WHO SEEKS ASSISTANCE AND WHAT DO THEY GET OUT OF IT?
AN IMPACT EVALUATION OF THE MSU PRODUCT CENTER

By

Adam Lovgren

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ABSTRACT

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This paper seeks to evaluate the impact that the Michigan State University Product Center Food-Ag-Bio (or Product Center for short) has had on the success and survival of the entrepreneurs who have received assistance from it. To determine this impact, a survey was sent out to over 2200 Michigan food and agricultural entrepreneurs in the fall of 2012 . Over 600 entrepreneurs responded to the survey, both clients and non-clients of the Product Center, and the resulting data was used to conduct this analysis. Considerable effort was taken to overcome the inherent selection bias in entrepreneurial assistance program (EAP) evaluations. This bias is due to the fact that those who seek assistance are more likely to have a higher propensity to seek information and lower overall entrepreneurial ability, and both factors are also likely to influence venture performance. These biases are best thought of as an unobserved variable bias when included a regression analysis. To overcome these biases, therefore, we identified observable factors that predict the decision to seek assistance and included these in the impact evaluation regressions in order to have unbiased estimators. In short, we found that the Product Center had the most incremental impact on small to medium sized ventures, older entrepreneurs with less industry-related business experience, and for those who participated in the development of the business idea prior with the Product Center prior to the launch of their new venture. This impact was seen most notably in increased survival rates, levels of employment and increased perceived legitimacy with external resources holders.

This work is dedicated to the brave entrepreneurs out there willing to forgo steady employment in pursuit of achieving their dream in a very difficult and uncertain environment. Though not all will succeed, all are worthy of admiration and respect for trying to make it on their own.

ACKNOWLEDGEMENTS

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I.   INTRODUCTION

Entrepreneurship is often discussed as a primary driver of economic growth in a society (Knight, 1921; Schumpeter, 1934). One study suggests that nearly 70 percent of US economic growth can be attributed to entrepreneurial activity (Reynolds et al, 2000). Research has also consistently shown that over 50% of new ventures fail within the first five years (Cooper, Woo and Dunkelburg, 1988; Shane, 2008). Therefore, given that new venture creation is both valuable to society but difficult to achieve, it is not surprising that a significant amount of public dollars have been allocated to create programs to assist entrepreneurs. These organizations are known broadly as Entrepreneurial Assistance Programs (EAPs).

The primary goal of most EAPs is to aid prospective small business owners in new venture creation by providing pre-venture assistance (Chrisman, Hoy, Robinson, 1987). While prior research seems to indicate that EAPs such as the Small Business Development Center (SBDC) can positively impact the formation of new ventures (e.g Clark et al., 1984; Stevenson and Sahlman, 1988; Solomon and Weaver, 1983; Robinson, 1982), these programs are costly. The initial Small Business Development Act of 1980 authorized an annual funding level of $20 million dollars. This number has since grown to fund the roughly 1,000 full time service centers that operate with an overall budget of roughly $200 million dollars (ASBDC, n.d.). Evaluation of the effectiveness of EAPs and EAP practices is therefore of non-trivial importance (Yusuf, 2010).

The evaluation of EAPs first began n the early 1980s to the mid-1990s there with studies that measured the impact of EAPs in terms of comparing EAP clients to non-EAP clients on performance measures such as increase in sales, employments and profits (Robinson, 1982; Chrisman, Nelson, Hoy and Robinson 1983; and Chrisman, Hoy and Robinson 1987). In general,

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these studies found that EAP-clients outperformed their non-EAP counterparts. However, these studies often compared the performance of a small number of EAP clients (usually under 100) from high performing EAPs to state averages of entrepreneurship (e.g. Chrisman, Hoy and Robinson 1987).

In addition to performance measurement comparisons there have been other studies aimed at the subjective assessment of client satisfaction as a measure of the benefit of an EAP (Ibrahim and Goodwin, 1986; Solomon, 1983; Nahavandi 1988). These studies have found that EAP clients have, on average, rated EAPs positively. However, one study found no correlation between client satisfaction levels and the previously indicated performance indicators (McMullan, Chrisman and Vesper, 2001). Instead, they concluded satisfaction came more from the personal experience the client had with the counselor.

Furthermore, other researchers (.g. Wren & Storey, 2002) have pointed out that these early studies do not account for the selection bias that is inherent in the EAP process. This selection bias occurs for two separate reasons. On the one hand, some have suggested that the fact that an entrepreneur has sought assistance indicates the entrepreneur is likely having some problems with the launch of their new venture (e.g. Kosters and Obschonka, 2010). These problems could be due to a lack of business experience or entrepreneurial ability that in turn will affect the overall performance of the new venture. Therefore, any comparison of assisted entrepreneurs to non-assisted ones would have an inherent negative bias in its estimation if this sample-selection is not accounted for. On the other hand, the propensity to seek as much information as possible before making important strategic business decisions, as opposed to relying on cognitive biases and heuristics, has also been shown to increase the overall probability of success for a new venture (e.g. Baron, 2004). Given that entrepreneurs often come to EAPs to

seek information, thus potentially signaling a higher propensity to seek information than those who do not come to an EAP, some researchers have suggested that this will cause an upward bias on estimators that compare EAP clients to a control population that has not sought assistance (e.g. Rotgers et al, 2012).

In essence if one were to conduct a simple regression such as:

$$Y_i = X_i\beta + Z_i\gamma + \epsilon_i$$

Where Y denoted a particular performance variable, X was a vector of explanatory control variables and Z was a dummy variable indicating participation in an EAP with a corresponding β and γ vectors of coefficients to be estimated, then the biases mentioned above would result if some unobserved variables, such as entrepreneurial ability or the propensity to seek information, influences the participation variable, as well as the elements of performance not directly controlled for (i.e. the error term). Then the estimator of interest, γ, would be correlated with the error term (which would include the omitted variable) and hence lead to inconsistent estimation (Wooldridge, 2002).

This concern is particularly problematic because, given that the two causes of selection bias act in opposite directions, not only is the magnitude of the bias uncertain but so too is the sign.

Another complicating factor involved in the evaluation of EAP effectiveness is the unclear mechanism by which an EAP can create value for its clients. Recently, Yusuf (2010) assessed EAPs based on client participation, satisfaction and entrepreneurs' subjective assessments of overall effectiveness. In regard to the last measure, Yusuf found that EAP programs were effective at meeting the nascent entrepreneur's support need only 25.8% of the time. However, despite this lack of effectiveness, Yusuf still found that 96% of the surveyed

clients found the assistance at least somewhat valuable, with 50% finding it extremely valuable (Yusuf, 2010). This high degree of satisfaction, yet unclear correlation to how the assistance actually improves the business also suggests deeper analytical research is required in order to uncover the mechanisms of EAP impact on the success and survival of its clients' new ventures. To do this, an appropriate unit of analysis must be selected in order to test the hypotheses relative to the research questions that will be further developed below.

A. Unit of Analysis

The EAP chosen as a unit of analysis to uncover the impact that an EAP can have on the success and survival of its clients' new ventures is the Michigan State University Product Center for Agriculture and Natural Resources (or The Product Center for short). The Product Center was created by a memorandum of understanding among the MSU College of Agriculture and Natural Resources (CANR), Michigan State University Extension (MSUE), and the Michigan Agricultural Experiment Station (MAES) on March 1, 2003 and is still in operation as of today (2012) more than eight years later. The original mission was, "To be a catalyst for the creation of profitable futures for businesses and industries engaged in Michigan's agriculture, food and natural resources systems." This was then expanded into a three part framework that emphasized the Product Center's role as a business and technical assistance program, a market research institution and an entrepreneurial education provider (from MSU Product Center Strategic Plan, 2007). However, over time, it became clear that the entrepreneurial education component was not highly valued by the entrepreneurs themselves, and this component was dropped.

The Product Center's team consists of a core group of self-directed staff members involved in all or most of the organization's processes, a small executive group comprised of the Product Center director and the two associate directors, who take actions and make commitments

on behalf of the organization, and two operating subgroups: a research subgroup–composed of university faculty and students who engage in interdisciplinary research aimed at identifying and supporting actual and potential clients' needs; and a venture development subgroup–who work with the actual and potential business clients, as well as the internal and external partners, to provide the analysis and services the clients require. In addition, the Product Center has a vast network of affiliates, including previous clients, partners and stakeholders who support the organization in its operations.

The Product Center's central offices are housed on the campus of Michigan State University, but its innovation counselor network is dispersed throughout the entire state of Michigan, operating through MSU's extension network. This structure allows clients to have their first contact with an innovation counselor in their local extension offices, with more advanced services offered on campus.

At the extension level, selected extension agents are trained to be "Innovation Counselors" who serve as a first contact for individuals interested in receiving services from the Product Center. The on-campus specialized service unit assists entrepreneurs by either directly providing services to clients or connecting them to on-campus departments. The services provided are: packaging, nutritional labeling, assistance in obtaining financing, feasibility studies, food-safety testing, assistance in supply-chain entry, product testing, strategic advice and legal assistance.

Since it began operations in 2004 the Product Center's staff has had over 15,805 one-on-one client sessions, helped 1,434 clients with developing their venture concept, has gotten 881 clients

to the start-up stage and helped to produce 164 launches. In addition the Product Center has also

provided over 917 clients with different specialized service assistance (see table 1 below).

Table 1: Summary of the services provided by the MSU Product Center

SERVICES PROVIDED	SINCE 2004
One-on-one client counseling sessions	*21,205 sessions*
Assistance with business concept development	*1,797 clients*
Venture start-ups	*1,039 clients*
Specialized services	*1,031 clients*
Venture launches	*229 ventures*

B.   Research Questions

While prior research seems to indicate that EAPs such as the Product Center or the Small

Business Development Center (SBDC) can positively impact the formation of new ventures (e.g

Clark et al., 1984; Stevenson and Sahlman, 1988; Solomon and Weaver, 1983; Robinson, 1982),

these programs are costly. The initial Small Business Development Act of 1980 authorized an

annual funding level of $20 million dollars. This number has since grown to fund the roughly

1,000 full time service centers that operate with an overall budget of roughly $200 million

dollars (ASBDC, n.d.). Evaluation of the effectiveness of EAPs and EAP practices is therefore

of non-trivial importance (Yusuf, 2010). Therefore, the primary research question this paper

seeks to answer in relation to the chosen unit of analysis is:

How much value has the Product Center, as an example EAP, created for its clients?   **(R1)**

Before **R1** can be answered, however, we must first further develop how EAPs create value for their clients in order to determine the proper measures and methods to quantify the value created. We must also determine what a suitable "control" group of entrepreneurs should be to base our evaluation upon. Unfortunately, we cannot observe what would have happened to the entrepreneur's new venture if they had not received assistance, nor can we randomly assign who receives treatment and who does not across a group of similar entrepreneurs. Therefore, comparing entrepreneurs who have received assistance from an EAP to those who have not is not a sufficient method of evaluating EAP impact. Instead, we will need to further develop a method to ensure the estimated differences are valid and consistent. To do this, we must identify the factors behind the supposed selection bias associated with comparing assisted entrepreneurs to non-assisted ones. Therefore, we must also answer the following research question:

What types of entrepreneurs seek assistance and why?   (**R2**)

Finally, as entrepreneurs are an extremely heterogeneous group, relying on the average impact of the entire sample set alone will ignore this heterogeneity and therefore will not tell the whole story of EAP impact. We also wish to know: Do entrepreneurs with more experience find assistance less useful?; Are there other observable factors that impact perceived usefulness?; Does time of contact with the EAP within the venture creation process affect the perception of usefulness of the EAP's services? Therefore, the third research question this paper will address is:

What types of entrepreneurs find assistance useful and why?   (**R3**)

It is hoped that by answering the stated questions above, future researchers will have a better understanding of how to evaluate EAP impact, what to expect the impact will be and how

that impact varies across different types of entrepreneurs. For the sake of clarity, it should be noted that treatment and assistance are used interchangeably in this analysis in an effort to stay true to both the EAP stream of literature (which uses assistance) and the impact evaluation methodological stream of literature (which uses treatment).

C.   Dissertation Roadmap

In order to answer these questions many steps will be taken. First, in chapter 2, a theoretical rationale on the mechanisms by which an EAP can create value for its clients will built through a literature review of both the entrepreneurial process literature as well as on the work done by past EAP evaluation researchers. Included within this literature review will be a deeper discussion of the problem of selection bias in EAP evaluation studies as well as techniques that can be employed to overcome this problem. The results of this literature review will be a set of testable hypotheses that can answer the three research questions stated above.

Next, the Michigan State University (MSU) Product Center, as an example EAP, will be introduced as the unit of analysis in chapter 3. A discussion of the history of the Product Center, its organization, guiding philosophy and clientele will be provided to justify its use an appropriate unit of analysis.

Chapter 4 will provide a conceptual model of the entrepreneurial assistance process that ties the hypotheses to each research questions within the context of the model. This model provides a framework of the decision-making process an entrepreneur makes with deciding (consciously or not) whether to seek assistance in the launch of a new venture. This framework will clarify what stage of the process each hypothesis is testing. This will prove to be important in interpreting the quantitative results both in terms of selection bias and the value that assistance plays at different points in the entrepreneurial process.

Chapter 5 will lay out the performance and control variables that were collected in order to test the proposed hypotheses and the rationale for the inclusion of each variable. It will then discuss the sample population used to collect data on the variables from, the method used to collect this data, the response rate and summary statistics for each variable. In addition, a cluster analysis will be performed to identify different types of entrepreneurs within the sample.

Chapter 5 will then seek to answer the research question on who seeks assistance and why. This chapter will discuss the data and methods used to test the proposed hypotheses for this question, the results associated with each test, and implications that come from these results. Similarly Chapters 6 & 7 will do this for the other two research questions ("What types of entrepreneurs find assistance useful and why?" and "How much value has an example EAP created?" respectively).

Finally, Chapter 8 will summarize the results of the entire dissertation and draw conclusions from the results of the preceding chapters. From here implications will be drawn for both future EAP researchers and EAP managers.

II. LITERATURE REVIEW

A. Mechanisms by which EAPs create value

To begin with, we will first look into finding a theoretical basis to answer the primary research question:

How much value has an example EAP, the Product Center, created for its clients? (**R1**)

Given the level of public funding and the widespread nature of EAPs nationwide, we propose the following hypothesis to be tested as an answer to this question:

Entrepreneurs who receive assistance from an EAP will be more likely to have higher performance, survival rates and legitimacy than had they not sought assistance. (**H1**)

One theory proposed by Chrisman and McMullan (2000; 2005) on the mechanism by which EAPs can help improve clients' new venture survival and success is that assistance from outside advisors facilitates the development of knowledge, as a special type of resource available to the firm. They argue that the knowledge possessed by the entrepreneur or entrepreneurial team creates the foundation for many if not all of the new venture's competitive advantages (Alvarez and Busenitz, 2001; Chrisman et al., 1998, c.f. Chrisman and McMullan, 2005). Given that individual entrepreneurs have imperfect knowledge of market conditions (Hayek, 1945) and may not know how to write business plan, obtain financing, optimally locate their business or deal with trading partners, EAPs can help improve new venture success by providing the tacit and explicit knowledge needed to fill those gaps (Chrisman and McMullan, 2005).

In addition, individuals facing uncertainty have certain heuristics and biases that also influence their decision-making processes (Busenitz & Barney, 1997). More importantly, these heuristics and biases vary across individuals and will have a significant impact on who decides to become an entrepreneur and the probability of success of the venture (Venkatraman, 1997). This

variation is useful in determining not only why some individuals become entrepreneurs when others don't, but also in evaluating why some ventures fail and others do not. Specifically, though certain biases and heuristics will increase the likelihood of deciding to exploit a perceived entrepreneurial opportunity, it can also negatively impact the probability of success of that entrepreneurial opportunity if the entrepreneur does not full appreciating the costs or risks involved and take appropriate measures to deal with them (Baron, 2004). Therefore, the more that the entrepreneur can build and engage "safety nets" that provide checks on whether a cognitive bias is leading them down a potentially negative path, the more successful they will be at exploiting an entrepreneurial opportunity (Simon et al, 2000). By leveraging an EAP counselor's tacit strategic knowledge into the entrepreneur's information set when developing the entrepreneur's new venture strategy, entrepreneurs can thereby make better decisions as to whether or not to exploit a particular opportunity and how to do so. This will lead to a "weeding out" of bad ideas, which is beneficial in light of the opportunity cost of wasting resources on untenable ideas, as well as the "planting in" of good ideas that otherwise may not have been exploited. In this way, EAPS can provide a check on whatever cognitive biases an entrepreneur may have in order to help them make better decisions. To determine if this is true, the following two sub-hypotheses will be tested in relationship to research question (**R1**):

> *Entrepreneurs who receive assistance from the example EAP prior to the launch of a new venture will be less likely to launch that new venture than those who do not (H1-a – weeding out hypothesis).*

Entrepreneurs who receive assistance from the example EAP prior to the launch of a new venture and decide to launch that new venture will be more likely to stay in business than those who launched a new venture but did not receive assistance (H1-b – planting in hypothesis).

Another mechanism by which EAPs can create value for their clients is the signal or "badge"(Bell et al., 2002) that completing a business plan with EAP assistance can provide. This was found in the author's master's thesis (Lovgren, 2012) as well as a recent article by Rotger, Gortz and Storey (2012).

In order to exploit a new venture, there are many types of resources an entrepreneur must acquire. These include physical equipment, land and human capital, but perhaps the most important capital required before launch of the new venture is financial capital. Since the recombination of resources inherent in the exploitation of an entrepreneurial activity must occur before the sale of the output, this exploitation must be financed (Knight, 1921; Shane, 2003). The majority of the time this takes the form of self-financing (Alrdich, 1999). External financing is also available in the form of equity investment which would include funding from angel investors and venture capitalists, debt-financing, asset-based financing and governmental or non-profit grants.

For entrepreneurs without observable track records or products, resource providers must make financing decisions on very little information and their own intuition (Bhide, 2000). Due to this limited information and evidence, investors face high risk in financing entrepreneurial opportunities (Low and Srivatsan, 1994), which can result in high interest rates on loans to cover this risk or the inability to get a loan at all.

There are two basic characteristics of new ventures that make acquiring resources and developing ties to trading partners difficult for entrepreneurs – uncertainty and information asymmetry (Shane, 2003). Entrepreneurial opportunities are, by definition, uncertain because the profitability associated with the new resource combination is unknown before the launch of the venture (Arrow, 1974). In addition, in an environment that does not fully understand or acknowledge their existence it can be quite difficult for new organizations to establish ties with the trading partners they need to organize their venture properly (Hannan & Caroll, 1992; Stinchcombe, 1965). These characteristics create what Stinchcombe (1965) has termed "the liability of newness" that is often a key contributor to the low survival rate of new organizations.

The uncertainty of the new venture's profit stream also creates difficulties in determining the net present value of the venture, which can lead to differences of opinion about the venture's value between the entrepreneur and the lender (Wu, 1989). This can create bargaining problems, and result in the resource provider offering less than what the entrepreneur believes is the value of the opportunity (Shane, 2003). Furthermore, resource providers might wish to have collateral (Blanchflower and Oswald, 1998) against default if the entrepreneur fails and cannot pay back the loan (Casson, 1982). This will pose significant problems for those entrepreneurs without suitable collateral to offer.

Information asymmetry, defined in this case where the entrepreneur holds more information about the value of the opportunity and her own dedication and work ethic in regards to exploiting it, creates four major obstacles to capital acquisition (Shane, 2003).

The first comes from the natural tendency of entrepreneurs to want to keep key information about the value of and the method for exploiting an opportunity. Making this information known could cause others to attempt to exploit it as well, thus bidding up the

requisite resource prices associated with that opportunity (Casson, 1982) or may cause the resource providers to exploit it themselves. This secrecy leads to resource providers to make decisions with incomplete information, and my cause them to refuse to finance the venture or not provide enough financing as is needed (Shane, 2003).

Second, this information asymmetry also allows for opportunism on the part of the entrepreneur through obtaining more resources than their venture requires (Shane and Cable, 2002) or by getting better concessions on the investments or loans than a resource provider with a full information set would allow (Shane, 2003).

Third, there is also some moral hazard risk in the entrepreneur engaging in unnecessarily risky behavior once he has received the loan, or not putting forth an appropriate effort level as is required to fully exploit the opportunity. This, in turn, will make resource providers take safeguards against opportunism and increase the transaction costs involved in obtaining financing (Williamson, 1975; 1985; 1986). These safeguards often involve resource providers offering fixed rate financing at high interests rates so the entrepreneur bears the risk. At high rates, however, entrepreneurs will be more likely to favor risky projects with high potential returns (Barzel, 1987) as low to moderately risky projects with low to moderate returns will be less likely to be profitable, given the high interest rates.

Lastly, given there is a range of ability in both discovering and exploiting entrepreneurial opportunities, those who are less skilled at doing so will seek financing in addition to those that are more skilled. If the resource provider cannot distinguish between the varying skill levels, then this can create a "market for lemons" (Akerlof, 1970) and lead to adverse selection in the lending market (Amit et al, 1990). This will have the net effect of lenders either refusing to participate in the lending market, or participating only by offering interest rates appropriate for

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less skilled individuals. Since they are less skilled, and therefore more likely to default, these rates will be significantly higher than would be appropriate for those who are more likely to succeed in their new venture, potentially to the point of being cost-prohibitive.

To overcome this "liability of newness" Zimmerman and Zeitz (2002) have suggested that organizations can build legitimacy, as a special type of resource, to allow them to access other resources that are needed to survive and grow. Legitimacy, is defined by Suchman (1995) as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions," and can act as the antidote to the information asymmetry and uncertainty ailments mentioned above. However, new ventures often have few resources available to them, so Zimmerman and Zeitz postulate that the degree to which new ventures can engage in legitimacy building strategies that cost little or no money, "a certain threshold can be obtained that will allow them to access the capital and other resources it needs. … below which the new venture will probably perish,"(Zimmerman and Zeitz, 2002).

One method by which an EAP can help entrepreneurs to build legitimacy is through the assistance they provide in business planning and the development of a formal business plan. Business plans, or documents that present the entrepreneur's conjectures in written and visual form, are important tools in overcoming many of the uncertainty and information asymmetry issues in the resource acquisition process (Shane, 2003). Business plans allow entrepreneurs to tell their stories in an institutional way that helps legitimize the new venture (Zimmerman and Zeitz, 2002), and thereby provides an appropriate platform to reduce the level of information asymmetry to investors.

Business plans can also signal the quality of the entrepreneur and opportunity to investors, which can help overcome adverse selection and moral hazard issues (Shane, 2003). Shane (ibid.) has shown that business plans can provide legitimacy when external validation of the opportunity is difficult (Aldrich, 1999), by rationalizing the opportunity in a way that is easy for others to accept (Lounsbury and Glynn, 2001). This can generate confidence (Fisher, 1985) and convince resource providers that the opportunity has potential, making it more likely that the entrepreneur can get the resources necessary to actually make it a reality (Gartner et al., 1992). However, because business plans are created by entrepreneurs, they may tend to be overly optimistic and cause resource holders to wish for additional forms of validation (De Meza and Southey, 1996; Busenitz and Barney, 1997). Creating a business plan with the support and endorsement of EAP, therefore, can further strengthen the plan's validity. This, in turn, will increase the probability the entrepreneur is able to obtain the appropriate level of capital she needs to adequately exploit the entrepreneurial opportunity.

In addition, an EAP can help build client legitimacy through developing socials ties with key resource holders and trading partners and then leverage the EAP's relationship on behalf of the client. In this case, the indirect social tie between the entrepreneur and resource holder who each have a direct relationship to the EAP (Burt, 1987), can be help to mitigate problems of uncertainty and information asymmetry. One way this is done is through reducing people's tendency to act in a self-interested manner by adding additional social disincentives (Marsden, 1981; Uzzi, 1996; Granovetter, 1985; Gulati, 1995). That is to say, to the extent that both entrepreneur and trading partner wants to maintain the relationship with the EAP, they will try to honor the agreements facilitated by the indirect tie. It can also provide another type of "badge"

for the resource holder, based on the trust the resource holder has for the EAP's recommendations and processes.

To test this notion that EAPs can create value for entrepreneurs through increasing their perceived legitimacy with resource holders the following sub-hypothesis will also be tested:

Entrepreneurs who receive assistance from the example EAP will be more likely to obtain external financing than had they not received assistance. (H1-c)

Similarly for the entrepreneur, establishing successful trading partnerships in the supply chain is just as troublesome as obtaining the capital. In particular, if a venture is perceived as lacking legitimacy, then it will be less likely for trading partners such as distributors, processors and retailers to invest time and resources in the new venture. This is because cooperation from such partners is often based on trust, reliability and reputation, which in turn are based on familiarity and evidence (Bateson, 1988). In situations where entrepreneurs have little evidence that their new venture will work out well, and the trading partners do not already have an established trust relationship, there is little reason for them to engage in the relationship (Aldrich and Fiol, 1994).

If this is true, then we will be able to find support for the following sub-hypothesis:

Clients from the example EAP will have access to a greater marketing opportunity set than they otherwise would have without assistance (H1-d).

Logically, if the EAP in our study is effective at assisting entrepreneurs in business planning, increasing their marketing opportunity set and obtaining external financing, this in turn should lead to higher overall performance rates for the assisted entrepreneur than they otherwise would have had without assistance. This begs the question, however, as to what type of performance are we interested in measuring. In general the previous studies reviewed (see

table 2 below, adapted from Kosters and Obschonka, 2010) have focused on measuring the impact from assistance through an analysis of clients' subjective assessments of the assistance provided (57% of studies reviewed), increase in sales or earnings (57%), employment growth (50%) and venture creature and/or survival (36%). In order to provide convergent validity for this study, therefore, all four measures will be evaluated in regards to the example EAP.

Table 2: Comparison of EAP impact studies (adapted from Kosters and Obschonka, 2010)

Author(s) and Year of Study	Performance Measures Used				Method of Analysis	Control for Selection Bias?	Positive EAP impact?
	EAP Useful	Emp. Growth	Sales growth	Venture Survival /Launch			
Roger et al. (2012)		x	x	x	Econometric	Y- PSM	Y-All
Yusuf (2010)	x				Econometric	N	N
Kosters & Obschonka (2010)	x	x			Econometric	Y- PSM	N-Emp Y-Useful
Mole et al. (2008)		x	x		Econometric	N	Y - Emp N - Sale
Stubner et al. (2007)	x		x		Econometric	N	Y - All
Parker & Belghitar (2006)				x	Econometric	Partially	N
Chrisman et al. (2005)		x	x		Econometric	N	Y - All
Kulicke (2004)	x				Monitoring	N	Y
Wren & Storey (2002)		x	x	x	Econometric	Y - 2SLS	Y – ME N –SE.
Chrisman & McMullan (2000)	x	x	x	x	Mean Comparison	N	Y - All
Chrisman (1999)		x	x	x	Mean Comparison	N	Y - Launch
Barney et al. (1996)	x				Econometric	N	Y - for less exp.
Chrisman & Lee (1989)	x		x		Mean Comparison	N	Y - In the short run
Chrisman (1989)	x				Monitoring	N	Y - Str; N- Op &Ad
Percentage	57%	50%	57%	36%		21%	79%

PSM- propesnity Score Matching; 2SLS - Two Stage Least Squares,
ME-Medium Enterprises; SE – Small Enterprises (author defined)

Whether the example EAP increases the survival rates of its clientele will already be addressed in H2 (the "planting in" hypothesis) and therefore will not require a separate hypothesis for testing here. The other three measures will be tested through the evaluation of the following hypotheses:

Clients from the example EAP will have higher gross annual sales rates than they otherwise would have without assistance (H1-e).

Clients from the example EAP will higher employment rates than they otherwise would have without assistance (H1-f).

i.   Distinguishing by clusters of entrepreneurs

Previous research done by both the author and others (e.g. Kosters and Obschonka, 2010; Rotgers et al, 2012) has also suggested that there are distinct clusters of entrepreneurs who may receive differential benefits from an EAP. In this regard, a cluster analysis will be done on the sample obtained to determine if distinct clusters can be identified for entrepreneurs based on the following opposing distinguishing characteristics: intense versus casual users of the EAP (through investigating the differential impact of number contact hours for respondents within the EAP group); and on the basis of entrepreneurial orientation, age, experience, education and goals for the business. Performance characteristics will then be compared across the different clusters to determine how different clusters performance varies with and without assistance.

ii.   Distinguishing by the timing of assistance

Up to this point we have presented the assistance process as one where entrepreneurs have an idea for a new venture, seek assistance to work on that idea, work with the EAP to develop the idea and take the necessary steps to launch the product, actually launch the product and then have performance in the market that we can measure. While there are indeed some

EAPs who follow this path, there are many who do not come in until their product has already launched and is having some issue that the entrepreneur wishes to seek assistance for. For this latter group, it often will involve some specific technical service, such as obtaining nutritional facts labeling, as opposed to the more in-depth business counseling as they have already developed their business model and are running with it. Though these services are indeed valuable, we might not expect to see as much incremental gains in performance from assistance then we see from the entrepreneurs who are following the more in-depth route detailed at the beginning of this paragraph. Therefore, we hypothesize the following to be true:

> *Clients who receive assistance prior to the launch of their new venture will receive greater impact from assistance than those who receive it only afterwards.* (**H1-g**)

iii.   Distinguishing by size of the venture

Another method in which we can distinguish between new ventures is by their size in terms of gross annual sales. This will be done because those businesses that are already doing well enough to be obtaining significant revenues are probably the least likely to need assistance. Furthermore, until recently, the Product Center's focus has been on aiding the start-up of small businesses to go from producing a cottage industry good out of their kitchen to taking the next step towards becoming a growing commercial product. It helps these businesses at each step of the way from developing the venture concept, acting as a sounding board to help "weed out" untenable ideas and "plant in" good ones, to developing a business plan to attract investors, to obtaining the proper packaging and labeling, to adhering to industry regulations and norms, to finally gaining access to marketing outlets and developing proper growth strategies. These are all things that the large business have likely already done and hence do not find that beneficial. For

those small business and nascent entrepreneurs without a lot of experience, however, this assistance can be invaluable.

