Assessing the Impact of
Microenterprise Services (AIMS)
Management Systems International
600 Water Street, S.W.
Washington, D.C. 20024-2488
Tel: (202) 484-7170 • Fax: (202) 488-0754
E-mail: aims@msi-inc.com

DIVERSIFICATION IN THE HOUSEHOLD ECONOMIC PORTFOLIO

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Monique Cohen, Ph.D.
Office of Microenterprise Development
Economic Growth Center, Global Bureau
USAID

Submitted by:

Elizabeth Dunn
Department of Agricultural Economics
Social Sciences Unit
University of Missouri-Columbia

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FOREWORD

The Assessing the Impact of Microenterprises (AIMS) Project seeks to gain a better understanding of the processes by which microenterprise programs strengthen businesses and improve the welfare of microentrepreneurs and their households. In addition, it focuses on strengthening the ability of the U. S. Agency for International Development (USAID) and its partners to measure the results of their microenterprise programs.

The project's core agenda includes desk studies, focused field research, three major impact assessments, and the development and testing of tools for use by private voluntary organizations and non-governmental organizations to measure the impacts of their microenterprise programs. Each of the major impact assessments will focus on a specific microenterprise program. Information will be obtained from program participants and a comparable group of non-participants in two main rounds of data collection, with a two year interval between the rounds. Further information about this USAID-funded project and its publications is available on the AIMS home page (http:\\www.mip.org).

This paper is one in a series of AIMS studies that addresses substantive and methodological issues. While it furthers the agenda of the AIMS Project, the paper is also intended to be of interest to others seeking to understand and document the impacts of microenterprise programs.

Carolyn Barnes
AIMS Project Director

EXECUTIVE SUMMARY

In measuring the impacts of microenterprise services, it is common to focus on the growth of a single microenterprise. However, even when the focus microenterprise does not exhibit growth, the client and other members of the household may experience an improvement in their economic welfare over time. This may occur if the household pursues a diversification strategy, where diversification is defined as the presence of multiple income generating activities and sources of wage employment within the household economic portfolio. In order to capture the range of potentially significant impacts of microenterprise services, the focus should be broadened to include the entire household economic portfolio.

There are several possible motivations for pursuing a diversification strategy. These motivations are: 1) poverty, 2) risk, 3) expansion, and 4) intergenerational launching. Under the poverty motivation for diversification, the household faces resource or market constraints that prevent it from expanding any single income generating activity up to a level that would be sufficient for supporting the basic needs of its members. In order to generate additional income, the household may allocate underutilized resources to a secondary microenterprise or wage labor activity. Under the risk reduction explanation for diversification, household members seek to protect themselves from shocks to total income by simultaneously undertaking several distinct income generating activities, with incomes that are not covariant. The expansion motivation for diversification represents a strategy of responding to new economic opportunities.

The intergenerational launching motivation for diversification is based on a parent's desire to provide children with future economic opportunities by launching them into entrepreneurial activities as the children come of age. By watching for opportunities and initiating the accumulation of fixed assets, the parent is the key strategist behind an intergenerational launching diversification strategy. The parent's original microenterprise serves as the launch-pad microenterprise, because its profits are used to pay the start-up costs of the new microenterprises to be managed by the children. The launch-pad enterprise continues to play an important role in supporting the family, although its relative contribution to total household income may decrease over time as the newer microenterprises begin generating relatively more income. If an impact assessment focuses only on the launch-pad microenterprise, then it may fail to measure important improvements in the economic welfare of the household and its members.

The use of diversification as an intergenerational launching strategy is illustrated through three case studies of clients of Accion Comunitaria of Peru. The three clients--two women and one man--have each established one or more new microenterprises to be managed by the grown children. The resources for starting the new microenterprises came from the revenues of the parents' microenterprises and, sometimes, directly from the microenterprise credit extended to the parents' microenterprises. The purpose of the diversification strategy was to launch the next generation of entrepreneurs.

The diversification strategies are interpreted relative to a conceptual model of the household economic portfolio, a model which has been presented graphically and described in detail in previous AIMS Project Technical Reports. In this paper, an alternative, symbolic representation of the household economic portfolio is developed, and the motivations for diversification are reexamined within this context. In addition, the paper examines the dynamic, or life cycle, changes that may occur in the household economic portfolio as it pursues an intergenerational launching strategy.

The final section of this paper explores the implications of incorporating diversification into the design of a microenterprise program impact evaluation and describes possible approaches for measuring the concept of diversification. Empirically, though there are several possible measures of diversity, an inverse Simpson measure of diversity is recommended because it captures both the number of income sources and the relative importance, or evenness, of these sources. In addition to measuring the incidence of diversification, an impact analysis should include variables that reflect changes in household welfare--such as total household income, expenditures on education, and accumulation of physical and financial assets--that may represent the results of a successful diversification strategy. Finally, a qualitative component is needed in an impact evaluation in order to better understand the motivations and circumstances for diversification and to investigate the relationships between diversification and the life-cycle of the household.

DIVERSIFICATION IN THE HOUSEHOLD ECONOMIC PORTFOLIO[1]

I. INTRODUCTION

In measuring the impacts of microenterprise services, it is common to focus on the growth of the target microenterprise.[2] For example, some of the more common variables that have been used to measure enterprise growth are microenterprise profits, sales volume, enterprise assets, net worth, and employment. Lack of favorable change in these variables is evidence for lack of growth of the target microenterprise. Within the context of an impact evaluation, the implication drawn from these results is that the microenterprise services have failed to have a favorable impact.

