

Factors Influencing Venture Capital Availability in Rural States: Possible Lessons Learned from West Virginia

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Abstract: Venture capital has been identified by many as a vital element in the rapid economic growth of certain regions. The lack of access to capital, especially equity capital, has been identified as a major constraint to the economic growth of rural areas (i.e., venture capital access, as a centripetal force, concentrates rather than disperses economic activity). Researchers have advanced a focus on primarily urban sectors, such as information technologies, higher administration costs due to a lack of deal flow, and a limited support network for entrepreneurs as explanations for the lack of venture capital in rural areas. Yet, some venture capital firms are starting to develop interest in investing in rural businesses. Venture capital firms currently operating in West Virginia are surveyed concerning relevant issues, including expected rate of return, knowledge of natural resource based sectors, and the impact of distance on venture capital investments in rural areas. Survey results imply that venture capital can diffuse in rural communities that are not necessarily nearby. Likewise, lack of knowledge concerning natural resource based businesses was not a deterrent. Survey results strongly indicate that companies applying for venture capital in West Virginia had little understanding of how venture capital firms interact with portfolio firms or even the basic nature of venture capital. Survey results support the contentions that a lack of deal flow and entrepreneur support networks and culture are barriers. But, survey results did not agree that venture capital firms operating in smaller metropolitan and rural areas are willing to accept lower rates of return in rural as opposed to urban areas.

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Introduction

Venture capital has been identified by many as a vital element in the rapid economic growth of selected regions in the United States and elsewhere in the developed world. At the same time, many have identified the lack of access to capital, especially equity capital, as a major constraint to the economic growth of more rural areas such as West Virginia.

For regional scientists, the current state of venture capital access constitutes a centripetal force (i.e., it tends to concentrate rather than disperse economic activity) for so-called urban-core rural-periphery economic structures (Krugman, 1991). Researchers have identified a focus on primarily urban sectors, such as telecommunications, higher administration costs due to a lack of deal flow, and a limited support network for entrepreneurs as the possible reasons for the lack of venture capital in rural areas. Yet, venture capital firms, some of which are subsidized by state and local governments, are starting to develop interest in investing in businesses located in rural areas and smaller metropolitan communities.

Examined here are several issues that surround the expectations of venture capitalists who are interested in less developed areas. Do venture capital firms expect a lower rate of return in more rural areas? What are their expectations concerning investing in more rural sectors such as tourism and agriculture? Does venture capital have a spatial element, with venture capital investment diffusing out of urban centers into nearby rural communities? This set of issues is examined through a survey instrument and a set of interactions with venture capital firms currently operating in West Virginia. Because of a limited data set, inferences will be drawn based on logic and examination of data as opposed to being based on statistical inferences. Our inferences will center on the potential for and barriers to venture capital penetration into rural areas such as West Virginia.

A review of the literature concerning venture capital is initially provided. This review will center on the nature of venture capital as well as providing an examination concerning the estimated contribution that venture capital has made to economic growth. Barriers that limit the spread of venture capital to rural areas and the nature of venture capital that does exist in such areas are then examined. Hypotheses that we advance concerning venture capital in rural areas are then discussed. Responses by venture capitalists who were interviewed with a survey designed to shed light on these hypothesis will then be examined. Finally, summary conclusions will be drawn and areas of future work will be highlighted.

Literature Review

Nature and History of Venture Capital

Venture capital firms raise money from individuals and institutions to invest in businesses that have a potential for yielding high returns on high risk investments (Shalman, 1990). Venture capital funds usually have limited lifetimes that are determined when the fund is formed (typically ten years, which can be shortened or lengthened by one year increments for up to three years) (Shalman; Gompers and Lerner, 1999). Venture capitalists or fund managers are usually general partners who control day to day operations while investors are limited partners, who only monitor fund activities periodically, and do not participate in the fund's day to day activities (Shalman; Gompers and Lerner, 1999). Investors can include private and public pension funds, endowment funds, foundations, corporations, wealthy individuals, foreign investors, and venture capital firm managers. Professionally managed venture capital firms usually are private partnerships or closely-held corporations (Shalman; Gompers and Lerner, 1999).

Venture capital investments are not secured with collateral; rather, venture capitalists take an ownership stake (equity investment) in the privately held businesses in which they invest (Shalman). Traditional and still currently, the lion's share of investments by venture capital firms have been in companies touting early stage (new) technology-based products. Such businesses have the potential for a high failure rate but also for yielding dramatically large profits. Venture capitalists reduce risk by carefully evaluating the technical and business merits of proposed business plans. Ultimately, they only invest in a small number of the businesses which are candidates for investments. Risk is also reduced by holding a portfolio of young companies in a single fund, by partnering with other venture capital funds when investing in a business, and often by simultaneously managing multiple funds (National Venture Capital Association, 1999).

The ownership stake that venture capital firms generally take in their portfolio companies typically run in the 30-40% range. In return for their investment, venture capital firms have some type of "say in" or influence over business management decisions. Typically, venture firms have a seat on the board of directors for the portfolio company and are intimately involved with the company in which they invest (Small Business Notes, 2004). In this regard, they provide company management with contacts and help in formulating strategies. Close relationships are maintained by visiting and talking to company management. According to Shalman, venture capitalists visit each of their portfolio company on average 19 times per year resulting in a 100 hours of direct (phone and in person) contact.

The degree of control or influence over portfolio companies is perhaps the most controversial aspect of venture capital investing. Many entrepreneurs either do not seek or decline venture capital funding because of a fear of losing control of their business or new product ideas. This fear underlies the use of the term "vulture capital" by some with venture capital firms rumored to require up to 80% ownership of the business in return

for their investment capital. Venture capitalists reply by stating that they only require their fair share of company ownership (usually under 50%) and desire to influence rather than control firm decisions (Small Business Notes, 2004).

Venture capital firms ultimately receive some combination of profits and preferred shares or royalties in return for financing. Typically, venture capitalists and portfolio business management and other owners gain their returns when the business undergoes its initial public offering (IPO) or when it is sold to another firm. At that point the venture capital firm liquidates any interest that it holds in the portfolio company. Because of the risk that they face, venture capital firms expect a higher than average internal rate of return as compared to other types of investments. However, rates of returns are not only dependent on the success of the company in which they invest, but also on the performance of capital markets in general and the market for initial public offering of company stock in particular (National Venture Capital Association).