For the purposes of this study, small businesses will be defined as those entrepreneurs whose new ventures are grossing under $200,000. While this number may appear a bit arbitrary, it does allow us to separate out the largest of the sample whose needs will be quite different from the small start-ups. In addition, it gives us some methodological value as this data set does not have full information on the sales of the ventures grossing more than $200,000 per year (only that they are above this limit). Therefore, we can use more efficient estimation techniques such as OLS (Wooldridge, 2002).

Because the large ventures data is censored with regards to sales data, there is no variation to evaluate if one wanted to look at the impact of assistance within only this group. Therefore, this dissertation will look to see if EAP assistance is more pronounced within the smaller ventures than compared with the full sample that includes the larger ventures through the testing of the following hypothesis against its null for each of the performance measures:

When restricting the sample to entrepreneurs whose new venture grosses under $200,000 per year, the impact of the example EAP assistance will be more likely to be significantly positive than when compared to the full sample.(H1-h)

iv.   Identifying the counterfactual to deal with selection bias

As was mentioned in the introduction, and should be evident in the formulation of the previous hypotheses with the words, "*than they otherwise would have without assistance*" as opposed to "*than those who did not seek assistance,*" the counterfactual of interest to test whether we can reject the null hypotheses cannot simply be the average of the non-assisted population. In fact, early EAP studies did exactly this and utilized a comparison of means of the

subjective assessments of assistance within the treated group, or a comparison of means of the treatment group versus a control population (e.g. Chrisman, 1989; Chrisman & Lee, 1989; Chrisman, 1999; Chrisman & McMullan, 2000). All found that assistance created a positive impact on all four measures of performance listed above. However, it is now evident that a simple comparison of means of assistance entrepreneurs to a general population of entrepreneurs will not provide a sufficient counterfactual to the treatment group due to the concerns over selection bias (e.g. Wren & Storey, 2002). This selection bias comes from the notion that the unobserved factors that determine whether an entrepreneur seeks assistance (e.g. entrepreneurial skill, experience, information-seeking personality dispositions, etc..,) will also influence the overall performance of that entrepreneur's new venture and will hence bias simple mean comparison tests.

To see why this will cause biased and inconsistent estimations of the average treatment effect, consider the case of an Ordinary Least Squares (OLS) regression method. To use OLS, we must make the standard Gauss-Markov assumptions (see Wooldridge, 2002). The first assumption is that our model is linear in parameters. If so, then we can estimate the impact of treatment on a continuous performance variable such as sales or employment through estimating the coefficients in equation (1):

$$Y_i = X_i\beta + Z_i\alpha + \varepsilon_i \tag{1}$$

Where for a set of N individual entrepreneurs, the ith entrepreneur's performance variable {Y} is determined by a vector of explanatory variables {W} including the control variables {X} and a binary treatment variable of assistance {Z}, and an error term {ε} that represents all other unobserved influences on {Y}. With the key estimator of interest {α} represents the impact of

assistance on performance to be solved by minimizing the sum of the squared error terms in respect to the β and α coefficients.

The selection bias concern would result if some unobserved variables, such as entrepreneurial ability or the propensity to seek information, influence the participation variable, as well as the elements of performance not directly controlled for (i.e. the error term). If this happens, then the estimator of interest (γ) would be correlated with the error term (i.e. with the omitted variables in the error term) and hence lead to inconsistent estimation. In particular, the Gauss-Markov assumption of a zero-conditional mean of {ε} in all of these equations, is where the selection bias issue causes problems. Essentially, the unobservable factors that influences the treatment variable {Z} as well as influence the uncontrolled elements of performance {ε} cause $E[\varepsilon|Z] \neq 0$, which in turn causes the estimation of α to be biased and inconsistent with a probability limit approaching: $\alpha + E\{[Z'\varepsilon](W'W)^{-1}\}$ (Wooldridge, 2002). This concern is particularly problematic because, given that the two causes of selection bias act in opposite directions, not only is the magnitude of the bias uncertain but so too is the sign.

Some authors have attempted to overcome the selection bias problem by focusing on the incremental benefit provided by various levels of assistance within the assisted population (e.g. Chrisman et al., 2005), while others have turned to econometric techniques such as a Heckman-Lee two-step estimation (Heckman, 1979; Wren & Storey, 2002) or Propensity Score Matching (Heckman & Navarro-Lozano, 2004; Rotgers et al, 2012; Kosters and Obschonka, 2010). In such cases where the selection bias has been controlled for, the evidence that EAPs create positive impacts is much less clear, with some finding no impact (Kosters and Obschonka, 2010), some finding mixed results (Wren and Storey, 2002) and some still finding positive impacts (Chrisman et al., 2005; Rotgers et al., 2012).

It should be noted, however, {Z} is only endogenous if it is correlated with the uncontrolled elements of performance {ε}. As discussed above, given the selection biases inherent in the analysis of any sample population this seems a likely assumption. However, one must first provide evidence that selection bias is actually occurring and what mechanisms are causing selection to occur before one can take corrective measures to remove this bias. Then, if one can model the omitted variables behind the selection bias directly in the control vector {X} then the resulting {ε} will not be correlated with {Z} and endogeneity will not be a concern (Wooldridge, 2002).

To model these omitted variables in the performance regressions, requires first answering research question which states:

What types of entrepreneurs seek assistance? (**R2**)

Some of the work done in previous academic journal articles suggests that there are at least two potential selection forces. Interestingly, these forces have opposite effects in their purported bias on entrepreneurial performance, thus further complicating the issue.

On the one hand, the fact that an entrepreneur has sought assistance indicates the entrepreneur is likely having some problems with the launch of their new venture (e.g. Kosters and Obschonka, 2010). These problems could be due to a lack of business experience or entrepreneurial ability that in turn will affect the overall performance of the new venture. This selection force will create an inherent negative bias in performance estimations.

On the other hand, the propensity to seek as much information as possible before making important strategic business decisions, as opposed to relying on cognitive biases and heuristics, has also been shown to increase the overall probability of success for a new venture (e.g. Baron, 2004). Given that entrepreneurs often come to EAPs to seek information, thus potentially

signaling a higher propensity to seek information than those who do not come to an EAP, some researchers have suggested that this will cause an upward bias on estimators that compare EAP clients to a control population that has not sought assistance (e.g. Rotgers et al, 2012).

Therefore, in relation to research question (2), there are two testable hypotheses can be formed that will ultimately help us answer research question (**R1**):

*Entrepreneurs with less entrepreneurial experience and/or ability will be more likely to seek assistance than those with more experience and/or ability. (**H2**)*

*Entrepreneurs with a higher propensity to seek information will be more likely to seek assistance than those with a lower propensity to seek information. (**H3**)*

Whether or not clear observable factors can be identified to reject the nulls in relationship to H2 and H3 will be of prime importance in creating validity for the results found on all other hypotheses. However, even if one cannot do so for both hypotheses, if one is successful for at least one of the two, then one can argue that even if measures cannot be taken to entirely remove the selection bias from the analysis, one can at least identify the direction of the bias. If, for example, we can remove the upward bias associated with information seeking behavior, but not the downward bias associated with ability, then knowing the direction of the bias (i.e. downward) will still allow any positive results to hold as they would therefore be conservative estimates of the overall impact. This would allow us to show where positive impact has been made, and give a lower bound for the magnitude of that impact (Wooldridge, 2002).

Furthermore, even if one cannot directly model the omitted variables, other measures can still be taken to remove selection bias. Surprisingly, one of the most efficient methods of addressing this issue, namely conducting an Instrumental Variable (IV) regression (Wooldridge, 2002), has not been attempted in any of the reviewed EAP studies above. This approach, relies on finding

an instrument {P} for the endogenous treatment variable {Z} such that cov (P, ε) = 0 and cov

(Z,P) ≠ 0 in order to identify the exogenous element of {Z} such that a consistent estimate of α in

equation (1) can be determined. While finding an appropriate instrument can often be difficult, it

is unclear why this approach has never been attempted. In fact, without such a valid instrument

that can be excluded from the second-stage, the only means to identify the estimator is through

the non-linear estimation of the inverse-mills ratio (Wooldridge, 2002). Relying on the normality

of the first-stage to identify the second-stage, however, does not appear parsimonious nor

strongly credible, whereas a valid instrument that can identify the exogenous element of

treatment would be.

There also does not seem to be clear evidence that the most favored current technique for

dealing with selection bias, Propensity Score Matching, provides a consistent estimate of the

treatment effect. This technique uses a probit or logit regression to predict the likelihood to seek

assistance based on a large number of observable characteristics and then compares the means of

the performance variables of assisted entrepreneurs to those of non-assisted entrepreneurs who

have relatively close "propensity scores" (i.e. the conditional predicted probability of seeking

assistance from the estimated coefficients of the probit regression) (Heckman & Navarro-

Lozano, 2004). However, Rosenbaum and Rubin (1983) in developing this technique pointed out

that in order to use it one must be able to assume what they call, "the strong ignorability of

treatment," which essentially posits that the outcome variable is independent of the decision to

seek treatment. Heckman et al (2004) later showed this assumption could be weakened to

requiring that only the conditional mean of performance is independent of the decision to seek

treatment. However, in this case, the decision to seek treatment is exactly what we are positing is

causing the selection bias and therefore this assumption appears completely invalid for use in

EAP studies. Not to mention, if such an assumption could be made then conducting a standard ordinary least squares (OLS) regression would also be valid and would be the best unbiased linear estimator (Wooldridge, 2002) that could also more effectively control for the impact of other exogenous variables on performance as well. Therefore, this technique will not be used in this study.

Instead, this paper will attempt to directly model the omitted variables if they can be identified through the testing of H8 and H9, using as a fall back option of bounding the results either on the upwards or downwards side if only one of the selection forces can be observed directly. We will also attempt to find valid instruments to conduct a Heckman double-hurdle model. This method involves two-stages, one to predict selection and the one that measures performance. In order to identify the first stage, an instrument is required (Wooldridge, 2002) unless one wishes to obtain identification through the non-linear properties of the inverse-mills ratio, which is undesirable as it relies on the normality of the selection equation. Therefore, to determine if the 2SLS or the Heckman Two-Step procedure can be used, the following instrumental variables will be tested for use:

Distance away from the example EAP (IV-1)

Having a social tie to the example EAP's institutional home (IV-2)

These will be tested through determining first if the instruments are significant first stage predictors in the probit analysis done for testing *H2* and *H3*, then if so, will be used to conduct a Hausman test to see if the instrument can reject the no endogeneity null in the second stage. If the instrument cannot do satisfy both of these conditions, it will not be considered valid. If, in that case, we are not able to reject H_0^2 for either instrument, then an alternative approach must be used. Since we have already rejected the use of Propensity Score Matching on the basis of its

invalidity under the presence of selection bias, the only other option would be including the proxies for the unobserved variables that are causing the selection bias. The evaluation of the validity of this method will depend on the face-value validity of the proxy as well as its ability to reject the null hypothesis in the selection equation

B. Different differences are affected differently

Finally, after addressing the first two research questions, this dissertation will look to answer the third stated research question which states:

What types of entrepreneurs find assistance useful and why?   (**R3**)

 This will be done in order to provide greater insight into the value the example EAP has created for different types of entrepreneurs. This will be done because the types of entrepreneurs who come to the Product Center are very diverse. For example, one Product Center client described her venture in the following way, "my business is a small cottage foods business that will never be big due to the nature of the products (wild harvested). My goal is to educate people about wild foods, good health, and get people out-of-doors." For this type of entrepreneur the goals and needs will be quite different from the one who said the following, "Because of (the Product Center's trade show) Making it in Michigan 2011 (we were) able to meet with Kroger Michigan and Meijer Corporate. We are working with Meijer to provide a (product) for the 2013 season in their 199 bakeries." For this reason, while we can gain some insight through the evaluating the average impact the EAP is having on the performance measures used in this analysis, this might not tell the whole story.

Furthermore, the existing skill set of the entrepreneur who said, "I never worked in this industry prior to starting this business - previously a scientist employed in the automotive industry," will be quite different from the one who tells the following tale, "Farming has been

our family business since 1854. I am the 5th generation on our farm. My sons are the 6th generation. Upon the retirement of my father & uncle I took over operation of our farm in 1991. In 1994 I initiated a shift to organic production--which placed me closer to the end-user, and opened up inquiries from consumers for direct purchase of products. My initial product was a wheat free pancake/waffle mix. I made it for personal consumption after I discovered that I am allergic to wheat. Friends commented on how good it tasted--asked for mix to take home--and a literal cottage/kitchen business was born!!" It is quite likely that the value that assistance provides to these two different types of entrepreneurs is also quite different. Therefore, we should attempt to distinguish what the different types of entrepreneurs are and how assistance has impacted these different types differently.

i.   Distinguishing by the timing of assistance

Given the intense focus that EAPs have on providing pre-launch assistance in order improve the business strategy before committing resources to the idea, we also wish to investigate in this regard is whether those who do receive pre-launch assistance will find it more useful than those who receive only post-launch assistance. We can see if there is evidence for this through the testing of the next hypothesis against its null:

*Entrepreneurs who seek assistance prior to launch will be more likely to find that assistance useful than those who seek assistance only after launch. (***H4***)*

If this is shown to be true, we may wonder about whether those who seek assistance prior to launch are categorically different from those who seek it after launch, and therefore will have different perceptions of the perceived usefulness of assistance. In this case, it might be reasonable to assume that the propensity to seek information is driving the decision to seek

assistance prior to launch, as by our definition, proactive information seekers will seek out as many sources of information as is necessary to make an informed decision.

On the other hand, the lack of ability might be assumed to be the more important driving factor in the decision to seek it after launch. This is because, as Baron (2004) has shown, most entrepreneurs are often subject to cognitive biases prior to launch that cause them to overestimate their own abilities and/or the value of the perceived entrepreneurial opportunity.

However, after the launch of the new venture and the subsequent feedback from the market, the extent of the overestimation can be brought to light. This is likely to be greater for those with less ability, who then might finally decide to seek assistance. In this case we would not find any significance difference between the pre-launch assisted group and the post-launch assisted group based on the propensity seek information, but would in regards to a proxy of entrepreneurial ability (such as experience). If so, this might provide additional insight into how distinguish between the entrepreneurs who seek assistance because of their higher propensity to seek information from those that seek assistance because of their lack of ability. This can be investigated further through testing the following sub-hypotheses:

Entrepreneurs who seek assistance prior to launch will be more likely to have a higher propensity to seek information than those who seek assistance only after launch. (**H4-a**)

Entrepreneurs who seek assistance only after launch will have significantly less entrepreneurial ability than those who seek assistance prior to launch. (**H4-b**)

Furthermore, given the notion that EAP assistance helps entrepreneurs through providing knowledge and resources to help fill gaps that the entrepreneur would otherwise have in achieving a successful venture, and that those gaps are more likely to occur with less experienced

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ventures as well as those who have smaller firms, we also propose the following two hypotheses to be tested:

Entrepreneurs who have launched products and have less entrepreneurial experience will be more likely to find assistance useful. (**H5**)

Entrepreneurs who have launched products with firms whose gross annual sales is less than $200,000 per year will be more likely to find assistance useful. (**H4-6**)

These will be tested through conducting a probit analysis on the whether an assisted entrepreneur sough assistance either prior to launch of their new venture or not. In particular, we will wish to see whether any of the proxies for entrepreneurial ability are significant in this decision.

Next, though the literature has not dealt specifically with this issue, there is some concern when estimating treatment effects that many experienced or skilled entrepreneurs do not find the assistance all that beneficial. This would be different from the initial selection bias, as this effect would occur only within the group that has sought assistance, but would give us an indication if the type of entrepreneur who persists through the process might be different than the one who drops out from assistance, but still goes on to launch a product. This might indicate that the counseling and services provided are a substitute, rather than a complement, to the entrepreneur's own knowledge and skill set. In this case, the entrepreneurs who drop out from assistance, but still go on to launch their new venture, will be likely to have higher performance and survival rates than those who persist in the process due to the higher degree of entrepreneurial skill and ability the ones who drop out possess. In this case, if these entrepreneurs who drop out because of their higher ability levels were excluded from the assisted group it would certainly cause bias. However, most analyses, including this one, will often still

categorize them as "treated" as they have been impacted by the EAP despite whether they consciously found it to be useful and therefore not cause bias. Nevertheless, if it is evident that the higher ability entrepreneurs who seek assistance are not finding it useful, then it is likely that there are similar entrepreneurs who make the decision not to even seek assistance on the assumption that they too will not find it useful. In this case, it would point out that the concern over selection bias is genuine and should be accounted for.

Therefore, the following hypotheses can be developed in regards to research question (3): *Entrepreneurs who seek assistance and then decide to not launch a new venture will have been less likely to be successful than those who have persisted with the assistance process*. (**H7**)

C. Summary of Research Questions and Hypotheses

In summary, the three stated research questions of interest for this dissertation will be addressed through the testing of these five hypotheses (summarized below in table 3).

Table 3a: Summary of Research Question (R1) and Associated Hypothesis and Sub-Hypotheses.

R1	How much value has the Product Center, as an example EAP, created for its clients?
H1	*Entrepreneurs who receive assistance from an EAP will be more likely to have higher performance, survival rates and legitimacy than had they not sought assistance.*
H1-a	*Entrepreneurs who receive assistance from the example EAP prior to the launch of a new venture will be less likely to launch that new venture than those who do not (weeding out hypothesis).*
H1-b	*Entrepreneurs who receive assistance from the example EAP prior to the launch of a new venture and decide to launch that new venture will be more likely to stay in business than those who launched a new venture but did not receive assistance (planting in hypothesis).*
H1-c	*Entrepreneurs who receive assistance from the example EAP will be more likely to obtain external financing than had they not received assistance.*
H1-d	*Clients from the example EAP will have access to a greater marketing opportunity set than they otherwise would have without assistance.*
H1-e	*Clients from the example EAP will have higher gross annual sales rates than they otherwise would have without assistance.*
H1-f	*Clients from the example EAP will higher employment rates than they otherwise would have without assistance.*
H1-g	*Clients who receive assistance prior to the launch of their new venture will receive greater impact from assistance than those who receive it only afterwards.*
H1-h	*When restricting the sample to entrepreneurs whose new venture grosses under $200,000 per year, the impact of EAP assistance will be more likely to be significantly positive.*

Table 3b: Summary of Research Question (R2) and Associated Hypotheses.

R2	What types of entrepreneurs seek assistance and why?
H2	*Entrepreneurs with less entrepreneurial experience and/or ability will be more likely to seek assistance than those with more experience and/or ability.*
H3	*Entrepreneurs with a higher propensity to seek information will be more likely to seek assistance than those with a lower propensity to seek information.*

Table 3c: Summary of Research Question (R3) and Associated Hypotheses and Sub-Hypotheses.

R3	What types of entrepreneurs find assistance useful and why?
H4	*Entrepreneurs who seek assistance prior to launch will be more likely to find that assistance useful than those who seek assistance only after launch*
H4-a	*Entrepreneurs who seek assistance prior to launch will be more likely to have a higher propensity to seek information than those who seek assistance only after launch.*
H4-b	*Entrepreneurs who seek assistance only after launch will have significantly less entrepreneurial ability than those who seek assistance prior to launch.*
H5	*Entrepreneurs who have launched products and have less entrepreneurial experience and probabilities of success without assistance will be more likely to find assistance useful.*
H6	*Entrepreneurs from firms whose gross annual sales is less than $200,000 per year will be more likely to find assistance useful.*
H7	*Entrepreneurs who seek assistance and then decide to not launch a new venture will have been less likely to be successful than those who have persisted with the assistance process.*

The next chapter will develop a conceptual framework of how assistance can impact the entrepreneurial process and will place the research questions and related hypotheses within the context of this model. After this model is developed, we will present a chapter on the data used to test the hypotheses, followed by individual chapters for each research question and corresponding hypotheses.

III. CONCEPTUAL FRAMEWORK

In order to better conceptualize how we can measure the impact an EAP such as the Product Center is having on an entrepreneur, consider the decision-tree framework for each entrepreneur (*i*) who has a business idea in regards seeking assistance and launching their product is presented below in figure 1.

Figure 1: Decision-tree framework for an entrepreneur with a business idea
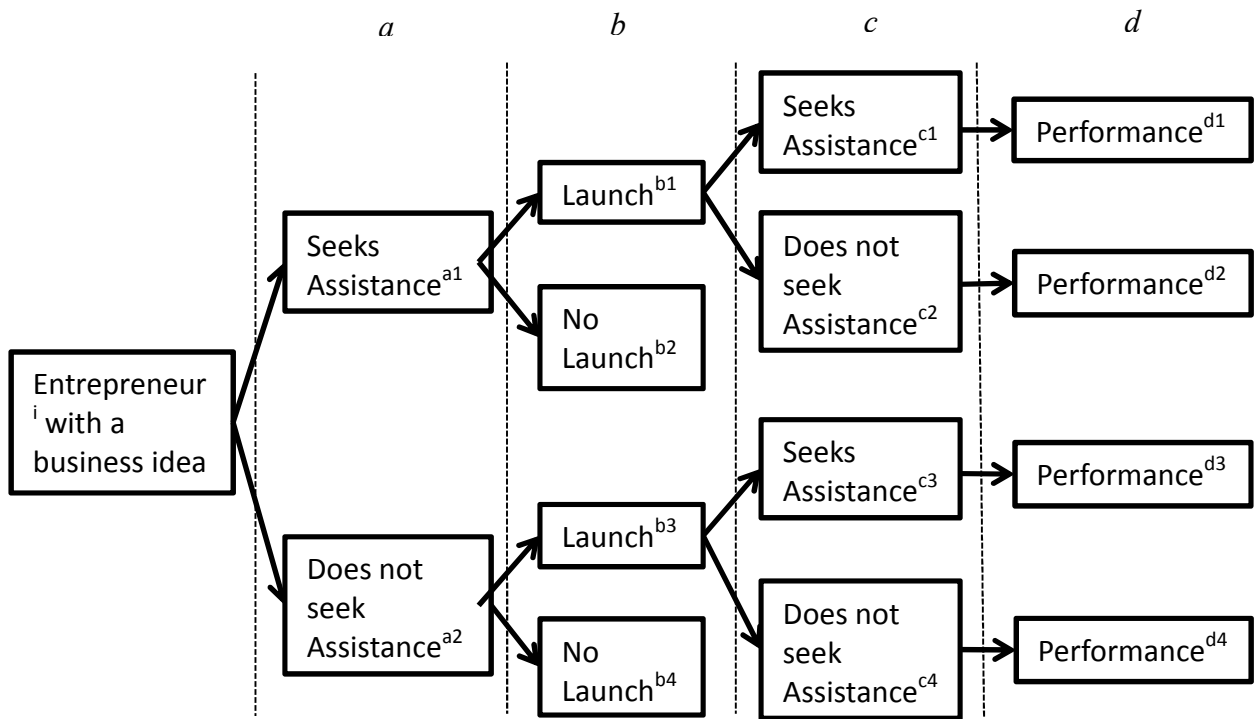
Essentially, if an individual entrepreneur is considering turning a business idea into a new venture, they make a decision (whether consciously or not) at point (*a*) whether to seek assistance from an EAP. Next, prior to the launch of their new venture they must develop the business idea and make a decision at point (*b*) whether they feel the expected utility of launching the new venture is greater than the expected utility they will receive if they do not launch. Once the decision to launch the venture is made, then the characteristics of the new venture, the

entreprenuer and the market will determine its performance. At any time post-launch at point (*c*),

however, the entrepreneur can also seek assistance prior to when data is collected at point (*d*).

Therefore, there are four different paths possible (*d1-d4*) an entrepreneur who has provided

performance data can take in this framework at the time of our observation. In addition, there are

two other paths respondents could have taken (*b2*) & (*b4*) that would lead them to still enter the

database, but without performance data.

For the purposes of this study, and most other studies, any of the performance data observed

at points (*d*1-*d*3) would be considered within the treatment group, where only the entrepreneurs

at point (*d*4) would be considered to be in the non-treated group. However, as was mentioned

before, the selection bias concern manifests itself if the underlying factors that drive the

decisions made at points (*a*) & (*c*) also influence the performance observed at point (*d*), then

comparing the performance of entrepreneurs at points (*d*1-3) to point (*d*4) would be biased

without controlling for this difference. Furthermore, the incremental impact of assistance given

at point (*a*), that is prior to the launch of the new venture, is likely to be greater in magnitude

than when given after the launch, at point (*c*). This is because, prior to launch, the EAP can

directly influence the overall strategy and even decision to launch more than after launch when

resources have already been committed.

A. Dealing with Selection Bias

To begin this study, therefore, we will first need to determine what the differences are

between those who seek assistance at all versus those who do not through the testing of *H8-H11*

using those respondents who fall under category *a1* and *c3* as the treated group and those who

fall under category *b4* and *d4* as the control. This will allow for the most unrestricted testing of

H8-H11 to give us the broadest perspective of the differences between these groups. Next we can

see if there are any distinct differences in observable characteristics between the timing of the assistance through modifying the hypotheses of *H8-H9* to add the words "*prior to the launch of their products*" after the words "*to seek* assistance" and then use those respondents who fall under category *a1* as the treated group and those under category *c3* as the control. The instrumental variable hypotheses will suffice as written so long as one bears in mind the instrument will always refer to the treated group as stated. Finally we can test whether there are differences in the differences between the treated and control groups at the (*a1, a2*) decision node and the (*c3, c4*) decision node. These series of hypothesis testing will give us a better understanding of the differences between those entrepreneurs who seek assistance versus those who do not, as well as the differences between those who seek assistance prior to the launch of their product and those who seek it only afterwards, so that we can have a more complete picture of how well suited our control group is for testing the hypotheses for **R1** and **R3.** This will also help to guide us on the appropriate methods we can use to overcome or at least mitigate any selection bias concerns.

B. Determining the Average Treatment Effect on the Treated (ATET)

Ideally, as with any impact study, the goal of this paper is to identify how much value the example EAP has created for its clients above what would have otherwise occurred. Of course, the actual counterfactual can never be 100% determined as it only occurs within the realm of possible worlds that might have resulted from individuals making different decisions at nodes (*a*) and (*c*) in our conceptual model. Therefore, we must estimate what could have happened through measuring the performance of the assisted entrepreneur versus similar non-assisted entrepreneurs. Determining how similar the control group of respondents is to the treated group has been discussed in the previous section, and will be used to create the validity of the

econometric models employed to address **R1 & R3**. Testing hypothes1s *H1* will give us various measures of the ATET. *H1* will first compare the probability of the treated group to make the launch decision at node (*b*) versus the non-treated group's probability.

The fact that the hypothesis states the benefit provided by the *example* EAP is to decrease the probability of launch might seem strange at first glance, and therefore requires some further explanation. We know from Shane's (2008) work and others that the probability of success for new ventures is in fact quite low (under 50% survival rates after 5 years). One can deduce from this knowledge that many of the entrepreneurs who launch new ventures, therefore, were either not appropriately identifying an entrepreneurial opportunity to obtain greater returns on the utilization of resources than their underlying economic rents, or were not appropriately skilled enough to capitalize on this opportunity. Therefore, by bringing this to those entrepreneurs' attention prior to tying up those resources in a failed venture, the EAP can create value for the entrepreneur through the prevention of a loss. The mere fact that less assisted entrepreneurs launch products (*the weeding out hypothesis*) is, by itself, not sufficient evidence to support this claim, however. Which is why, *H1-b* (t*he planting in hypothesis*), that those who do launch with assistance (evidence at nodes *d1 &* d2) will be more likely to survive than those who do not (*d4*). In this case, *d3* is left out because assistance after launch is also hypothesized to increase the probability of survival through different means, since the EAP was not involved in the decision to launch, and therefore would confuse the analysis.

IV. DATA

The data that will be used to conduct the analysis of the stated research questions was collected through online and in-person surveys in the months of August, September and October of 2012. Surveys were sent out online to roughly 2200 Michigan entrepreneurs that were listed in the Product Center's database or had applied for a new food license to the Michigan Department of Agriculture in the past seven years. Recipients of new food licenses were chosen to obtain a sample of respondents that may be similar to the Product Center's clientele but may have not had any contact as of yet with the Product Center. These respondents could potentially be used for control purposes, though how to do so will be developed below in the discussion related to **R2**.

From this sample, 617 respondents participated in the survey for a response rate of approximately 28%. However, respondents who had not launched a new product in the past eight years, which is the amount of time the Product Center has been in existence, or had incomplete surveys were screened out leaving only 467 usable observations. In addition, depending on the particular regression, the amount of usable observations will typically be smaller due to the tendency for many respondents to leave one or more key explanatory variables blank. For the purposes of this study, and given the relatively small sample size of complete data, the missing values will be assumed to be missing at random, and therefore not imputed so as not to further complicate the analysis.

Furthermore, some of the regressions used below have been done on a particular sub-sample based on observable characteristics that will also reduce the total number of observations. For each regression, therefore, the number of respondents used will be explicitly stated.

A. Determination of the Treatment Variable – *pcassist*

In order to understand the impact that assistance has, we must first distinguish between those who sought assistance and those who did not. In order to do this, the binary variable *pcassist* will be used as our primary indicator of treatment. This was done as follows: After obtaining informed consent for the survey and screening out those who had not launched a new venture in the past eight years, respondents were asked if they had received assistance from a list of EAPs within Michigan that included the MSU Product Center. Respondents who indicated the Product Center had provided them assistance were coded as a one in the binary discrete variable "*pcassist*".

