

Are Aggregate Macroeconomic Factors Relevant in Explaining the Failure of Micro Firms in The United States?

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## JBET Research Notes

Coupons in Recession

*Clifford F. Thies*

# Journal of Business, Economics and Technology

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## EDITORIAL NOTES

The continuing goal of the *Journal of Business, Economics and Technology (JBET)*, formerly the Journal of the Northeastern Association of Business, Economics and Technology, is the publication of general-interest business and economics articles that demonstrate academic rigor, while at the same time are readable and useful to others in academia.

In addition to being listed in *Cabell's Directory*, *JBET* is also available through the EBSCO Host research database, which we expect will increase our readership and the citations of our authors.

The current acceptance rate for *JBET* is roughly 35%. We have strived to accept only high-quality research, while at the same time maintaining *JBET* as a realistic publishing outlet for business and economics faculty throughout the United States. Key to this process is our referees who have worked hard to help “grow” papers that have significant potential by providing authors with critical review comments. Consistent with this objective, we generally require two to three rounds of review prior to accepting articles for publication. At the same time, we are attempting to shorten the average review time for each article to less than three months.

New to this edition of *JBET* is *JBET Research Notes*. *JBET Research Notes* are published to encourage the further development of work that cannot be considered as full research or methodology articles. At the Journal of Business, Economics and Technology, we support the research community across all of the disciplines of Business, Economics and Information Technology by providing this forum for sharing information and data regarding the works-in-process of our constituents. This includes, but is not limited to, updates to previous work, additions to established methods, short publications, null results, case series, research proposals and data management plans. In the current edition, there is one article that the Editor felt qualified for this category. We encourage future submissions for *JBET Research Notes*.

The Spring 2017 edition of the *Journal* reflects the commitment of numerous volunteers. We especially thank the officers of the Northeastern Association of Business, Economics and Technology, the Executive Board and the referees who reviewed articles for this edition.

Kurt Schimmel,  
Managing Editor

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# **ARE AGGREGATE MACROECONOMIC FACTORS RELEVANT IN EXPLAINING THE FAILURE OF MICRO FIRMS IN THE UNITED STATES?**

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## **ABSTRACT**

One of the key characteristics of the United States economy is the drive towards entrepreneurship and growth. Business firms can be established relatively easily and quickly as they considered a key engine for national progress and prosperity. The contribution of small firms to investment, innovation, output, exports, and income is well documented in business literature. Just as it is easy to start a new business venture in the U.S., many firms are also forced out of the market for a variety of reasons. In some past years, the deaths of micro firms outnumbered micro firms births. This study was intended to explore the influence of key external economic factors on the failure (i.e., deaths) of micro firms in the country. The traditional views attribute this unfortunate phenomenon largely to the firms' internal dynamics, including incompetent management, scarcity of capital, and inadequate infrastructure. The impact of external aggregate economic forces has hardly been fully investigated. The findings of the study indicate the absence of a direct link between external macroeconomic factors and the deaths of micro firms in the United States.

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## **INTRODUCTION**

Micro firms – defined in this study to include enterprises with less than 20 employees – are the largest group of business entities within the private sector in the United States. According to the U.S. Bureau of the Census, in 2012 for example, the number of all firms totaled 5.7 million, of which 5.1 million, or 89.5 percent, were micro firms with 20 million employees. Unlike larger firms, micro firms are more vulnerable to dynamic changes in the external environment such as economic recession or drastic change in government regulations. This is largely due to the firms' resource scarcity (e.g., capital, skills) and the focus on narrow geographic horizon as reflected in their limited output, market share, and revenue.

Micro firms are invariably, and uniquely, constraint by both the internal and external environment, which makes them highly prone to be forced out of the market in severe crisis situations or sharp economic swings. To illustrate, for the time period 1994-2014, 17.1 million firms were created, while 16.5 million firms were vanished, a net gain of only 1.3 million firms. During the same time period, however, a net gain of more than 8.6 million jobs were added to the economy (Table 1).

As the Table one shows, an annual average of more than 500 thousand new firms were created in the United States, an indication of the entrepreneurial spirit of millions of individuals of the population. Moreover, the data show that, in the long-term, the overwhelming majority (about 96 percent) of micro firms are forced out of the market during the early years of their establishment. This huge exodus of smaller firms from the market can be attributed to many reasons, including the following: Lack of strategic planning; Insufficient managerial knowledge about the product, market, and industry; Inadequate capital; Relentless competition; and Adverse economic environment.