However, even when the target microenterprise does not exhibit growth, the client and other members of the household may perceive an improvement in their economic welfare over time. In order to capture all of the relevant and significant impacts of microenterprise services, therefore, it is important to take a more comprehensive view of the household when conducting an impact evaluation. By expanding the focus of the analysis, it is possible to understand how household economic welfare can improve even while the target microenterprise remains fairly stable. Such an expanded view of the enterprise within the household is provided by the conceptual model of the household economic portfolio, developed as part of the AIMS Project.

One possible explanation for lack of growth in the target microenterprise is that the household is pursuing a diversification strategy. Diversification refers to the presence of multiple income generating activities within the household economic portfolio. There are several possible motivations for pursuing a diversification strategy. Regardless of what the motivation may be for diversification, the result is that the household does not focus all of its productive resources into the single (target) enterprise. This usually implies that the target enterprise does not grow as rapidly as it would under a specialization strategy.[3] Therefore, diversification is sometimes viewed by outside evaluators as undesirable, because it does not result in as rapid growth in the target enterprise as would occur if all productive resources were reinvested in the target microenterprise.

The purpose of this paper is to improve the understanding of the role that diversification plays in the household economic portfolio and to clarify the relationships between diversification and the impacts of

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[1] The author wishes to acknowledge the helpful comments of Monique Cohen and Carolyn Barnes on an earlier draft of this paper.

[2] The phrase *target microenterprise* is used to designate the microenterprise that is the focus of an impact evaluation. The target microenterprise is chosen based on the criteria of the researchers. It will often be the microenterprise that is receiving microenterprise program services, and it may be named on the credit application or credit record. However, the phrase *target microenterprise* is intended only to indicate the reference point for the analysis and is not synonymous with the idea of *targeted credit*.

[3] If household resources are expanding rapidly, then the growth path of the target enterprise may be quite high, even in the presence of diversification.

microenterprise services. In the following section, four possible motivations for diversification are described and the idea of diversification as an *intergenerational launching strategy* is introduced. The use of diversification as an intergenerational launching strategy is illustrated in section three, with examples based on the actual strategies reported by clients of Accion Comunitaria of Peru.[4] Section four advances the conceptual framework of the household economic portfolio by developing a symbolic representation of the model. Diversification is then discussed within the context of the model. The final section explores the implications of incorporating diversification into the design of a microenterprise program impact evaluation and describes possible approaches for measuring the concept of diversification.

[4] One of the AIMs major impact assessments will be conducted in Peru.

II. MOTIVATIONS FOR DIVERSIFICATION

Diversification can be defined as *the presence of multiple income generating activities and sources of wage employment within the household economic portfolio*. Within the conceptual model of the household economic portfolio, the activities of the household are categorized into production, consumption, and investment activities.[5] The production activities, in turn, include the following: 1) income generating activities; 2) household maintenance activities; and 3) wage and outside work. Microenterprises are a type of income generating activity. Thus, a household economic portfolio is said to be more diversified if it has a greater number of microenterprises[6] and/or more numerous sources of wage employment.

There are at least four possible motivations for diversification. These include 1) the poverty motivation, 2) the risk motivation, 3) the expansion motivation, and 4) the intergenerational launching motivation. While the poverty and risk motivations can be primarily understood in terms of the situation of the household at a given point in time, an understanding of the expansion and intergenerational launching motivations requires a dynamic view of the household economic portfolio. In addition, the intergenerational launching motivation can best be understood in terms of the life cycle of the household. The following discussion considers each of these motivations separately. However, the observed diversification in a household's economic portfolio may represent the household's response to a combination of two or more of these motivations.

A. Poverty Motivation

Under the poverty motivation for diversification, the household faces resource or market constraints that prevent it from expanding any single income generating activity up to a level that would be sufficient for supporting the basic needs of the members of the household. For example, the household may have a primary microenterprise that represents their income generating activity with the greatest profit potential. However, the household is prevented from expanding this primary microenterprise due to a lack of financial resources for purchasing additional fixed assets. This constraint to the expansion of the primary microenterprise leaves the household with additional human (labor) resources that are underutilized. In order to generate additional income, the household may allocate this additional labor to a secondary microenterprise or wage labor activity.

A similar situation occurs if the household is prevented from expanding its most lucrative microenterprise due to a market constraint. The market constraint may be due to geographic isolation, institutionally limited market access, or low purchasing power among the base of clientele. In this case, the household may allocate its underutilized resources to a second microenterprise offering an alternative product or service. Another example of a market constraint occurs when available wage work is limited in hours or restricted to certain members of the household. In this case, the household members may allocate their underutilized time to an alternative income generating activity, such as artesanry or commerce.

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[5] The model of the household economic portfolio is discussed in greater detail in section four of this paper.

[6] The discussion in this section focuses primarily on microenterprises. However, the remarks are also applicable to income generating activities more generally.

The basis for the resource or market constraint is the household's insufficient access to markets and resources. The result is that the household expands horizontally by using the non-constrained resources and exploiting alternative markets to undertake additional income generating activities. The household will only be motivated to diversify its portfolio if the sum of the income generated by all of the income generating activities is greater than the amount of income the household could earn by concentrating all of its resources in a single income generating activity.