However, after the survey data was collected, all respondents were then compared to the Product Center's database to supplement their responses with: the year of first contact with the Product Center "*firstcontact*"; the number and type of contact hours they had "*contact*"; who their counselor or counselors were and whether they had participated in any Product Center events such as the annual Making it in Michigan trade show. While this was being done, it became apparent that many of the respondents who did *not* indicate that they had received assistance from the Product Center were in fact in the Product Center's database. This caused some concern about whether to code these respondents as a "1" or a "0" for treatment. In the end, for each respondent who was present in the database, the records of their interactions with the Product Center were reviewed qualitatively to determine whether or not treatment had been had. If there was an indication that counseling or services were provided, then they were marked as a "1" for treatment. On the other hand, if the only interactions were a few phone calls or emails made to try and set up an appointment but nothing further, then they remained a "0" indicating no treatment.

Additionally, many of these respondents were also in the database for only having attended the Product Center's trade show, these were also listed as not having received treatment as we are defining treatment as receiving counseling and/or services from the Product Center. However, another variable "*pccontact*" was created to indicate a "1" if the respondent was in the database at all, regardless of treatment status, and a "0" otherwise. The results of this procedure are presented below in Table 4.

Table 4: Summary of the Treatment Variable

Description	Respondents	%of Total Sample
Were present in the Product Center's database (i.e. *pccontact=1*)	362 (out of 467)	76%
Indicated they received assistance from the MSU Product Center	252 (out of 467)	54%
Were qualitatively determined to have received assistance despite not indicating so.	60 (out of 110)	13%
Total Treated respondents (i.e. *pcassist=1*)	312 (out of 467)	67%

There were also a number of respondents (around sixteen) who received assistance from an EAP other than the Product Center in our sample. For reference, the other EAPs that were present in the sample were: Starting Block, the Michigan Small Business and Technology Development Center (SBTDC) and TechTown. These sixteen respondents will be included in the regression analysis when testing the hypotheses related to who seeks assistance but will be excluded from the treatment group in the impact regressions in order to focus solely on the impact that the case EAP has provided. Therefore, the when answering the "Who seeks assistance question," the variable (*seekassist*) that identifies any entrepreneur who has received assistance from an EAP will be used.

B. Performance Variables {Y} of Interest

To maintain consistency with past research, this dissertation will evaluate the MSU Product Center on the basis of: venture creature, survival, increase in sales or earnings, employment growth and subjective assessments of the assistance provided. Furthermore, this research will also extend the measures of performance evaluated to include two measures of perceived legitimacy: ability to obtain external financing and volume of sales sold through a formal distribution channel. This section will discuss the rationale behind each of these variables and how it was recorded in the database.

i.   Measure of Survival: Still in operation – "stillalive"

The first measure of performance we are interested is simply whether or not the new venture is still in operation.   Given the low survival rates of new ventures presented by Shane (2008) and others, simply increasing survival should be considered a successful influence of an EAP. To measure this, respondents who indicated that they launched a new venture were also asked whether that venture was still in operation, those who responded yes were coded as a "1" for the binary variable "*stillalive"* and coded as a "0" otherwise. For those indicated no to this question, they were asked to indicated why this was so from a list of available options.

ii.   Measures of Performance: Current gross annual sales and total employment

In addition, following the work of other EAP researchers (e.g. Robinson, 1982; Chrisman, Nelson, Hoy and Robinson 1983; and Chrisman, Hoy and Robinson 1987), two measures of growth: current gross annual sales and current total employment; will also be compared across the assisted and non-assisted group. For those respondents who indicated that they had launched a venture, data was collected on their first year as well as the last two years of gross annual sales and employment levels. While this was initially done to get an indication of

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percent growth, many respondents only provided the first or last year of sales or employment. Therefore, these variables were created to indicate that last full year of gross annual sales or employment provided; age of the venture will then be included within the regression to account for growth over time. For those respondents who launched in 2012 and only had nine months' worth of sales data, this value was projected for the full year. Due to the nature of the survey instrument both of these variables are continuous from 0 to an upper limit ($200,000 for sales and 250 for employment). When including the upper limits in the regressions, therefore, a right-hand censored Tobit model will be used.

iii.   Perceived Legitimacy Measures

In order to measure legitimacy, two different observable variables were chosen based on their likely correlation with the unobserved perceived legitimacy of the entrepreneur. These two variables are: ability to obtain external financing and volume of sales sold through a formal channel (i.e. retail or wholesale). The idea behind these choices is that in order to obtain financing or gain access to a formal channel, the new venture must have obtained the threshold level of legitimacy Zimmerman and Zeitz (2002) mention as a necessary prerequisite.

iv.   Ability to Obtain External Financing – "externfinance"

As the author's master's work and that of others (e.g. Rotgers et al, 2012) have suggested that one of the mechanisms by which an EAP can create value for an entrepreneur is through signaling to investors the viability of the venture concept, and hence increasing the probability of external financing, examining the differences between the treatment and control group in their ability to obtain external financing can help determine if this has truly been the case *ceteris paribus*. In the case of the ability to obtain external financing, this variable will measure directly whether or not that threshold has been obtained with external financiers. This variable is

measured as a binary variable where "1" indicates that external financing was obtained and "0" indicates that it was not.

v.   Total Sales Sold through Formal Distribution Channels

Similar to how an EAP can "badge" the worthiness of a new venture to investors (Rotgers et al, 2012), it can also help to provide this badge to trading partners. One of the key trading partners for food processors is a distributor who can sell their product to retailers or a direct relationship with the retailer themselves. In the cases of volume sold through retail and wholesale, these variables will measure both whether the threshold was obtained with the retailers or wholesalers themselves, and then how much incremental legitimacy was achieved with the retail or wholesale consumers.

Respondents who indicated that they had launched a product were also asked what percentage of their product they sold through retail outlets, wholesale to a commercial buyer and direct to consumers with the caveat that the three must add to 100%. Using this data, the percentage sold through each distribution channel was multiplied by *grosssales* to obtain the volume sold through those channels. It is important to note here that because *grosssales* is censored, those who indicated sales above the maximum had to be excluded from the analysis on this variable as the percentage sold through that channel multiplied by $200,000 is not an accurate representation of the volume for that respondent to be compared to other respondents. For example, a respondent making over $2 million in gross annual sales could indicate 10% sold through wholesale which would indicate a proper value $200,000, but in this case would appear as only $20,000 and might be incorrectly categorized lower than a respondent who is grossing $100,000 annually and sells 50% through wholesale. Therefore, though unfortunate, analyses using these variables will only be accurate for those entrepreneurs grossing under $200,000

annually. Fortunately, this is the majority (248 out of 281 who provided sales data or 88%) of the sample data collected.

vi. Subjective Assessments of the Assistance Provided

Any of the respondents who indicated that they had received assistance from an EAP were then asked to rate, on a scale from 1 to 7, how satisfied they were with that assistance where 1 indicated very dissatisfied and 7 indicated very satisfied. This variable - *"eapsatis"* was collected as a primary source indicator that the EAP had provided some value (or not) to the respondent.

Similarly, respondents who indicated that they had received assistance from an EAP were asked to rate, on a scale from 1 to 7, how useful they found that assistance for their new venture where 1 indicated very useless and 7 indicated very useful. This variable - *"eapuseful"* was also collected as a primary source indicator of the EAP value.

As with the previous two variables, a 7-point likert scale was given to respondents who indicating they had received assistance from an EAP to rate the influence that the assistance had on their decision to launch or not launch their new venture *"eapinfluence,* where 1 indicated not very influential and 7 indicated very influential.

C. Control Variables to be used

In addition to the performance variables, instruments and treatment variable mentioned above, there are other factors that we would like to hold constant when evaluating the impact of the EAP on new venture performance. A summary of these variables and the reason for the inclusion will be presented below.

i.   Food Processor Industry Indicator – *foodproc*

One of the primary industries that the Product Center serves is the food processing industry. Clients in this industry range from small cottage industry operators who may be selling cookies or salsa they make out of their home kitchens to large commercial suppliers to retail chains. In addition, given that in this industry there does not appear to be a dominant design and there are very low barriers to entry, this industry should allow for strong returns to entrepreneurial activity (Shane, 2003) and hence EAPs can potentially have a significant impact. Furthermore, the barriers to entry have recently become even lower with the passage of the Michigan Cottage Food law, which according to the Michigan Department of Agriculture, allows entrepreneurs to manufacture and store certain types of "non-potentially hazardous foods that do not require time and/or temperature control for safety" in an unlicensed home kitchen (Michigan Department of Agriculture, 2010). Therefore, it is not surprising that the majority of respondents to this survey (around 70%) are food processors, which the binary variable "*foodproc*" identifies with a "1" indicates that the description of their product given was deemed to classify them as a food processor, and a "0" otherwise. For reference, the industries referenced in the "0" category consist primarily of agricultural producers, biofuels and non-food products such as soaps and perfumes.

ii.   Pushed/pulled into entrepreneurship – *pushed*

 Poschke (2008) has found that there is a "U-shaped relationship between entrepreneurship and ability" indicating that entrepreneurs are typically either pushed (because of no better option) or pulled (because of superior ability and opportunity recognition) in entrepreneurship and using education, experience and asking directly why one decided to become self-employed can help identify these groups. This was done directly and is

characterized by the binary *pushed* variable where "1" indicates an entrepreneur became self-employed because of "no better options for employment" and "0" indicates an entrepreneur became self-employed in order to "pursue a profitable opportunity."

iii.   Contact hours – contact, contact2

As was mentioned above, all respondents were cross-checked with the Product Center database for when they had contact with the Center, who their counselor or counselors were, and to determine how much contact hours of assistance was provided. This last variable was recorded as the continuous variable *"contact"* and as Chrisman and McMullan (2005) found a curvilinear relationship between contact hours and performance, a squared term was generated from the number of contact hours and is labeled *"contact2"*.

iv.   Venture Age – *ventureage*

Respondents were asked in which year they launched their new venture, where launch was defined as collecting sales on the product. This year was subtracted from 2012.75 to give the venture it's age. The 0.75 was added to 2012 as data was primarily collected in the 9th month of the year and so those who launched in 2012 would not have a zero for venture age, which could cause some difficulties when using this variable to account for growth over time.

v.   Other Controls – inherit, familyentrep, male, white

Blanchflower and Oswald (1998) have also found that receiving a significant inheritance can in part identify whether an entrepreneur is likely to not have capital constraints, which is expected to correlate with take-up of assistance (negatively) and performance (positively). Respondents were asked if they had received such an inheritance and the binary variable *"inherit"* is coded as a "1" if so. Having a parent or other close family member entrepreneur,

prior entrepreneurial activities and gender (Tamasy, 2011; Yusuf, 2009 & 2012) have also all been shown to correlate with both the take-up of assistance and overall performance, and so are being collected and coded as binary response variables *"familyentrep"* and *"male"* in which cases a "1" indicates having an entrepreneur as a close family member or if one is a male, respectively and a "0" indicates otherwise. Ethinicity will also be controlled for with the binary response variable *"white"* which codes a "1" for entrepreneurs who indicate they are Caucasian, and "0" otherwise.

D. Instrumental Variables (IV) to be tested

Following the discussion on selection bias, it would appear an instrumental variable (IV) two-staged least squares (2SLS) regression would be the most efficient method for removing selection bias, with the Heckman two-step correction procedure as an alternative measure that could provide additional support. However, in order to use these procedures, one must have a valid instrument.

This study proposes to test two such instrumental variables: proximity to a Product Center office, and fan of Spartan Athletics. The underlying hypothesis for the first instrument is that by being located nearer to a Product Center office, than other respondents, one might have a higher probability of hearing about the assistance offered and come to use the EAP's services thus satisfying the cov $(Z,P) \neq 0$ condition. In order to satisfy the cov $(P,\varepsilon) = 0$ we would have to assume that this proximity is not correlated with the entrepreneur's venture performance, which on face value might seem reasonable enough unless the location of the offices are also placed in regions with higher economic activity. Since the EAP in question's offices are either on MSU's campus or placed in extension centers (which are often county seats), this second condition might prove problematic, but should be tested empirically nonetheless.

Given this concern, a second instrument will also be tested: having a friend or family member who is an alumni, student, faculty or staff of MSU. It is hypothesized that having a social connection to MSU might induce a higher probability of knowing about MSU services and hence the Product Center, thus satisfying the cov $(Z,P) \neq 0$ condition. And while being connected to MSU in combination with having attended MSU might both influence performance of one's new ventures, if education level is controlled for in the $\{X\}$ vector, then uncontrolled element of performance $\{\varepsilon\}$, will hopefully satisfy the cov $(P,\varepsilon) = 0$ condition. The first condition (cov (Z,P) $\neq 0$) can be empirically tested by regressing P on Z and the relevant control variables in order to test the resulting coefficient for significance. The second condition cov $(P,\varepsilon) = 0$ needs have ex-ante validity. If so, it can be used in a Hausman (Wooldridge, 2002) test for the endogeneity of the treatment where the residuals from the regression of P on Z and X are predicted and then included in the performance regression. If the residuals are found to have significant predictive power on the performance variable when included in the second stage regression along with the endogenous variable, then we can reject the null that there is no endogeneity (i.e. selection bias) of treatment. These instruments were collected as is described below.

    i.   Distance away from the Product Center – disttopc

All respondents were asked for the zip code of their primary residence. Then using an online mapping service and the zip codes of the 14 Product Center offices around the state, the minimum distance between the residence zip code and nearest Product Center office were calculated and recorded as a continuous variable.

ii.   Social tie to Michigan State University – msuconnect

All respondents were also asked if they had a close friend or family member who was an alumni, student, faculty or staff member of Michigan State University. If the answer was yes, then the binary variable "*msuconnect*" was coded as a "1" and "0" otherwise.

E. Proxies for Omitted Selection Bias Variables

While it appears to be troublesome to directly observe entrepreneurial ability, though an attempt will be made, there is perhaps some hope that one can ask respondents directly about their propensity to seek information and expect honest answers. If any of the proxies are found to be significant predictors of the probability to seek assistance, they can then be included in the impact evaluation regressions to remove the selection bias associated with the variables they are a proxy for. If, however, only one of the two omitted variables can be proxied, then this will act to provide an upper or lower bound on the treatment effect's estimator. To be more specific, if the propensity to seek information proxy is found to be a significant predictor of the probability to seek assistance, then we can include it in the regressions that evaluate the impact of the EAP to remove the upward selection bias, but cannot remove the downward selection bias associated with entrepreneurial ability. While this will not be the most efficient method, it will at least provide a bounded result. In this case, a lower bound, indicating that the estimates obtained are likely more conservative than the actual impacts, and vice versa if the entrepreneurial proxy can be used but not the propensity to seek information one.

The variables that will be measured in order to attempt this will be discussed below.

i.   Propensity to Seek Information – propinfoseek

All respondents were asked to respond what they do when faced with making a decision under uncertainty on a scale from 1 to 7 where 1 indicated "rely mainly on intuition and trail and

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error" and 7 indicated "seek out as much information as possible before making an informed decision." It is hoped that variable will correlate with the unobserved propensity to seek information to be used as a control for this factor in order to remove any potential upward bias on the selection into treatment.

ii. Propensity to Grow the Business – propgrowbiz

In addition to distinguishing between information seekers and those who rely on intuition, we were also interested if there was an observable difference in the goals the entrepreneur had for the business. To be more specific, in terms of the ultimate goal for one's business, the literature often distinguishes between "lifestyle" entrepreneurs who are interested in starting a new venture primarily in order to make a living doing something they have a passion for and "innovative" entrepreneurs who are interested in trying to grow the business as much as possible. In order to measure this, all respondents were asked to respond what their primary goal was for their business on a scale from 1 to 7 where 1 indicated "Provide a fair income for my family or self " and 7 indicated "Grow a multi-million dollar business." This variable was coded as "*propgrowbiz*" and is hoped can be used to control for the underlying drive for business growth that the entrepreneur has.

iii. Entrepreneurial ability - Education and Experience –baormore and indusexp,

Shane (2003) states the non-psychological factors that influence the expected returns of the opportunity will be greater for those entrepreneurs who have greater education levels (Casson, 1995), experience in the relevant industry (Knight, 1921; Von Mises, 1949) and previous experience starting up a business (Jovanovic, 1982). Therefore to proxy for entrepreneurial ability respondents were asked their education level for which a binary indicator of having

achieved a bachelor's or higher was created (*baormore*), and the amount of experience in years they had in an industry relevant to their new venture prior to the launch of their new venture (*indusexp*).

F.   Entrepreneurial Orientation Proxies

We might wonder if there are not more omitted variables we should be concerned about, in particular with the differences in the "entrepreneurialness" of the entrepreneurs themselves or what researchers commonly refer to as an individual's entrepreneurial orientation (EO).

Entrepreneurial Orientation (EO), as defined by Lumpkin and Dess (1996), refers to the processes, practices, and decision-making activities that lead to new entry**.** However, simply engaging in new entry is not a guarantee of success. Thus, numerous scholarly articles have been written on examining the relationship between the processes and practices that lead to new entry and the subsequent success and performance of the relevant firms. In their 1996 paper, Lumpkin and Dess suggest that EO is composed of five principle components: proactiveness, innovativeness, risk-taking, competitive aggressiveness and autonomy.

Their model indicates that a higher EO will lead to higher performance levels, but is moderated by both environmental and organizational factors. In the context of this study, environmental factors were controlled as much as possible by selecting firms all in similar industries (i.e. food and agriculture) and in the same state. Furthermore, EO measures are often applied to businesses and not entrepreneurs themselves, and hence when the survey was designed, we did not think a measure of autonomy was needed, as all respondents are self-employed and would be assumed to be fairly autonomous. In reflection, some measure of the willingness to accept help from others might have been beneficial, however, it terms of its relationship to both seeking assistance and overall performance.

In any case, we will test the whether the other four components are also significant in the decision to seek assistance through the use of the commonly used measures developed by Covin and Slevin (1989). What measures will be used and how they were collected will be described below.

i.   Innovativeness - propinnovate

All respondents were asked to respond on a scale from 1 to 7 in general what they favor, where 1 indicated "A strong emphasis on the marketing of tried and true products or services" and 7 indicated "A strong emphasis on R&D, technological leadership, and innovations." The recorded response is captured in the discrete variable "*propinnovate*".

ii.   Proactiveness – numbernewlines; changesinlines

All respondents were also asked to respond on a scale from 1 to 7 how many new lines of products or services had their firm marketed in the past 5 years, where 1 indicated "no new lines of products or services" and 7 indicated "very many newlines of products or services" and this variable was recorded as "*numbernewlines*." Following this question, respondents were also asked how dramatic the changes in product or service lines have been where 1 indicated "mostly of a minor nature" and 7 indicated "quite dramatic" and this variable was recorded as "*changesinlines.*" However, these variables cannot be considered exogenous as assistance may influence the number of changes to one's product lines one makes, therefore they will not be used as control variables in the regression analysis, but may still be used in the SEM comparison for identifying underlying latent EO factors.

iii.   Risk-Taking – proprisktake; propaggressiveposture

In regards to their risk preferences, all respondents were also asked to respond on a scale from 1 to 7 in general what they favor, where1 indicated "Low-risk projects (with normal and certain rates of return)" and 7 indicated "High-risk projects (with chances of very high returns)." This variable was recorded as "*proprisktake.*" In addition, respondents were also asked what their firm does when confronted with decision-making situations involving uncertainty, where 1 indicated "Typically adopts a cautious, 'wait-and-see' posture in order to minimize the probability of making costly decisions" and 7 indicated, "Typically adopts a bold, aggressive posture in order to maximize the probability of exploiting potential opportunities." This variable was recorded as "*propaggressiveposture.*"

iv.   Competitive Aggressiveness

Finally, respondents were asked three questions, on a scale from 1 to 7, regarding how their firm acted when dealing with their competitors. In the first question, a 1 indicated they "typically respond to actions which competitors initiate" and 7 indicated they "typically initiate actions which competitors then respond to," this variable was recorded as "*propinitiatechange.*" In the next question, a 1 indicated they were "very seldom the first business to introduce new products/services, administrative techniques, operating technologies, etc..," whereas a 7 indicated they were very often the first business to do such things. This variable was recorded as "*propfirstmove.*" While the last variable asked whether they 1 – "typically seek to avoid competitive clashes, preferring a 'live and let live" posture" or 7 – "typically adopt a very competitive, 'undo-the-competitors' posture," this variable was recorded as "*propcompaggressive.*" Again, these variables are not completely exogenous so will not be used as control variables in the regression analysis.

G. Summary Statistics

    i.   Performance Variables

Presented below in table 5, is a summary of: the names of the performance variables collected; the description of each variable; the mean, standard deviation and number of observations tabulated by treatment status; the range of observed responses; and the differences between the means of the treated and non-treated respondents.
There are a number of interesting results that come from looking at these statistics. To begin with, one can see by the means subjective feedback on the assistance that respondents received (*eapsatis, eapuseful, eapinfluence*) that the average of the Product Center clients is higher on all three measures when compared to the sixteen receiving assistance from other EAPs. However, sixteen is not really a large enough number for strong statistical significance in terms of estimating the actual population mean (Wooldridge, 2002).

Next, as was hypothesized, we can see that indeed Product Center clients have a lower average of overall entrepreneurs who have actually launched their new venture when compared to non-clients (73% to 81%), but for those who have launched they are experiencing higher survival rates (95% to 89%). Nonetheless, it is quite surprising how high the overall survival rate is for both groups, especially given the research done by Shane (2008), Cooper et al (1988) and others that have often found very low survival rates, especially given the average venture ages (as shown in table 5, below) of 3.84 and 3.93 for Product Center clients and non-clients respectively. This likely is due to a survey response bias where those entrepreneurs who have dropped their business idea are not very interested in talking about it. For comparison purposes between the treatment and non-treatment group, however, as long as this response bias is equivalently present on both sides, it should not affect our analysis of the differences.

Table 5: Performance Variable summary statistics tabulated by treatment status

Variable name	Description	Product Center Clients Mean (Std.Dev)	Obs (N)	Non-Product Clients Mean (Std. Dev)	Obs (N)	Range	Difference (PC-Control)
eapsatis	Satisfaction with EAP Scale	3.96 (1.41)	247	3.75 (1.21)	16	1 - 7	0.21
eapuseful	EAP Perceived Usefulness Scale	4.16 (1.32)	250	3.81 (1.11)	16	1 - 7	0.35
eapinfluence	EAP's Influence on Launch Scale	3.34 (1.35)	222	2.88 (1.02)	16	1 - 5	0.46
launched	Launch Status	73%	310	81%	154	0 - 1	-9%
stillalive	Indicates if still in Operation	95%	219	89%	122	0 - 1	7%
grosssales	Current Gross Annual Sales	43,696 (60,620)	173	52,645 (73,715)	108	0 – 200,000	-8949.11
Totemp	Current employment	7.26 (27.82)	194	8.69 (28.01)	104	0 - 250	-1.43
voldirect	Sales sold direct	11,018 (20195)	155	17,244 (31022)	116	0 – 164,541	-6226.28
volretail	Sales sold through retail	5,854 (15,682)	155	2,959 (8670)	116	0 – 62,911	2894.88
volwhole	Sales of product sold wholesale	11,893 (23,596)	155	7,658 (18,231)	116	0 – 107,324	4234.52
totalinvest	Total Amount Invested	76,558 (106,402)	221	74,481 (97,709)	124	0 – 400,000	2076.71
externfinance	Externally financed	28%	202	30%	111	0 - 1	-2%

Next we can see that total gross annual sales and total employment are both lower for the treated group than the non-treated group, though there is a lot of variability in both measures as the standard deviations are in both cases larger than means. This, if nowhere else, shows us that there is likely some selection bias we must be concerned with when comparing the two groups as it seems unlikely that providing assistance to entrepreneurs would in fact cause them to have lower sales and employment. Instead, the factors that are causing those entrepreneurs' lower sales and employment data is likely what is causing them to seek assistance.

In terms of the volume of sales through the different marketing outlet, a very interesting pattern emerges that coincides well with the hypothesis that EAPs help increase the legitimacy of entrepreneur's new ventures. Namely, despite the fact that the overall sales level is lower in the treated group, the volume sold through formal distribution channels, on average, is higher. Whereas the sales sold direct to consumers is higher in the non-treated group. This could be in part because we don't have the volume sold through the different marketing channels for those grossing over $200,000 due to the inability to interact percentages with upper limits, but it could also indicate that our hypothesis is correct.

Lastly, we see that the ability to obtain financing is slightly lower for the treated group, but the amount obtained is slightly higher. Given the small differences, these two findings are probably best viewed as not significantly different from each other, but as with all of these factors, more sophisticated data analysis than comparing means is required.

ii.   Instrumental Variables, Omitted Variable Proxies and EO measures

Next, if we turn our attention to the summary statistics for the instrumental variables, omitted variable proxies and entrepreneurial orientation (EO) measures, we can see there are

some potential areas of distinction between Non-PC and PC clients (see table 6, below). In particular, it appears that PC clients are likely to score higher on almost all the EO measures except the propensity to take risks (*proprisktake*) and the propensity towards an aggressive competitive posture (*propaggresiveposture*). However, the difference in most of these measures is quite small, with the exception of the propensity to seek information (*propinfoseek*) and the propensity to grow the business (propgrowbiz) measure. This gives some indication that those who are seeking assistance are likely to have a higher propensity to seek information as expected, be slightly more risk averse, and a higher propensity to grow their business. The last of these findings is interesting as it was uncertain whether the Product Center was attracting more lifestyle or more innovative entrepreneurs. Though it is not surprising that those with a higher drive to grow their business are also more likely to seek assistance in doing so.

In terms of the other proxy variables, it appears that those seeking assistance are slightly more likely to have received a bachelor's or higher in education, while the difference between the two groups in the amount of industry experience appears to be negligible. Again, the latter of these two findings is surprising as one would expect that those seeking assistance to have significantly less experience, but the summary statistics provide no evidence that this is the case.

Finally, in terms of the summary statistics, both instrumental variables appear to have some potential for satisfying the first condition necessary to be an instrument, as those seeking assistance are closer in proximity on average to the Product Center and more likely to have a connection to the EAP's institutional home. However, as with all of these variables, to determine if these values are truly significant while holding all other relevant observed control variables constant, will require regression analysis.

Table 6: Summary of Instrumental, Proxy and EO variables

Values	Non-PC Client	PC Client
Average of propinnovate	3.66	3.75
Average of changesinlines	2.94	3.06
Average of numbernewlines	3.30	3.30
Average of proprisktake	3.82	3.64
Average of propinfoseek	4.50	5.05
Average of propfirstmove	4.47	4.62
Average of propcompaggresive	3.45	3.61
Average of propaggresiveposture	4.06	3.94
Average of propgrowbiz	3.24	3.85
Average of disttopc	52.58	47.32
Average of msuconnect	47%	56%
Average of indusexp	12.07	12.10
Average of baormore	60%	65%

iii.   Other Control Variables

In addition to examining the differences between the performance variables, it is also worthwhile to investigate the differences in the summary statistics for the control variables to be used in this analysis as well.

Except for contact hours, the preceding control and IVs' name, description, means, standard deviations (std. dev) if applicable, observations (obv), range observed and difference between treated and non-treated respondents are summarized below in table 7.

Table 7: Summary Statistics for Control and Instrumental Variables Tabulated by Treatment

Variable name	Description	PC Clients Mean (s.d)	Obs (N)	Non-PC Clients Mean (s.d)	Obs (N)	Range	PC-Control
indusexp	Years of relevant work experience	12.1 (12.64)	272	12.07 (11.19)	132	0 - 42	0.03
male	Gender is male	48%	293	46%	138	0 - 1	1%
baormore	Highest education is a bachelor's degree or more	65%	294	60%	139	0 - 1	6%
white	Ethnicity is Caucasian	84%	294	90%	139	0 - 1	-6%
familyentrep	Respondent has an entrepreneur in their family	68%	288	54%	138	0 - 1	14%
inherit	Respondent has received a significant inheritance	9%	288	7%	138	0 - 1	2%
pushed	Self-employed because of "no better choices for work"	14%	288	18%	138	0 - 1	-4%
msuconnect	Social tie to MSU	56%	293	47%	139	0 - 1	8%
disttopc	Approximate distance in miles from the nearest PC office	47.32 (52.31)	290	52.58 (52.3)	137	5 - 500	-4.99
propinfoseek	Propensity to Seek Information Scale	5.05 (1.73)	281	4.5 (1.8)	130	1 - 7	0.55
age	Respondent's age	48.57 (11.58)	292	49.3 (11.05)	139	20 - 74	-0.74
ventureage	Time (in years) since the launch of the new venture	3.84 (2.33)	221	3.93 (2.30)	120	0.75 - 8.75	-0.10
Startup-network	Key Individuals involved with Launch	4.26 (5.28)	189	3.18 (3.16)	104	0 - 30	1.08

A comparison of the other relevant control variables reveals some more interesting differences between the two groups (see table 8, below). It appears that the distribution amongst clients and non-clients based on their venture age is fairly similar, as is the actual age of the entrepreneur and the percentage of entrepreneurs who have received a significant inheritance. However, those who are seeking assistance appear more likely to be of non-White ethnicities, have lower incomes, a history of family entrepreneurship and a larger start-up network.

Table 8: Comparison of other relevant control variables between PC and Non-PC clients

Values	Non-PC Client	PC Client
Average of ventureage	3.93	3.84
Average of inherit	7%	9%
Average of white	90%	84%
Average of age	49.30	48.57
Average of hhincome	$ 92,166.65	$84,066.35
Average of pushed	18%	14%
Average of familyentrep	54%	68%
Startup-network	3.18	4.26

H. Cluster Analysis on Entrepreneur Types

A cluster analysis was performed on the data on the basis of the control variables to determine if there were distinct groups of entrepreneurs that could be identified. The results of this analysis are presented below in table 9. The most insightful results came from when it was posited there were three distinct clusters. In this case, the main distinguishing characteristics of the different clusters were: age, experience, whether the entrepreneur was starting-up a new business and to a lesser extent, education.