Table 1  
Micro Firm Births, Deaths, and Employment 1990-2014\*  
(In Thousands)

Year	Births	Employment	Deaths	Employment	Net Firm Gain (Loss) (2-4)	Net Employment Gain (Loss) (3-5)
(1)	(2)	(3)	(4)	(5)		
1994	774	4640	656	3730	118	910
1995	778	4670	670	3800	108	870
1996	823	5010	693	3980	130	1030
1997	828	5010	717	4210	111	800
1998	860	5160	732	4580	128	580
1999	865	5120	769	4620	96	500
2000	882	4730	798	4480	84	250
2001	864	4650	853	4910	11	(260)
2002	880	4510	788	4250	92	260
2003	855	3990	770	3800	85	190
2004	690	4060	776	3710	(86)	350
2005	931	3930	783	3460	148	470
2006	929	3850	818	3270	111	580
2007	918	3690	854	3330	64	360
2008	874	3460	948	3580	(74)	(120)
2009	792	2960	930	3250	(138)	(290)
2010	809	3000	818	2750	(9)	250
2011	833	3080	800	2700	33	380
2012	882	3200	761	2660	121	540
2013	860	3160	788	2690	72	470
2014	888	3250	791	2760	97	490
Total	17,115	85,130	16,513	76,520	1,304	8,610

\* Firms with fewer than 20 employees.

Source: ProQuest Statistical Abstract of the United States, various issues.

Micro firms, despite their smallness and vulnerability, operate almost in all sectors of the economy. They are found in education, medicine, aerospace, law, agriculture, arts, engineering, and a multitude of other productive activities. The firms contribute to the country's economic growth and technological advancement by virtue of their investment, innovation, output, exports, and employment.

The impact of severe environmental turbulence is likely to be different for different economic sectors and, thus, for different micro firms. For instance, during economic depression, firms that operate in the retail sector could suffer greater decline in revenue relative to firms that operate in the medical field. Moreover, strategic response to the environmental challenge could be different for firms in different sectors, and within each sector. Not all firms are fully aware of their industry environment, let alone the national or global environment, or are strategically oriented. Lack of awareness especially of their own industry parameters, including competitive forces, is perhaps one of the main reasons for the demise of micro firms.

The purpose of this study was to explore the influence of key external macroeconomic factors on the failure<sup>1</sup> of micro firms in the United States. Business failures are defined as firms involved in court proceedings or voluntary action that result in losses to creditors. Chapter 7 and Chapter 11 companies are also considered failure due to losses to creditors. Chapter 7 companies liquidate while Chapter 11 companies restructure their debt to stay in business.

<sup>1</sup> In this study, the terms business death, business discontinuance, and business failure are used interchangeably.

Firms going out of business without losses to creditors are considered discontinued businesses are also included in our list for “deaths”.

The study is in line with the Industrial Organization (I/O) theory of competitive advantage. It is assumed here that the firm’s external economic factors could largely explain its failure or success in the marketplace. Factors included in the study are: (1) changes in the rate of national employment, (2) changes in the rate of consumer demand, (3) the rate of change in government spending and investment, (4) the rate of change in interest rate, (5) the rate of change in exports, (6) the rate of change in imports, and (7) the changes in the rate of loans guaranteed by the Small Business Administration (SBA).

## LITERATURE REVIEW

The growing importance of small business firms in the United States has prompted scholars in recent years to pay increasing attention in their research efforts to the phenomenon of the “small enterprise”. Although different entities and individuals have viewed “smallness” differently, an important stream of the literature has emphasized the factors influencing the firms’ growth, success, and failure. Investigating these attributes would certainly lead to recommendations that could enhance the productivity, performance, and competitive advantages of the firms concerned. As the literature review below shows, the great majority of the published research emphasized the internal situation of the firms – to the exclusion of the external forces – as the key reasons for their success or failure. These views are in line with the Resource-Based view of competitive advantage.

Abdelsamad and Kindling (1978) discussed the reasons for small business failure. The authors identified several factors including the following: Financial pitfalls such as inadequate accounting system, insufficient capital, and dependence on debt; Excessive optimism; Inability of the owner to recognize what business they are in; Underestimation of the impact of economic swings; Inability to delegate authority to subordinates; and Negligence to develop subordinates’ skills; Failure to monitor results of business activities.

