues is largely socio-economic in nature. More specifically, these inequalities in health outcome are a result of high poverty rates, high unemployment rates, low literacy rates and lack of access to quality healthcare—both preventative and curative. Although a myriad of factors have resulted in poor health outcomes in the South, it is clear that what these poverty stricken and neglected counties need is more financial and human capital.

**Major Players**

In the United States, capital attracts other capital. One sees in that geographically in capital-concentrated areas in New York City and Silicon Valley. To be more specific, some of the top venture capital firms such as Accel Partners, Adreessen Horowitz, Benchmark Partners, to name a few, are all located in the Silicon Valley-area; while, companies such as Union Square Ventures and Insight Venture Partners are all located in New York City. The problem surrounding these capital concentrated pockets is that it leads to other places being stricken of readily available capital, like the Southeastern United States. In other words, it prevents other places around the country from succeeding due to lack of capital and advisory services.

To compensate for the relative lack of capital, there are multiple startups that are doing great work on the onset of 2018. One such nonprofit group is called SEBIO. They
focus on fostering growth in the science sector of southeastern United States. One of the companies, they could potentially look at is called Vitruvias Pharmaceuticals is a generic pharmaceutical company based out of Alabama that focuses on providing generic drugs that are often in shortage or difficult to manufacture. However, the growth potential lately has been limited due to the lack of venture capital resources as well as advice. That being said, venture companies like SEBIO are capable of streamlining the process of fostering growth by coupling expertise as well as capital. In the Southeastern United States, there are more than 1600 biopharmaceutical and medical technology companies. SEBIO is unique because only about 13% of venture capitalists focus on biotechnology. Additionally, another role that nonprofits have played in helping startups is through higher education research facilities. Most startups do not have the upstart capital to finance sophisticated research facilities. As a result, higher education facilities have helped bridge the gap.

In addition to nonprofits, for-profit pharmaceutical companies, while headquartered abroad or in the Northeast, have a significant presence in the Southeastern United States. In North Carolina, for example, the “Research Triangle Park” in Durham has seen extreme growth in the presence of biotechnology research facilities, which has accounted for around 30,000 jobs.

Lastly, the role of government has been limited in the Southeast. In general, in 2015, the Federal government has spent $35.9 billion on medical and health research and development and the total expenditure has been steadily increasing. In terms of tax-credits on biotechnology, it is unclear how much effect local government has had on creating a pro-business environment. However, one exception has been North Carolina which has the NCBiotech acting as a catalyst for biotech firms. So, while there are limits in assessing the government’s role, there has been a strong foundation built in the Durham area of North Carolina.

What is Impact Investing?

As defined by the Global Impact Investing Network (GIIN), impact investing consists of any “investments made into companies, organizations, and funds with the intention to generate social and environmental impact alongside a financial return”. A key aspect of impact investing is the expectation of financial returns which upends the notion that only philanthropic organizations or non-profits can yield social and environmental impact. Although it is still unclear what standardized metrics should be used to measure impact, it is typical of investors to clearly establish their objectives from the outset of the investment, set their own performance metrics, oversee the work of companies they invest in and report any positive or negative impact their investments yield.
Our Solution

Although there is a great potential for improvement in the health of the southeast population through biotechnology, there is a lack of venture capital firms who would be able to invest into these companies. Venture capital provides young companies the funding necessary to grow and succeed in their respective business area. When people think of venture capital, they often think of established firms located in the San Francisco Bay Area or maybe New York City. There is good reason for this notion to exist. Together, San Francisco and San Jose are home to 40% of all venture investments, totally over $13 billion in 2015. And New York City is not far behind, harboring about 10% of all investment, or $3.3 billion. In terms of both health and venture capital, the southeast has largely been overlooked. One of the most basic reasons for the lack of venture capital firms in the southeast, according to Whatley of Vitruvias Therapeutics based out of Auburn, Alabama, is that there is lack a community of VCs and startups from which entrepreneurs can learn the process and grow their ideas. In his experience, “successful VC backed companies are few down here and the mentors needed to guide these beginners are few in number.” So, there is a clear cyclical barrier that prevents much needed innovative healthcare from helping the various health issues in the south.