Table 9: Results of Cluster analysis on control variables

Cluster	Seasoned Entrepreneurs	Young Bucks	Late Bloomers
Number of observations (N)	77	117	126
Average of foodproc	**49%**	**87%**	**63%**
Average of launched	78%	79%	74%
Average of disttopc	39.66	55.35	43.81
Average of msuconnect	57%	55%	55%
Average of startup	**56%**	**80%**	**76%**
Average of age	**55.61**	**35.49**	**54.65**
Average of pushed	**18%**	**17%**	**13%**
Average of eapuseful	4.33	4.10	3.99
Average of eapsatis	4.24	3.81	3.96
Average of familyentrep	66%	65%	65%
Average of white	**90%**	**85%**	**90%**
Average of indusexp	**29.48**	**5.90**	**6.20**
Average of yrsownbiz	**16.58**	**4.15**	**11.43**
Average of male	51%	49%	49%
Average of baormore	**65%**	**74%**	**58%**
Average of pcassist	64%	71%	67%

i.   Cluster characteristics

The first group that emerges out of the cluster analysis is that of the "*seasoned entrepreneur.*" Respondents in this group can be characterized as the older, more experienced entrepreneurs. They have an average age of 56 years, have worked in an industry relevant to their new venture for an average of 29 years, have owned their own business for an average of 17 years and are the most likely to have been "pushed" into entrepreneurship. All of these characteristics are higher than the other two clusters. In addition, this cluster is the most likely to be expanding their business with new product lines as opposed to starting up a new business (44% of respondents) and is this least likely to identify themselves as a food processor (49%). Overall, the seasoned entrepreneurs are the most likely to have an established venture and the least likely to be seeking out assistance from the Product center. Interestingly, of those that do seek assistance, they are also the most likely to find that assistance useful and satisfactory, but the difference from other clusters is small.

By contrast, the second group – the "*young bucks,*" can be characterized as the younger, well-educated but inexperienced food entrepreneurs. This group has the youngest average age (35years), the least relevant industry experience (6 years) and the least amount of time owning their own business (4 years). They are, however, the most likely group to be starting up a new business (80%) and have the highest education status with 74% of respondents who have graduated from a 4-year institution, as compared to 65% with cluster 1 and 58% with cluster 3. This group also has the highest percentage of food processors (87%). This cluster, therefore, appears to be identifying the younger, less-seasoned entrepreneurs who are attempting to start-up a new food business.

This brings us to the final group – the "*late bloomers*", which is best characterized as being older less educated entrepreneurs with less relevant industry experience who were "pulled" into entrepreneurship. This group's average age is closer to that of the *seasoned entrepreneur*, but experience levels closer to that of the *young bucks*. They are however, more likely to be starting up a new business and have the lowest percentage of college graduates (58%) but highest percentage of those who felt "pulled" into becoming self-employed (87%). This cluster appears to be identifying those entrepreneurs who have likely been working in a traditional job for many years and are transitioning over to self-employment later in life but do not have the same level of experience with doing so as the *seasoned entrepreneurs*.

Interestingly, there does not appear to be much difference on the basis of gender, history of family entrepreneurship or likelihood to seek assistance between these three groups, but the older experienced cluster appears to be the group that finds assistance most satisfying and useful. This is surprising, since one of our hypotheses was that those with less experience would find assistance more useful, but that does not appear to be the case here.

ii.   Comparison of performance statistics between clusters

When comparing the differences in the averages and medians of the performance statistics between the three clusters (see table 10, below), we can see that there are some evident distinguishing characteristics. Most prominently, the seasoned entrepreneurs group, not surprisingly, has the highest average of overall sales, employment levels and financing. This fits with the notion of this group consisting of the more established businesses. Interestingly, the average age of the venture is actually less than the older inexperienced cluster, but it appears this group has achieved higher levels of legitimacy on the basis of volume in retail and especially with the ability to obtain external financing.

Table 10: Comparison of performance statistics between clusters

	Seasoned Entrepreneurs	Young Bucks	Late Bloomers
Number of Observations	77	117	126
Average Still in Operation	88%	92%	97%
Average Total Employment	15.30	3.15	8.35
Median Gross Sales	$20,329	$11,737	$19,249
% Obtained External Financing	40%	30%	21%
Average Age of Venture	4.00	3.24	4.51
% Start-ups (as opposed to expansions)	56%	80%	76%

However, there is one performance characteristic by which the *seasoned entrepreneurs* are underperforming in, compared to the other two clusters, and that is with survival, as they have the lowest overall percentage of being still in operations (88% compared to 92% and 97% for clusters 2 and 3, respectively). This may indicate that the larger operations carry with them a higher risk during the economic downturn of the past few years, as larger operations also have larger commitments to creditors and employees that are harder to meet.

For the two less experienced clusters, on the other hand, we can see that while both have lower sales and employment than the *seasoned entrepreneurs*, the *late bloomers* have on average higher sales and employment than the *young bucks* but are less likely to obtain external financing. It may be that the *late bloomers* are less appealing to investors, than a younger more educated entrepreneur, but in fact are actually more successful at sustaining and growing their business.

When drilling down to the differences between Product Center clients and non-clients in amongst these clusters some very striking differences appear (see table 11, below). To begin

with, when we don't control for the size of the firm, we can really see the impact of selection

bias with the *seasoned entrepreneurs*. In this case, as we saw earlier, non-clients outperform the

Product Center clients on total sales and employment, though Product Center clients were more

likely to still be in operation with older ventures and have obtained external financing. Amongst

the inexperienced clusters, however, there doesn't appear to be a significant difference between

the PC-assisted and non-assisted groups, except perhaps with late bloomers having slightly

smaller levels of total employment, but slightly higher levels on the other performance statistics,

whereas with the young bucks have slightly lower performance statistics on all the categories

except % still in operation.

Table 11: Comparison of performance statistics between PC clients and non-clients by cluster.

	Seasoned Entrepreneurs		Young Bucks		Late Bloomers	
	Non-Client	PC Client	Non-Client	PC Client	Non-Client	PC Client
Number of Observations	28	49	34	83	42	84
% Still in Operation	77%	95%	91%	93%	94%	98%
Avg. Total Employment	21.38	11.66	3.21	3.11	9.00	8.04
Median Gross Sales	$32,864	$15,024	$11,737	$11,573	$18,310	$20,828
Avg. Volume in Retail	N/A	N/A	N/A	N/A	N/A	N/A
% External Financing	37%	42%	33%	28%	17%	23%
Average Age of Venture	3.65	4.21	3.53	3.08	4.68	4.42
% Start-up	42%	63%	93%	73%	79%	75%

When, however, we focus on only those firms that have gross annual sales under

$200,000, really striking differences can be observed (see table 12, below). For the older

experienced cluster, we can see that there is less of a performance gap in sales and employment,

though Product Center clients are still smaller on average than the non-clients, but are achieving higher levels of legitimacy and survival than their non-client counterpart.

Table 12: Comparison of performance statistics between Product Center clients and non-clients for firms grossing under $200,000

Gross Sales under $200,000	Seasoned Entrepreneurs		Young Bucks		Late Bloomers	
	Non-Client	PC Client	Non-Client	PC Client	Non-Client	PC Client
# of Observations	23	44	30	80	37	80
% Still in Operation	71%	94%	89%	93%	92%	98%
Avg. Employment	4.25	3.67	2.00	3.02	2.62	3.78
Median Gross Sales	$14,381	$13,224	$4,695	$7,905	$9,450	$19,329
Avg. Volume in Retail	$2,250	$5,387	$1,979	$4,459	$2,939	$8,527
% External Financing	29%	41%	27%	26%	13%	19%
Avg. Age of Venture	3.94	4.23	3.39	3.08	4.71	4.26
% Start-up	57%	63%	92%	75%	83%	75%

For both the inexperienced clusters, on the other hand, Product Center clients are outperforming their non-client counterparts in terms of survival rates, employment, sales, and the legitimacy measures of volume in retail and obtainment of external financing (except for the younger inexperienced group where they are slightly lower but practically tied with the non-client. Potentially indicating that the Product Center's services have helped the older experienced clients with smaller businesses achieve greater legitimacy, while also helping the more inexperienced clients achieve greater performance.

V. WHO SEEKS ASSISTANCE?

At this point we will begin to provide answers to the research questions stated at the beginning of this document by testing the hypotheses posed above. As has been previously discussed, before we can answer research questions (1) or (3) via regression analysis, we must determine if we can control for the inherent selection bias in the EAP-process that would invalidate any regression results. To accomplish this, therefore, we need to determine if we can empirically distinguish between those entrepreneurs who seek assistance and those who do not through the answering of research question (2), and its associated hypotheses (see table 3b, page 35). This is done because, as Heckman (1979) has shown, selection bias is only a concern when the cause of the bias is omitted from the regression and hence causes the error term to correlate with the explanatory variable of interest. Therefore if this omitted variable can be observed through the testing of (H2) & (H3) or instrumented away, then we can effectively control the selection bias on the treatment variable (*pcassist)*.

A. Fit within the decision-tree framework

In particular, we will wish to determine whether those observable differences provide empirical support for the aforementioned causes of selection bias: higher propensity to seek information and lower entrepreneurial ability. However, it is important to distinguish what point in the conceptual model (see figure 1, page 36) that we are testing when an entrepreneur decides to seek assistance (or not).

B. Methods

To first test these hypotheses, any respondent who has sought assistance at points (*a1*) or (*c3*) will be compared to the set of respondents that has never sought assistance (*b4*) & (*c4*) via

probit regression analysis of the treatment variable (*pcassist*) on the control variables listed

above in the data section plus the omitted variable proxies for the propensity to seek information

(*propinfoseek*) and entrepreneurial experience or ability (*indusexp* and *baormore*).

i.   Probit regression analysis

To conduct a probit regression we can postulate there exists a latent factor Y*, which

represents the perceived value of assistance to the entrepreneur, that will determine whether or

not that entrepreneur decides to seek assistance, such that if Y^* > 0 the entrepreneur will seek

assistance and if Y_i^* ≤ 0, the entrepreneur will not seek assistance. Furthermore, let us assume

that Y_i^* is influenced both by observable characteristics represented by a control vector {X_i}

such as the venture's age, the entrepreneur's experience, education and so on as well as the

influence of the omitted variable proxies {Z_i} has had. It is likely that the perceived value of

assistance is also influenced by unobservable characteristics (to us) as well such as the

entrepreneur's willingness to accept help, perception of his or her own entrepreneurial ability,

trust of the EAP and so on, that will be represented by the error term {ε_i}. Then we can

characterize the perceived value of assistance as (4):

$$Y_i^* = X_i\beta + Z_i\alpha + \varepsilon_i \ (i = 1,2 \dots, N) \tag{4}$$

However, as Y_i^* is a latent variable we only observe its sign indicated by the treatment

dummy variable {D_i} where D_i = 1 (if the entrepreneur sough assistance) if Y_i^*>0 and D_i =0 if

Y_i^* ≤ 0. Then we can rewrite equation (4) as follows:

$$D_i = \begin{cases} 1: if \ X_i\beta+Z_i\alpha+\varepsilon_i > 0 \\ 0: if \ X_i\beta+Z_i\alpha+\varepsilon_i \ \leq 0 \end{cases} \tag{4a}$$

Then, using equation (4a), then we can see that the probability that an entrepreneur (i)

seeks assistance (i.e. D_i =1) can be written as follows in equation (4b):

$$Prob(\varepsilon_i) > -X_i\beta - Z_i\alpha \tag{4b}$$

Next, if we assume that the error term $\{\varepsilon_i\}$ follows an independently and identically distributed normal distribution with mean (0) and variance σ_ε^2, then the probability that ε_i is larger $-X_i\beta - Z_i\alpha$ is simply $1 - \Phi(-X_i\beta - Z_i\alpha)$ where Φ represents the normal cumulative density function (CDF). Furthermore, since the normal distribution is symmetrical in nature, $1 - \Phi(-X_i\beta - Z_i\alpha)$ is equivalent to $\Phi(X_i\beta + Z_i\alpha)$. Therefore, the probability that an entrepreneur's new venture is still alive, given the above assumptions, can be characterized by equation (4c):

$$Prob(D_i = 1 | X) = \Phi(X_i\beta + Z_i\alpha) \tag{4c}$$

This equation can be solved using Maximum Likelihood Estimation (MLE) to obtain an estimate of the impact the omitted variable proxies have on the decision to seek assistance represented by $\hat{\alpha}$ (Wooldridge, 2002).

In addition, we can test (*IV-1*) & (*IV-2*) through determining whether the proposed instruments (*disttopc*) and (*msuconnect*) respectively are significant predictors of the decision to seek assistance, providing a necessary but not sufficient step in validating their use as an instrumental variable (IV). As was stated earlier, if the instruments are shown to be significant first stage predictors, then a Hausman test will be used to see if the instruments can reject the no endogeneity null in the second stage (see Wooldridge, 2002). If the instruments fail to satisfy both of these conditions, they will not be considered valid. Since we have also already rejected the use of Propensity Score Matching, the only other option would be including the unobserved selection bias variables proxies.

We might also expect the selection bias forces, namely the propensity to seek information and entrepreneurial experience and/or ability to be more significant in those who seek assistance prior to the launch of their products than those who seek it only afterwards. To determine if there is any difference between those who seek assistance before or after the launch of their product,

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the same regressions will be run comparing those at point (*a1*) to those at point (*c3*) through

restricting the sample to only those who sought assistance (i.e. *pcassist* = 1) and using the

variable *prepcassist* (for which a 1 denotes that the entrepreneur sought assistance prior to the

launch of their product) as the regressand. This will also help to provide the foundation for some

of the insights obtained in Chapter 7 when we drill down into how assistance affects different

entrepreneurs differently.

C. Factors that influence the decision to seek assistance

In order to answer the research question of what types of entrepreneurs seek assistance an

unrestricted probit of treatments status (evidenced at points *a1 & c3*) was regressed on the

control vector, omitted variable proxies and the instruments to test *H2 & H3* provides us with the

following results (see table 13, below):

Table 13: Unrestricted probit regression of treatment on controls and instruments (statistically
significant variables in bold, N=346, pseudo R^2=0.0717)

Y=pcassist	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
propinfoseek	**0.11**	**0.04**	**2.53**	**0.01**	**0.02**	**0.19**
proprisktake	-0.05	0.05	-0.96	0.34	-0.15	0.05
propinnovate	0.03	0.04	0.64	0.52	-0.06	0.11
propgrowbiz	**0.08**	**0.04**	**1.88**	**0.06**	**0.00**	**0.15**
age	0.00	0.01	-0.25	0.80	-0.02	0.01
indusexp	0.00	0.01	-0.04	0.97	-0.01	0.01
baormore	**0.26**	**0.16**	**1.66**	**0.10**	**-0.05**	**0.57**
male	0.05	0.15	0.36	0.72	-0.24	0.35
white	**-0.45**	**0.25**	**-1.84**	**0.07**	**-0.94**	**0.03**
familyentrep	**0.45**	**0.15**	**2.96**	**0.00**	**0.15**	**0.75**
inherit	0.11	0.31	0.37	0.71	-0.49	0.71
pushed	0.00	0.20	0.02	0.98	-0.40	0.40
msuconnect	0.03	0.15	0.18	0.86	-0.27	0.32
disttopc	0.00	0.00	-1.50	0.13	-0.01	0.00

The results of this probit provide some interesting insights. To begin with, it appears that we can reject the null for *H3* as the variable *propinfoseek* is a strong predictor of seeking treatment. This is good news, as it is hoped that this variable can proxy for the unobserved propensity to seek information on the part of the respondents, such that when included in the performance regressions it controls for what would otherwise be an upward bias on the treatment effect. Given the construction of this variable and confirmation of its expected positive prediction of treatment, there appears to be support for including it as such a control. There was not strong evidence, however, that the propensity towards taking risks or innovating new products was a significant influence in the decision to seek assistance from the Product Center. However, in conformation with what was seen in the summary statistics, there was a significant correlation uncovered with the propensity to grow the business, with seeking assistance. The combination of the propensity to seek information and grow the business confirms our suspicions that there is some concern of selection bias on the basis of the proactiveness and motivations of the entrepreneur. However, since we appear to be able to observe this element of selection bias, we can include these two factors as controls in the performance evaluation to remove this concern.

In contrast, if we believe education is an adequate proxy for entrepreneurial ability, we are finding evidence that contradicts our hypothesis that those with lower entrepreneurial abilities will be more likely to seek assistance. However, whether education level is a good measure of ability is uncertain as the intellectual abilities and skills set required to do well in an academic environment are not the same as the ones required to succeed as the manager of one's own business. While this finding still remains an important observation, there are other reasons why it might be occurring. First, the fact that the Product Center resides within a university

setting could indicate that those more familiar and comfortable with institutions of higher education (as indicated by their ability to have earned a Bachelor's or higher) are more likely to use the services provided by a University. In addition, though propensity to seek information and a connection to MSU are also being controlled for, there could be an additional element at play in the philosophical value that higher education provides. Namely, it could be the obtaining of bachelor's degree or higher has helped individuals to develop greater wisdom in the Socratic sense that, "True wisdom comes to each of us when we realize how little we understand about life, ourselves, and the world around us." (Plato, Republic) and thus has made those individuals less reliant on their own cognitive biases even above their innate propensity to seek information. In any case, the education control variable will be kept in the performance evaluations, but it does not appear that it is adequately controlling for entrepreneurial ability.

The other variable used to proxy for entrepreneurial experience, is the variable (*indusexp*), does not appear to have any significant predictive powers. Though industry experience is not perfectly correlated with entrepreneurial experience, it is hope that there would be some correlation to indicate its use as a proxy for this selection bias force. The fact that it is not, and that the education variable had the opposite sign then expected leads us to not be able to reject the null in relation to *H2*.

Most of the other controls do not appear to be significant predictors of treatment except for being non-white and having an entrepreneur in the family. The vast majority of respondents in both groups are Caucasian, but it would appear amongst the set of entrepreneurs that are not Caucasian, significantly more are seeking assistance. It is also interesting that the presence of an entrepreneur in one's family is a strong predictor of seeking assistance, as one might initially expect the reverse to be true given that having an entrepreneur in the family might act as a

substitute for the assistance counseling provides. Perhaps, however, having first-hand knowledge of the many difficulties associated with entrepreneurship causes one to be more attuned to the support networks out there available to overcome such difficulties. More research is therefore needed on both of these factors.

D. Instrumental Variables

Also, it appears neither the distance to the Product Center (*disttopc)* nor having a social tie to MSU (*msuconect*), the two proposed instrumental variables, are showing any promise for being a valid instrument given the results presented above in table 13. This is true even if we restrict the sample to the more homogenous group of only food processors as can be seen below in table 14.

Table 14: Probit regression of treatment on controls and instruments restricted to food processors (statistically significant variables in bold) (N=237, Psuedo R^2=0.0813).

Y=pcassist	Coef.	Std. Err.	z	P>|z|	95% Conf.	Interval
propinfoseek	0.06	0.05	1.11	0.27	-0.04	0.16
proprisktake	-0.05	0.06	-0.88	0.38	-0.17	0.07
propinnovate	0.02	0.05	0.41	0.68	-0.08	0.13
propgrowbiz	**0.12**	**0.05**	**2.52**	**0.01**	**0.03**	**0.22**
age	-0.01	0.01	-0.59	0.55	-0.02	0.01
indusexp	0.00	0.01	0.24	0.81	-0.02	0.02
baormore	0.14	0.19	0.74	0.46	-0.23	0.51
male	0.13	0.18	0.74	0.46	-0.22	0.49
white	-0.33	0.29	-1.17	0.24	-0.89	0.23
familyentrep	**0.45**	**0.19**	**2.38**	**0.02**	**0.08**	**0.82**
inherit	-0.25	0.38	-0.66	0.51	-1.00	0.50
pushed	-0.09	0.25	-0.36	0.72	-0.58	0.40
msuconnect	0.19	0.19	1.04	0.30	-0.17	0.56
disttopc	0.00	0.00	-1.31	0.19	-0.01	0.00
_cons	-0.07	0.64	-0.11	0.91	-1.33	1.19

In this case, the family history of entrepreneurship and propensity to grow the business remain significant predictors of the decision to seek assistance, but the education variable and propensity to seek information variables have both dropped slightly out of significance. This might indicate there is less heterogeneity amongst this particular subset of respondents than the entire sample, as one can see age, industry experience, education, gender, reason for becoming self-employed, and the proxy of capital constraints (*inherit*) are also not significant. Also, it appears for this group that the social tie to MSU is also significant, though just barely so. This gives some hope that either: 1) selection bias is not that strong amongst food processors and/or 2) the MSU connection IV can be used to moderate the impact of the selection bias that is occurring within this industry.

Furthermore, if one restricts the subsample to the respondents that have provided sales, neither of the instrumental variables are significant. This is shown below in table 15 in relationship to the subsample of respondents that are both food processors and have provided sales data. This holds true for the subsamples that have provided employment and investment data as well. It should be noted that in order to provide this data a respondent must have already launched a new venture, and of course made the decision to reply to those questions, which many often choose to leave blank. With this subgroup, we also see that the ethnicity variable becomes significant again. The propensity to seek information also remains significant, so not all hope is lost in regards to dealing with selection bias as bounded results of the estimates will still be feasible.

Table 15: Probit regression of treatment on controls and instruments (statistically significant variables in bold) restricted to those providing sales data (N=328, Pseudo $R^2 = 0.0654$)

Y=pcassist	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
propinfoseek	**0.09**	**0.04**	**2.09**	**0.04**	**0.01**	**0.18**
proprisktake	-0.04	0.05	-0.68	0.49	-0.14	0.07
propinnovate	0.02	0.05	0.36	0.72	-0.07	0.11
propgrowbiz	0.05	0.04	1.22	0.22	-0.03	0.13
age	0.00	0.01	0.01	0.99	-0.01	0.01
indusexp	0.00	0.01	0.28	0.78	-0.01	0.02
baormore	0.25	0.16	1.57	0.12	-0.06	0.57
male	0.02	0.15	0.13	0.89	-0.28	0.32
white	**-0.48**	**0.26**	**-1.84**	**0.07**	**-0.99**	**0.03**
familyentrep	**0.47**	**0.16**	**2.96**	**0.00**	**0.16**	**0.77**
inherit	0.24	0.34	0.69	0.49	-0.43	0.90
pushed	0.03	0.21	0.14	0.89	-0.39	0.45
msuconnect	0.05	0.16	0.30	0.77	-0.26	0.35
disttopc	0.00	0.00	-1.36	0.17	0.00	0.00
_cons	-0.05	0.58	-0.08	0.94	-1.18	1.09

In order to understand why these IVs were not significant, a power analysis can be done on the distance variable, for which a mean and standard deviation is available, to determine what an appropriate sample size should be in order to obtain have confidence that we are not committing a Type II error of failing to reject the null of no significance difference between the means of the treated and non-treated when we should. In this case, given the means and standard deviations reported above in table 5, a significance level of 0.1 and a power level of 0.8, then one would need a sample size of 1,223 treated entrepreneurs and 1,223 non-treated entrepreneurs. This study's response rate is well below those numbers, so we cannot reject the possibility that these are valid IVs, just given the data we have they do not appear to be effective for our needs and therefore we also cannot use either as an instrument.

E. Who seeks assistance prior to the launch of their venture?

Next, the analysis on the difference between those who sought assistance prior to the launch of their product versus those who only sought assistance after the launch of their product was conducted with the results presented below in table 16. To test for this difference, another variable "*prelaunchpcassist*" was created to determine if the entrepreneur first came in contact with the Product Center prior to the launch of their product had any effect on perceived usefulness. This binary variable was created by first subtracting the year of the venture's launch from the year of first contact with the Product Center. If this was value was zero or less, then it was coded as a "1" if it was greater than zero than it was coded as a "0". Then it was multiplied by treatment status to identify those that received treatment versus those that merely had contact.

Table 16: Probit Regression of the decision to seek assistance prior to launch (statistically significant variables in bold N=234, Pseudo R^2=0.0422).

Y= *prelaunchpcassist*	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
propinfoseek	0.0870133	0.0531446	1.64	0.102	-0.017148	0.1911748
proprisktake	-0.051688	0.0617804	-0.84	0.403	-0.172776	0.069399
propinnovate	0.0754134	0.0529411	1.42	0.154	-0.028349	0.1791761
propgrowbiz	-0.011231	0.0470146	-0.24	0.811	-0.103378	0.080916
Age	0.0028861	0.0084428	0.34	0.732	-0.013661	0.0194336
indusexp	-0.012453	0.0074234	-1.68	0.093	-0.027003	0.0020963
baormore	-0.218399	0.1921471	-1.14	0.256	-0.595	0.1582024
Male	0.1519751	0.1838781	0.83	0.409	-0.208419	0.5123695
White	-0.277568	0.2591673	-1.07	0.284	-0.785527	0.2303901
familyentrep	-0.159938	0.1982729	-0.81	0.42	-0.548546	0.22867
Inherit	0.1614859	0.3626521	0.45	0.656	-0.549299	0.8722709
Pushed	-0.094056	0.2602949	-0.36	0.718	-0.604224	0.4161133
msuconnect	-0.053271	0.1835496	-0.29	0.772	-0.413022	0.3064792
Disttopc	0.002268	0.0019084	1.19	0.235	-0.001472	0.0060084
_cons	0.3493327	0.6697895	0.52	0.602	-0.963431	1.662096

Interestingly, in this case we find support for rejecting the nulls for *H2 & H3* in regards to how the selection bias forces act based on the timing of assistance. In other words, the propensity to seek information variable (*propinfoseek*) and the industry experience variable (*indusexp*)[1] both are significant (though only at the 90% confidence level) of the decision to seek assistance prior to the launch of the entrepreneurs' product, while no other controls or instruments are significant. This would imply that those who seek assistance prior to the launch of their product are more likely to have both characteristics associated with the two forces of selection bias – high propensity to seek information and lack of experience. This will be important to bear in mind when conducting the analysis on how assistance affects entrepreneurs differently based on when they received assistance.

Taking this all into account it appears we can reject the null in regards to H2 though we cannot reject the null for H3. In this case, there does appear to be evidence that those with a higher propensity to seek information are more likely to seek assistance. It also appears that this can in part be observed and controlled for and so can be left out of the selection bias concern. Furthermore, it also appears the assisted group has other significant observable differences as well. Though both the treated and non-treated samples contain primarily Caucasians, the non-Caucasians appear to be more likely to seek assistance. In addition, those with a history of entrepreneurship in their family also are more likely to seek assistance, so the two populations cannot be deemed to be exactly the same. This is why regression analysis that can hold these factors constant will be important in determining what the overall impact effect should be, and why one cannot rely on a simple comparison of means.

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[1] The negative coefficient on industry experience indicates that those with less experience are more likely to seek assistance prior to the launch of their product.

F.   Implications of these Results

One of the most important implications to arise out of these results is the indication that the entrepreneur who seeks assistance is categorically different than the one who does not seek assistance. This has been shown on the basis of family history of entrepreneurship, ethnicity, the propensity to seek information and entrepreneurial orientation. Given that these observable characteristics have been found to have an impact on overall performance of a new venture, one cannot assume that strong ignorability of treatment (from Rosenbaum and Rubin, 1983) or even the weaker conditional mean equivalence condition (from Heckman et al, 1998) to be satisfied in order to conduct propensity score matching techniques to uncover the average treatment effects of EAPs. That others have tried this (e.g. Rotgers and Story, 2012; Kobsters and Obschonka, 2012) and have not found significant results is therefore not surprising given the lack of foundation for the model's effectiveness.

Instead, what is needed is a valid instrumental variable in order to identify the exogenous component of treatment in a two-stage least squares model or Heckman control function. Unfortunately, this research did not uncover such an instrument, so this is an area where further work will be required. In this case, distance did not prove all that helpful, which may be due to significant coverage provided by Product Center offices throughout the state, as well as the mobility of innovation counselors who, as extension agents, are skilled in extending the range of their services to those who are not in close proximity. A social tie to the university showed more promise as an instrument, but given the sample size, was still only a weak instrument and was not able to identify enough of the exogenous variance associated with treatment to provide reliable results.

Even without a strong instrument, however, it would appear that bounded results can be obtained through including an observable measure of the entrepreneur's propensity to seek information in order to remove the ambiguity of the selection bias' direction. This can be done through creating a direct scale where respondents indicate their own preference on seeking information versus relying on intuition and trial and error. This retains the validity of positive results, but there would need to be more work done to determine if negative results are credible as well or if they are due to the downward bias of the selection effect.

It also appears that impact of selection bias is strongest on those who seek assistance prior to the launch of their products than those who seek it only afterwards. When one includes both pre-launch and post-launch only assistance seekers in the treatment group, therefore, it may be that one is mixing two categorically different types of entrepreneurs into one, thereby confounding both the estimated average treatment effects as well as any steps taken to control selection bias. Instead, the two groups should be estimated separately, in addition to combined, in regards to the impact of assistance to obtain a more complete picture.

It will be up to future researchers to determine if the aforementioned controls are sufficient, or if other observable measures could be introduced to remove the remaining selection biases such that the Gauss-Markov conditions for OLS, probit and Tobit can be reasonably assumed to be valid. If so, given its efficiency and parsimony, the non-instrumented regression techniques would be the preferred method of estimation of cross-sectional EAP treatment effects for future impact studies. For the purposes of this paper, however, we will assume that by including the variable "*propinfoseek*" in all the following regressions, only the downward bias associated with entrepreneurial ability remains, thereby allowing all positive findings to be considered conservative estimates that will still allow for the rejection of the null hypothesis.

Given that there is still some concern regarding unobservable variables biasing the resulting estimators tested, a panel study that resamples the respondents of this survey a few years in the future to conduct a difference in difference analysis (see Wooldridge, 2002) using the data collected with this study as a baseline would allow researchers to control for the unobservables and obtain more consistent results.