Kozmetsky and Ridgway (1983) conducted a survey of small business owners and managers in which the authors indicated that the participants felt that the main cause of small business failure was the lack of management expertise, and that the rate of failure could be decreased via management education. In another survey reported by *Manitoba Business* in 2004, which was carried out by *Dun and Bradstreet*, showed that 90 percent of business failure was traced to: Poor management; Lack of internal planning; Company under capitalization; Mismanagement of company’s cash flow; and Marketing weaknesses.

Gaskill, Van Auken, and Manning (1993) studied the failure of apparel and accessory retailers and found out the causes could be clustered into four major sets of factors, as follows: Poor execution of managerial functions; Weak capital management; Competitive environment; Inability to manage company’s growth and expansion.

Lussier (1995) identified 15 key internal factors that were mentioned in published research as being influential forces that affect business success or failure. The factors are: Capital, owner’s industry experience, and owner’s management experience; Business planning, the utilization of professional advisors, and college education of the owner; qualified staffs, product/service timing, and economic environment timing; Owner’s age, business partners, and parents’ business ownership; Minority owned business, marketing skills, and record keeping and financial control.

By deploying logistic regression and other statistical measure, Lussier concluded that only four of the factors listed above (planning, professional advisors, education, and staffing) were significant predictors of business success or failure of what he termed young firms (enterprises that are 0 - 10 years old regardless of the firms’ employment size). The author pointed out that his generic nonfinancial model could predict the success or failure of a business enterprise about 70 percent of the time.

Moreover, Al-Shaikh (1998) studied the causes of failure of small manufacturing Jordanian firms. The author pointed out that there were two key sets of factors responsible for the failure: (a) managerial factors and (b) financial factors. Perry (2001) investigated the influence of business planning on small business failure. The author found out that non-failed firms did more planning than similar failed firms did prior to failure.

Menefee and Parnell (2007) examined the factors associated with the success and failure in technology-oriented firms. The authors classified the firms (small and mid-sized) into three groups: high, medium, and low technology firms. The survey they conducted for 107 firms consisted of 20 questions divided into four sets: (a) eight questions about products such as market demand, (b) one question each about staffing and resources, (c) nine questions related to managerial and organizational issues such as financial management, organizational structure, product development, and (d) one question about the legal environment. The authors pointed out that significant differences were found between high and low technology firms for twelve of the twenty factors associated with success, and for six of the twenty factors associated with failure.

In investigating business failure in the construction sector, Dikmen et al (2010) concluded that the causes are attributed to managerial and organizational factors such as internal decisions and the availability of intangible resources. In an article in the New York Time in its January 5, 2011 issue, Jay Goliz wrote about the reasons for business failure. The author listed ten main reasons, as follows: Lack of demand for the product or service; Owners who cannot get out of their own way; Rapid expansion of the business enterprise. Poor accounting practice; Lack of cash cushion; Operational mediocrity; Operational inefficiency; Dysfunctional management; and the lack of succession plan.

Salman, Von Friedrichs, and Shukur (2011) examined the impact of macroeconomic forces on the failure of Swedish manufacturing firms. The authors concluded that in the long-term, a firm's failure is negatively related to (a) the level of industrial activities, (b) money supply, (c) gross domestic product, and (d) the country's economic openness, while it is positively related to real wages. In investigating the failure of entrepreneurial firms, Arasti, Zandi, and Talebi (2012) attributed the causes to lack of skills in such areas as crisis management, marketing, finance, and human resources management.

In a review of published literature, Holt (2013) identified four major factors contributing to business failure: managerial, financial, company characteristics, and macroeconomic. On the other hand, Zhao and Ha-Brookshire (2014), in a study about Chinese apparel small businesses, pointed out that the success of the firms were due to the following factors: Founders' ability to find a niche market; Founders' down-to-earth attitudes; Unique product branding; and amiable external relationships.

Minello, Scherer, and de Costa Alves (2014) analyzed what they called entrepreneurial competencies that influence the success or failure of business firms. The competencies are: To know to act and mobilize resources; To learn to engage, compromise, and take responsibilities and to know, learn, must have a strategic vision.

Finally, Omri, Frikha, and Bouraoui (2015) analyzed the factors that contribute to the success of small business firms. The authors concluded that businesses with greater access to human and financial resources are more likely to be more innovative, which in turn, ensures its success as well as access to more capital.