The venture capital industry as it is currently structured began its growth and development immediately after the end of World War II. Early industry leaders included the Rockefeller Family, George Doriot, who taught at the Harvard School of Business and is often called the father of venture capital, and Jock Whitney. Early products were often commercialized off-shots of technologies developed during the war, such as Minute Maid orange juice concentrate and micro-electronic circuitry (India Infoline, 2001).

The venture capital industry experienced marked growth in the 1990s followed by a recent slowdown primarily due to the dot.com bust. Investments by the US venture capital industry grew from \$700 million in 1980 to over \$80 billion dollars in 2000 (Gompers and Lerner, 2001). From 1991 to 2001, the size of the industry increased by 40 fold (Gross, 2002). A large proportion of venture capital investments are in early stage technology companies often concentrated in a few locations. For example, from 1960-2000, one-third of the total value of US venture capital investment was in Silicon Valley high technology firms (Gompers and Lerner, 2001).

Venture capitalists typically have a common identity and share very similar interests, (Wade, 1995), i.e., they constitute a “community of practice” (Brown and Duguid, 2000) with commonly held norms and the sharing of information. This phenomenon helps explain the herd-like behavior of many venture capital firms, where investments by a leading firm in a new area is rapidly followed by invests made by others (Kenney, 2001).

Venture capitalists also belong to a broader business network of entrepreneurs, institutional investors, potential executives, law firms, and a variety of others who can provide access to services and information. A venture capitalist who lacks a well-developed set of contacts is just another uninformed investor (Kenney, 2001). This network also extends to the organizational level, where venture capitalists can help build links between diverse organizations, such as universities, investment banks, and growth-oriented companies (Florida and Kenny, 1988). This intricate network provides a flow of

information for venture capitalists, thereby enhancing their information base and lowering the risk inherent in their investment strategies (Koh and Koh, 2002).

Regional Economic Growth

Venture capital is of interest because of its perceived contribution to rapid economic growth and development in certain regional economies as well as its role in the growth of the US economy in the 1990s. Numerous authorities have pointed to the key role played by venture capital in business start-ups and growth and the resulting positive impacts on state and regional economic growth and development (Barkley et al., 2001). Both the regional science literature and the entrepreneur or business school literature indicate the role of venture capital in facilitating innovation and technological progress (Allen and Hayward, 1990).

According to the entrepreneur school of thought, venture capital firms overcome the disadvantages of individual entrepreneurs attempting to bring new or even older products to market. They also provide an alternative to the inertia and inflexibility sometimes found in product research and development efforts by established, larger corporations. By applying scientific breakthroughs in the form of new products and companies, venture capitalists are a catalyst for technological progress, thereby enhancing productivity and generating wealth for the entire economy (Koh and Koh, 2002). In this regard, places such as Silicon Valley owe their economic growth to a new organizational model as much as to the development of new technologies (Aoki, 2000). Critics of venture capital retort that especially in times of rapid economic growth, pressures to generate fast returns has caused venture capital firms to urge portfolio companies to prematurely make initial public offering. Further, in the late 1990s, too many venture capital firms attempted to survive in certain markets, when the need for venture capital could be met by fewer firms (Gompers and Lerner, 2001).

The formation of new, innovative firms has been placed in the context of the long wave view of economic development, with such firms providing the catalyst for the new wave of technology change that eventually works its way throughout a given economy (Hall, 1981 and Rothwell, 1984). Venture capital provides an avenue for facilitating the new formation of such leading firms.

Venture capital also could be seen as playing a key role in new growth theory economic models. In such models, technology change and the rate of capital accumulation drive changes in productivity and economic growth. Romer (1990) made a major contribution in advancing the concept that technology change is endogenously determined (through the use of knowledge workers in his basic model) (Grossman and Helpman, 1994). Venture capital easily fits into the worldview of endogenous growth models. Venture capital firms serve as a way for bringing technological advances and products into the market place. Thus, venture capital firms could at the very least speed the diffusion of technologies and growth in such models. That is, venture capital could be viewed as part of the process of developing endogenous technology.

Venture Capital in Rural Areas

It is well documented that rural areas have traditionally lacked access to venture capital financing (Barkley, 2003). According to Schmidt (2002) in 2001, nonmetropolitan (rural) US counties had 17% of all US business established, but only 1.6% of businesses receiving venture capital and only 0.8% of venture capital funding.

Several reasons for the lack of venture capital penetration into rural areas have been advanced. First, rural economies usually lack the fast growing sectors that have received venture capital funding, such as computer software, telecommunications, medical devices and equipment, biotechnology, and networking and equipment (Pricewaterhouse Cooper, 2003, Florida and Kenney, 1988). Rural and smaller metropolitan economies are much more concentrated in traditional economic sectors that generally provide lower rates of return on investment than found in newer economic sectors such as computer software development. Even when such opportunities do exist in more traditional, rural-based sectors (such as food processing), venture capital firms may lack the expertise to evaluate and advise businesses belonging to such sectors where they normally do not invest.

Another barrier to the use of venture capital in rural areas is the lack of deal flow or the relatively few investment exchanges made between venture capitalists and portfolio firms (Barkley, 2003; Barkley and Markley, 2001). Fewer and more geographically dispersed opportunities for investment mean higher costs per dollar of actual venture capital transaction. Good investment opportunities are more difficult to find, evaluate through due diligence, and to ultimately monitor after the deal is made.

Another barrier to the use of venture capital in rural areas is the lack of a proper support network for entrepreneurial activities in general in many rural areas (Barkley, 2003; Barkley and Markley, 2001). As previously discussed, venture capitalists rely on well-formed networks to facilitate venture capital deals, provide critical information flows to assess potential deals, and to support portfolio businesses. These networks both among businesses and between the business community and key organizations such as local universities are often lacking in rural areas. In particular, the ability of entrepreneurs to network with each other and provide advice and support is often limited in rural areas. Such networks facilitate the development of new ideas, and help fledging businesses get off the ground by obtaining needed support (Nolan, 2003).