B. Risk Motivation

The most frequently cited explanation for diversification relates it to the household's efforts to reduce and manage risk. Under the risk reduction explanation for diversification, households seek to protect themselves from shocks to total income by simultaneously undertaking several distinct income generating activities. These income generating activities are selected in such a way that the income from each of the activities is affected by different external risks. When the income from one enterprise is reduced due to an external shock, then the income from the other enterprise is unaffected. In other words, the enterprises are selected so that their individual incomes are not covariant.

This type of portfolio diversification provides the household with lower variance in the amount of total income received, thus protecting the household from income shocks. However, the expected (mean) income from a diversified portfolio may be lower than the expected income from a specialized portfolio. For this reason, risk reducing diversification can result in lower total income over time.

C. Expansion Motivation

A household might also diversify its economic portfolio as part of an effort to expand its economic base. The expansion motivation for diversification represents a strategy of responding to new economic opportunities. The expansion opportunity may be linked to the household's existing enterprises, or it may represent a completely new activity. In either case, the household utilizes the income stream from existing enterprises or taps into outside resources (e.g. credit) or the household's own underutilized resources to initiate a new enterprise.

While there are some essential similarities, the expansion motivation can be contrasted with the poverty motivation in several ways. First, there is the difference in attitude and purpose. Under the poverty motivation, the household is trying to "make ends meets" and meet basic needs, while under the expansion motivation the household is responding to a vision of economic growth. Second, there is a difference in the nature of the external stimulus that leads to diversification. The poverty motivation is a response to a constraint that limits what is considered to be the primary activity. The expansion motivation, on the other hand, is the household's response to a perceived opportunity. Finally, there may be a difference in the length of the planning horizon. While the poverty motivation is normally concerned with the size of present income, expansion motivation diversification may actually be in response to the household's assessment of opportunities for future income streams.

D. Intergenerational Launching Motivation

A fourth type of diversification is related to the expansion motivation but is specifically used by parents to provide their children with economic opportunities as the children come of age. In countries or regions with high rates of unemployment, the maturing child may have a low probability of finding formal sector wage or salary employment. Recognizing this, the parent initiates a separate microenterprise that grows along with the maturing child. Over time, several microenterprises may be initiated, one for each child that will be launched into an entrepreneurial activity.

The parent is the key strategist behind an intergenerational launching diversification strategy. The parent is on the alert for opportunities, and may begin to accumulate necessary fixed assets, even while the child is still in his or her early teenage years. As the child becomes increasingly mature, the new microenterprise is launched, and the child assumes increasing responsibility for the management of the new microenterprise. In this way, the household economic portfolio becomes more diversified. In the long run, the adult child may take his or her microenterprise and break off from the original household unit, so that a new generation of households are "launched."[7]

It is important to consider the role of the parent's microenterprise in the intergenerational launching strategy. This is the original microenterprise that the mother or father starts when the children are small. During these early years, the parent's microenterprise provides a steady source of income to support the family and may exhibit some growth. Once the parent begins to undertake an intergenerational launching strategy, however, the parent's microenterprise may stabilize and show no further signs of growth.

The parent's original microenterprise serves as the "launch-pad microenterprise", because its profits are used to pay the start up costs of the new microenterprises to be managed by the children. The parent will continue to manage the launch-pad microenterprise, although its size may be held at a steady level. It continues to play an important role in supporting the family, although its relative contribution to total household income may decrease over time as the newer microenterprises begin generating relatively more income. The launch-pad microenterprise may not be extremely profitable, but it is often relatively impervious to economic recessions. Thus, the launch pad enterprise creates a fall back position and may provide a degree of stability that permits the household to take risks.

No matter how successful the new microenterprises become, the parent-strategist will usually hold on to the launch-pad microenterprise because it provides a steady source of funds for "launching" the younger children as they come of age. In addition, it helps to maintain the parent's authority within the household as the parent continues to envision and pursue beneficial economic strategies for the household. The launch-pad microenterprise is often the titular recipient of microenterprise program credit, although the loan principal may actually be distributed among the various microenterprises. If an impact evaluation focuses only on the launch-pad microenterprise, then it may fail to measure important improvements in the economic welfare of the household and its members.

[7] In many ways, the intergenerational launching strategy is similar to some traditional apprenticeship practices, such as among West African traders.

III. CASE STUDIES ON INTERGENERATIONAL LAUNCHING

The three case studies presented in this section were constructed based on interviews with three clients of Accion Comunitaria in Lima, Peru. These interviews were conducted during October 1996, and involved observations both at the sites of the clients' businesses and at their homes with numerous household members present. Rather than using the clients' names, they are identified by descriptive labels: the matriarch, the strategist, and the restauranteur. The first two cases are women and the third is a man. The individuals described in the three cases share several characteristics:

< married;
< at least some teenage or older children;
< the primary economic planner-strategist for the household;
< the signatory client of Accion Comunitaria; and
< the manager of a microenterprise in a diversified household economic portfolio.

A. The Matriarch

The matriarch is an amazing woman who delights in telling her story. Born into a Quechua- speaking household in a provincial area, she was orphaned at an early age. Thirty-two years ago, she migrated to the capital city with her husband and two young children. Those early years in the city were difficult. After renting for a time, they participated in a land invasion on the urban periphery of Lima. As new squatters, they lived in a house with dirt floors and walls made out of straw mats. The matriarch and her husband now have six children and numerous grandchildren. Their five sons and one daughter range in age from 18 to 37.

The matriarch was one of the original borrowers from Accion Comunitaria, having received her first credit in 1982. She used those first credits to buy inventory for starting a small market stall, a business which she continues to operate today. Her business offers staple food products (*abarrotes*) and currently operates out of a store in the family home during afternoons and evenings, and out of the market stall across the street during morning hours.