To sum up, the tendency of the great majority of scholars has been to explain the failure of small business firms in general – not necessarily micro firms – in terms of internal factors, including incompetent management, scarcity of financial resources, inadequate technology, unskilled employees, absence of planning, lack of appropriate organizational structure, and unfamiliarity with market conditions. External economic factors have often been neglected as set of forces that could cause the failure of micro firms. Therefore, this study is intended to address this gap in the literature.

## **RESEARCH HYPOTHESES**

In line with the theoretical foundation of the Industrial Organization view, the following hypotheses were postulated for the purpose of this study:

- H1 - The rate of business failure, as measured by the rate of business deaths, is positively related to the increase in interest rate.
- H2 - The rate of business failure, as measure by the rate of business deaths, is positively related to the decrease in government spending and investment.
- H3 - The rate of business failure, as measure by the rate of business deaths, is positively related with the decrease in consumer spending.



H4 - The rate of business failure, as measured by the rate of business deaths, is negatively related to the rate of increase in exports.

H5 - The rate of business failure, as measured by the rate of business deaths, is positively related to the rate of increase in imports.

Table 2 below shows the data deployed for the analysis:

Table 2  
Key Economic Variables, 1994-2014  
(In \$Billion)

Year	Personal consumption expenditures	Gross private domestic investment	Exports of goods and services	Imports of goods and services	Government consumption expenditures and gross investment	Interest rate* %
1994	4,717	1,008	721	898	1,313	8.50
1995	4,958	1,038	818	905	1,356	8.50
1996	5,207	1,117	871	966	1,407	8.25
1997	5,494	1,256	965	1,059	1,455	8.50
1998	5,808	1,357	959	1,110	1,487	7.75
1999	6,247	1,637	989	1,239	1,641	8.50
2000	6,792	2,034	1,097	1,473	1,834	9.50
2001	7,045	1,607	1,035	1,402	1,815	4.75
2002	7,385	1,589	1,007	1,433	1,933	4.25
2003	7,752	1,668	1,048	1,540	2,056	4.00
2004	8,214	1,928	1,174	1,798	2,216	5.25
2005	8,794	2,527	1,309	2,030	2,494	6.19
2006	9,304	2,681	1,476	2,2247	2,642	7.96
2007	9,751	2,644	1,665	2,383	2,802	8.05
2008	10,014	2,425	1,842	2,565	3,003	5.09
2009	9,847	1,878	1,588	1,983	3,089	3.25
2010	10,202	2,101	1,852	2,365	3,174	3.25
2011	10,726	1,916	2,086	2,664	3,031	3.25
2012	11,120	2,060	2,180	2,746	3,063	3.23
2013	11,502	2,670	2,260	2,757	3,126	3.25
2014	11,928	2,856	2,334	2,872	3,150	3.25

Sources: National accounts, for the period 1990-2010, ProQuest Statistical Abstract of the United States, 2016; for the period 2011-2014, Bureau of Economic Statistics, <http://bea.gov/newsreleases/national/GDP/GDPnewsrelease.htm>; for interest rate, [www.federalreserve.gov](http://www.federalreserve.gov)

\* Average prime rate charged by banks on short-term loans to businesses.

It is worthwhile to point out that the U.S. gross domestic product (GDP) increased from \$5,980 billion in 1990 to \$17,348 billion in 2014, a jump of 190 percent. During the same period of time, firm births increased from 516,000 in 1990 to 883,000 in 2014, an increase of 71 percent, while firm deaths increased from 517,000 in 1990 to 791,000 in 2014, an increase of 53 percent. Two conclusions could be drawn from the data:

The rate of increase in GDP (190 percent) from 1990 to 2014 is much higher than the rate of increase in firm births (71 percent), an indication of relatively slow growth of new business formation in the country during the period under discussion.

The rate of increase in firm births (71 percent) is much larger than the rate of increase (53 percent) in firm deaths, an indication of growing opportunities for entrepreneurial and other small firms despite the higher rate of business failure.