Another possible barrier not discussed in the literature but advanced by at least some managers of venture capital funds is a lack of understanding of the nature of venture capital held by many potential entrepreneurs in rural and small metropolitan areas. According to this viewpoint, such entrepreneurs have more access to venture capital than one might expect, but lack a clear understanding of its nature and requirements.

Several types of policies have been implemented in an attempt to circumvent the problem of lack of equity capital in rural areas. Markley (2001) has termed these efforts

as community development venture funds while Barkley uses the term nontraditional venture capital funds. In general, these attempts at providing venture capital to rural areas have met with, at best, mixed success.

Nontraditional venture capital funds are of three basic types (Barkley, 2003). One type is where public funding is provided to set up and sometimes to further subsidize publicly or privately managed venture capital funds. Such funds have been successful in states such as Kansas (the Kansas Venture Capital Fund), West Virginia (West Virginia Jobs Investment Trust) and in other places. In certain states, such as Mississippi and Colorado, these funds eventually folded with a loss of the invested state funds and no sustained impact on employment or economic development. Another example is the New Market Venture Capital Companies (NMVC), funded by the federal government under the New Market Venture Capital Program instituted in 2001 (Barkley). NMVC firms must primarily operate in low income areas and primarily provide equity capital to smaller businesses as well as business training and technical assistance. They in turn receive federal matching funds for technical assistance and up to 150% matching for loanable funds. Because of a lack of further funding from the federal government, NMVC have been limited to the seven currently in existence, four of which operate in rural areas. One of the latter is the Adena fund, which operates in rural Ohio and to lesser extent in West Virginia.

Tax credits are another policy tool that has been used to encourage the development of private venture capital funds in rural areas. Examples of these include the New Market Tax Credit that has provided tax credits to Community Development Entities (CDE), which are limited liability companies or corporations that serve low-income people or economically depressed areas (Barkley). Under this approach, the CDE provides equity ownership shares and tax credits to private investors (usually lending institutions).

Other nontraditional efforts have been instigated by all levels of government “as well as by private and quasi-public business and community development organizations” (Barkley, p. 109) with the goal of providing equity capital to rural businesses. One example of such efforts is regional angel networks. Angel investors are wealthy, often retired, entrepreneurs who provide both financing and advice to businesses seeking equity capital. Angel investors have many of the same requirements as traditional venture capital, but tend to be less stringent in terms of investment criteria and even investment goals. Angel networks are loosely organized groups of angel investors, with the goal of sharing appropriate information and thereby reducing the costs of making investments. ACE-NET (Angel Capital Electronic Network) is the most well-known example of an angel network. Angel networks operating at the state level include Ohio Angels.com. Most angel networks rely on the internet to share information and to educate both investors and potential portfolio investment businesses (Barkley).

Testable Hypothesis and Survey Development

Our review of the venture capital and economic development literature and discussions with venture capitalists lead to the development of several testable hypotheses. We designed a survey questionnaire to be administered to the management of venture capital firms operating in West Virginia. The survey was designed to elicit responses that provide insight into why venture capital firms have been reticent to invest in more rural areas such as West Virginia.

Several questions were designed to gather basic information about the venture capitalists that we interviewed. Based on the responses to our survey, all nine venture capitalists that we interviewed are either headquartered or have a branch office in West Virginia. Venture capital firms often use stages of company growth and development to determine their investment strategies. In fact, many venture capital firms concentrate their investment activities in early growth or in start-up companies. We were interested in what stage of company development they typically make investments in. For this question, venture capitalists were allowed to choose between start-ups, early growth, restart-ups, and mature businesses.

Based on our review of the literature and discussion with venture capitalists, we have arrived at several testable hypotheses. These hypotheses involve concepts concerning the economic costs of space and accompanying core-periphery type views of regional economies, the sectoral orientation of urban versus rural areas, and perceptions that they might hold concerning the business community in less densely populated areas.

One hypothesis concerns how venture capital can operate as a spread effect from an urban area to a nearby rural area. (A spread effect occurs when growth in an urban core benefits a nearby rural area as pointed out by Krugman and others). In this case, the spread of venture capital equity funds into nearby rural areas. Potential urban centers that could have a spread effect into West Virginia include the Baltimore-Washington DC metropolitan area, the Pittsburgh metropolitan area, and possibly the Columbus Ohio and Philadelphia metropolitan areas.

Our hypothesis is that location of venture capital investments will reflect the cost of economic space that is; venture capitalists will show less of an inclination to invest in more distant rural areas. Reinforcing this contention is the fact that venture capital firms demand a certain amount of influence over the operations in which they invest. This is reflected in venture capital visiting their portfolio companies on average nineteen times a year and spending an average of 100 hours in direct contact (Sahlman, 1990). We contend that such influence becomes harder to exercise for more distant businesses. We attempt to test this assertion by asking venture capital what is the maximum travel time to a company's headquarters in which they would make an investment. We contend that distance will have an impact; that is, venture capital firms will be more reticent to invest in businesses that are more distant.

A related argument is that venture capital firms themselves are experiencing the product cycle to some degree. The argument is that as the venture capital industry matures, profitable investments in urban areas will be more difficult to find. Venture capital firms will start to seek out business ventures in rural areas that are inherently less profitable. Also supporting this argument is the general slowdown in US economic growth and in venture capital funds growth. Both facts could mean that venture capital firms seek out more business opportunities to finance in general. Some of these business opportunities could be moderately less profitable options in rural areas. A related argument is that venture capital in rural areas is often sponsored by state government. While these state-sponsored venture capital firms still require a high average rate of return, they may still be willing to accept a lower rate than would a typical, urban based venture capital firm. We test the hypothesis of lower expected rates of return with the question of comparing rates of return in West Virginia to those that would be acceptable in an urban area. A companion question asked venture capitalists if they would expect a lower rate of return in West Virginia as opposed to other rural areas. We hypothesize that despite these arguments, venture capitalists in general demand the same rate of return in rural areas as in urban areas.