The explicitly stated goal of the matriarch is to launch each of her children in a business or profession. She has been remarkably successful. Three of the children have professions, the oldest son is a lawyer, a middle son is an Air Force pilot, and the daughter is a social worker. All three of these children have established separate households and separate household economies.

Participating in the household economy along with the matriarch is her husband and three of her children. The husband works as a casual laborer. Two of the remaining three children are the managers of separate microenterprises. The oldest of these children has a combined print shop and paper goods store, which is located across the street from the family home. Located within the store is a small beauty salon, which he contracts out to local beauticians. The middle son has an electrical appliance repair business, which is located in the adjacent house.[8] There is a motorcycle used for pick up and delivery of appliances.

At the time of the interview, the matriarch's greatest concern was how to complete the launching of her youngest son (18 years old) in his own computer graphics business. The computer was located in the main sitting room of the house, and the amiable young man was happy to demonstrate some of his work creating flyers, posters, and advertisements for local businesses and organizations. The matriarch was preoccupied, however, with devising a plan for financing the purchase of a laser printer and color monitor, which were needed to firmly establish the growth potential of the graphics business. The son's role in this decision was to determine the type and brand of equipment needed.

The matriarch qualifies for and receives loans from Accion Comunitaria on the basis of her staple goods store. At the time of the interview, she was on her ninety-first credit. This credit was a six-week loan of 4,650 soles to be repaid in six weekly payments of 835 soles (approximately $334 per week).[9] Each credit that is received is distributed by the matriarch to the various microenterprises in the household economic portfolio. In addition to the microenterprises already mentioned, the family has a photocopy machine, with their primary copying business coming from the police station down the street. In summary, the income generating activities in the household economic portfolio of the matriarch are the following:

< staple goods market stall and home-based store (matriarch);
< wages from casual labor (husband);
< print shop and paper goods store (oldest son at home);
< beauty salon (oldest son at home);
< electrical appliance repair shop (middle son at home);
< computer graphics services (youngest son at home); and
< photocopy services.

The matriarch's store serves as the launch-pad microenterprise. It does not grow, but continues to provide a steady income which is used to build the microenterprises of the matriarch's children. The matriarch's store also allows her to qualify for a large and ongoing source of credit, which she can use to further implement her intergenerational launching strategy. In evaluating the impact of the microenterprise loans received by the matriarch, an analysis focused solely on her modest microenterprise would fail to measure the success of this remarkable woman in using her microenterprise and her microenterprise loan to establish the economic welfare of her children.

B. The Strategist

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[8] The resources in the household economic portfolio include a considerable amount of real estate. There are two adjacent houses and a large commercial property across the street. One house is the location of the main family dwelling as well as the site for the matriarch's store, the photocopy business, and the youngest son's emerging computer graphics business. The adjacent house is the site of the electrical repair shop. A small living area has been constructed above the repair shop to provide bedrooms for two of the sons. Across the street is the building that houses the print shop and behind it, facing in the opposite direction, is the matriarch's market stall.

[9] At the time of the interviews, the exchange rate was US$1 = 2.5 Peruvian soles.

The strategist is younger than the matriarch; her seven children range in ages from 8 to 20. In 1989, she and her two oldest children began working in a local bakery. It was physically hard work and the pay was low.[10] So when her husband lost his government job under a structural adjustment policy in 1993, the strategist began to consider alternative economic activities. She looked at the possibility of work as a domestic servant, but discovered the pay was too low. Instead, she made up her mind to open a store and spent the next year accumulating inventory while continuing to work at the bakery. In April 1994, she opened a general store, operated out of her home, offering groceries, some dry goods, and a few prepared foods.

In January 1995, she received her first loan from Accion Comunitaria for the amount of 500 soles. On the day before the interview, she had just received her twenty-second loan for the amount of 3,250 soles. This was a six-week loan, payable in weekly installments. At the time of the interview, she had already spent the entire loan to purchase inventory. The strategist maintains that her profits are increased by using her loan immediately and maintaining the highest possible rate of turnover in current assets.

In the 22 months since receiving her first loan, the strategist has changed from group borrowing to individual borrowing. For her earlier loans, she borrowed as part of a five-member solidarity group. She secured the last five loans, however, as an individual borrower, with her neighbor serving as a co-signer. The shift from group to individual borrowing may have resulted from a perceived increase in the opportunity cost of her time.

The strategist's store has been growing over time, and she also distributes kerosene from her store front. She buys her inventory from wholesalers and distributors. In addition to buying inventory, she used some of the money from her previous loans to purchase glass shelving and a display case. Her plan for the next loan is to buy a refrigerated display case so that she can add delicatessen meats and prepared foods to her product line. She would like to make use of her bakery experience and prepare pastries for sale in her store.

In addition to investing in the expansion of her store, the strategist has begun developing a business for her oldest daughter. She bought an industrial sewing machine and, when she learned of a good price on a used industrial surger, she bought that as well. Her oldest daughter is now enrolled in a full-time sewing course, and a middle daughter has begun to study sewing in high school. The strategist buys pre-cut pieces, and the daughters produce jackets and sweat suits for sale in the store. In addition, the oldest daughter does finishing work under contracts to local garment producers. The strategist's plan is to increase the daughters' skills, equipment, and contracts. In the long run, she plans to add a second floor to the house, move the family's living quarters upstairs, and open a sewing workshop that, along with the store, would occupy the first floor of the house.