VI.   WHO FINDS ASSISTANCE USEFUL?

The next research question we must address before coming to the impact evaluation is research question (**R3**):

What types of entrepreneurs find assistance useful and why?   (**R3**)

By answering this question prior to the impact evaluation we can get a better understanding of how EAP clients perceive the impact the EAP is having. As was mentioned above in the discussion on the Product Center process, entrepreneurs can choose to seek assistance prior to the launch of their venture, while the idea is still in the development phase, as well as after launch as needs for assistance arise. The decision on when to come in, however, is not random, as we have seen that the more proactive information seekers and the less experienced to seek out assistance prior to the launch of their products. This creates a selection effect within the already discussed selection that we will need to evaluate and see if there are significant differences between the two groups so these differences can be accounted for when evaluating the impact assistance is bringing to each. Therefore, we need to test **H4** its sub-hypotheses, which are summarized below with the other relevant hypotheses for **R3** (see table 3c, page 35):

A. Methods

In order to answer the "what type of entrepreneurs find assistance useful" part of **R3** a probit regression analyses will be done following the same theoretical background as stated in section VI.A. By nature of these hypotheses, only those entrepreneurs who have received assistance will be included within the analyses for who found that assistance useful. For **H4** and its sub hypotheses (**H4-a & H4-b)** entrepreneurs who sought assistance prior to the launch of

their new venture (node *a1* in the decision-tree framework, see figure page 36) will be compared

to those who sought assistance only after the launch of their venture (node *c3*). For **H5** only

those entrepreneurs within nodes *c1 & c3* will be compared to see how the respondents control

variables predict usefulness. For **H6** an additional variable based on firm's gross annual sales

will be added, and **H7** will attempt to use the observed characteristics associated with venture

success to predict perceived usefulness of assistance. Insight will also be gleaned from

respondents comments to answer the "why" part of **R3** using inductive reasoning.

 B. Influence of timing of assistance on perceived usefulness

   To test **H4**, the variable "*prelaunchpcassist*" was used a dependent variable in a probit

regression (using the methodology described in the previous chapter) to determine if any

observable characteristics could be identified that distinguished the group of respondents who

sought assistance prior to launch when compared to those who sought assistance only after

launch in order to test the sub-hypotheses **H4-a** and **H4-b**. These hypotheses can be tested from

the same regression conducted above (see table 16, page 79).

   Interestingly, only industry-related experience and the propensity to seek information appears

to be driving this decision, whereas none of the entrepreneurial orientation or other demographic

variables appear to be significant. This tells us that we can weakly reject the null of **H-4b** in

relation to how experienced the entrepreneur is and **H4-a** in regards with their propensity to seek

information. This is because, other than with the amount of industry experience and information

seeking tendencies a respondent had, there does not appear to be much difference between those

who seek assistance prior to the launch of their product and those who seek it afterwards. Once

including industry-related experience and our proxy variable for the respondent's propensity to

seek information as a control, this allows us to observe if there is any incremental difference in

the value of the assistance received, as well as the perceived usefulness of that assistance, based on whether it occurs before or after the product has been launched.

Given that we just found that the only significant difference between those who seek assistance prior to the launch of their product, and those who seek it afterwards was their level of industry-related experience and propensity to seek information, this allows us a good opportunity to test if those who participate in the full Product Center venture development process prior to launching their product receive higher gains than those who come after launch (through the weeding out and planting in process). This can be done through the testing of **H4**.

The first method we can test this hypothesis is to simply evaluate whether those entrepreneurs who received assistance and have launched their product (regardless of the timing of assistance) rated the assistance they received 4 or higher on a scale of 1 to 7 of perceived usefulness (i.e. the variable *eapuseful*), where 7 indicates extremely useful and 1 indicates extremely useless. Those respondents who met this condition where coded as a 1 for the indicator variable *pcusefullaunch*, while those who did not were coded as a 0. In addition, many respondents were present in the product center's database, but had not indicated that they received assistance from the Product Center. These respondents were then assumed to have determined the assistance not to be useful, and were included in the 0 group for the *pcusefullaunch* variable, if they had also gone on to launch a product. Then, by restricting the sample to those who have had contact with Product Center's assistance and launched a product, we can conduct a probit regression on the variable *pcusefullaunch* in order to identify whether *prelaunchpcassist* is a significant predictor of usefulness. This is done below in table 17.

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Table 17: Probit regression of probability to seek assistance and find it useful on timing of assistance and controls restricted to respondents who launched a product and had some form of contact with the Product Center (statistically significant variables in bold N=200, Pseudo R^2 = 0.1003)

pcuseful	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
prelaunchpcassist	**0.65**	**0.19**	**3.33**	**0.00**	**0.27**	**1.03**
propinfoseek	0.03	0.06	0.63	0.53	-0.07	0.14
proprisktake	-0.03	0.07	-0.40	0.69	-0.16	0.10
propinnovate	-0.01	0.06	-0.25	0.80	-0.13	0.10
age	-0.01	0.01	-1.44	0.15	-0.03	0.00
indusexp	0.00	0.01	-0.15	0.88	-0.02	0.02
baormore	**0.37**	**0.21**	**1.79**	**0.07**	**-0.03**	**0.77**
male	-0.16	0.20	-0.82	0.41	-0.55	0.23
white	-0.23	0.34	-0.67	0.50	-0.89	0.44
familyentrep	0.28	0.21	1.30	0.19	-0.14	0.69
inherit	0.06	0.37	0.15	0.88	-0.66	0.78
pushed	-0.04	0.27	-0.14	0.89	-0.57	0.49
disttopc	0.00	0.00	-0.64	0.52	-0.01	0.00
_cons	0.67	0.73	0.92	0.36	-0.76	2.09

Here we can see very clearly that those who seek assistance prior to the launch of their product are much more likely to find that assistance useful than those who seek it only afterwards. So there is some evidence that those with less experience and higher information seeking propensities are more likely to seek assistance prior to the launch of their product, and in turn those who seek assistance prior to the launch of their product are finding that assistance more useful. This leads us to believe that those with more experience and have been successful in launching a product also find the assistance less useful giving some compelling support for **H4-b**.

In addition, we are also seeing that those with higher education levels are also finding assistance more useful, which may be due to the fact that the Product Center operates within a

university setting so those who have successfully navigated such a setting in the obtainment of their master's degree possess similar skills and aptitudes to navigate the process of receiving and using the Product Center's assistance in a way that is perceived useful. Also note, industry-related experience is included as a control in this regression so that element of the selection of who seeks assistance prior to the launch of a product is being controlled for.

C. Perceived usefulness amongst those who launch new ventures

Next, it is fairly straightforward to use this data to test **H5** which states**:**

>*Entrepreneurs who have launched products and have less entrepreneurial*
>
>*experience and probabilities of success without assistance will be more likely to*
>
>*find assistance useful. (H5)*

In order to test this hypothesis, the analysis was first restricted to only those respondents who had some contact with the Product Center, since those who did not have contact would not be able to comment on its perceived usefulness. The variable *pcusefullaunch* was then created as a binary indicator variable that is coded as a "1" if the respondent indicated receiving assistance and rated that assistance as a 4 or higher on the *eapuseful scale* and "0" otherwise. Because of the nature of the survey instrument, the 60 treated entrepreneurs who did not indicate receiving assistance but were qualitatively categorized as having received assistance would not have responded to the *eapuseful* question in regards to the Product Center. In this case, however, if we assume that the reason they did not indicate they received assistance from the Product Center was that they did not feel the assistance was actually "assistance" because it was not useful, then they can be categorized as a "0" for the variable *pcusefullaunch.*

The other controls were also included to determine if any exogenous factors could be linked with whether the evaluation of the Product Center's usefulness. The results of this

regression are presented below in table 18. In this case, it does appear that we can find some

evidence to reject the null hypothesis in regards to **H5** as those respondents who have launched a

product and have more relevant industry experience (*indusexp*) are indeed more likely not find

the assistance useful. Not surprisingly, distance away (*disttopc*) is also a negative predictor of

usefulness as the treated entrepreneur will have to balance the cost of travel with the benefit of

assistance when deciding usefulness.

Table 18: Probit regression of probability to seek assistance and find it useful restricted to respondents who launched product and had some form of contact with the Product Center (statistically significant variables in bold N=210, Pseudo R^2=0.0605)

Y= *pcusefullaunch*	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
baormore	**0.40**	**0.20**	**2.06**	**0.04**	**0.02**	**0.78**
Disttopc	**-0.004**	**0.00**	**-1.79**	**0.07**	**-0.01**	**0.00**
propinfoseek	0.06	0.05	1.26	0.21	-0.04	0.16
Male	-0.24	0.19	-1.25	0.21	-0.62	0.14
White	-0.02	0.30	-0.08	0.94	-0.62	0.57
Inherit	-0.01	0.35	-0.02	0.99	-0.69	0.67
Pushed	0.11	0.26	0.43	0.67	-0.39	0.61
Indusexp	**-0.01**	**0.01**	**-1.69**	**0.09**	**-0.03**	**0.00**
msuconnect	0.13	0.19	0.69	0.49	-0.24	0.51
familyentrep	**0.37**	**0.20**	**1.88**	**0.06**	**-0.02**	**0.76**
_cons	-0.10	0.45	-0.21	0.83	-0.98	0.79

We are also seeing that having a higher education (*baormore*) is also a positive predictor

of perceived usefulness. This could potentially be due to the nature of this particular assistance

program operating within a university framework and hence more accessible to those familiar

with such an institution. It might also indicate that the assistance provided is more useful to those

who have higher intellectual abilities in a formal setting as could be indicated by their ability to

obtain bachelor's degrees or higher. Whereas again we see the presence of the entrepreneur in

one's family not only predicts the seeking of treatment, but also finding it useful. The same

underlying reasons as posited above are likely at play here as well. So in these areas, we can

reject the null for **H5.**

To deepen this analysis, another explanatory variable "*prelaunchpcassist*" was used

determine if the timing of assistance had any effect on perceived usefulness. The results of this

regression are present below in table 19.

Table 19: Probit regression of finding assistance useful on timing of assistance and controls restricted to respondents who launched a product and had some form of contact with the Product Center (statistically significant variables in bold N=210, Pseudo R^2 =0.0980)

Y = *pcusefullaunch*	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
baormore	**0.42**	**0.19**	**2.23**	**0.03**	**0.05**	**0.80**
disttopc	**0.00**	**0.00**	**-1.96**	**0.05**	**-0.01**	**0.00**
propinfoseek	0.05	0.05	0.97	0.33	-0.05	0.15
male	-0.22	0.19	-1.20	0.23	-0.59	0.14
white	-0.05	0.29	-0.18	0.86	-0.61	0.51
inherit	-0.05	0.35	-0.14	0.89	-0.74	0.64
pushed	0.06	0.24	0.25	0.80	-0.41	0.53
indusexp	-0.01	0.01	-1.24	0.22	-0.02	0.01
familyentrep	**0.33**	**0.19**	**1.72**	**0.09**	**-0.05**	**0.71**
prelaunchp~t	**0.61**	**0.19**	**3.28**	**0.00**	**0.25**	**0.98**
_cons	-0.24	0.45	-0.53	0.60	-1.12	0.65

The results of this regression seem to implicate a few things. First, in regards to the

timing of the assistance, it is interesting to see that when restricting the analysis to only those

who launched new ventures, those who come in for assistance prior to the launch of their new

venture are more likely to find it useful than those who come in afterwards. This appears logical,

as much of the assistance is geared towards developing the venture concept prior to launch in

order to enhance the probability of success. Amongst the 225 treated entrepreneurs 133 (or

59.1%) have sought assistance prior to the launch of their new venture, and so this is not a small

percentage of the group. It may be other unobserved factors are at play as well, such as those

who are experiencing more trouble early on in their new venture creation process may have lower entrepreneurial abilities and therefore seek assistance, and find it more useful. In fact, when the prelaunch variable is added, we can see that the industry experience variable is no longer significant. This is consistent with our earlier finding that those with less experience are more likely to seek assistance prior to the launch of their product. It also shows us that, in turn, those who seek assistance prior to the launch of their product are finding that assistance more useful. Therefore, those with more experience and have been successful in launching a product also find the assistance less useful giving some compelling support for **H5,** though this is not a definitive result as we are only indirectly showing this.

D. Influence of firm size on perceived usefulness

We are also interested to see if respondents from smaller firms (based on gross annual sales) are finding assistance more useful than from larger firms. To determine if this is so we will test the following hypothesis:

Entrepreneurs from firms whose gross annual sales are less than $200,000 per year will be more likely to find assistance useful. (**H6**)

We can test this hypothesis through using a probit regression on *pcusefulaunch* while also including the *smallfirm* indicator, which indicates a "1" for firms whose gross annual sales is under $200,000 per year and a "0" if otherwise, as well as the *prelaunchpcassist* variable since we have determined that to be significant. The results are presented below in table 20.

Table 20: Probit regression of Usefulness of Assistance on Controls and Firm Size
(N= 247, statistically significant variables in bold)

Y= pcusefulaunch	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
age	-0.01	0.01	-1.19	0.23	-0.03	0.01
indusexp	-0.01	0.01	-0.65	0.52	-0.03	0.01
baormore	0.29	0.24	1.22	0.22	-0.18	0.77
familyentrep	0.24	0.25	0.95	0.34	-0.25	0.72
smallfirm	**0.87**	**0.43**	**2.05**	**0.04**	**0.04**	**1.71**
white	0.15	0.34	0.44	0.66	-0.52	0.82
male	0.10	0.24	0.40	0.69	-0.37	0.56
propinfoseek	0.06	0.06	0.92	0.36	-0.07	0.18
inherit	-0.10	0.40	-0.25	0.80	-0.89	0.69
pushed	-0.01	0.29	-0.03	0.98	-0.57	0.56
disttopc	0.00	0.00	-0.35	0.73	-0.01	0.01
prelaunchpcassist	**0.42**	**0.23**	**1.79**	**0.07**	**-0.04**	**0.87**
_cons	-0.44	0.93	-0.48	0.63	-2.27	1.38

Here we can see that both the small firm and the pre-launch assist indicator variables are significant in determining whether or not an entrepreneur finds assistance useful. This is interesting because, as was hypothesized, we are seeing that assistance is perceived as more useful from the firms with less resources. This is consistent with our hypothesis that assistance acts as a substitute for the strategic resources that firms may otherwise be lacking as opposed to a complement. That is to say, EAP assistance appears to be filling gaps more than enhancing underlying assets. In addition, even when the size of the firm is controlled for, those seeking assistance prior to launch are still finding it more useful than those who seek it afterwards. This indicates that the value of assistance is perceived as more helpful when entrepreneurs engage in the assistance process from start to finish, instead of coming afterwards to put out a fire.

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E. Why certain entrepreneurs find assistance useful when others do not.

Finally, we wish to delve further into the second half of **R3**, which asks why do entrepreneurs find assistance useful? One method we can use to answer this question is to examine the respondents' reported feedback on the services they received. This can help give us a direct indication of how beneficial those services were to them. Before doing so, however, it is important to point out that the types of entrepreneurs who come to the Product Center are very diverse. For example, one client described her venture in the following way, "my business is a small cottage foods business that will never be big due to the nature of the products (wild harvested). My goal is to educate people about wild foods, good health, and get people out-of-doors." For this type of entrepreneur the goals and needs will be quite different from the one who said the following, "Because of (the Product Center's trade show) Making it in Michigan 2011 (we were) able to meet with Kroger Michigan and Meijer Corporate. We are working with Meijer to provide a (product) for the 2013 season in their 199 bakeries." For this reason, while we can gain some insight through the performance measures used in this analysis, this might not always indicate the full measure of the impact provided. Furthermore, the existing skill set of the entrepreneur who said, "I never worked in this industry prior to starting this business - previously a scientist employed in the automotive industry," will be quite different from the one who tells the following tale, "Farming has been our family business since 1854. I am the 5th generation on our farm. My sons are the 6th generation. Upon the retirement of my father & uncle I took over operation of our farm in 1991. In 1994 I initiated a shift to organic production--which placed me closer to the end-user, and opened up inquiries from consumers for direct purchase of products. My initial product was a wheat free pancake/waffle mix. I made it for personal consumption after I discovered that I am allergic to wheat. Friends commented on how good it tasted--asked for

mix to take home--and a literal cottage/kitchen business was born!!" This is why it is important to include the appropriate controls such as industry experience, presence of entrepreneurs' in one's family, education and goals for the business in the quantitative analysis that will follow.

In the survey, respondents were asked if they had received assistance from the MSU Product Center. If the respondent indicated that they had, then a follow up question was asked on how they rated their satisfaction, the usefulness, and the influence on their decision to launch the assistance provided. For this question, respondents were given a 7-point Likert scale where 1 indicated very dissatisfied (useless or un-influential) and 7 indicated very satisfied (useful or influential).

     i.   Reported Satisfaction with Assistance

Beginning with satisfaction, the majority of respondents (>70%) indicated they were not dissatisfied (i.e. 4 or higher) with the most common response being a 5 out of 7, which we could interpret as somewhat satisfied (see figure 2, below). The mean out of the 247 respondents was 3.97 or approximately neutral indicates that there appears to be a significant amount of respondents who fall both on the satisfied and dissatisfied end of the spectrum.

Figure 2: Histogram of Product Center Clients' Reported Satisfaction Levels.

Product Center Clients' Reported Satisifcation Levels (N=247)

These findings are consistent with the comments of respondents where responses range from the very positive such as one respondent said, "I really liked meeting with the MSU Counselor and she gave very good information and some great ideas and thought provoking info too. I must say that the initial visit was very beneficial," to some mixed comments such as another respondent said, "Initially the product development center was most helpful. The last time I asked a question they were not answering the question. I tried twice and felt I was spinning my wheels and did not want to waste their time," to also some negative experience such as another respondent put it, "Whenever asked, I tell people that the MSU Product Center was not only a waste of time, it lead to unnecessary governmental interference and start-up expenses... If the purpose for funding this MSUPC is to increase employment opportunities in

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Michigan it has shown me no proof of offsetting the cost of faculty expense with an equal amount of tax-paying employment." Therefore, while it is clear that some clients walk away very satisfied with their experience, there are also those where more could be done to address their needs in a fulfilling manner.

ii. Reported Usefulness of Assistance

More directly related to research question (3) is the overall perceived usefulness of the assistance received. Once again, the majority of respondents (>75%) reported that the assistance rated a 4 out of 7 or higher in terms of its usefulness, with the most common response being a 5 out of 7 (see figure 3, below). The mean out of the 250 respondents who answered this question was slightly higher than the previous one at 4.16, but still squarely within the neutral zone.

Figure 3: Histogram of Product Center Clients' Perceived Usefulness of Assistance Levels.
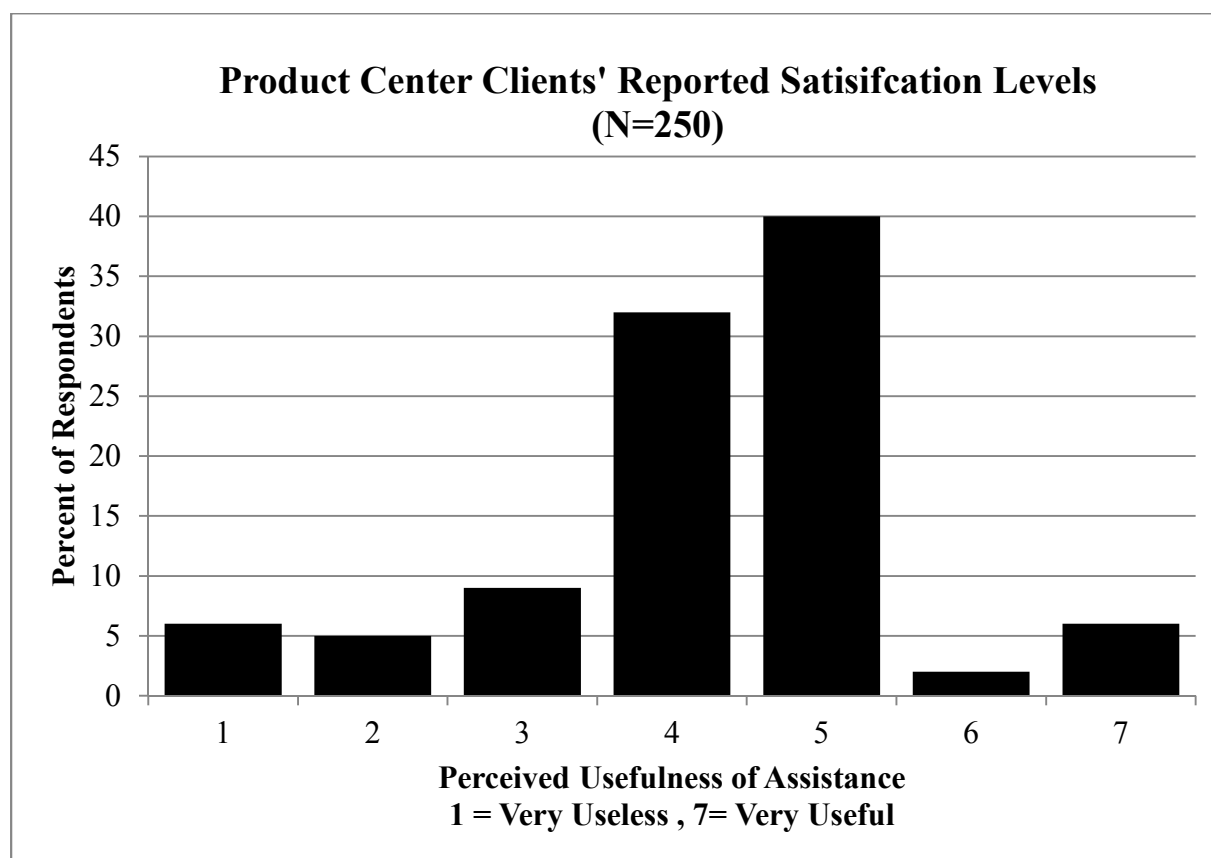
Once again, comments on the usefulness of services range from the very positive to very negative with a few in between. On the positive side of the spectrum there are many comments that praise the assistance and access to resources provided by the Product Center, such as one respondent put it, "I have found AgBioResearch and the Product Center to be very helpful in many ways including research, marketing, and technical aspects for food production." Another respondent had a similar experience and said the following, "The MSU Product Center is a valuable resource for small businesses. The amount of knowledge and experience available is immeasurable." There were still some mixed comments such as the following, "We received some starting help but the follow through and following the business progress was in my mind set was lacking." There were also a number of comments on the negative side of the spectrum, such as one respondent put it, "Ultimately, I never heard back from (the Product Center) again. I emailed and called a few times with no response… Ultimately, I came to the decision that I could not sustain my product launch without the outside help I was looking for. By November of 2011 I stopped all expenditures and work and by year end, I decided to fold my venture as it was evident it would not feasible for me to move forward on my own given my limitations."

When investigating further into the comments of respondents with low satisfaction and perceived usefulness levels, two common themes emerge: (1) there is often a significant lag-time and follow-through between the initial counseling session and hearing feedback from the counselor on the next steps. This can be best summarized in the words of another respondent who said, "I found that the biggest hurdle to overcome was having to wait for answers from the MSU Product Center. My days were structured with lots to get done in a short amount of time in order to launch. Unfortunately the MSU Product Center Staff were not as available as I needed. I found myself spending most of my time getting answers to my questions by others means;" and

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(2) counselor will give clients a list of things to do, but not provide enough assistance in getting those things done. Again, in the words of another respondent, "they give you some ideas and "tell" you what to do, but don't have any real connections in making things happen. In my own experience, I need HELP...connections, meetings, networking for knowledge in my industry (food production) NOT necessarily just financial help...I need marketing help. They tell you "oh you need new packaging" but then there is no follow up with helping to get it done." There also appears to be a significant disparity in between the skill levels of different counselors. The same respondent just quoted also went on to say, "I had an awesome mentor named (*omitted*) helping to "inspire" me, but he left and the person who took his position has literally done nothing in the past year to even keep up communication with me." Though these comments reflect poorly on some of the services provided by the Product Center, it is important to emphasize for every negative comment there are just as many that say positive things such as how, as one respondent commented, "The MSU product development center has been extremely helpful to me in starting this business venture." This might therefore suggest that those entrepreneurs with the least ability to do things on their own are the ones that are most dissatisfied with the assistance. This certainly would give some support to the hypothesis **H7** which states:

> *Entrepreneurs who seek assistance and then decide to not launch a new venture will have been less likely to be successful than those who have persisted with the assistance process.* ***(H7)***

Therefore, the next area of impact we wished to assess, was how influential the Product Center's assistance was on respondent's decision to launch a product or not. Unfortunately, there are not enough observed "no-launches" in this group to get any regression model to fit properly. Therefore, no strong conclusions can be made using this data about *H7*. Despite this limitation, it may be possible to infer from the analysis of the impact of treatment on survival that will be

done below whether or not there is still more support for this hypothesis. Namely, if treated entrepreneurs are enjoying higher survival rates than the non-treated ones, this could be due, in part, to the "weeding out" effect, though this would not be the only influence of the EAP

In order to test *H7* a probit regression analysis was done of the launch status of the entrepreneurs' venture idea (*launched*) on the control variables mentioned above for both the treated and non-treated group to see if any noticeable differences could be observed. Initially when the age variables were included the treatment group's regression there was a high "badness" of fit value with the reported probability > chi^2 at 0.2296. However, by excluding these variables on the basis that within this particular regression they may be highly collinear with the industry experience variable, a reasonable fit (prob>chi^2 at 0.0904) was obtained with some interesting results as is presented below in table 21.

Table 21: Regression of launch status on controls restricted to treated group (N=248, pseudo R^2=0.0746, statistically significant variables in bold)

Variables	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
propinfoseek	-0.08	0.06	-1.43	0.15	-0.19	0.03
familyentrep	**0.36**	**0.19**	**1.90**	**0.06**	**-0.01**	**0.74**
baormore	0.22	0.19	1.18	0.24	-0.15	0.59
white	**0.42**	**0.24**	**1.76**	**0.08**	**-0.05**	**0.89**
male	-0.29	0.18	-1.57	0.12	-0.65	0.07
indusexp	**0.01**	**0.01**	**1.69**	**0.09**	**0.00**	**0.03**
pushed	**0.63**	**0.32**	**1.97**	**0.05**	**0.00**	**1.25**
inherit	-0.12	0.34	-0.35	0.72	-0.80	0.55
_cons	0.24	0.41	0.58	0.56	-0.57	1.05

For the treated group, it appears those with a history of family entrepreneurship, are Caucasian, have higher levels of industry experience and are "pushed" into self-employment because of no better options for work are observed to be more likely to have launched their new venture versus the converse of those variables. As will be seen later on, both the Caucasian

variable and industry experience variable have been linked with higher performance. This does appear to allow us to reject the null with respect to *H7*. However, in order to observe whether the Product Center is the cause of this impact, by "weeding out" bad ideas, there must be some evidence in the non-treatment group to compare against.

F.   Implications of these Results

Broadly speaking, we found that those respondents with higher education levels and those who sought assistance prior to the launch of their product were more likely to find assistance useful than those with lower education levels or those who sought assistance only after their product had already launched. In addition, we found that those who were seeking assistance prior to the launch of their product tended to have less experience than those who sought it only afterwards, but no other identifiable differences. This finding that the lack of industry-related experience is an important predictor of both the decision to seek assistance prior to launch and to find that assistance useful, appears to imply that the assistance provided acts as a substitute for resources that entrepreneurs with less experience might otherwise not have. This was also found to be true for those smaller firms within the sample, whereas the finding that larger firms and more experienced entrepreneurs find assistance less useful seems to imply that the assistance provided does not necessarily complement existing firm level resources for the more experienced entrepreneurs or larger ventures.

We found that the majority of respondents felt they were at least neutral or satisfied with assistance, with the most common response being somewhat satisfied, but very few were highly satisfied and approximately a third were dissatisfied. A common reason given was that the initial help was very beneficial but there was a lack of strong follow through in helping to drive the clients' venture creation or improvement process to completion. These findings were consistent

with clients' responses on the perceived usefulness of assistance where some felt they could not have launched their venture without the assistance of the Product Center and others found that the assistance was not responsive enough for the needs of their venture and therefore relying on it became a stumbling point. This disparity in responses also appears to be at least somewhat connected to the particular counselor providing assistance as some respondent who had contact with multiple counselors noted the differences in services provided. However, it may also indicate that the assistance provided is most useful for those who have enough entrepreneurial ability to launch their new venture on their own, but are in need of filling certain information or resource gaps, as opposed to those entrepreneurs who rely on assistance to accomplish things that they themselves cannot do. In this case, an EAP should be careful not to give too much assistance as this would unnaturally support the venture when perhaps the most beneficial decision in the long term, though painful in the short term, would be for the client to decide to drop the business idea.

Unfortunately, we did not find strong evidence to support or reject the notion that those who receive assistance and decide not to launch would not have been as successful had they launched than the ones who received assistance and did. However, we did find evidence that those with less experience in a related industry are more likely to find assistance useful, but this relationship is moderated by whether or not the client sought assistance before the launch of their new venture. That is to say those who seek assistance prior to the launch of their new venture are more likely to find it useful, and in turn those with less experience are more likely to seek assistance prior to the launch of their new venture. This gives strong support for the notion that an EAP acts as a special type of knowledge resource provider to inexperienced entrepreneurs, that is not as beneficial to those entrepreneurs with more experience.