One argument is that venture capital firms wish to provide capital to businesses in more rural areas such as West Virginia. However, potential recipients of venture capital in rural areas such as West Virginia lack a basic understanding of what constitutes venture capital. This barrier has arguably played a major role in limiting venture capital penetration into such places. We test this hypothesis in three ways. First, we ask venture capital firms operating in West Virginia to rate the understanding of venture/equity capital by West Virginia businesspeople who have actively sought investors. Second, we use a five scale Likert question to compare their perceptions of businesspeople in rural versus urban areas in terms of understanding venture/equity capital. Third, we ask them to indicate if companies seeking venture/equity capital understand the degree of influence required by venture capital firms, such as a seat on the board of directors. Mainly because businesspeople from more rural areas lack up-close exposure to venture capital and how it operates, we hypothesize that West Virginians will be viewed as not especially knowledgeable about venture/equity capital. For the same reason we also hypothesize that businesspeople from rural areas will be perceived as less knowledgeable than their urban counterparts. Further, we hypothesis that West Virginia businesses which seek venture capital investments are not especially knowledgeable about the nature and level of influence required by venture capital firms.

A related area concerns the amount of interaction between venture capital firms and the businesses that they fund with equity capital. Several experts have indicated that this lack of “deal flow” is a barrier to venture capital penetration into less densely populated areas and communities (Barkley; Barkley and Markley). (Economists might term this as trading in a thin market.) We attempt to ascertain whether this is perceived as a barrier by venture capital firms operating in West Virginia through a five-Scale Likert question. Our hypothesis is that a lack of deal flow will be seen as a major impediment to venture capital penetration into rural states and areas such as West Virginia.

Experts also state that effective entrepreneurial networks in urban areas and the lack of such networks in rural areas explain part of the differences in growth rates between rural and urban economies. Examples include the informal and formal networks that supported venture capital activity in fast growing economies such as Silicon Valley. Arguably, at least part of the success of venture capital can be explained by formal and informal networking by entrepreneurs. For rural areas, the development of new ideas into marketable products may be retarded by the lack of adequate support networks. Venture capital firms may be more than willing to finance rural-based ventures, but relatively few ventures arise because of a lack of entrepreneurial spirit, culture, and support. We hypothesize that a limited or lacking support network for entrepreneurs in rural areas such as West Virginia is seen as restricting venture capital access. Agreement with this hypothesis is tested through a five point Likert scale question.

Another set of reasons for the lack of venture capital use in more rural areas may be the concentration of rural economies in natural resource oriented industries such as agriculture, forestry or wood products, various types of mining, and tourism. Venture capital financing has been concentrated in technology oriented sectors such as information technologies, telecommunications, and biotechnology. Venture capital firms usually concentrate their lending activities in a few sectors with which they are familiar. While understandable, such behavior could limit access for firms in sectors usually not supported by venture capital, such as those often found in less densely populated areas. Hence, we ask venture capitalists to both rate their level of experience with traditional rural sectors (such as agriculture, forestry or wood products, mining, and tourism) and to indicate whether such knowledge or the lack thereof influences their ability to invest in rural-based businesses. We hypothesize that the interviewed venture capital will have relative limited experience in working with businesses in these rural sectors and that this lack of experience will serve as a barrier to investing in rural areas.

Survey Population and Results

Our surveyed population was all venture capital funds that currently seek to provide equity funding to businesses located in West Virginia. Of these seven funds, three fall into the nontraditional venture capital category (West Virginia Jobs Investment Trust (WVJIT), the Adena Fund, and the Natural Resource Capital Fund). The remaining four funds are traditionally, private venture capital funds, originally based in the Washington DC area, Philadelphia, and Pittsburgh. These funds have only recently begun to operate in West Virginia; for example, in 2000, WVJIT was the only venture capital fund active in the state.

Six of the seven funds cooperated with our survey efforts. For several funds, more than one survey was provided, because co-managers of the same fund may hold different opinions relating to our survey questions. Surveys were primarily administered by personal interview, while two were filled out and then developed via a fax. The survey population, while well-represented, is of course a biased and limited sample. By

limiting our survey to venture capital funds currently operating in West Virginia, we have a self-selection bias towards venture capital firms that are at least willing to attempt to operate in a rural state with smaller metropolitan areas. Still, we feel that this limited sample provides some preliminary insights into the behavior and thinking of such operations.

The nine venture capitalists that were interviewed were asked to indicate the stages of company development in which they usually made investments (start-ups, early stage, expansion, or mature). Most venture capitalists operating in West Virginia stated that they normally invested in more than one category of business development. A preponderance was shown for investing in start-ups and early stage businesses (seven each) followed by more established businesses in an expansion mode (five) and then investing in mature businesses that are still interested in growing (four) (Figure 1).

As previously discussed, venture capital firms make numerous visits to the businesses in which they invest (Sahlman, 1990). This fact along with spread effects found in urban core-rural periphery economic models suggest that venture capital may diffuse from urban into rural areas and that this dispersion has a spatial element. Survey results provide support for the assertion that location and economic space matters in determining the spread of venture capital from urban to rural areas. One respondent indicated their maximum travel time to a portfolio company is two hours (Figure 2). Two other respondents stated that three hours is their maximum travel time for visiting a portfolio company while three respondents indicated that four hours is their maximum. Three respondents did indicate that they are willing to travel five to ten hours to visit a portfolio company. Hence, the majority (six out of nine) of responding venture capitalists indicated that four hours or even 5-10 hours were the maximum travel times to company headquarters that would preclude their investment decision.

It is well-established that venture capital investments are concentrated in urban economy sectors such as biotechnology. However, it is conceivable that venture capital firms are starting to look at investing in more traditional rural sectors. The majority of venture capitalists (five) responding to the survey indicated either no or little experience with natural resource based industry (Figure 3). On the other hand, one respondent indicated some experience and three indicated a lot of experience with such industries. Thus, survey results provided weak evidence supporting our contention that venture capitalists operating in West Virginia were not very familiar with such sectors. On the other hand, the level of experience generally did not influence their ability to invest in rural-based businesses. Seven (77.7%) of survey respondents indicated their ability to invest in rural businesses was unaffected by their level of knowledge about natural resource based industry (Figure 4). Two indicated that their level of knowledge did have a negative impact on their ability to make investments in rural areas.