We are proposing that impact investing firms functioning as venture capital companies be established in the southeast region, playing a vital role in reinvigorating healthcare systems located in the South that have been historically neglected. Although there may be risk involved with focusing on investments in this region, we want to point out the great potentials in this market. According to US News and World Report, the American southeast is home to five of the top 25 medical research institutions in the United States with Duke, Washington University at St. Louis, Vanderbilt, Emory, and UNC - Chapel Hill all making the list. These talented students and professionals could provide a link between innovation and funding in order to promote the health of the southeast. By opening impact investing firms in this geographic location, these firms will benefit from not only being surrounded by the environment that they are aiming to impact, but are also attracting those understand the problems associated with living in the south. By positioning a venture capital firm in this area, perhaps Nashville, TN, one is exposed to some of the best biotechnology research and ventures in the country, while also minimizing competition with other investors. This creates a symbiotic relationship of sorts, where biotechnology researchers will have improved access to capital and investors will tap into a largely overlooked market, providing them with unique business opportunities. All the problems that are faced by southerners, as mentioned above, only adds to both the potential returns from this market and the positive impact on the region.
Individual Companies

Teladoc is a telemedicine company founded in 2002 and based in Dallas, Texas. This company connects customers to U.S. board-certified medical professionals through video calls, phone calls, and online chat services. The telehealth services industry is rapidly growing in the United States in response to increasing healthcare costs, inconsistencies in the quality of healthcare and varying accessibility to healthcare. Teladoc fills this niche by providing more people with access to professional medical advice in a simple and efficient manner. More specifically, advancements in cloud-based technology and big data analytics allow customers to connect with medical professionals in real-time simply through the use of their smartphone. Ultimately, telemedicine companies like Teladoc will improve access to healthcare for individuals who live in rural areas of the Southeast and are forced to travel long distances before receiving quality healthcare.

HealPros is a small biotechnology company founded in 2011 and located in Atlanta, Georgia. HealPros is a company focused on bringing non-invasive diabetic retinopathy diagnosis technology to consumers across the region. Our team sees HealPros as a shining example of a successful health startup ripe for investment. HealPros has implemented several strategies to catapult themselves as an industry leader in both HEID and STAR scores, which are important metrics used to characterize an organization’s quality and performance.

Investments and Metrics

We believe it is important for companies to be investing into biotechnology companies who are just starting out and are in need of funding in order to expand and grow. These firms typically will not be producing revenue, and will likely be either operating on loans or using grants. This makes using common valuation techniques difficult to assess these companies, so more qualitative forms of analysis need to be used. Finding a company run by motivated, intelligent, and promising entrepreneurs and scientists is the first, most important step. Identifying whether a company will be successful lies within the people behind the project. Next, it is important to identify the product that these companies are working to produce, and seeing whether this product differentiates itself from others within the industry. Having many competitors working on producing similar products makes it riskier to invest in one firm over the other, while a differentiated product will make sure that the final product will stand out over other products in the market. Finally, in valuing a company, the market into which the product would fall into has to be identified. A saturated market would fall under a bad investment since many other firms and companies are trying to tackle similar problems. Rather, if the company is aiming to reach a new, unfilled market, than it has room and potential to have large growth within the market. Once these three aspects are identified,
we can move into the more quantitative aspects of the valuation. The most important factors when valuing biotechnology companies in this phase is their potential market cap, anticipated costs of production, and the price of the drug or device. Although these numbers will likely not be exact, they provide a good estimate of the expectations and potentials of the company.

Since the main goal of impact investing is creating a positive change, it is important to have a metric to measure the impact of the investments. As mentioned above, the southern region of the United States faces unique health care problems that can be solved by intelligent scientists and entrepreneurs in the biotechnology sector. Measuring the impact from investments into these biotechnology companies involves many factors, specific to the device or drug being manufactured. These factors are volume, distribution, costs, and results. Volume involves determining whether a company's products has reached the amount of people that was predicted or that are in need. Distribution involves analyzing what groups of people and regions are receiving these products in order to determine if the product is being allocated to those who are in need. Analyzing costs can take different forms. If the device or product was created in order to provide health benefits at a lower cost, then seeing whether the product actually lowers healthcare costs of the people affected is crucial. On the other hand, if the device or drug is a result of a medical discovery, then determining whether the cost is not set too high where people who need the device or drug cannot afford to obtain it. For example, when trying to identify the impact of investing into a company that has produced a drug specifically targeting diabetes, all these factors must be considered specifically to the southern region. Volume: What percentage of people with diabetes in the south are using this drug? Distribution: Do all people struggling with diabetes have the same access to this drug, or are certain groups, such as only wealthy individuals, only using the drug. Costs: How does the cost of this drug compare with other diabetes related drugs? Results: Over the years, how has the obesity rate changed in the south, and how much of this can be attributed to use of this drug?

Conclusion

Establishing impact investing firms in the south who specifically invest in biotechnology will allow for great leaps in providing lower healthcare costs, improvements in overall health, and better diagnosis and treatment. The south faces many unique healthcare issues that can be solved by the many talented, innovative, and passionate individuals and groups currently studying at the prestigious universities in the region. Being able to bring these individuals together with funding and support can allow for serious breakthroughs into these niche problems.
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