In addition to the microenterprises in the household economic portfolio, the household receives income from the husband's and oldest son's work as casual laborers and gardeners. The husband's wages are used

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[10] She reported that the three family members received a total of 250 soles per week.

to pay the tuition at the seamstress school. In summary, the strategist's household economic portfolio consists of the following income generating activities:

- general store (strategist);
- kerosene distribution (strategist);
- casual labor (husband and oldest son);
- sewing garments for sale from home (two oldest daughters); and
- finishing garments under contract (oldest daughter).

C. The Restauranteur

The restauranteur had a full career in the Peruvian navy before returning to Lima to open a rotisserie chicken[11] restaurant in a squatter settlement area. His wife runs a separate restaurant, farther down the hill in a more established neighborhood. Her restaurant is the oldest, over twenty years old, and she ran it while her husband was away in the navy. They have five children; the oldest son is a police officer, a middle daughter is a social worker, and the youngest child is a pre-schooler. One son works with his father in the chicken restaurant and the oldest daughter has been launched in a microenterprise of her own (a third restaurant!). The diversification of this household's economic portfolio is consistent with both the expansion and intergenerational launching motivations.

The restauranteur opened his chicken restaurant four years ago and received his first loan of 900 soles from Accion Comunitaria in September 1993. At the time of the interview, he had recently received his seventeenth loan for the amount of 4,300 soles. The loan was payable twice a month over a period of five months. He used the loan to build a second floor over his restaurant. With the next loan, he planned to put a roof over this upstairs room, which was designed to accommodate dances, meetings, and parties. In spite of the fact that the roof was not finished, the restauranteur had managed to book the meeting room for two paid events in the week since the floor had been finished.

Two years ago, the household started a third restaurant, also down in the established neighborhood. This restaurant is run by the oldest daughter and is more limited than the other two restaurants in that it offers only a fixed plate menu. Nevertheless, it generates additional income, which is shared between the twenty-seven year old daughter and her parents. The three restaurants in the household economic portfolio generate employment for four family members and six paid workers.

In addition to the restaurants and meeting room, the restauranteur has a public telephone service with 250 monthly subscribers at 5 soles each. The telephone can be used to make long distance calls and messages are taken for the subscribers and relayed to them. In addition, they have a truck which is used for cargo and there are plans to start a home food delivery service. In summary, income is generated within the household economic portfolio through the following activities:[12]

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[11] *Pollo a la brasa* is very popular in Lima.

[12] Previously, the restauranteur also had a marine pension, but this was suspended under President Fujimori.

< rotisserie chicken restaurant in squatter settlement with carry-out service (restauranteur and son);

< general restaurant in established neighborhood (wife);

< fixed plate restaurant in established neighborhood (oldest daughter);

< room booking for parties and meetings (restauranteur);

< telephone subscription service (restauranteur and son); and

< truck/cargo service.

D. Summary

In each of these cases, the recipient of the microenterprise credit has established one or more new microenterprises to be managed by the grown children. The resources for starting the new microenterprises came from the revenues of the parents' microenterprises and, sometimes, directly from the microcredit extended to the parents' microenterprises. In some cases, the parent's microenterprise remained stable, while in other cases, this launch-pad enterprise continued to grow. The purpose of the diversification strategy was to launch the next generation of entrepreneurs.

IV. DIVERSIFICATION IN THE CONCEPTUAL MODEL

The conceptual model of the household economic portfolio has been presented graphically and described in detail in an AIMS Project report (Chen and Dunn 1996), and there have been specific interpretations of the model relative to risk (Dunn, Kalaitzandonakes, and Valdivia 1996) and to debt (Dunn 1996).[13] The graphical representation of the model is included in this paper as figure 1. The purpose of this section is to provide an alternative, symbolic representation of the model and to reinterpret the motivations for diversification within this context. The section closes with an examination of the dynamic, or life cycle, changes that may occur in the household economic portfolio as it pursues an intergenerational launching strategy.

A. Symbolic Representation of the Household Portfolio Model

The household economic portfolio consists of a set of household resources (R), a set of household activities (A), and the circular flow of interaction between household resources and household activities. The resources of the household consist of the human resources (HR), physical resources (PR), and financial resources (FR) available to the household at a given point in time:

$$R \; ' \; (HR,\; PR,\; FR\,) \qquad .$$

In any given period, the resources of the household may be augmented by the receipt of credit, represented by the amount of loan principal received (L).

Household activities consist of a set of production activities (P), consumption activities (C), and investment activities (I):

$$A \; ' \; (P,\; C,\; I) \qquad .$$

The specific number, type, and intensity of production, consumption, and investment activities in any given period depend on several factors. First, the household is constrained by the set of resources at its disposal, both in terms of own resources (R) and borrowed resources (L).[14] In addition, the selection of household activities in any given period is determined by the set of joint and separate resource allocation decisions (D). Thus, the vector of household activities in the initial period (A_0) is determined by the following function:[15]

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[13] Chen, Martha Alter and Elizabeth Dunn. 1996. *Household Economic Portfolios.* Washington, D.C.: Management Systems International.

Dunn, Elizabeth. 1996. *Households, Microenterprises and Debt*. Washington, D.C.: Management Systems International.

Dunn, Elizabeth, Nicholas Kalaitzandonakes, and Corinne Valdivia. 1996. *Risk and the Impacts of Microenterprise Services*. Washington, D.C.: Management Systems International.

[14] For simplicity, the possibility of accessing additional resources through social networks is ignored. However, the treatment of socially accessed resources would be somewhat analogous to the use of borrowed resources.