Three questions were used to ascertain whether potential recipients of equity funding in rural areas such as West Virginia lack a basic understanding of what constitutes venture capital. This barrier has arguably played a major role in limiting venture capital penetration into rural areas. Responses to each question support this

hypothesis. For example, eight venture capital respondents indicated that West Virginia businesspersons who sought their financing had little understanding of how venture capital funds operate, while one respondent indicated that such businesspersons had some understanding (Figure 5). The second question concerning this hypothesis compared how the surveyed venture capitalists viewed the knowledge base of rural versus urban businesspeople concerning venture/equity capital. Four responding venture capitalists strongly disagreed and five disagreed with the assertion that rural businesspeople have a better understanding of venture/equity capital than their urban counterparts (Figure 6). This set of responses provides support for the assertion that a lack of understanding by local businesspersons plays a key role in limiting venture capital use into West Virginia and likely into other rural areas.

Our review of the literature contains a discussion of how venture capital firms seek to influence the decision making process of businesses that they finance (Shalman). Especially for inexperienced businesspeople, such advice and influence is usually an aid rather than a barrier to success. Responses to the question concerning how businesspeople that approach venture capital firms for backing understand this process of influence indicate a lack of such knowledge. One respondent indicated that such businesspeople had no knowledge, four indicated that they had little knowledge, and four indicated that they had some knowledge (Figure 7). These responses strongly support the assertion that companies applying for venture capital in West Virginia had little understanding of how venture capital firms deal with the businesses that they support or even the actual nature of venture capital firms.

The venture capital literature concerning rural areas strongly supports the idea that a lack of deal flow is a detriment to venture capital penetration in rural areas. This literature points to the high search costs and other transaction costs per investment dollar in rural areas (Barkley, Barkley and Markley). While not unanimous, responses to a five point Likert scale question tended to support the assertion that a lack of deal flow is a barrier for venture capital penetration into rural states such as West Virginia (Figure 8). Three respondents strongly agreed and three respondents agreed with this contention. One respondent was neutral, one respondent disagreed, and one respondent strongly disagreed with the statement.

Likewise, the venture capital literature concerning rural areas strongly supports the idea that a lack of entrepreneurial culture in general and a limited support network for entrepreneurs in particular is a detriment to venture capital penetration in rural areas (Barkley, Barkley and Markley). Respondents tended to agree with the assertion that a limited support network for entrepreneurs restricted venture capital penetration into more rural states such as West Virginia (Figure 9). Two respondents strongly agreed with this statement, while five respondents agreed. One respondent was neutral, while one respondent strongly disagreed with this assertion.

The argument from the literature is that venture capital firms operating in rural areas will accept lower rates of returns on their investments. This is especially true for venture capital funds backed or sponsored by (usually state) government or other types of

nontraditional venture capital funds. Survey results did not support the assertion that venture capital firms are willing to accept a lower rate of return on their investments in rural as opposed to urban areas. Only one respondent indicated that they expected a lower rate of return in West Virginia as opposed to other rural areas, while eight respondents indicated they expected the same rate of return (Figure 10). Three respondents did indicate that they expected a lower rate of return in West Virginia as compared to urban areas, but six (66.7%) indicated that they expected the rates of return to be the same between West Virginia and urban areas (Figure 11).

Summary, Conclusions, and Areas of Future Work

The research represented here provides support for several of the hypotheses advanced in the literature concerning venture capital in rural areas and a lack of support for others. Because of the limited and biased nature of our sample size, any conclusions drawn about venture capital access and equity financing in rural areas must be tentative.

Venture capitalists in our surveyed population indicated some limits on their willingness to travel to the headquarters of portfolio investment companies. However, the majority of respondents were willing to travel at least four hours to visit with business managers. These responses imply the possibility that venture capital can diffuse out from urban centers into rural communities that while not far away, are not necessarily nearby. One implication is that other factors are limiting the use of venture capital in rural areas, beside the friction of dealing with businesses that are not next door.

Likewise, lack of knowledge concerning natural resource based businesses was not a deterrent to investing in rural areas. In agreement with the literature, it is more likely that appropriate investment opportunities are much more limited in traditional natural resource based rural sectors.

A possibility for the lack of venture capital in rural areas not emphasized in the literature is a lack of knowledge by rural businesspeople concerning the nature of venture capital. Our limited results strongly support the assertion that companies applying for venture capital in West Virginia had little understanding of how venture capital firms deal with the businesses that they support or even the actual nature of venture capital firms.

On the other hand, survey results support the contentions found in the literature that a lack of deal flow and entrepreneur support networks and culture are barriers to venture capital access in rural areas. Finally, our survey results did not agree with the generally held content that venture capital firms operating in smaller metropolitan and rural areas are willing to accept lower rates on return in rural as opposed to urban areas.

While these results provide some insight into the behavior of venture capitalists, the number of venture capital managers surveyed limits our ability to draw strong conclusions. Modifying the survey in some ways and more importantly applying it to a much larger population of venture capital businesses would enhance our ability to draw

inferences. In particular, a larger sample size would allow for econometric analysis, which could be used to formally test the hypotheses that have been advanced here and elsewhere.

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Figure 1. Normal Stages of Companies for Venture Capital Investment