We also found that those entrepreneurs with higher levels of education and a history of entrepreneurship in their family were more likely to find assistance useful as well. The former could be indicative of the institutional setting (i.e. a University) where the Product Center provides assistance as well as the need for a certain level of cognitive capabilities to translate the assistance provided into a tangible benefit for the venture. The latter is a rather surprising result, though consistent with earlier findings that having an entrepreneur in the family makes one more likely to seek assistance as well. The same conjecture provided above, that knowing first-hand the difficulties of the entrepreneurial process is the likely cause of this result. Not only does first-hand knowledge of the difficulty in launching a new venture make one more likely to seek assistance in doing so, it also provides for a greater appreciation of the assistance provided. It also might help support this notion that assistance is perceived as most useful by those who can best capitalize on it as having an entrepreneur in the family could also indicate that the entrepreneur has access to a greater set of resources to help him or her succeed. Finally, the distance traveled to reach the Product Center was found to be a significantly negative predictor of finding assistance useful. This is relevant because it provides an interesting way that researchers or EAP managers could use to value the "worth" of assistance. Namely, this finding shows clients are clearly trading off time travelled for assistance with its perceived usefulness. This makes sense as there is a cost to the time and money spent to travel to receive assistance, even if the assistance itself is provided without a cost. Therefore, further researchers could look to quantify this relationship using standard mileage expense rates in combination with the amount of assistance received and perceived usefulness to create a valuation of that assistance.

VII.   IMPACT OF PC ASSISTANCE ON PERFORMANCE

Now that a clear picture of who seeks assistance and why they find it useful has been developed, we can proceed to measure the impact that assistance has created on those who receive it. This will be done through answering research question 1 (**R1)** through the testing of hypothesis (**H1**) and its associated sub-hypotheses (see table 3a, page 34)

In order to test the impact of EAP assistance three different estimation methods will be used: ordinary least squares (OLS), probit regression and Tobit (Wooldridge, 2002). A brief explanation will be given on each of these.

A. Methods

i.   Ordinary Least Squares (OLS)

For continuous performance variables that are not truncated, Ordinary Least Squares (OLS) will be used to measure EAP impact. To use OLS, we must make the first standard Gauss-Markov assumption (see Wooldridge, 2002) and assume that our model is linear in parameters. We can then estimate the impact of treatment on continuous performance variables such as sales and employment through estimating the coefficients in equation (1):

$$Y_i = X_i\beta + Z_i\alpha + \varepsilon_i \qquad\qquad (1)$$

Where for a set of N individual entrepreneurs, the ith entrepreneur's performance variable {Y} is determined by a vector of explanatory variables {W} including the control variables {X} and a treatment variable of assistance {Z}, which can be either a general or service specific participation dummy or a continuous indicator of hours of assistance received, and an error term {ε} that represents all other unobserved influences on {Y}. With the key estimator of interest

{α} represents the impact of assistance on performance to be solved by minimizing the sum of the squared error terms in respect to the β and α coefficients.

ii.   Probit Regressions

For the discrete binary performance variables, such as survival (which is coded 1 for still alive and 0 for no longer in operations) a probit regression will be used. In the case of survival, for example, we can postulate there exists a latent factor Y*, which represents the viability of the new venture to the entrepreneur, that will determine whether or not that entrepreneur decides to keep the venture "alive" or in operations, such that if $Y^* > 0$ the venture will still stay in existence and if $Y_i^* \leq 0$, the entrepreneur will decide to drop the business idea. Furthermore, let us assume that Y_i^* is influenced both by observable characteristics represented by a vector $\{X_i\}$ such as the venture's age, the entrepreneur's experience, education and so on as well as the impact that treatment $\{Z_i\}$ has had. It is likely that the viability of the new venture is also influenced by unobservable characteristics (to us) as well such as the entrepreneur's dedication, interest and satisfaction with the venture that will be represented by the error term $\{\varepsilon_i\}$. Then we can characterize the viability of the venture by equation (4):

$$Y_i^* = X_i\beta + Z_i\alpha + \varepsilon_i \ (i = 1,2 \dots, N) \tag{4}$$

However, as Y_i^* is a latent variable we only observe its sign indicated by the survival dummy variable $\{D_i\}$ where $D_i = 1$ (for example indicating still alive) if $Y_i^* > 0$ and $D_i = 0$ if $Y_i^* \leq 0$. Then we can rewrite equation (4) as follows:

$$D_i = \begin{cases} 1: if \ X_i\beta + Z_i\alpha + \varepsilon_i > 0 \\ 0: if \ X_i\beta + Z_i\alpha + \varepsilon_i \leq 0 \end{cases} \tag{4a}$$

Then, using equation (4a), then we can see that the probability that an entrepreneur (i) is still alive (i.e. $D_i = 1$) can be written as follows in equation (4b):

$$Prob(\varepsilon_i) > -X_i\beta - Z_i\alpha \tag{4b}$$

Next, if we assume that the error term $\{\varepsilon_i\}$ follows an independently and identically distributed normal distribution with mean (0) and variance σ_ε^2, then the probability that ε_i is larger $-X_i\beta - Z_i\alpha$ is simply $1 - \Phi(-X_i\beta - Z_i\alpha)$ where Φ represents the normal cumulative density function (CDF). Furthermore, since the normal distribution is symmetrical in nature, $1 - \Phi(-X_i\beta - Z_i\alpha)$ is equivalent to $\Phi(X_i\beta + Z_i\alpha)$. Therefore, the probability that an entrepreneur's new venture is still alive, given the above assumptions, can be characterized by equation (4c):

$$Prob(D_i = 1|X) = \Phi(X_i\beta + Z_i\alpha) \tag{4c}$$

This equation can be solved using MLE to obtain an estimate of the impact of assistance represented by $\hat{\alpha}$.

iii.   Tobit Regressions

For truncated variables, such as gross annual sales (which is upper-bound at $200,000) and our proxies for perceived legitimacy (which are lower-bound at zero) a Tobit (see Wooldridge, 2002) regression will be used. This model can be characterized as in equation (2) for the upper bound or right-hand censored regressions and equation (3) for the lower bound or left-hand censored regressions:

$$Y_i = \begin{cases} Observed\ Maximum & if\ X_i\beta + \epsilon_i > max \\ X_i\beta + Z_i\alpha + \epsilon_i & if\ X_i\beta + \epsilon_i \leq max \end{cases} \quad \epsilon_i \sim n(0, \sigma^2) \tag{2}$$

$$Y_i = \begin{cases} X_i\beta + Z_i\alpha + \epsilon_i & if\ X_i\beta + \epsilon_i > 0 \\ 0 & if\ X_i\beta + \epsilon_i \leq 0 \end{cases} \quad \epsilon_i \sim n(0, \sigma^2) \tag{3}$$

Where again for a set of N individual entrepreneurs, the ith entrepreneur's performance variable {Y} is determined by a vector of explanatory variables {W} including the control variables {X} and a treatment variable of assistance {Z}, which can be either a general or service specific participation dummy or a continuous indicator of hours of assistance received, and an error term {ε} that represents all other unobserved influences on {Y}. However, in this case instead of solving the equation by minimizing the sum of squared errors, a maximum-likelihood estimation (MLE) will be used that models the uncensored variables as a probability density function and the censored variables as a cumulative density function within the sample at that point. This method is less efficient that OLS, but necessary for the cases, such as with gross annual sales, the observed value of $200,000 indicates the entrepreneur's new venture is making more than $200,000 (not $200,000 per se), so a censored regression technique should be used.

B. Impact of EAP assistance on new ventures' success and survival

Now that the methodology to be used has been thoroughly developed as to how we will assess the impact of EAP assistance, the next step is begin quantifying the impact. This will be done through testing the main hypothesis of this paper:

Entrepreneurs who receive assistance from an EAP will be more likely to have higher performance, survival rates and legitimacy than had they not sought assistance. (H1)

As it turns out, this hypothesis is rather broad and vague and for full elucidation of the impact that the case study's EAP has had on its entrepreneurial clientele it becomes prudent to break this hypothesis down into the many sub-hypotheses listed above in table 3a. Therefore, we will begin by first testing the impact that assistance has on the decision to launch, followed by

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the impact on survival after launch, then the ability of the EAP to build legitimacy with resource providers and marketing outlets, followed by impact on sales and employment and then finally differentiating these impacts for the smaller firms grossing under $200,000 per year versus the larger sample.

C. Impact of assistance on the decision to launch

We saw in the previous chapter that those entrepreneurs who were seeking assistance prior to the launch of their new venture were more likely to have less experience and in turn more likely to find assistance useful. The natural question that arises from this result is why this would be so. To this end we have hypothesized the following:

Entrepreneurs who receive assistance from the example EAP prior to the launch of a new venture will be less likely to launch that new venture than those who do not (weeding out hypothesis). (H1-a)

When one compares respondents who have received assistance with those who have not, the percentage of those respondents who went on to launch a product is smaller in the treatment group than in the non-treated group (see figure 4, below). Whether this is a positive or negative effect, however, has yet to be seen. If treatment is successful in preventing the launch of untenable business ideas than this would be a positive effect that would be borne out in higher survival rates amongst those that do launch. If, however, the lower launch rates are due to poor quality of assistance or selection bias issue, then we would not expect to find any positive impacts of treatment on survival.

Figure 4: Comparison of launch status between Product Center clients and non-clients
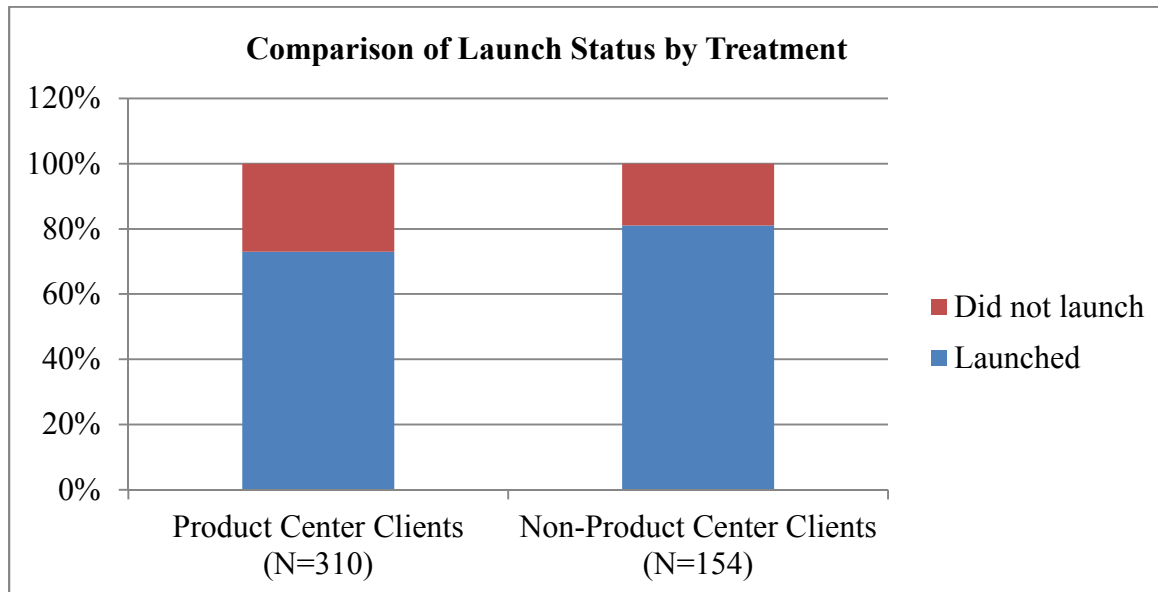
Further investigation into the reasons that respondents did not launch a product reveals a few noticeable differences between the treated group and the non-treated group (see figure 5, below). For both sets of entrepreneurs, the most common reason they decided not to launch the product was not enough capital (46% and 45% for the treated and non-treated respectively). When compared to the treated entrepreneurs, non-treated entrepreneurs were more likely to claim not enough demand (7% to 4%) and no market (7% to 2%) or to have pursued other interests (21% to 17%) than the treated entrepreneurs, whereas treated entrepreneurs were more likely to claim they did not enough time (25% to 17%), couldn't find a co-packer (8% to 3%) and to still be in progress (17% to 13%). Some of the comments from respondents such as the following, "the Product Center did help us determine that we could not take a product idea to market, so it was not pursued further," however, do clearly indicate that the Product Center helped to "weed out" an untenable idea.

Figure 5: Comparison between treated and non-treated entrepreneurs on the reasons why those that did not launch a product gave for not launching.
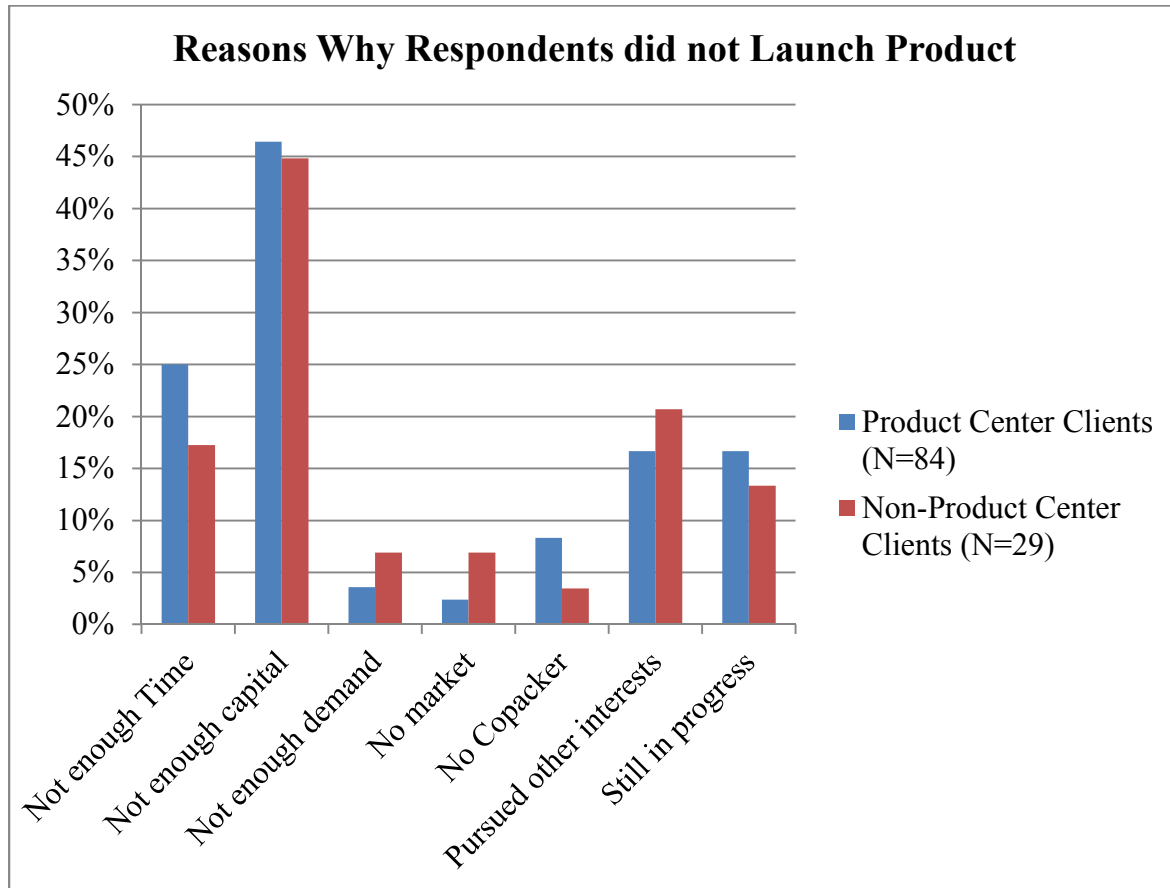
i.   Testing the "weeding out" component of assistance

To test H1-a a new binary indicator variable "*prepcassist*" was created that identified whether the respondent sought assistance at point *a1* in our conceptual framework as a "1" and those who did not (including those entrepreneurs who may have sought assistance later on) were coded as a "0". This was done because if the entrepreneur sought assistance after the launch of their product, then it would not make sense to test whether assistance had an impact on the decision to launch. The variable, *prepcassist,* was included in a probit regression of launch status on controls to test this hypothesis with the results presented below in table 22.

Table 22: Probit of launch status on treatment (at decision node *a1*) and controls (statistically significant variables in bold N=346, pseudo R^2 = 0.1197.)

Variables	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
prepcassist	**-0.77**	**0.16**	**-4.72**	**0.00**	**-1.09**	**-0.45**
propinfoseek	-0.07	0.05	-1.50	0.13	-0.17	0.02
proprisktake	0.08	0.05	1.46	0.15	-0.03	0.19
propinnovate	**-0.13**	**0.05**	**-2.68**	**0.01**	**-0.22**	**-0.03**
propgrowbiz	0.03	0.04	0.63	0.53	-0.06	0.11
age	0.00	0.01	-0.06	0.95	-0.02	0.01
indusexp	0.00	0.01	0.58	0.56	-0.01	0.02
baormore	0.19	0.17	1.18	0.24	-0.13	0.52
male	-0.14	0.16	-0.85	0.40	-0.46	0.18
white	0.29	0.23	1.26	0.21	-0.16	0.75
familyentrep	0.11	0.17	0.66	0.51	-0.22	0.44
inherit	0.02	0.32	0.06	0.95	-0.61	0.65
pushed	0.27	0.24	1.12	0.26	-0.20	0.74
_cons	1.13	0.60	1.91	0.06	-0.03	2.30

As can be seen from this regression, receiving assistance prior to launch was very strongly correlated with the decision to not launch, thus giving support for the first element of the "weeding out" hypothesis and allowing us to reject the null in regards to H1-a.

ii.   Testing the "planting in" component of assistance

It still remains to be seen whether those who do launch and receive assistance are more likely to survive than those who do not. That is to say, if the weeding out we observed in the previous section truly was a beneficial weeding mechanism, then we would expect to find evidence to reject the null of the following hypothesis:

Entrepreneurs who receive assistance from the example EAP prior to the launch of a new venture and decide to launch that new venture will be more likely to stay in business than those who launched a new venture but did not receive assistance (planting in hypothesis).(H1-b)

To test this hypothesis, the survival rates of entrepreneurs who received assistance were compared to those who did not. From a purely comparison of means test, it does appear that the treated group is enjoying higher survival rates than the non-treated group (see figure 6 below). This indicates support for our previous hypothesis that treatment is helping to prevent untenable business ideas from going forward. The survival rates, however, for both the treated and non-treated entrepreneur respondents appear to be higher than would be expected (i.e. from Shane's 2008 research on the low expected survival rates of new ventures). This probably indicates a bit of response bias in this survey. This is likely due to the lack of interest in responding to surveys about a business idea that has already been dropped. Nonetheless, assuming this response bias is not skewed to either the treatment or non-treatment group then it should not impact the comparison across these two groups. Given this assumption, then the responses indicate that treated entrepreneurs (with approximately 95% of new ventures still in operation) are enjoying higher survival rates than their non-treated counterparts (with 89% of new ventures still in operation) (see figure 6, below).

Figure 6: Survival Rates between the Treated and Non-Treated Groups
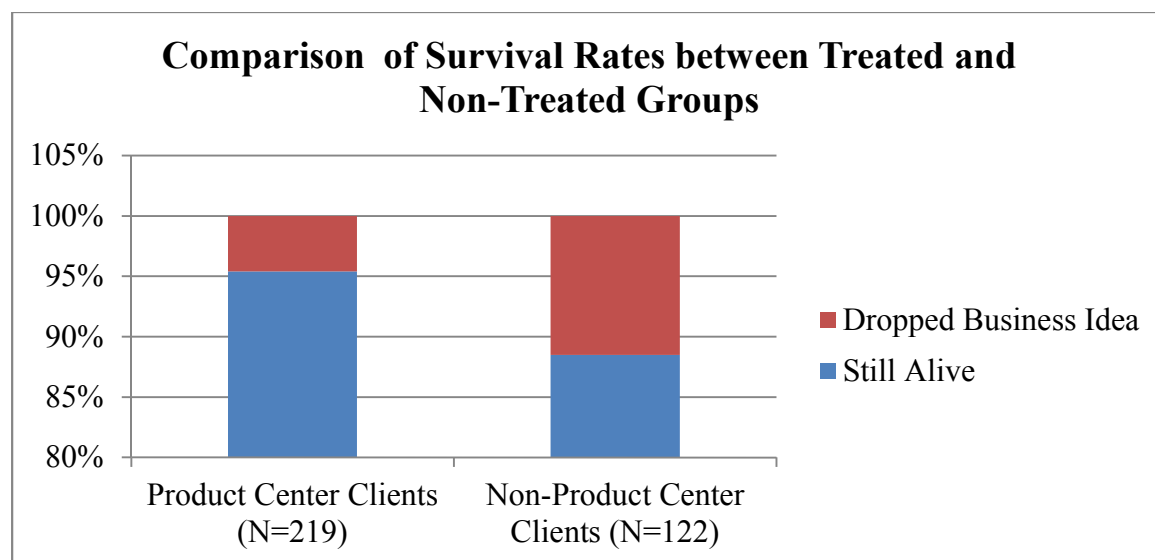
Therefore, it is not surprising that when one conducts a probit regression on the probability of a new venture being still in operation on the key treatment indicator variable, while controlling for the venture's age and other relevant factors, having product center's assistance appears to be a significantly positive predictor of survival (see table 23, below).

Table 23: Probit regression of the probability of the new venture being still in operation on treatment and control variables (statistically significant variables in bold, N=256 R^2 =0.23)

Y=stillalive	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
ventureage	**-0.13**	**0.06**	**-2.26**	**0.02**	**-0.25**	**-0.02**
pcassist	**0.57**	**0.31**	**1.83**	**0.07**	**-0.04**	**1.18**
propinfoseek	0.03	0.07	0.50	0.61	-0.10	0.17
proprisktake	-0.15	0.10	-1.45	0.15	-0.36	0.05
propinnovate	0.00	0.07	-0.01	0.99	-0.14	0.14
propgrowbiz	**0.17**	**0.07**	**2.32**	**0.02**	**0.03**	**0.32**
indusexp	**-0.02**	**0.01**	**-1.99**	**0.05**	**-0.05**	**0.00**
age	**0.02**	**0.01**	**1.74**	**0.08**	**0.00**	**0.05**
baormore	-0.06	0.24	-0.25	0.80	-0.53	0.41
male	0.74	0.32	2.35	0.02	0.12	1.37
white	**0.71**	**0.41**	**1.73**	**0.08**	**-0.09**	**1.52**
familyentrep	**0.48**	**0.28**	**1.72**	**0.09**	**-0.07**	**1.03**
inherit	**-1.00**	**0.44**	**-2.28**	**0.02**	**-1.86**	**-0.14**
pushed	-0.04	0.32	-0.11	0.91	-0.67	0.60
_cons	-0.13	0.82	-0.16	0.88	-1.74	1.48

The results of this regression provide a lot of very interesting insights. To begin with it appears we can reject the null that assistance has no impact on survival, with a 90% confidence level. As can be seen from the assistance indicator variable used, we did not distinguish at this point between those who received assistance prior to launch or not. The reasoning for that distinction before was to directly test the influence of assistance on the decision to launch. In this case, we wish to see if assistance, regardless of when received, influences the new venture's ability to survive, which it appears it does. Therefore, in combination with the rejection of the

null that assistance has no impact on the decision to launch a product, we can see that assistance is effective at "weeding out" the untenable venture ideas as well at nurturing the ones "planted in". Therefore, it appears we have provided sufficient evidence to reject then null in regards to H1-b.

In addition to finding assistance a significant positive indicator of survival, we also find that the venture's age is a significant negative predictor of survival, as one might expect, that being Caucasian and a male are significant positive predictors, which is consistent with the other findings in this analysis with positive relationships being associated with Caucasians. In addition, the entrepreneur's underlying propensity to grow the business is also shown to be significantly positively correlated with survival, giving further support to the notion mentioned in the choice of performance variables that growth is correlated with survival.

These past results are all what one would expect, but there are some unexpected results uncovered in this analysis as well. The first is that while age is shown to be positively correlated with survival, perhaps indicating that greater life experience is correlated the likelihood of survival, there is also a significantly negative relationship found with the entrepreneur's industry experience. Since age is being held constant, this means there is an interesting relationship occurring with the tradeoff between these two variables likely at play. As was seen in the cluster analysis, there are distinct clusters based on age and experience, so this may be picking up some of this variation. In addition, it is also surprising that having received an inheritance is negatively correlated with survival. But as was seen in the summary statistics, the percentage of respondents who received inheritances was quite low, so it could be just random variation that is causing this relationship to occur.

D. EAP Impact on Legitimacy with Resource Holders

The next area of potential impact this paper will look at is the impact that EAP assistance has on the perceived legitimacy with resource holders such as banks and private equity sources. The reason behind conducting this test is the notion that through the counseling process on the business idea, the assistance in writing a formal business plan, and through the leverage of the EAP's direct ties with resource holders, EAP clients will be able to build a higher level of perceived legitimacy with the holders of financial resources and thereby have greater success in obtaining external financing for their new venture. Therefore, we will test the following hypothesis against its null:

Entrepreneurs who receive assistance from the example EAP will be more likely to obtain external financing than had they not received assistance. (H1-c)

In order to first test this a left- and right-hand censored Tobit model will be run on the level of investment received from banks and then from private equity sources. This model is censored on both sides as zero investment indicates less than the required threshold level of legitimacy required to obtain such financing, and on the right hand side as the survey instrument allowed for a maximum of $200,000 for a response, so those values need to be treated as an upper limit, not as $200,000. The results of conducting this regression on the entire sample is presented below in table 24.

Table 24: Left- and Right-hand censored Tobit of external financing level on controls and treatment. (statistically significant variables in bold, N=251, Pseudo R^2=0.0253)

Y =invbank	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
ventureage	**15,689**	**6,589**	**2.38**	**0.02**	**2,709**	**28,670**
propinfoseek	-4,087	8,658	-0.47	0.64	-21,143	12,969
propgrowbiz	5,852	7,908	0.74	0.46	-9,726	21,430
age	-472	1,435	-0.33	0.74	-3,298	2,355
indusexp	**3,143**	**1,376**	**2.28**	**0.02**	**431**	**5,855**
baormore	-6,302	31,510	-0.20	0.84	-68,377	55,773
inherit	-19,790	57,764	-0.34	0.73	-133,586	94,007
white	95,987	72,172	1.33	0.19	-46,193	238,168
male	**50,821**	**30,762**	**1.65**	**0.10**	**-9,780**	**111,423**
pushed	-44,328	42,181	-1.05	0.29	-127,425	38,769
familyentrep	10,102	32,271	0.31	0.76	-53,473	73,677
propinnovate	**-18,906**	**9,126**	**-2.07**	**0.04**	**-36,883**	**-928**
proprisktake	13,431	10,824	1.24	0.22	-7,894	34,755
pcassist	3,159	31,852	0.10	0.92	-59,590	65,908
_cons	-336,361	133,853	-2.51	0.01	-600,054	-72,668
Obs. summary:	212	left-censored observations at invbank<=0				
	32	uncensored bservations				
	7	right-censored observations at invbank>=200000				

As can be seen, the majority of respondents (84.3%) are below the threshold and receiving no bank financing. For those that do, industry experience, age of the venture and gender and the propensity to innovate appear to be the only significant predictors of financing, whereas treatment is not significant. Interestingly, where we saw the propensity towards innovation was positively correlated with employment but not with sales or survival, it is negatively correlated with this measure of legitimacy. This could indicate that banks, especially in the recent strict credit market following the recession caused by the 2008 collapse of the housing market, are not willing to take risks on the more non-traditional products out there. This seems logical as the risk is much higher for the more innovative but unproven products, despite having more potential for creative destruction.

In this case, the results are no different when restricting to the small and medium sized enterprises in the sample. In the case of those receiving private equity financing, none of the variables were found to be significant at the 10% level.

Given the apparent difficulty in achieving external financing, perhaps it is better just to simply analyze whether the Product Center is helping clients to cross that the legitimacy threshold at all. This can be done by conducting a probit regression on the binary "*externfinance*" variable which simply indicates if the respondent received any financing from bank or private equity sources. When this is done on the entire sample, we see that assistance does not appear to be a significant predictor of receiving financing, whereas the industry experience, age of the venture, the propensity for risk-taking and age variables all do as is presented below in table 25.

Table 25: Probit regression of receiving External Financing on Treatment and Controls (statistically significant variables in bold, N=233, Pseudo R^2= 0.0765)

Y=externfinance	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
ventureage	**0.08**	**0.04**	**1.88**	**0.06**	**0.00**	**0.15**
propinfoseek	-0.06	0.05	-1.09	0.28	-0.17	0.05
propgrowbiz	0.01	0.05	0.26	0.80	-0.09	0.11
age	**-0.02**	**0.01**	**-2.19**	**0.03**	**-0.04**	**0.00**
indusexp	**0.02**	**0.01**	**2.38**	**0.02**	**0.00**	**0.04**
baormore	0.01	0.20	0.08	0.94	-0.37	0.40
inherit	0.38	0.33	1.14	0.25	-0.27	1.03
white	0.53	0.36	1.49	0.14	-0.17	1.23
male	0.11	0.19	0.60	0.55	-0.26	0.48
pushed	-0.30	0.26	-1.14	0.25	-0.80	0.21
familyentrep	-0.09	0.20	-0.48	0.63	-0.48	0.29
propinnovate	-0.08	0.06	-1.35	0.18	-0.19	0.04
proprisktake	**0.13**	**0.07**	**1.80**	**0.07**	**-0.01**	**0.27**
pcassist	0.13	0.20	0.66	0.51	-0.26	0.53

It is not surprising that more experienced entrepreneurs and older ventures are more likely to receive financing. The negative impact of age and positive impact of propensity towards

risk-taking are a bit more surprising however. Given the previous discussion about innovations, one might have thought the same could be said for risk-takingness. However, as this variable is not directly observed by the lender, it could be that those willing to take the right risks are being rewarded by lenders who agree that those risks are worth taking. The impact of age is less clear, but it could indicate that lenders are hesitant to finance ventures for the older class of entrepreneurs given that they may decide to retire sooner than younger ones.