[15] The functional mapping from resources to activities corresponds to the upper flow (left to right) in the graphical model of the household economic portfolio (figure 1).

$$A_0 \ ' \ f(?_0 R_0,\ \mu_0 L_0,\ D_0), \quad 0\#?\#1,\ 0\#\mu\#1,$$

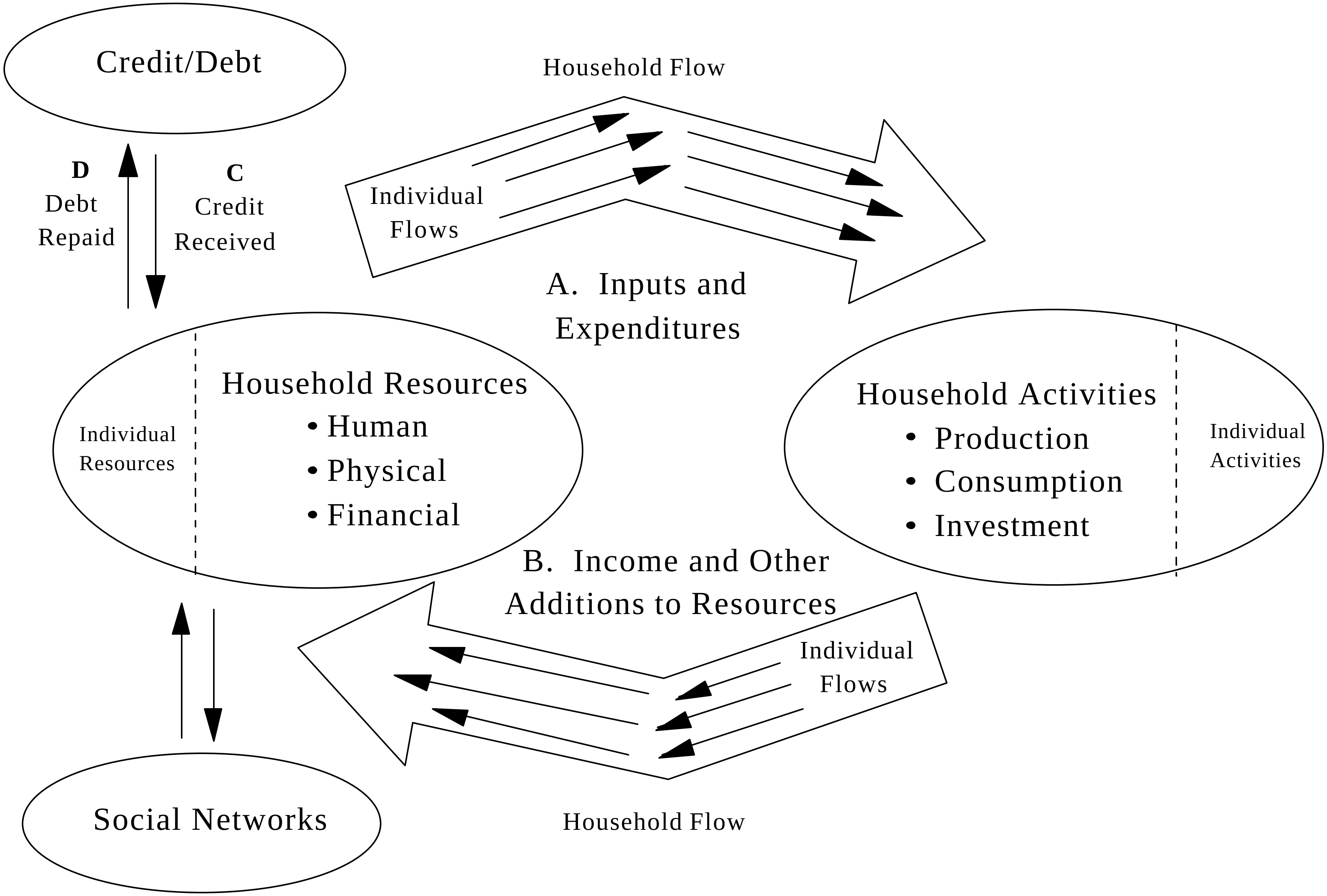

Figure 1: Conceptual Model of the Household Economic Portfolio

where	R_0	=	initial resource allocation of the household (assumed given),
	L_0	=	loan principal received in the initial period,
	D_0	=	set of joint and separate resource allocation decisions,
	$?_0$	=	proportion of household resources allocated to activities, and
	μ_0	=	proportion of loan principal allocated to activities,

and the vector of activities (A_0) is positively related to the vector of resources (R_0) and the amount of money borrowed (L_0):

$$\frac{\partial f}{\partial ?_0 R_0} \geq 0 \ , \qquad \frac{\partial f}{\partial \mu_0 L_0} \geq 0 \quad .$$

The outcome of the resource allocation decision is the amount and type of resources generated and returned back to the set of household resources. This outcome provides the new set of resources available to the household at the beginning of the next period (R_1). The income and resource outcome depends on the set of activities selected by the household in the initial period (A_0), exogenous and random factors that occur during the initial period (e_0), the amount of money borrowed during the initial period (L_0), and the effective interest rate under which the money was borrowed (r_0). Thus, the income and resource outcome can be represented by the following function:[16]

$$R_1 = g(A_0,\ e_0,\ L_0,\ r_0) \quad .$$

The exogenous factors might include changes in wages and prices, changes in laws and regulations, and other contextual or environmental changes considered outside the control of the household. These risk-related changes influence the returns to income generating activities, investment activities, and wage earnings:

$$\begin{aligned} ?_0 &= ?\ (A_0,\ e_0) \quad , \\ N_0 &= N\ (A_0,\ e_0) \quad , \\ W_0 &= W\ (A_0,\ e_0) \quad , \end{aligned}$$

where	$?_0$	=	profits generated by income generating activities in the initial period,
	N_0	=	investment earnings in the initial period, and
	W_0	=	wage earnings in the initial period.