A review of the data in Table 2 would reveal the following: The ratio of personal consumption to GDP increased from 63.4 percent in 1990 to 68.8 percent in 2014, and indication that the United States is becoming increasingly consumer-driven economy. The ratio of gross private domestic investment to GDP remained relatively stable (16.6-16.5 percent) during the period under consideration. The ratio of exports of goods and services to GDP increased from 9.2 percent in 1990 to 13.5 percent in 2014, an indication of relatively high growth of national exports. The ratio of imports of goods and services to GDP increased from 10.5 percent in 1990 to 16.6 percent in 2014, indicating higher rate of imports relative to exports. The ratio of government consumption expenditures and gross investment to GDP decreased from 20.7 percent in 1990 to 18.2 percent in 2014, an indication of downsizing of government agencies especially the armed forces.

### THE MODEL

The study, following Lussier (1995) develops a generic non-financial model that will predict a young business success or failure based on some broad macroeconomic factors.

The model is

$$\begin{aligned}
 \text{Net firm gain / loss} = & f(\text{Personal consumption expenditures, } + \\
 & \text{Gross private domestic investment, } + \\
 & \text{Exports of goods and services, } + \\
 & \text{Imports of goods and services, } - \\
 & \text{Government consumption expenditures and gross investment, } - \\
 & \text{Interest \% } )
 \end{aligned}$$

Where the pluses and minuses indicate the expected signs. Lussier uses a Logit model while we use an OLS regression model. Moreover, with the help of EVIEWS we run an OLS regression, using net firm gain/loss (NFG) as the dependent variable regressed on personal consumption expenditures (PCE), gross private domestic investment (GPDI), exports of goods and services (EX), imports of goods and services (IM), government consumption expenditures and gross investment (GCE) and interest rate (INT). The result is as follows:

Table 3  
Model Analysis and Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	137.6622	198.3899	0.693897	0.4991
PCE	-0.042226	0.031006	-1.361857	0.1948
GPDI	0.086052	0.088555	0.971740	0.3477
EX	0.092017	0.040728	2.259310	0.0403
IM	0.000813	0.004065	0.199871	0.8445
GCE	-0.014405	0.026714	-0.539204	0.5982
INT	2.756923	15.96657	0.172668	0.8654
R-squared	0.443627	Mean dependent var		62.00000
Adjusted R-squared	0.205181	S.D. dependent var		78.48312
S.E. of regression	69.96974	Akaike info criterion		11.59520
Sum squared resid	68540.71	Schwarz criterion		11.94338
Log likelihood	-114.7496	Hannan-Quinn criter.		11.67077
F-statistic	1.860496	Durbin-Watson stat		2.311150
Prob(F-statistic)	0.158691			

The results show none of the macroeconomic variables deployed in this study – except exports – are statistically significant to cause the “deaths” of micro firms in the United States. It seems that the firms’ internal forces such as availability of funds, marketing skills, managerial competency, and effective business strategies are the key factors that influence the survival of the firms under consideration.

## CONCLUSION

The U.S. economy is one of the most attractive destinations in the world for founding and growing business firms. Contrary to popular perception, the great majority of the firms (more than 89 percent) in the country are micro firms, that is, business enterprises with less than 20 employees each. Many of the firms are squeezed out of the market in early years of their establishment. For example, during the time period covered by this study (1994-2014), the ratio of firm “deaths” was more than 96 percent of total firm “births”. The high “deaths” ratio of the firms and the importance of these entities to the economy in terms of investment, employment, innovation, output, and exports, have attracted the attention of scholars and policy makers alike to learn about the forces that influence the entities’ failure.

While many scholars have paid attention in their research to the firms’ internal factors such as managerial competencies, inadequate financing, and poor marketing practices, this study explored the effect of aggregate macroeconomic variables on the firms’ failure. The findings of this study indicate the lack of a link (except for exports) between the failure of micro firms and aggregate economic variables. As a result, we tend to support the view of the importance of the firms’ internal dynamics on their performance and survival. To gain further insight into this important issue, researchers might extend the scope of their investigation to explore the combined influence of the internal variables of the firms concerned and the external economic factors.

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# MEASURING THE ECONOMIC AND SOCIAL IMPACT OF INVESTMENT IN SMALL NGOS IN WEST BENGAL, INDIA

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## ABSTRACT

This paper utilizes the results of a study of the economic and social impact of investment in, and operation of two women's empowerment non-governmental organizations (NGOs) in rural villages in West Bengal, India. Baseline measurements and initial statistical analysis of data collected from NGO stakeholders show evidence of positive change and therefore program success, but impact is not quantifiable in all cases. Stakeholders need measures of relative return (social as well as financial) on investment in programs to better direct efforts and funds. We propose combining methods inspired by Christensen's Jobs To Be Done framework and Brest et al.'s Expected Return formula to measure impact. Accountants can supplement financial statements with these financial and non-financial performance measures for individual programs, so that NGOs can issue stakeholder-relevant reports and better allocate limited resources. We use examples from a current program at a small NGO to demonstrate the usefulness of this approach.