These results, therefore, do not allow us to reject the null in regards to H1-c when we consider the entire sample of entrepreneurs who responded to our survey. However, as will be seen later, different results will be obtained when we restrict the sample to those ventures grossing under $200,000 per year.

E.   EAP Impact on Legitimacy with Trading Partners

Next, we wish to assess the impact that treatment has had on the perceived legitimacy of the new ventures within the marketing channels, as measured by the volume sold through retail and wholesale outlets through the testing of the following hypothesis:

Clients from the example EAP will have access to a greater marketing opportunity set than they otherwise would have without assistance (H1-d)

For this measure, a left-hand censored Tobit is proposed as roughly half of the observed respondents have a volume of sales sold through retail that is zero. The reason this is taken to be a censored observation is that if this measure is a proxy for legitimacy is based on the notion that in order to gain access to retail outlets the new venture must have met a certain threshold level of legitimacy with the retail provider. After gaining access, to maintain or increase the volume sold through this outlet, the new venture must then maintain or increase their level of perceived legitimacy with the end consumers who frequent those retail stores. Those who have zero sales

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through retail can be considered to be below this threshold, though not necessarily the same level of legitimacy as the other respondents who also have zero sales through retail. Therefore, the zero observations should be categorized as a censored observation of legitimacy and modeled as cumulative density function, whereas for those above the threshold it is logical to associate increased sales level with incrementally increasing levels of legitimacy and should be modeled as such, hence the appropriateness of a left-hand censored Tobit model as was described in the methods section.

In addition, because this measure is a compilation of two other measures (gross annual sales x % sold through retail), one of which has an upper bound of $200,000, we must restrict the sample to only those ventures grossing under $200,000 per year. This is because for those grossing over $200,000 their response enters in as $200,000 which is then multiplied by the % sold through retail giving an unrealistic expectation of their total sales volume sold through this channel. For example, consider two firms: one grossing $1 million per year and selling 10% through retail outlets and another grossing $200,000 per year and selling 50% through retail. These are two very different firms in size and scope, but would have the same measure of legitimacy as we have structured it here. This is an obvious flaw in experimental design that can be improved upon for future research, but for this case can be eliminated through the restriction of the sample size to the proposed amount and keeping this restriction in mind when interpreting results.

The result of this model for the respondents grossing under $200,000 per annum is shown below in table 26.

Table 26: Tobit on volume of sales sold through a retail outlet on treatment and controls for respondents grossing under $200,000 per annum (statistically significant variables in bold, N=192, Pseudo R^2 = 0.0119)

Y=volretail	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
ventureage	**1,390**	**735**	**1.89**	**0.06**	**-60**	**2,840**
propinfoseek	271	956	0.28	0.78	-1,616	2,158
propgrowbiz	114	914	0.13	0.90	-1,690	1,918
age	-214	156	-1.37	0.17	-521	94
indusexp	-12	156	-0.08	0.94	-320	296
baormore	**-6,664**	**3,520**	**-1.89**	**0.06**	**-13,610**	**281**
inherit	-1,102	6,308	-0.17	0.86	-13,550	11,346
white	8,806	5,816	1.51	0.13	-2,671	20,284
male	4,519	3,303	1.37	0.17	-1,998	11,037
pushed	-5,468	4,443	-1.23	0.22	-14,235	3,299
familyentrep	-1,045	3,596	-0.29	0.77	-8,140	6,051
propinnovate	1,240	1,048	1.18	0.24	-827	3,307
proprisktake	**11**	**1,185**	**0.01**	**0.99**	**-2,328**	**2,350**
pcassist	**12,939**	**3,817**	**3.39**	**0.00**	**5,406**	**20,471**
_cons	-18,205	12,781	-1.42	0.16	-43,426	7,016
Obs. summary:	95 left-censored observations at volretail<=0					
	97 uncensored observations					
	0 right-censored observations					

In this case, it appears that there is a strong indication that treatment is helping to increase respondent's ability to sell their product through retail outlets, and by proxy improve their overall legitimacy within that channel within this restricted sample of ventures. Therefore, though it appears we cannot reject the null on that assistance has no impact on improving the growth of total gross annual sales, it does appear that assistance is helping to improve small and medium sized enterprises (defined in this case as having under $200,000 gross annual sales) to increase their perceived legitimacy with retailers and end consumers. Therefore we can reject the null hypothesis in regards to H1-d for this group.

This finding also supports the results of the author's master's thesis that found:

> "The Product Center helps entrepreneurs to legitimize their product through the adherence to social norms, rules and regulations… It can help assist entrepreneurs in both figuring out what the steps are and by connecting them to people who can help them complete those steps… It has developed direct ties to on and off campus service providers for each step… It can provide advice how to market their (clients') products at a level that is scale appropriate for them… and it can create opportunities by using the University's name, reputation and relationships with different partners such as major grocery retail chains or local hospitals to try to get the appropriate clients into their operations." (Lovgren, 2012).

F. EAP Impact on Gross Annual Sales

The next area of interest to investigate is the impact that the Product Center has had on the size of the venture evidenced by the venture's gross annual sales level. This is one of the areas that we would hope to find a significant impact of the business planning and legitimacy building activities that have been discussed above. Namely, we want to know has assistance impacted overall sales growth of the new ventures, which will be answered through the testing of the following hypothesis against its null:

Clients from the example EAP will have higher gross annual sales rates than they otherwise would have without assistance. (H1-e)

As a reminder, gross annual sales was collected as a continuous variable from $0-$200,000 and then at the upper limit of $200,000 indicates that sales were above this amount. The impact of assistance in this section will therefore consider both the full sample for all those who provided sales information (as a right-hand censored Tobit regression) as well as the impact on those new ventures grossing under $200,000 annually (as an OLS regression). The majority of respondents for both the treated and non-treated entrepreneurs were grossing less than $12,500

annually with percentages that taper off as sales go up, but 12.3% of respondents have ventures grossing over $200,000 per year.

We can see that if there is selection bias occurring, it is likely manifesting itself in the larger than $200,000 per year group which is nearly double, in percentage terms, in the non-treated group(16.7%) than in the treated group (8.7%). However, in order to determine if this difference is significant when other controls, including the age of the venture (which allows this measure to represent sales growth), a right-hand censored Tobit must be conducted. The results of this regression are presented below in table 27.

Table 27: Right-hand censored Tobit of Gross Annual Sales on treatment and controls (statistically significant variables in bold, N=219, Pseudo R^2=0.0106)

Y=grosssales	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
ventureage	4,258	2,172	1.96	0.05	-25	8,541
pcassist	-16,157	10,354	-1.56	0.12	-36,571	4,257
propinfoseek	-1,856	2,553	-0.73	0.47	-6,889	3,176
proprisktake	2,655	3,370	0.79	0.43	-3,989	9,300
propinnovate	610	3,161	0.19	0.85	-5,622	6,842
propgrowbiz	9,864	2,541	3.88	0.00	4,853	14,875
indusexp	1,222	491	2.49	0.01	254	2,190
age	-775	411	-1.89	0.06	-1,585	35
baormore	8,143	10,140	0.80	0.42	-11,849	28,135
male	32,930	9,238	3.56	0.00	14,716	51,143
white	31,641	10,402	3.04	0.00	11,132	52,150
familyentrep	-16,242	10,182	-1.60	0.11	-36,317	3,834
inherit	-10,405	17,109	-0.61	0.54	-44,138	23,328
pushed	-8,421	11,463	-0.73	0.46	-31,021	14,180
_cons	-9,272	31,713	-0.29	0.77	-71,797	53,253
Obs. summary:	0 left-censored obs					
192 uncensored obs						
27 right-censored obs grosssales>=200000						

In this case, what we can see is that, though the coefficient is negative, the treatment variable does not appear to be a significant influence on the level of sales *ceteris paribus*. Instead, the food processor indicator variable, the age of the venture, the propensity to grow the business, the industry experience, age, gender and ethnicity of the entrepreneur appear to be the variables that can be said to significantly impact the level of sales. None of these findings, except perhaps the food processor indicator, are particularly surprising, as all are consistent with the expectations laid out in variables section as reasons for their inclusions as controls. In the case of the food processors, there was no *a priori* expectation either positively or negatively about how this would influence sales, but was included to control for the different industry effects. However, it is a bit surprising that despite the larger percentage of ventures grossing over $200,000 in the non-treatment group, the treatment variable is not significant. It is at this point, that the correction for selection bias would be most useful. This would require a valid IV. As was seen above (in section VII.A), however, no potential candidates were found. This leads us to be unable to reject the null for **H1-e**, though results remain largely inconclusive and require further investigation on how to remove the downward selection bias impact.

G. EAP Impact on Employment

The next area of impact on performance to assess is employment levels and growth. For similar reasons as with sales growth, we might hope to find that assistance has been effective in helping new ventures to create more jobs than they otherwise would have. To determine if this is the case, we will test the following hypothesis against its null:

Clients from the example EAP will higher employment rates than they otherwise would have without assistance (**H1-f**)

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To begin, a comparison between the treated and non-treated entrepreneurs reveals that on average, the non-treated group has higher levels of employment (8.69 to 7.26) but the relative distribution between these two groups is fairly similar with the majority of respondents having 5 or fewer employees

In this case there were relatively fewer outliers, however, with only six respondents who had employment levels above 30 (3 for each group), of those six the range was from 63-250(the maximum response allowed) with an average of 186.16. With only 2 points hitting the maximum of 250, this regression was done as an OLS to improve its efficiency. The results are presented below in table 28.

Table 28: OLS regression Total Employment on Treatment and Controls (statistically significant variables in bold, N=227, R^2=0.0923)

Y=totemp	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
ventureage	-0.12	0.85	-0.14	0.888	-1.80	1.56
propinfoseek	0.93	1.15	0.81	0.42	-1.34	3.20
propgrowbiz	2.50	1.07	2.33	0.021	0.39	4.62
age	0.03	0.18	0.18	0.86	-0.33	0.39
indusexp	0.34	0.18	1.87	0.062	-0.02	0.70
baormore	5.63	4.14	1.36	0.175	-2.53	13.78
inherit	-7.84	7.21	-1.09	0.278	-22.06	6.37
white	5.68	6.52	0.87	0.385	-7.18	18.53
male	7.28	3.92	1.86	0.065	-0.44	15.00
pushed	3.25	5.36	0.61	0.545	-7.32	13.82
familyentrep	-2.22	4.13	-0.54	0.592	-10.36	5.93
propinnovate	2.16	1.17	1.85	0.065	-0.14	4.47
proprisktake	-1.84	1.42	-1.3	0.196	-4.64	0.96
pcassist	-4.94	4.22	-1.17	0.244	-13.26	3.38
_cons	-19.48	14.24	-1.37	0.173	-47.54	8.58

In this case, we do not find any significant correlation (positive or negative) of assistance on the employment levels of the business. Instead, experience in the industry, gender, the

propensity to grow the business and the propensity towards innovation appear to be the primary drivers of employment. The last three of these is most interesting as it suggests that those who are more inclined to created new and different products are experiencing growth in terms of total employment. This variable, however, was not significant in terms of sales, so it may be that investing in innovation requires more manpower in order to do so.

In addition, whereas the age of the venture was significantly correlated with sales level, there does not appear to be such a relationship between age of the venture and employment. This is not surprising given the sample's population, as we have seen that many are small in terms of total sales and are primarily owner operated, and the inclusion of the large firms with high employment numbers on both sides of the treatment variable is likely obscuring the marginal gains brought about by the smaller firms.

In terms of the unrestricted population, therefore, we cannot reject the null hypothesis that assistance has no measurable impact on sales or employment. As will be seen later on, however, when one drills down into different subcategories of entrepreneurs the impact of assistance becomes more evident.

H. Impact of the timing of assistance on performance

The next logical question then becomes, if those receiving assistance prior to launch are finding it more useful, then are they also receiving greater gains from that assistance? To answer this question the following hypothesis will be tested against its null:

Clients who receive assistance prior to the launch of their new venture will receive greater impact from assistance than those who receive it only afterwards. (H1-g)

As it turns out, there is some weak evidence that this may be occurring. By restricting the sample to only those respondents who have received assistance (i.e. *pcassist*=1), and conducting a right-hand censored tobit on the level of gross annual sales, as was done earlier, and including the *prelaunchpcassist* variable as a regressor, we see that there is some weakly significant (i.e. just below the 90% level) positive indication that those receiving assistance prior to the launch of their product and having greater gains in sales performance. This is shown below in table 29.

Table 29: Right-hand censored Tobit on Gross Annual Sales restricted to only those respondents who have received assistance. (statistically significant variables in bold, N=130, Pseudo R^2=0.0091)

Y=grosssales	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
prelaunchassist	**18,457**	**11,254**	**1.64**	**0.104**	**-3,835**	**40,748**
propgrowbiz	4,637	3,022	1.53	0.128	-1,349	10,622
propinnovate	-4,610	3,405	-1.35	0.178	-11,355	2,135
propcompaggresive	-411	3,461	-0.12	0.906	-7,266	6,444
proprisktake	5,994	4,087	1.47	0.145	-2,102	14,090
propinfoseek	-2,376	3,052	-0.78	0.438	-8,422	3,670
age	-823	534	-1.54	0.126	-1,880	233
indusexp	**1,039**	**488**	**2.13**	**0.035**	**73**	**2,005**
baormore	6,410	11,892	0.54	0.591	-17,145	29,966
male	**21,771**	**10,780**	**2.02**	**0.046**	**418**	**43,124**
white	24,745	16,827	1.47	0.144	-8,586	58,076
familyentrep	-6,306	12,098	-0.52	0.603	-30,270	17,659
inherit	-10,528	18,534	-0.57	0.571	-47,241	26,185
pushed	-15,087	14,384	-1.05	0.296	-43,579	13,406
ventureage	**7,764**	**2,574**	**3.02**	**0.003**	**2,666**	**12,862**
_cons	-8,640	42,093	-0.21	0.838	-92,018	74,738
Obs. summary:	0 left-censored observations					
	119 uncensored observations					
	11 right-censored observations at grosssales>=200000					

In addition, we are also seeing that industry-related experience, being a male and the age of the venture are also significant factors (as is consistent with our earlier findings).

While no significant differences were found using the same technique in regards to total employment, survival rates and volume in retail, there was strong evidence that receiving assistance prior to launch was significant in helping clients to obtain external financing as is shown below in table 30. This particular finding is extremely interesting as it provides perhaps the strongest support that the venture development counseling and services are indeed achieving their goal helping to weed out bad ideas and plant in good ones.

Table 30: Probit regression of the ability to obtain external financing on controls and prelaunch assistance restricted to Product Center clients who have launched a product. (statistically significant variables in bold, N=142, Pseudot R^2=0.1559)

Y=externfinance	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
prelaunchassist	**0.60**	**0.28**	**2.14**	**0.03**	**0.05**	**1.16**
propgrowbiz	-0.08	0.07	-1.14	0.26	-0.22	0.06
propinnovate	**-0.17**	**0.08**	**-2.02**	**0.04**	**-0.33**	**0.00**
propcompaggresive	**0.23**	**0.09**	**2.63**	**0.01**	**0.06**	**0.39**
proprisktake	0.12	0.10	1.19	0.23	-0.08	0.32
propinfoseek	-0.05	0.07	-0.67	0.50	-0.20	0.10
age	-0.01	0.01	-1.18	0.24	-0.04	0.01
indusexp	**0.02**	**0.01**	**1.99**	**0.05**	**0.00**	**0.05**
baormore	-0.19	0.27	-0.71	0.48	-0.72	0.34
male	-0.06	0.26	-0.22	0.83	-0.56	0.44
white	0.73	0.49	1.50	0.13	-0.22	1.69
familyentrep	-0.27	0.27	-1.00	0.32	-0.81	0.26
inherit	0.61	0.42	1.46	0.14	-0.21	1.43
pushed	-0.49	0.34	-1.45	0.15	-1.16	0.17
ventureage	0.07	0.06	1.24	0.21	-0.04	0.19
_cons	-1.20	1.06	-1.13	0.26	-3.28	0.89

Another interesting finding that comes from this regression is the significance of two of the entrepreneurial orientation variables. First, it appears investors are not showing interest in

respondents who consider their products more innovative and different from their competitors, but are favoring those who seek out more competitive "undo-the completion" posture. So this seems to indicate that while investors might not be interested in financing unproven products, even in less competitive markets like food processing they still wish to see some competitive business instincts.

I. EAP impact on small ventures (grossing under $200,000 per year)

Lastly, we are also interested to see, given the focus the Product Center has traditionally had on small firms, if the impact of assistance is different when restricting our sample to only those firms who are grossing under $200,000 per year. This distinction is of interest because we have hypothesized that the value that an EAP can create for its clients will provide the most incremental benefit to those less experience and/or fewer resources available to them. Though not categorically so, smaller sized ventures will often fall into this category as: (1) they have less revenue, by definition, to hire and employ such resources; and (2) firms grossing over $200,000 will have already accomplished much of what EAP has to offer. Therefore, we will test hypothesis H1-h, which states:

When restricting the sample to entrepreneurs whose new venture grosses under $200,000 per year, the impact of the example EAP assistance will be more likely to be significantly positive than when compared to the full sample. (H1-h)

However, before this is done, it will be useful to give a characterization of how these firms differ compared to the larger firms in our sample. To do this, an indicator variable, *smallfirm*, was created that denoted a "1" if a respondent's venture grossed under $200,000 last year, and "0" if they grossed $200,000 or more. Then a probit regression was conducted on *smallfirm* to indicate differences in the control variables.

As the small firm variable is created from a performance variable, this regression was restricted to only those respondents who had launched their product and thus reported sales numbers. This regression indicates that those grossing under $200,000 per year are less likely to be interested in growing their business as much as possible, not surprisingly, nor are they white males (note that the white indicator was omitted due to collinearity, indicating that after controlling for all other variables there is no variation in those grossing over $200,000, i.e. they are all white males). They also tend to be older and have less industry-related experience (which will turn out to be key drivers of the different clusters identified later on). They also are more likely to have a history of family entrepreneurship, which we have shown is highly correlated with seeking assistance. Otherwise there is no significant difference in the entrepreneurial orientation variables, whether a food processor or not, their education status, whether they've received an inheritance, the age of their business or their reasons for getting into self-employment. This can be seen below in table 31:

Table 31: Probit regression of firm size on control variables (statistically significant variables in bold, N=187, Pseudo R^2=0.2862)

Y=smallfirm	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
propgrowbiz	**-0.26**	**0.09**	**-2.76**	**0.01**	**-0.44**	**-0.07**
propinnovate	-0.04	0.09	-0.50	0.62	-0.21	0.13
propcompaggresive	0.04	0.10	0.36	0.72	-0.16	0.23
proprisktake	-0.09	0.11	-0.81	0.42	-0.30	0.13
propinfoseek	0.04	0.10	0.43	0.67	-0.15	0.23
age	**0.03**	**0.02**	**2.02**	**0.04**	**0.00**	**0.06**
indusexp	**-0.03**	**0.01**	**-2.26**	**0.02**	**-0.06**	**0.00**
baormore	-0.05	0.32	-0.16	0.88	-0.68	0.58
male	**-1.37**	**0.38**	**-3.59**	**0.00**	**-2.11**	**-0.62**
white	**0.00**	**(omitted)**				
familyentrep	**0.74**	**0.33**	**2.23**	**0.03**	**0.09**	**1.38**
foodproc	0.11	0.39	0.29	0.78	-0.65	0.87
inherit	0.34	0.57	0.60	0.55	-0.78	1.47
pushed	0.57	0.46	1.23	0.22	-0.33	1.47
ventureage	-0.06	0.07	-0.89	0.38	-0.20	0.07
_cons	1.84	1.28	1.44	0.15	-0.66	4.35

When focusing our attention on those entrepreneurs who are grossing less than $200,000 per annum, we can see that treatment does appear to be having some positive impact not on overall sales but on the amount of sales sold through retail outlets. To see this, first consider a standard OLS of sales (restricted to those grossing under $200,000) as is shown below in table 32. In this case, the treatment variable though now with a positive coefficient, is not found to be significant. In fact, only the age of the venture and the industry indicator appear to be significant predictors of sales in this case.

Table 32: OLS of gross annual sales on treatment and controls, restricted to respondents grossing less than $200,000 per annum (statistically significant variables in bold, N=203, R^2=0.1266)

grosssales	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
propinfoseek	-992	1,423	-0.70	0.49	-3,798	1,815
age	-49	238	-0.20	0.84	-517	420
indusexp	29	213	0.13	0.89	-392	449
baormore	5,550	5,370	1.03	0.30	-5,042	16,142
male	2,058	5,019	0.41	0.68	-7,842	11,957
white	7,970	6,339	1.26	0.21	-4,534	20,474
familyentrep	3,075	5,440	0.57	0.57	-7,655	13,806
foodproc	**16,854**	**5,568**	**3.03**	**0.00**	**5,872**	**27,836**
inherit	-7,634	9,277	-0.82	0.41	-25,933	10,664
pushed	-4,490	6,044	-0.74	0.46	-16,411	7,431
ventureage	**4,223**	**1,275**	**3.31**	**0.00**	**1,709**	**6,737**
pcassist	6,073	5,479	1.11	0.27	-4,735	16,880
_cons	-13,790	17,068	-0.81	0.42	-47,458	19,877

This result is particularly interesting because when we were evaluating the impact assistance had on the perceived legitimacy of clients, and by construction of the volume in retail variable we had to restrict the sample to those grossing under $200,000 per year, we found a significant positive impact. In this case, it appears that assistance was not significant in boosting overall sales however. This may indicate that the results of the increase in legitimacy don't always directly translate into increased sales (at least not immediately) but may be behind the increased survival rates as well as future potential for sales increase once the higher legitimacy obtained percolates into increased customer loyalty and brand recognition.

Continuing on to the other performance variables, we do find a positive correlation with assistance and employment as is evidenced below in table 33.

Table 33: OLS regression of Total Employment on treatment and controls restricted to those grossing under $200,000 per annum in sales. (statistically significant variables in bold, N=186, R^2=0.1085)

totemp	Coef.	Std. Err.	T	P>|t|	[95% Conf.	Interval]
propinfoseek	-0.03	0.14	-0.19	0.85	-0.31	0.26
age	0.03	0.03	1.25	0.21	-0.02	0.09
indusexp	0.03	0.04	0.70	0.48	-0.05	0.10
baormore	**1.14**	**0.60**	**1.92**	**0.06**	**-0.03**	**2.32**
male	0.44	0.57	0.76	0.45	-0.70	1.57
white	-0.36	0.81	-0.44	0.66	-1.96	1.24
familyentrep	-0.68	0.70	-0.96	0.34	-2.06	0.71
foodproc	**1.52**	**0.75**	**2.03**	**0.04**	**0.05**	**3.00**
inherit	**-1.43**	**0.71**	**-2.00**	**0.05**	**-2.84**	**-0.02**
pushed	**-0.93**	**0.48**	**-1.94**	**0.05**	**-1.87**	**0.02**
ventureage	0.18	0.14	1.28	0.20	-0.10	0.45
pcassist	**1.02**	**0.61**	**1.67**	**0.10**	**-0.18**	**2.22**
_cons	-1.23	2.10	-0.59	0.56	-5.38	2.92

It should be noted, however, that this variable is only weakly significant, and once additional entrepreneurial orientation variables are added (such as *proprisktake* and *propinnovate*) we see this variable drop out of significance slightly. Nevertheless, there does appear to be at least some impact being observed here. We can also see that the inheritance variable remains a significant negative predictor for this group, which gives some support to the previous claim as one would not expect the lifestyle entrepreneur to be among the group excluded from this regression (i.e. those with sales >$200,000 per annum). Also, those pushed into entrepreneurship are, not surprisingly, less likely to be experiencing employment growth. Whereas, those in the food processing industry and higher education levels are experiencing higher employment growth than those who are not. Furthermore, it also appears when one restricts the sample on the basis of level of sales as we have, the strong correlations between males as well as those with Caucasian ethnicities seems to disappear. A similar effect also

occurred with the sales analysis above, especially with the gender variable, where the same effect occurred, and the impact of the ethnicity variable was lessened. This perhaps indicates that being Caucasian and male is highly correlated with operating those large firms, but is less apparent in the smaller ones.

The results of this regression appear to give us another area where we can reject H1-f for those grossing under $200,000 per annum in sales. It is also interesting to note that in terms of total sales for this group, there was no significant difference found between the treated and non-treated group (though there was a difference found in volume in retail). It is difficult to speculate why this might be, but it is an area that would warrant further research.

Next, we find that EAP assistance is significant in improving the probability a small firm's entrepreneur will receive external financing as is indicated below in table 34.

Table 34: Probit of receiving external financing on treatment and controls restricted to those grossing under $200,000 per annum. (statistically significant variables in bold, N=188, Pseudo R^2=0.0711)

Y=externfinance	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
indusexp	0.01	0.01	0.90	0.37	-0.01	0.03
baormore	-0.19	0.23	-0.84	0.40	-0.64	0.25
age	**-0.19**	**0.06**	**-3.18**	**0.00**	**-0.32**	**-0.07**
age2	**0.00**	**0.00**	**3.04**	**0.00**	**0.00**	**0.00**
propinfoseek	-0.02	0.06	-0.36	0.72	-0.14	0.10
ventureage	**0.08**	**0.04**	**1.82**	**0.07**	**-0.01**	**0.16**
pushed	-0.10	0.28	-0.36	0.72	-0.66	0.46
inherit	0.09	0.38	0.23	0.82	-0.65	0.82
familyentrep	-0.07	0.23	-0.32	0.75	-0.52	0.38
foodproc	-0.08	0.24	-0.32	0.75	-0.55	0.39
pcassist	**0.43**	**0.23**	**1.86**	**0.06**	**-0.02**	**0.89**
white	-0.05	0.34	-0.15	0.88	-0.71	0.61
male	-0.02	0.21	-0.09	0.93	-0.43	0.39
_cons	3.74	1.67	2.24	0.03	0.47	7.02

Interestingly, this finding only holds true, however, when a squared age term is included. In fact, without the squared age the model does not even fit with any level of significance for any variable. With it in, however, the upside down U-shaped relationship with age gives some indication that investors have a preference for entrepreneurs in the middle of the age spectrum (which for this sample would mean in their late 40s and 50s). Only after this preference is controlled for do we see that assistance has an influential impact. The same is true for the age of the venture, though industry experience and "pushed" status are no longer significant as they were in the unrestricted model. It appears, once again, the impact of assistance is most profound on those small and medium sized ventures. So while again we cannot reject H_{4o} for the entire sample, we can do so for those who gross under $200,000 in sales per annum.

J. Implications of these findings

In regards to what the impact is that assistance this particular EAP provides, it appears that it is most effective at creating value for those smaller business with gross annual sales under $200,000 per annum. This is not entirely surprising as those businesses that are already doing well enough to be obtaining significant revenues are probably the least likely to need assistance and are in fact driving the selection bias that is occurring. In fact, this research has shown that these small businesses are more likely to be run by older females with a history of family entrepreneurship, less experience in their venture's related industry and have a smaller propensity to grow their business that those with larger firms. It is interesting to note that this demographic group has already been identified (except the female part) as the cluster who has received the most incremental benefits from assistance, on average, namely the older inexperienced cluster from the cluster analysis,

Furthermore, until recently, the Product Center's focus has been on aiding the start-up of small businesses to go from producing a cottage industry good out of their kitchen to taking the next step towards becoming a growing commercial product. It helps these businesses at each step of the way from developing the venture concept, acting as a sounding board to help "weed out" untenable ideas and "plant in" good ones, to developing a business plan to attract investors, to obtaining the proper packaging and labeling, to adhering to industry regulations and norms, to finally gaining access to marketing outlets and developing proper growth strategies. These are all things that the large business grossing over $200,000 per year has already done and hence do not find that beneficial. For those small business and nascent entrepreneurs without a lot of experience, however, this assistance can be invaluable and the data clearly shows that the EAP has helped to increase survival rates, perceived legitimacy with retailers and external investors, and produced employment growth. The increased legitimacy brought about by assistance with external resource holders was also shown to be more prominent with those who received assistance prior to the launch of their new venture. This indicates that for EAP assistance to be most effective, it should be engaged in at the beginning of the entrepreneurial process. Trying to change courses midstream seems to have been less effective.

Those who are finding it useful, are also benefitting from a larger start-up network than those who do not, which can also help to further improve their probabilities of success. The assistance also appears to encourage them to be more proactive in the entrepreneurial orientation (EO) of their firm.

That is not to say that this assistance has always been effective or that there is no room for improvement. As some of the comments and evaluations from the less satisfied users bears out, clearly there are ways in which the Product Center can improve its ability to create value for

entrepreneurs. The significant lag times between counselor contact with entrepreneurs, the apparent heterogeneity between counselor effectiveness and the passing on of information on what to do without enough follow up and support to get it done all indicate areas that the EAP could improve its effectiveness. Whether this is due to a scarcity of counselors to respond to the abundance of clients seeking assistance or a scarcity of skill level amongst those counselors is an area that is beyond the scope of this analysis, but should be investigated further.

Furthermore, while helping the small and medium sized businesses improve their survival, legitimacy and growth rates is important, so too is helping the most successful ventures become more successful. These large, fast growing ones are often the ones most associated with the ability of entrepreneurial activity to create economic growth (e.g. Reynolds et al, 2000). In fact, with its High Impact Value Action Team (HI-VAT) the Product Center has started to cater to this group a bit more, but it is still too early to gauge its impact in the data. Therefore, future research will need to take this into account as well.