More specifically, the resources available to the household at the start of the subsequent period can be represented by the following equation:

$$R_1 = ?_0 + N_0 + W_0 + (1 - ?_0) R_0 + (1 - \mu_0) L_0 - (1 + r_0) L_0 \quad .$$

Thus, the resources available at the start of the subsequent period (R_1) equal the sum of profits, investment returns, wages, unused initial resources, and unused loan funds minus the interest payments on any money borrowed. In later sections, it will be convenient to represent the profits, investment earnings, and wages by a single earned income function (Y):

[16] The functional mapping from activities to resources corresponds to the lower flow (right to left) in the graphical model of the household economic portfolio (figure 1).

$$Y = Y(R,\ L,\ D,\ e) = ? + N + W \quad .$$

In evaluating the impact of microenterprise services, we are interested in knowing how the household's resources are changing over time, as this is an indication of changes in household economic welfare. The change in household resources between the initial period and the subsequent period can be determined by subtracting the set of the initial resources (R_0) from both sides of the above equation. The resulting equation provides a flow measure indicating the change in household economic welfare:

$$R_1 - R_0 = ?_0 + N_0 + W_0 - ?_0 R_0 - (\mu_0 + r_0) L_o \quad .$$

Thus, there is a greater gain in household resources across periods when profits, investment returns, and wages are higher, and when the interest rate charged on borrowed funds is lower. While unused initial resources and initial borrowed principal have a direct positive effect on resources available in the subsequent period, the ability to generate earned income is constrained by the type and amount of resources allocated to these activities.

B. Motivations for Diversification, Revisited

The first three motivations for diversification can be reinterpreted relative to the above model of the household economic portfolio. The poverty motivation for diversification occurs when some element in the combined set of own and borrowed resources ($R_0 + L_0$) constrains the household from increasing the scale of its most lucrative production activity. The household then allocates the non-constrained resources to an alternative activity.

Resource constraint diversification provides a net economic benefit to the household so long as the alternative activity generates a positive return on the non-constrained resources (thus generating a higher return than would have resulted from keeping the resources idle). In other words, income from the diversified portfolio (Y_D) is greater than income from the specialized (constrained) portfolio (Y_S): $Y_D > Y_S$. The policy implications are that the income-earning potential of a specialized portfolio can be increased by removing resource and market constraints--such as by increasing the availability of credit--and by introducing technologies and management practices that make the limiting resources more productive.

Similarly, the expansion motivation for diversification involves the allocation of household or outside resources to a new activity. However, if the expansion is based primarily on the potential for future income, then the current income from the diversified portfolio may not exceed the current income possible under a specialized portfolio. Instead, it may be necessary to calculate the present value of the household's future income stream in order to determine whether the expansion motivated diversification was a successful strategy for improving household income.

In order to interpret the risk reduction motivation for diversification, the first step is to express earned income as the sum of the income generated by each of the n production and investment activities:

$$Y = ? + N + W = y_1 + y_2 + ... + y_n$$
$$where\ y_i \sim N(\overline{y_i}, \sigma_i)\ and\ \ i = 1,...,n \quad .$$

Diversification reduces the risk of shocks to total income so long as the covariance between any two individual income sources is low or zero:

$$cov\,(y_i, y_j)\;.\;0 \quad for \quad (i...j) \quad .$$

The problem with risk reduction diversification is that the average amount of total income earned in the diversified portfolio may be less than the average total income that would be earned in a specialized portfolio: Y_D # Y_S . The household is willing to forego a certain amount of income since the variance of income in the diversified portfolio is less than the variance of income in the specialized portfolio. Thus, there is a potential economic loss that could be removed through policies that provide households with alternative mechanisms for reducing and managing risk, such as savings and insurance mechanisms.

C. Intergenerational Launching and the Household Life Cycle

Diversification for the purposes of intergenerational launching can best be understood by means of a dynamic interpretation of the household economic portfolio model. The resources and activities in the household economic portfolio change over the years. These phases of the household economic portfolio can be characterized as the early years, the middle years, and the later years.

In the early years, the resources of the household are scarce. Only one or two adults are available as the potential labor resource of the household and the other resources--physical and financial--are also relatively scarce. These resources are allocated to production, consumption, and investment activities. There may be a number of young children, and the level of household maintenance and consumption activities must be relatively high to deal with this high dependency ratio. The household may have one or two income generating activities, which might include a mixture of microenterprise and wage work. During these early years, or toward the end of these years, the launch-pad microenterprise is initiated. The investment activities of the household include investments in the children's human capital and investments to build the launch-pad microenterprise. As time passes, the physical, financial, and human resources of the household begin to grow.