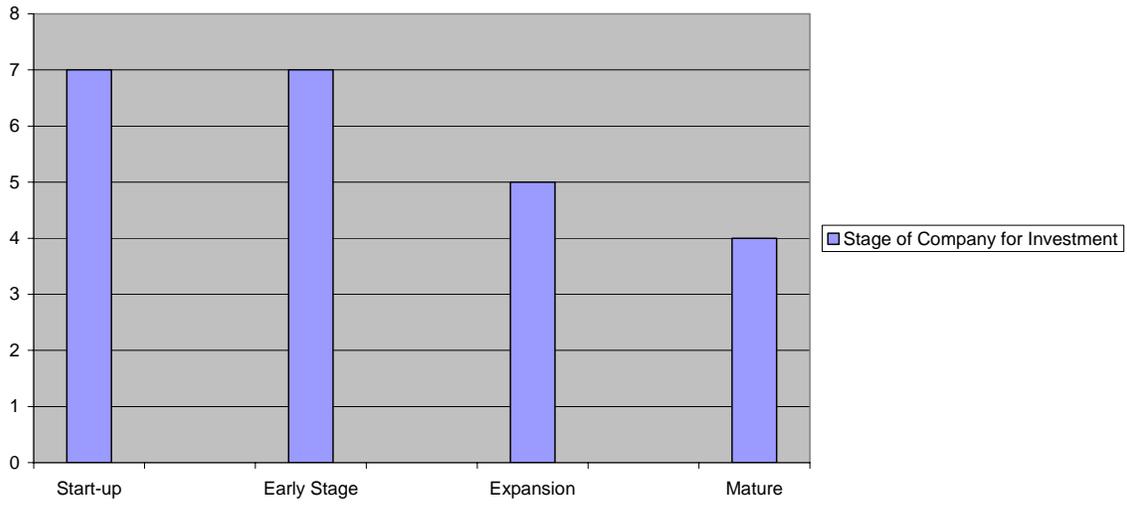


Figure 2. Travel Time for Investment.

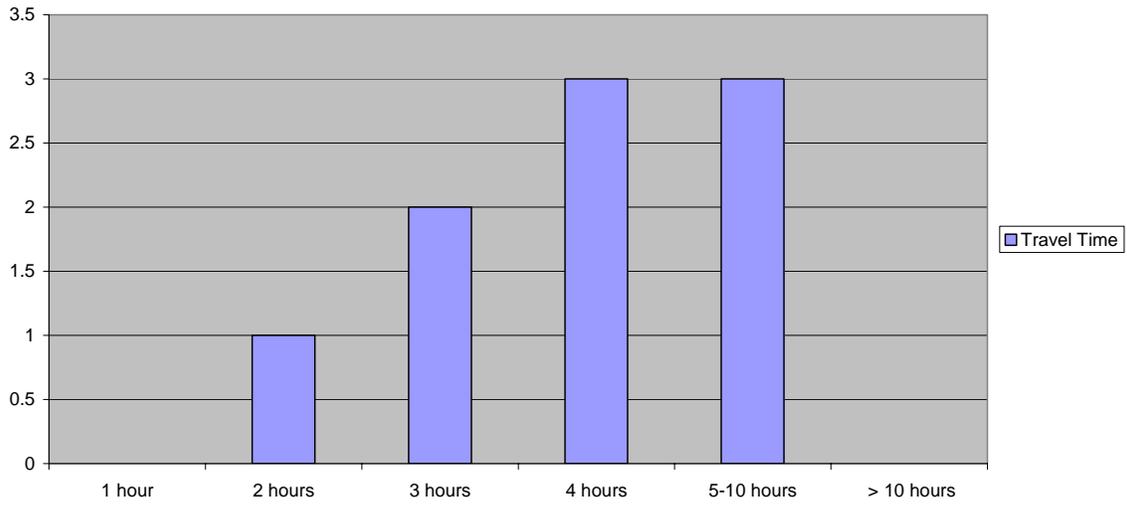


Figure 3. Venture Capitalists' Experience Level With Natural Resource Based Industry.

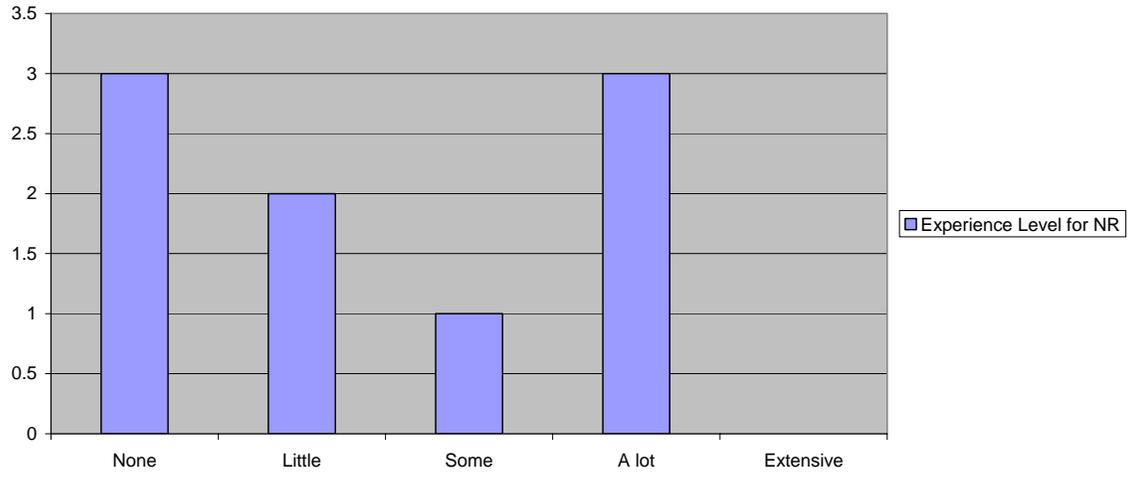


Figure 4. Effect of Natural Resource Experience on Investing in Rural Based Business.

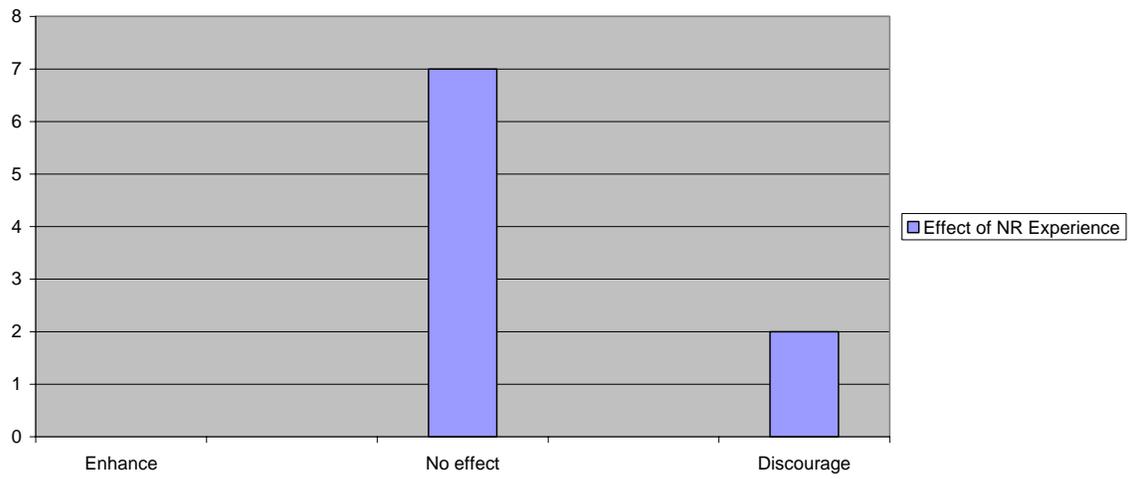


Figure 5. Understanding of VC by WV Businesspersons.