It is also important to note that the entrepreneurs within this sample are quite a diverse and heterogeneous mixture. Therefore, it is not surprising that, though many significant relationships were found, the overall R^2 value of the regressions was often under 0.1. Furthermore, there was clearly evidence of response bias in terms of survival rates when compared to figures provided in the literature (e.g. Shane, 2008). While these should raise some concern on the part of the validity of the results contained within this paper, it is hoped that so long as the response bias is not skewed towards treatment or non-treatment, and the known differences in heterogeneity across entrepreneurs (i.e. the selection bias effect) has been sufficiently accounted for in terms of bounding the resulting estimates as conservative, and no

other unobserved bias is at work, then some confidence can be had in the validity of the average treatment effects uncovered.

Therefore, in conclusion, it appears that EAPs can significantly create value for those entrepreneurs most at risk from the "liability of newness." The pre-launch counseling that helps to "weed out" untenable ideas and "plant in" good ones before resources are committed to the new venture creation process appears to be effective at increasing overall survival rates and potentially even the employment growth seen. The strategic counseling on marketing strategies, the specialized services provided on product testing, labeling and packaging, as well as the direct ties developed by the Product Center with retailers appears to be helping to legitimize the smaller new ventures with key trading partners and end consumers. While lastly, the business planning services and ties to resource holders such as GreenStone Farm Credit Services and Comerica bank also appear to be helping the smaller ventures gain more legitimacy with potential investors. Though not perfect, it does appear that EAPs can help facilitate the new venture creation process to the point that for those who have received assistance, and found it useful, in the words of one respondent, "It would have been much more difficult to do this without the help MSU has provided."

VIII.   SUMMARY OF FINDINGS

The motivation behind this research was to determine if one particular Entrepreneurial Assistance Program (EAP), the Michigan State University Product Center, a publically financed organization, has created value for its food and agribusiness clientele. This lead to the positing of the primary research question:

How much value has the Product Center, as an example EAP, created for its clients? **R1**

To answer this question, we first conducted an extensive literature review of past EAP impact studies. This review gave some indication that these programs were creating value in some particular situations, such as with less experienced entrepreneurs and those with limited resources at hand. But there was a strong concern of selection bias on the basis of who seeks assistance. This bias results from the fact that known factors that cause entrepreneurs to seek assistance such as: 1) being a proactive information seeker and/or 2) having lower entrepreneurial ability will also influence the overall probability of success of that entrepreneur (positively in the former and negatively in the latter). Therefore we also determined that we must first answer the following two secondary research questions before a conclusive answer to the primary research question could be given:

What types of entrepreneurs seek assistance and why? **R2**

What types of entrepreneurs find assistance useful and why? **R3**

To conduct this analysis, a set of hypotheses was developed for each question and a survey created to obtain the necessary data to test these hypotheses. This survey was sent out to all individuals who had contact with the Product Center from 2004-2012, as well as to a control group of entrepreneurs who had applied for a new food license in Michigan during that same time period. Non-entrepreneurial respondents were screened out, as well as incomplete

responses, and the remaining respondents were used as the data set to test the proposed hypotheses.

Using this data we first conducted a cluster analysis on the respondents to determine if there were distinct groupings of entrepreneurs within the sample. Three different types of entrepreneurs emerged from this analysis: the *Seasoned Entrepreneurs* – who consisted of older veterans of the industry with decades experience who have spent a substantial amount of time as self-employed; the *Late Bloomers* – older newcomers to the industry with a modest amount of experience owning their own business but less so in the industry of their new ventures; and the *Young Bucks* – who are well educated but less experienced younger entrepreneurs often starting up a business for the first time. The *Young Bucks* were the most likely cluster to seek out assistance, but the least likely to be satisfied with it, whereas the *Seasoned Entrepreneur* was the least likely to seek out assistance but most likely to be satisfied with it. Interestingly enough, however, when looking at the incremental gains provided by assistance by comparing within the clusters we found that the *Late Bloomers* who received assistance had the highest difference from the non-assisted group in median sales and volume in retail, but the assisted *Seasoned Entrepreneurs* had the highest overall improved survival rates and ability to obtain external financing when compared to the non-assisted *Seasoned Entrepreneurs*. The *Young Bucks*, in comparison, had the lowest overall improvement from assistance. This appears to indicate that the Product Center is providing the most benefit to its older entrepreneurial clientele than its younger ones and satisfaction appears most correlated with ability of the Product Center to help a venture improve its survival probabilities and increase its perceived legitimacy with resource holders.

Next, for the sample as a whole, we analyzed what types of entrepreneurs seek assistance and why. This was done in order to ensure we were taking proper steps to deal with selection bias so we could quantitatively determine if the Product Center was indeed creating value for its clientele in the ways postulated above. In this regard we found support for the notion that seekers of assistance are proactive information seekers, though could not find any support for the notion that seekers of assistance were more likely to have lower entrepreneurial abilities (see table 35 (below) for a summary of **R2,** the hypotheses we put forth to answer this question and the findings).

Table 35: Research question 2, hypotheses and findings

R2	What types of entrepreneurs seek assistance and why?	Reject Null (y/n)
H2	*Entrepreneurs with less entrepreneurial experience and/or ability will be more likely to seek assistance than those with more experience and/or ability.*	*N*
H3	*Entrepreneurs with a higher propensity to seek information will be more likely to seek assistance than those with a lower propensity to seek information.*	*Y*

Unfortunately, we were not able to identify a valid instrument for the aforementioned selection bias concern, but by using the omitted variable proxy (*propinfoseek*) we can mitigate the positive selection bias concern associated with proactive information seekers being more likely to succeed through removing the correlation of success and propensity to seek information from the error term of the treatment coefficient's estimator. In regards to the downward selection bias effect of treatment due to seekers of assistance being more likely to have lower entrepreneurial abilities, though we have not been able to instrument this away or find an appropriate proxy for this omitted variable, we have shown that this bias is downward bounded

and would therefore not cause any significant positive impacts identified to be invalidated. This is because the effect of this bias would only cause estimators to be more negative than the actual effect, and therefore if a regressant coefficient is estimated to be significantly positive, the actual effect of that variable would only be more positive assuming the upward bias is removed through the use of the *propinfoseek* variable.

In addition, we also found evidence to suggest that seekers of assistance were more likely to have a strong propensity to grow their business (*propgrowbiz*), have achieved higher educational status (*baormore*) and have a history of entrepreneurship in the family (*familyentrep)*. Given the influence that these characteristics could also have on overall performance, they were also included in the impact analyses to remove any other potential selection bias concerns. We also found that although the majority of the entrepreneurs in the sample were Caucasian (approx. 90%), non-Caucasians we slightly more likely than their Caucasian counterparts to seek assistance.

We next examined what the differences were between those who found assistance useful or those that did not. This was done to give us an indication of what type of entrepreneur would be most likely to receive value from EAP assistance. In this case we found that those who sought assistance prior to the launch of their new venture were more likely to find that assistance useful than those who sought out assistance only afterwards. Though there was some weak indication that the timing of when one sought assistance was positively correlated with the respondents' propensity to seek information and negatively correlated with their industry related experience. In addition, we also found that those respondents who had launched their ventures and had sales under $200,000 per year as well as had other characteristics associated with lower probabilities

of entrepreneurial success, such as a lack of experience in the industry, were more likely to find

assistance useful (see table 36, below).

Table 36: Summary of research question 3, relevant hypotheses and findings

R3	What types of entrepreneurs find assistance useful and why?	Reject Null (y/n)
H4	*Entrepreneurs who seek assistance prior to launch will be more likely to find that assistance useful than those who seek assistance only after launch*	*Y*
H4-a	*Entrepreneurs who seek assistance prior to launch will be more likely to have a higher propensity to seek information than those who seek assistance only after launch.*	*Y*
H4-b	*Entrepreneurs who seek assistance only after launch will have significantly less entrepreneurial ability than those who seek assistance prior to launch.*	*Y*
H5	*Entrepreneurs who have launched products and have less entrepreneurial experience and probabilities of success without assistance will be more likely to find assistance useful.*	*Y*
H6	*Entrepreneurs from firms whose gross annual sales is less than $200,000 per year will be more likely to find assistance useful.*	*Y*
H7	*Entrepreneurs who seek assistance and then decide to not launch a new venture will have been less likely to be successful than those who have persisted with the assistance process.*	*Not enough information*

Respondents who were well-educated entrepreneurs and those with a family history of

entrepreneurship were, in addition to more likely to seek assistance, also more likely to find that

assistance useful. This poses further questions to be investigated as to why the Product Center's

services attract and satisfy those entrepreneurs with higher educational degrees and/or those with

other entrepreneurs in the family more than those without higher degrees or family

entrepreneurs. One potential explanation is that the language and paradigms used at the Product

Center are presented in a way that is easier to understand for entrepreneurs who are already

familiar with the business or the university environment, but is less accessible for those who are relatively inexperienced in either arena.

In contrast to the findings above, those who did not find assistance satisfactory or useful often complained that the information provided by the Product Center was too vague, and counselors did not follow up quick enough or provide enough specific direction on what to do next. This gives further support to the idea that assistance is most valuable to those with enough business experience or education that allows them to fully appreciate and utilize the information provided as opposed to the inexperience nascent entrepreneur who is new to the industry.

Lastly, after fully examining and accounting for the different characteristics of the clusters of entrepreneurs, those who seek assistance and those who find it useful, we sought to quantitatively identify the value created by the Product Center. Here we saw first and foremost that the Product Center was very effective at "weeding out" less tenable business ideas and "planting in" sound ones evidenced by the lower launch rates but higher survival rates amongst those entrepreneurs who sought assistance prior to the launch of their new ventures. We also found that those who received assistance prior to the launch of their ventures with those who received assistance only afterwards were more likely to have improved performance statistics such as having higher overall sales and the increased ability to obtain external financing, when controlling for other relevant variables, indicating the primary benefit from EAP assistance comes from the pre-launch business idea counseling and development.

When considering the entire sample group as a whole we did not see any noticeable differences in total employment growth or ability to obtain financing, and actually lower overall sales growth with the assisted group versus the non-assisted. However, when one eliminated the large firms with gross sales over $200,000 per year as characteristically different businesses from

the smaller remaining 85% of respondents (i.e. gross sales under $200,000 per year), we did observe that assistance appeared to be significant in increasing the legitimacy of new ventures and led to an improved ability to obtain financing and larger marketing opportunity sets. We also saw that amongst smaller firms, assistance was more likely to increase total employment growth (see table 37 below). In short, assistance is most beneficial to those with smaller firms and who are seeking out assistance prior to the launch of their product. This assistance helps to improve survival rates and perceived legitimacy amongst resource holders, but does not necessarily lead to dramatic performance improvements.

Table 37: Summary of research question 1, relevant hypotheses and findings

R1	How much value has the Product Center, as an example EAP, created for its clients?	Reject Null (y/n)
H1	*Entrepreneurs who receive assistance from an EAP will be more likely to have higher performance, survival rates and legitimacy than had they not sought assistance.*	Mixed
H1-a	*Entrepreneurs who receive assistance from the example EAP prior to the launch of a new venture will be less likely to launch that new venture than those who do not (weeding out hypothesis).*	*Y*
H1-b	*Entrepreneurs who receive assistance from the example EAP prior to the launch of a new venture and decide to launch that new venture will be more likely to stay in business than those who launched a new venture but did not receive assistance (planting in hypothesis).*	*Y*
H1-c	*Entrepreneurs who receive assistance from the example EAP will be more likely to obtain external financing than had they not received assistance.*	*N*
H1-d	*Clients from the example EAP will have access to a greater marketing opportunity set than they otherwise would have without assistance.*	*Y*
H1-e	*Clients from the example EAP will have higher gross annual sales rates than they otherwise would have without assistance.*	*N*
H1-f	*Clients from the example EAP will higher employment rates than they otherwise would have without assistance.*	*N*
H1-g	*Clients who receive assistance prior to the launch of their new venture will receive greater impact from assistance than those who receive it only afterwards.*	*Y*
H1-h	*When restricting the sample to entrepreneurs whose new venture grosses under $200,000 per year, the impact of the example EAP assistance will be more likely to be significantly positive than when compared to the full sample.*	*Y*

In addition to the support provided by the Product Center, we also found that younger entrepreneurs with older ventures, high propensity to grow the business and levels of industry experience were correlated with increased sales growth. These characteristics were also strong predictors of the ability to obtain financing, so it appears that resource holders show some

efficiency in recognizing the market potential of entrepreneurs who seek finances. In terms of the

cluster analysis, this would indicate that late bloomers would have the hardest time obtaining

these resources as well as succeeding in the market. This likely explains why the highest

incremental gains within a particular cluster when comparing assisted respondents to non-

assisted respondents' sales, average volume in retail and ability to obtain financing from

assistance comes from the late bloomers.

IX.   EAP Managerial Implications

The results of this research provide several implications to those who are in the business of managing entrepreneurial assistance programs. The first implication for managers to consider is based on who they desire as the target clientele of an EAP. Our research has shown that proactive information seekers, well-educated entrepreneurs, and those with entrepreneurs in the family are more likely to seek assistance than those without these characteristics. If the goal of the EAP is to attract as many entrepreneurs as possible, EAP managers should look how to better target and provide useful assistance to those with lower education levels and without a history of entrepreneurship in their families as well. This can be done through outreach programs aimed at nascent entrepreneurs without business experience or educational backgrounds. Care should be taken not to involve too much business jargon or know-how as an implied pre-requisite and instead promote workshops and services that provide the most basic level of services. In addition, managers should look for rural or urban venues that would attract food entrepreneurs of this type as well as hire counselors who come from less traditional backgrounds. Our research has also shown that targeting small ventures run by entrepreneurs with less experience in the industry and are still in the pre-launch phase of the venture creation process will also be more likely to find that assistance useful.

Given the limited resources EAPs have allocated to them through public funding, EAP managers must balance catering to the most nascent of entrepreneurs with the concern of providing too much assistance to those ventures with less tenable ideas or less able entrepreneurs. This may seem counterintuitive, given EAPs are meant to help entrepreneurs fill resource gaps such as lack of business knowledge or supply chain networks. While this is true, it would appear that EAP managers should target the "Goldilocks"-type entrepreneurs.

For example, we saw in the cluster analysis that small ventures grossing under $200,000 per year with a *late bloomer* founder were achieving the most incremental gains from assistance. By contrast, the gains in the other two clusters may have been less because the *seasoned entrepreneur* may already have the knowledge and resources that the EAP was providing and the *young buck* may not have enough experience to know how to use those resources effectively. This is not to say that an EAP should refuse assistance towards any group, but instead, the EAP should structure its process to facilitate entrepreneurs who will use the information and assistance provided to maximum effect and discourage those who will not.

In this paper, we have found evidence based on the lower launch but higher survival rates of its clients that this particular EAP is achieving this goal for those that seek assistance prior to the launch of their products by "weeding out" untenable venture ideas whilst "planting in" good ones. According to the Product Center's core staff, this is done through the "concept definition" and "business planning" process where an entrepreneur has to define its business idea, target market, customers, suppliers, processes and so on and gives the entrepreneur a better appreciation of the work involved and a "reality check" on the viability of their idea (Lovgren, 2012). This sudden realization of the work involved and external validity (or lack thereof) of the business idea creates a screening process that can help entrepreneurs decide whether to launch the venture prior to committing significant time and resources to the idea. This is perhaps why we see that those small ventures with entrepreneurs who have received assistance and persisted through the Product Center process from start to finish are achieving measurable gains in survival and employment rates, plus increasing their perceived legitimacy amongst resource holders and trading partners. Managers in turn can highlight this screening process to those

resource holders to further enhance this effect and thus create a strong signal or "badge" "(Bell et al., 2002) to the market.

However, this EAP has been less successful at creating value for those who seek assistance only after they have launched their ventures. It may be that for this group the scope of services required (i.e. obtaining nutritional fact labeling) is beneficial but will have less noticeable impact on performance than the pre-launch assistance provided. This is because pre-launch assistance such as business strategy planning can have a greater overall impact on future performance and may not be explicitly carried out by the control group, whereas post-launch assistance such as nutritional facts labelling is something the control group who must also obtain for market entry and therefore the incremental impact between treatment and control would be less noticeable. Managers should consider whether public dollars should be spent on such services or whether these services should be fee-based. The rationale would be that public dollars should go to services that promote the public good. One-off services such as nutritional fact labeling, packaging or other market entry requirements that all entrepreneurs must obtain promote more the private good of the entrepreneur by saving them the cost of paying for this service than the deeper level strategic and business development services which have a greater impact on improving the overall probability of success and survival of the venture and thus are a greater benefit to society.

We have also seen that those who did not find assistance useful often complained of information as being too general and/or vague with regards to the specific steps to take next. These comments are more likely to come from those entrepreneurs who already have some experience and business know-how, such as the *seasoned entrepreneur* and the larger businesses (i.e. >$200,000 in sales) who maybe seeking deeper strategic consulting services. This is not to

be confused with the earlier finding that those with some level of entrepreneurial or business background were more likely to seek assistance and find it useful, but rather to indicate that after a certain threshold of experience and background, that assistance becomes less useful. So while some business knowledge will drive enterpreneurs to seek assistance and find it useful by allowing the entrepreneur to more readily absorb the information provided, those with extensive business knowledge will not find additional benefit from hearing what they already know. This is likely why these groups have been shown to have less incremental benefit from assistance and is a gap EAP managers must decide whether or not to address. One the one hand, these entrepreneurs already have a significant amount of knowledge and resources at hand and it may be more equitable for an EAP to focus instead on the "have-nots" of the entrepreneurial world. On the other hand, the larger businesses have the potential to create more jobs and customer value so could be providing more societal benefits. This decision will depend on the mission and vision of each EAP on a case by case basis. This research has shown, however, that other than survival, no other significant differences in venture performance from assistance were evident when including the larger firms in the sample. So if improving the larger businesses' performance is a goal, the EAP must develop more specific services and acquire or develop more experienced personnel towards larger businesses who have moved past the start-up phase. In the case of the Product Center, the HI-VAT (HIgh Velocity Action Team program was developed to respond to this need.

Lastly, there also were consistent complaints of long lag times between Product Center contact and follow up from EAP counselors. While we had mentioned earlier that building in screening mechanisms that "weed out" untenable business ideas can be a good thing, the trade-off is screening out potentially good ideas based on frustrations with the services provided. In

this manner, EAP managers should consider whether they feel they have an adequate staff of counselors and specialized service providers to handle the workload of cases brought to the EAP. Given the public financing, which by nature will be limited, and the lack of charge for most services, it is likely that most EAPs will therefore consistently be understaffed in regards to demand from entrepreneurs. Managers should consider this in their structuring of the assistance process by making the service provided streamlined and tiered. That is to say, managers should develop a clear screening mechanism for each stage of the assistance process and tailor the amount of service provided to be inversely proportional to the amount of cases likely to be present at each stage. For example, initial counseling on the business idea will have the most cases, and therefore should have the least amount of time associated with it and have a built in screening mechanism, such as homework on the concept definition process. This is, in fact what is currently being practiced at the Product center (Lovgren, 2012) for this stage. However, it was unclear if the additional stages or next steps were incorporating additional screens, such as market validation or food license obtainment, as a requirement for future service. Nor was it clear that the amount of time allocated for more advanced stages was inversely proportional to the amount of clients to reach that stage. EAP managers should work to make this process explicit and incorporate the core staff team in its structuring so as to ensure buy-in from the key personnel in charge of implementation. By implementing this change, an EAP can go a long way towards reducing the long lag-times due to understaffing without the ability to use a market mechanism (i.e. raising the price of service) to limit demand.

These implications are summarized below in table 38:

Table 38: Implications for EAP managers

	Implications for EAP Managers
1	EAP managers should improve targeting of nascent entrepreneurs without business experience or educational backgrounds by promoting the most basic level of services, especially in rural or urban areas which do not have strong support infrastructures built for entrepreneurs.
2	EAP managers should structure the assistance process to facilitate entrepreneurs who will use the information and assistance provided to maximum effect and discourage those who will not by creating screening mechanisms and explicit market validation checks.
3	EAP managers should charge fees for services that promote the private good of the entrepreneur and have not been shown to increase the overall public good through evidence of increased venture performance.
4	If improving the larger businesses' performance is a goal, EAPs must develop more specific services and acquire or develop more experienced personnel directly targeted towards larger businesses who have moved past the start-up phase.
5	In order to improve the efficiency and effectiveness of assistance provided, EAP managers should develop a clear screening mechanism for each stage of the assistance process and tailor the amount of service provided to be inversely proportional to the amount of cases likely to be present at each stage.

X.   FUTURE RESEARCH IMPLICATIONS

In terms of the contribution this research provides to the entrepreneurial and EAP literature streams, there are many potential research implications. We find support for Chrisman and McMullan's (2005) assertion that assistance acts as a special type of knowledge resource for nascent entrepreneurs. The fact that more experienced entrepreneurs find assistance less useful and that the impact of assistance is most readily observable for the small and medium sized firms both indicate that this assistance acts to help fill resource gaps for entrepreneurs that lack the particular set of resources the EAP is skilled at providing. The larger, more experienced firms likely have such resources, knowledge and social ties already established and therefore do not benefit observably from such assistance. However, Chrisman and McMullan's (2005) claim that they have overcome the selection bias problem by showing that the benefits accrued from assistance correlate with the amount of contact hours in a curvilinear relationship does not appear well supported. Indeed, we have found the same relationship to hold true for those who have found assistance useful, but there does not appear to be any grounds for the exogeneity of this measure (thus it was omitted from the results). Those entrepreneurs who find assistance useful will likely return for more assistance, thus increasing the relationship between contact hours and performance benefits. Whereas those less motivated individuals whose business is faltering because of their lack of commitment, or lack of time to devote to the venture idea and development, will likely receive less contact hours and also exhibit lower performance. In addition, those individuals who substitute assistance for actual entrepreneurial activity will likely receive the most contact hours, but have low performance characteristics, and will hence drive the negative quadratic term that dictates the diminishing returns to scale. As all of these factors influence both number of contact hours received and performance, it is]difficult to conclude

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there is a definitive causal link between the two that can be estimated exogenously. Without such an estimation, this method does nothing to overcome selection bias, but simply adds another form of bias into the estimation of the average treatment effect on the treated. For such a procedure to be valid, the number of contact hours given to the entrepreneur would have to be randomly assigned *ex-ante* to treatment, which is obviously not feasible for most EAPs since the goal of the EAP is not to measure its own effect, but rather to help each entrepreneur that walks through its doors to the best of its ability.

We have also shown that researchers are well-founded in their concern over selection bias as we have provided evidence that both the propensity to seek information and the lack of experience are driving factors in the decision to seek assistance and find that assistance useful (and hence persist with it). Even though we were not able to find an instrumental variable to exogenously identify our regressions, we have shown that selection bias can be removed or at least bounded in linear regression models if one can sufficiently account for the various influences of the selection through observable measures that proxy for the underlying effect. That is to say, as selection bias can be viewed as a missing variable bias that, when uncontrolled for, causes correlations between the error term and the regressor, if one can control for it with an observable measure such that it is removed from said error term, then the resulting estimation of the treatment variable would be contemporaneously exogenous. This is in fact what the Heckman procedure does with the Inverse-Mills ratio (though this procedure requires an instrument to identify the selection model to create the ratio in the first place). An attempt was made in this study follow this procedure. The propensity to seek information bias was controlled for through creating a direct scale that respondents could indicate their own preference on seeking information versus relying on intuition and trial and error. In addition, the entrepreneurial ability

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bias was in part controlled for by including education and industry experience. Given that there is some concern that true ability might still transcend all of those measures as an innate characteristic of the respondent, however, there is still some concern over this bias so all results are presented as lower bound.

We also found that the entrepreneurs who seek assistance prior to the launch of their venture were categorically different than those who sought it only afterwards. This is an important finding, because the main distinguishing characteristic between those who sought assistance pre- and post-launch of their venture were their propensities to seek information and overall industry-related experience. Since these two factors are the same factors that are causing selection bias within EAP studies, if researchers do not control for the timing of assistance in their impact evaluations they will be confounding their results by mixing two heterogenous types of entrepreneurs within the treatment group. Since those who seek assistance pre-launch are the most likely to be influenced by selection bias in estimation of the treatment effect, researchers should look to separate out this group via the statistical methods mentioned in this paper in order to achieve unbiased results.

Next, are the three clusters of entrepreneurs identified in this study: *the seasoned entrepreneur, the young buck,* and *the late bloomer* in fact distinct types of entrepreneurial groups that are common amongst entrepreneurs in all industries or was this a simple by-product of random chance in the observed sample? Are there other types of entrepreneurs not identified here that we should also be concerned with?

There were also many interesting relationships found within this study that warrant further investigation. Researchers should consider why those with higher education levels and a history of entrepreneurship in the family are more likely to seek out assistance and find it useful.

Is the assistance provided not accessible enough for those with lower education levels or direct exposure to the business world? Does the university setting of this particular EAP naturally encourage others with university educations to seek out assistance from it? Or are those entrepreneurs with higher levels of education more able to utilize the assistance provided in an effective manner?

Are those who grew up around entrepreneurs more likely to seek assistance because they know firsthand the hardships of entrepreneurship or are they simply more aware of the support networks out there? Is there a genetic component to this behavior? Why do those with entrepreneurs in the family find it more useful as well, when they should also have a "built-in" counselor already in their families to talk to?

Furthermore, another area of research to look into is why were non-Caucasians more likely to seek treatment as a group than their Caucasian counterparts? The overwhelming majority of the sample was Caucasian, indicating non-Caucasians were less likely to go into food entrepreneurship but more likely to seek assistance. Why is this happening? Is it a result of the Product Center's presence in metropolitan areas or does this indicate there is less support for minority entrepreneurs in Michigan and thus a higher need to seek assistance?

Another interesting question to pursue further is the relationship between those receiving treatment and the size of their start-up network. It would appear obvious that those clients who seek assistance prior to the launch of their product and find that assistance useful, would increase the size of their start-up network simply by the inclusion of the EAP counselors themselves. Furthermore, Lovgren (2012) suggests one of the primary mechanisms used by EAPs to create value is to link entrepreneurs indirectly to resource holders, trading partners and other potential collaborators that could work with the entrepreneur for mutual benefit. However, it may be that

those who have strong social skills and the ability to collaborate with others on projects are also more likely to seek assistance from others in order to solve a problem and this is what is driving the apparent correlation. Given that the size of one's start-up network has been linked with performance, it will be important to determine if assistance is exogenously impacting clients' start-up networks in order to count this as benefit provided by the EAP. This could best be done by measuring the size of the client's start-up network when they first receive assistance to the size when the product is launched, and then compare this difference to the difference between the size of the entrepreneurs in the control group's start-up network of at the beginning of their work on the venture idea to when they launch product.

Another puzzling result was the apparent negative relationship between industry experience and survival rates uncovered in this study. Was this a by-product of the apparent survival response bias, where those entrepreneurs who have dropped their business ideas appear less likely to respond to surveys about those ideas? Or is there a relationship between the strategic actions taken by entrepreneurs with more experience, such as engaging in riskier behavior or faster expansions when the economy was doing well, that resulted in higher failure rates once the economy went into a recession such as the one brought on by the recent housing market crash?

Similarly, the negative relationship between receiving an inheritance (which was meant to proxy for not having capital constraints) and employment levels uncovered is also puzzling. The lack of capital constraints, one would presume, would allow entrepreneurs more flexibility in hiring employees to help grow the business. It may be, however, that given the relatively small size of most of the ventures within this sample, those with inheritances have decided to become entrepreneurs to pursue a "hobby" or "lifestyle" business that is not intended to grow into a large

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commercial operation, but rather provide a reasonable return to the entrepreneur's passion for producing a particular product. Many entrepreneurs in this survey have indicated such motives for this business, as was the case with the entrepreneur involved in selling the "wild-harvested" goods quoted above, and for those types of entrepreneurs it is unlikely that they would be interested in hiring additional employees.

Finally, why is it that these results have not shown an increase in total sales growth for the assisted entrepreneurs grossing under $200,000 per annum versus the control group, but have shown an increase in employment levels for the same category? One would expect higher sales and higher employment levels to be strongly correlated (as one needs more sales to pay more employees). This survey did not take account of the salary being afforded these employees, so it is difficult to ascertain whether assisted clients are running their operations more efficiently and can therefore hire more employees, or if the unassisted ones are more efficient by not having more employees. Therefore, further research should look deeper into what is occurring here.

These questions for future research are summarized below in Table 39.

Table 39: Implications for future research.

	Implications for future research
1	Chrisman and McMullan's (2005) assertion that assistance acts as special type of knowledge resource for nascent entrepreneurs appears to have found some support within this dissertation, but not so the claim that selection bias is overcome through the curvilinear relationship with contact hours.
2	There is evidence that the concern about selection bias for entrepreneurial ability (based on experience) and the propensity to seek information is well-founded. While an instrumental variable was no identified, proxies for these unobservable variables were and can be used to mitigate this concern.
3	The three clusters of entrepreneurs were identified in this study: *the seasoned entrepreneur, the young buck,* and *the late bloomer.* Are these in fact distinct types of entrepreneurial groups that are common amongst entrepreneurs in all industries or was this a simple by-product of random chance in the observed sample?
4	Entrepreneurs who seek assistance prior to the launch of their venture are more likely to show the characteristics associated with selection bias (e.g. high propensities to seek information and a lack of industry-related experience), and therefore impact evaluations should estimate this group separately from those who seek assistance only after launch
5	Entrepreneurs with higher education level and a history of entrepreneurship in the family are more likely to seek out assistance and find it useful indicating that assistance may be unintentionally targeting these groups over those with less business knowledge/education.
6	The sample was overwhelming Caucasian (90%), but non-Caucasians as a group were more likely to seek assistance. Does this indicate there is less support for minority entrepreneurs and thus a higher need to seek assistance?
7	Negative correlations with industry experience and survival, as well as receiving an inheritance and total employment seem counterintuitive. Are other deeper factors at play?
8	Why is it that these results have not shown an increase in total sales growth for the assisted entrepreneurs grossing under $200,000 per annum versus the control group, but have shown an increase in employment levels for the same category

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