In the middle years, the oldest children have entered their teenage years, and they may begin to contribute to the human resource base, or available labor, of the household. The household continues to allocate a substantial share of its resources to household maintenance and consumption, but, because the overall level of resources has increased, the relative allocation to these categories may decline. The dependency ratio has either stabilized or begun to decline. A relatively larger share of household resources are now being allocated to investments. Human capital investments continue to be important, while additional investments are made to initiate a second, or even a third, microenterprise. These newer microenterprises may be managed by the other parent, or jointly managed by a parent and the oldest child(ren). The original, launch-pad microenterprise continues to be a key contributor to total household income.

In the later years, there are several adults and teenagers living in the household. The dependency ratio has declined from its level in the early and middle years. The level of household maintenance and consumption activities has stabilized and represents a smaller relative share of the total resource allocation. The household now has a number of microenterprises, some of which are managed exclusively by adult children within the household. The parents' launch-pad microenterprise may be stable in an absolute sense, but it is declining in its relative contribution to overall household income. Toward the end of these later years, the composition of the household will undergo dramatic changes, as most or all of the adult children break away to from separate households, and the parents become less active economically.

V. IMPLICATIONS FOR IMPACT EVALUATION

A. Analyzing Diversification in Impact Evaluation

Growth in the target enterprise may not occur when the target enterprise is a launching pad for additional microenterprises managed by entrepreneurial children. Despite the fact that the target microenterprise is not growing, the welfare of the household may be improving. Therefore, the target microenterprise is insufficient as the unit of analysis for impact assessments. The unit of analysis must be expanded to include the household economic portfolio. As part of an evaluation, when one is considering whether or not diversification is a net benefit to the household, it is necessary to a) empirically measure diversification in order to determine the degree to which it is true for a given household economic portfolio; b) seek to determine the motivations for diversification; and c) define and implement appropriate impact variables that can demonstrate the increased welfare of the household in the absence of growth in the target enterprise (e.g. total household income; education expenditures; entrepreneurial opportunities for adult children).

B. Measuring Diversification

Conceptually, diversification is the presence of multiple income generating activities and sources of wage employment within the household economic portfolio. In order to develop an operational definition of diversification, it is necessary to distinguish between expansion of an existing income generating activity (not considered to be diversification) and the creation of a new income generating activity (considered to be diversification). There may be situations in which the distinction is not obvious. In general, however, expansion of an existing activity could be defined as adding different types of products or services, but within the same general line of products and services already offered. Diversification, on the other hand, can be said to occur when the household initiates a different type of activity or the same activity in a different site.

Empirically, there are several possible measures of diversity. These alternative measurement approaches are reviewed in Hill.[17] Possible measures include a simple count of the number of income sources, the Simpson index, and the inverse Simpson index. Hill recommends the use of an inverse Simpson measure of diversity.

The inverse Simpson measure captures both the number of income sources and the relative importance, or evenness, of these sources. It is given by the following formula:

$$d = \frac{1}{\sum_{1}^{n} p_i^2}$$

where d is the measure of diversification, there are n sources of income (indexed by I), and p_i is proportion of income generated from income source I.

[17] M. O. Hill. 1973. Diversity and Evenness: A Unifying Notation and its Consequences. *Ecology* 54(2).

This measure of income diversification (d) increases both with the number of income sources and with the relative importance of each income source. If there is only one source of income, then d=1. If there are two sources of income, and each provides half of total income, then d=2. In general, if there are n sources of income, and each source contributes the same amount (1/n) to total household income, then d=n.

Table 1: Examples of inverse Simpson index of diversification for four income sources

	Contribution to total income from individual income sources				Simpson Index
	1st source	2nd source	3rd source	4th source	
Case 1	1/4	1/4	1/4	1/4	4
Case 2	1/3	2/9	2/9	2/9	3.86
Case 3	½	1/6	1/6	1/6	3
Case 4	2/3	1/9	1/9	1/9	2.08

However, if the contribution to total income of the various income sources is uneven, then the measure (d) will be less than the total number of income sources. The table above illustrates several possible types of diversified portfolios containing four sources of income. In the first case, each source contributes the same amount (1/4) to total income, so that the Simpson measure equals four (d=4). In the fourth case, the first source of income contributes 2/3 of total income, with the other three sources contributing much less. In this case, the Simpson measure is much lower (2.08). As the non-primary sources of income become less and less important as contributors to total income, the inverse Simpson measure approaches 1.

C. Conclusion and Recommendations

Diversification of income sources in the household economic portfolio is a strategy pursued by some clients of microenterprise services. This has implications for the evaluation of the impact of these services because, to the extent that a client is pursuing a diversification strategy, the growth of the target enterprise may be halted or delayed. On the other hand, diversification may lead to increases in overall household welfare. Depending on the motivation for diversification, it may lead to higher total income (poverty motivation), lower variance in total income (risk motivation), an expansion of the household's economic base (expansion motivation) or increased economic opportunities for the client's children (intergenerational launching motivation).

In order to capture these impacts, it is necessary to frame the analysis in terms of the household economic portfolio. First, diversification needs to be measured, to determine whether it is taking place and whether it is occurring relatively more frequently in the client or non-client populations. The inverse Simpson measure of diversification provides a relatively simple and intuitively appealing approach to the measurement of diversification. Second, the impact analysis must include variables that reflect changes in household welfare. These changes may occur in the absence of growth in the target microenterprise, but represent the results of a successful diversification strategy. Such variables could include total household income, expenditures on education, accumulation of physical and financial assets, and economic opportunities for adult children of the household. Finally, a qualitative component is needed in an impact evaluation in order to better understand the motivations and circumstances for diversification and to investigate the generalizations made earlier in this paper concerning the relationships between diversification and the life-cycle of the household.