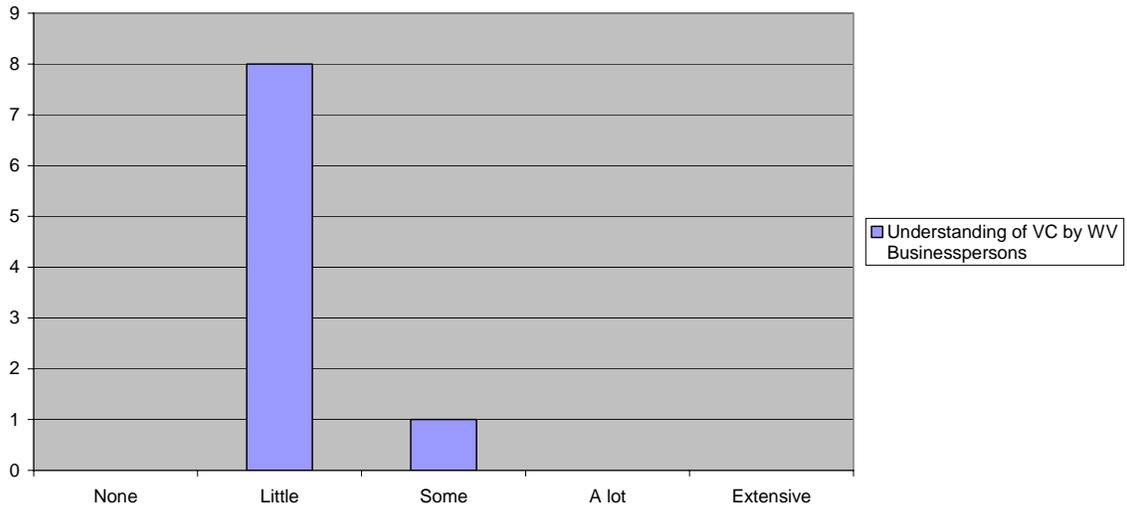


Figure 6. Compared to Urban Areas, Businesspeople in Rural Areas Have a Better Understanding of Venture/Equity Capital.

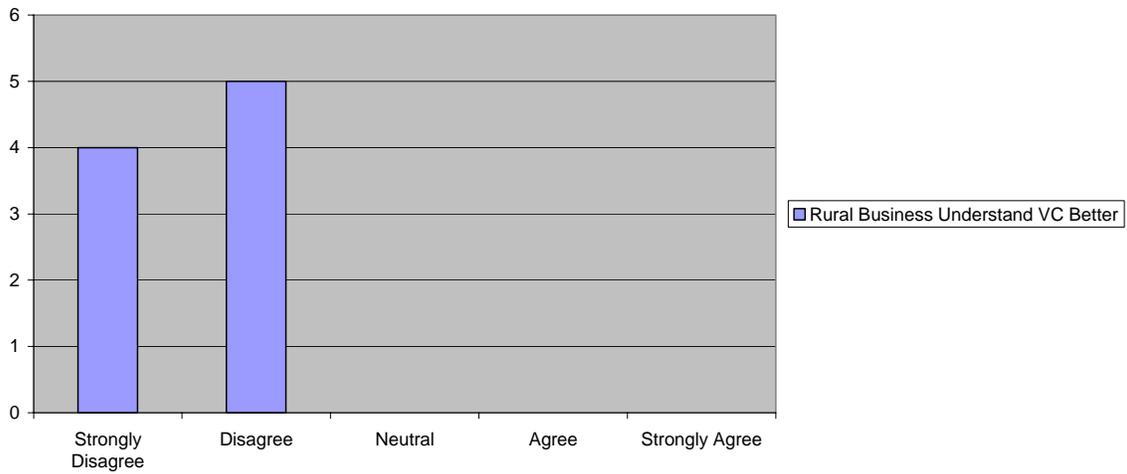


Figure 7. Companies Applying for Venture Capital Funds Understanding of Influence Over Decisions.

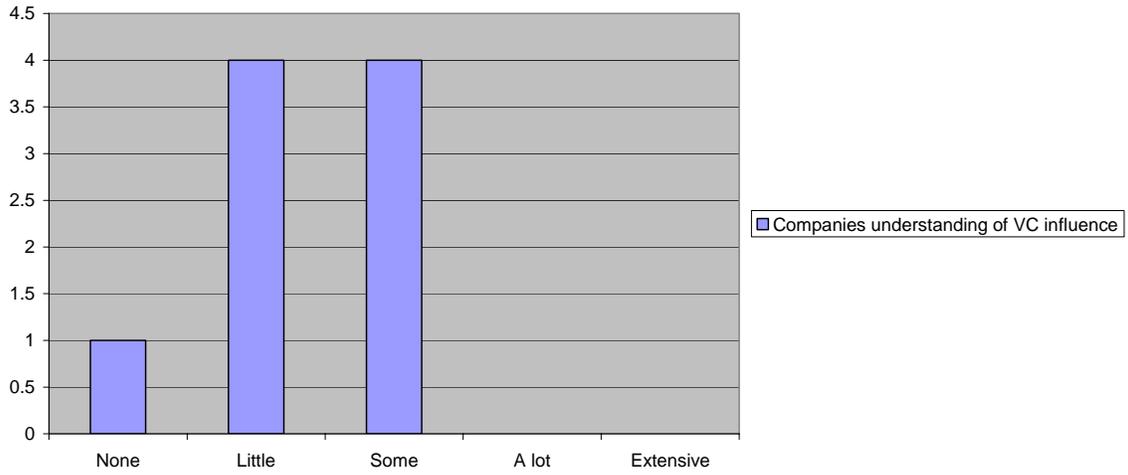


Figure 8. Perceive Lack of Deal Flow as a Problem for Venture Capitalist in Rural States such as West Virginia?

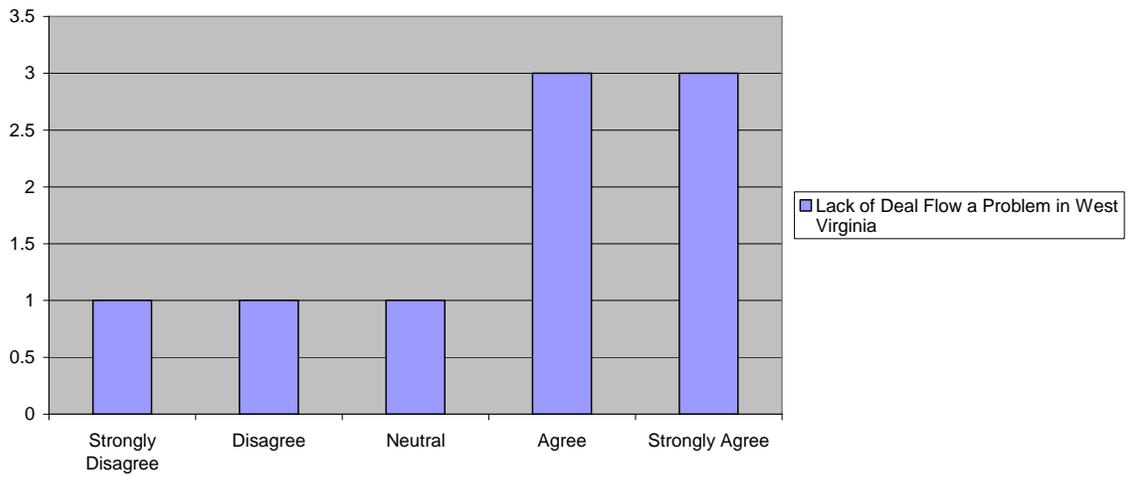


Figure 9. A Limited Support Network for Entrepreneurs Restricts Venture Capital Penetration into More Rural States Such as West Virginia.

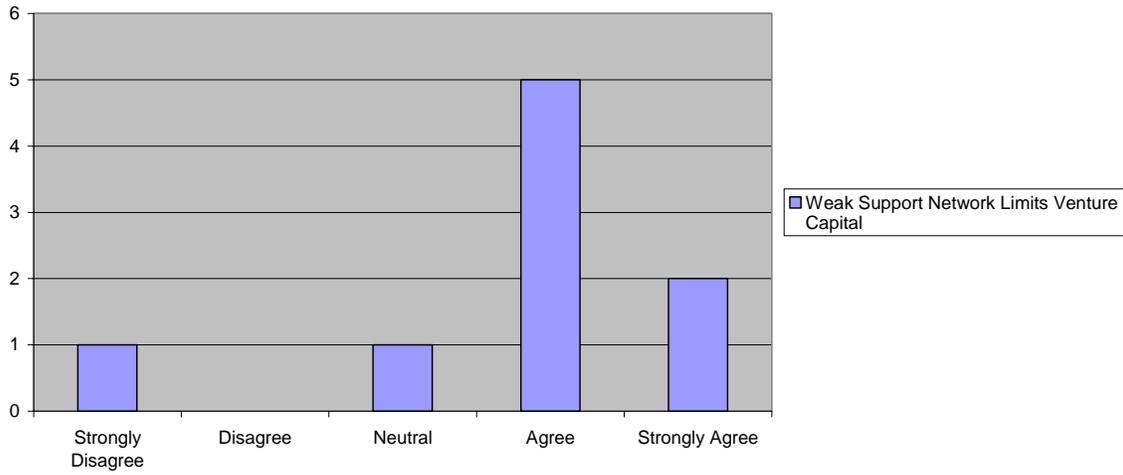


Figure 10. Expectations for Rates of Return in West Virginia Compared to Other Rural Areas.

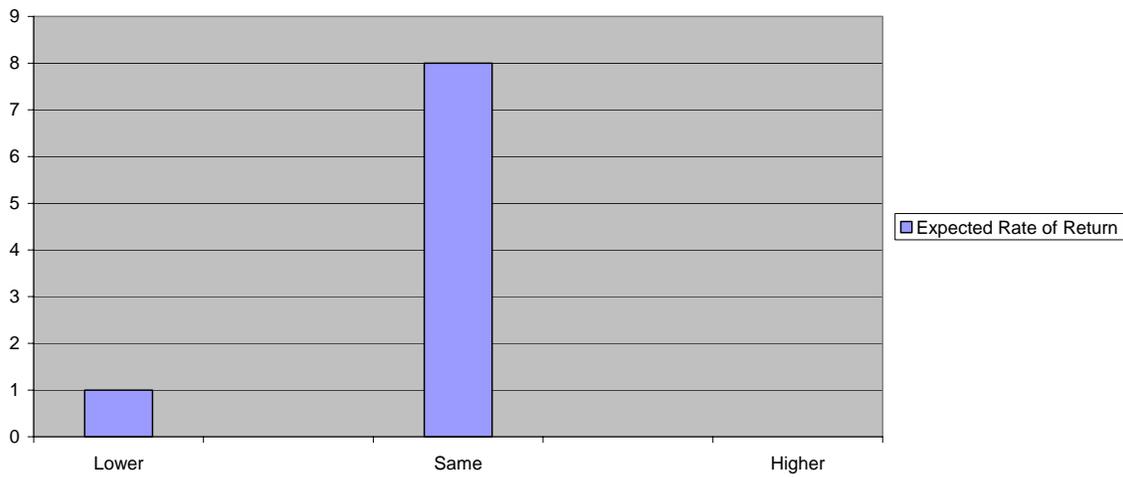


Figure 11. Expectations for Rates of Return in West Virginia Compared to Urban Areas.