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## INTRODUCTION

Measuring the impact of social charitable activities is a critical goal for large public as well as private philanthropic organizations (Tuan, 2008). Large charitable groups often have equally large budgets to support formal processes for measuring and reporting inputs, output, and performance for their contributors and other stakeholders. In contrast, in the developing world, small to medium non-governmental organizations (NGOs) carry out a majority of the on-the-ground philanthropic activities with limited resources and unsophisticated accounting and reporting practices. These smaller NGOs (defined hereinafter as a group with an annual budget of \$1 million or less) are the focus of this research, as their various stakeholders often require or desire meaningful measures of the impact of their investment.

In India, an NGO boom has created one NGO for every 600 people (Mahapatra, 2014), with a majority of these organizations funded by small donors who believe in the cause and/or the person(s) running the NGO. Impact or performance is often reported in terms of individual and group success stories that are anecdotal rather than quantifiable. A critical challenge for this type of organization is to present convincing evidence that the effort of the NGO itself is the cause of social or economic improvement, as general societal improvement/changes may also influence impact data. Impact also has different meanings to different stakeholders, and there are varying methods for measuring performance from the perspectives of various stakeholders (e.g., NGO managers, donors, and individual participants). Reporting social and economic impact is organizational self-legitimization, necessary to build or maintain public trust and stakeholder loyalty (Nicholls, 2009).

Sophisticated measurement of performance and the impact of investments in small NGOs are generally outside the scope of small NGOs due to limited accounting staff, skills, and budgets for such expenses. Budgets are often limited to required annual audits and reports prepared by an independent accounting firm. Accounting is sometimes confused with accountability; and while stakeholders do not necessarily perceive organizations with sophisticated accounting systems as accountable (Goddard & Assad, 2005), donors in particular may want evidence of the effectiveness of their donations. Organizations need an internal means of assessing whether a program has a meaningful and measurable impact on a few key outcomes, and then use the information to allocated resources accordingly.

In developing a means to measure economic and social impact of investment, we chose to study the functions, activities, outcomes and reporting practices of two small NGOs with more than 35 years of operating experience in West Bengal, India. The study included visits to the NGOs and their villages, interviews and observation of lives and habits of the locals, survey questions administered to participants in the NGOs' women's empowerment

programs, and discussions with NGO management and other stakeholders. The survey results helped us to frame our integrated approach to measuring impact.

### **SUBJECT NGOS**

The two NGOs studied are Sabuj Sangha (<http://sabujsangha.org/>) and Nishtha (<http://www.nishtha.org.in/>), located in West Bengal, India. Both organizations were established in 1974, with similar philanthropic missions, but with different strategies and programs to achieve their goals. Sabuj Sangha is the larger of the two subject NGOs, with the following mission statement: “Our Mission is the sustainable development of marginalised and vulnerable people to improve quality of life through empowerment, education, information, infrastructure development, healthcare provision and economic self-reliance through convergence of services provided by local self-governments” (<http://sabujsangha.org/>). Sabuj Sangha’s 2015-2016 audited financials (most recent comparable statements available) show a total operating budget of 33 million rupees or \$490,000 (approx.) covering programs in the areas of livelihood and women’s empowerment, health and nutrition, education and child protection, water, sanitation and hygiene, and environment and disaster response. We focused on the organizations women’s empowerment programs, with activities focused on encouraging and enabling women to generate their own income and become empowered socially and economically. Through its self-help groups, Sabuj Sangha has helped to empower women and promote gender equality, increase women’s access to credit, and develop sustainable income-producing activities.

Similarly, Nishtha’s mission centers on the desire to empower women through education, opportunity and self-reliance. Nishtha’s 2014-15 audited financials (<http://www.nishtha.org.in/>) show a total operating budget of 26 million rupees or \$385,000 covering programs in the more focused areas of women and girl empowerment, health and hygiene, legal advocacy, water resource installation and maintenance, vocational support, and education for sustainable agriculture. We focused on Nishtha’s groups that promote female empowerment, raise awareness of social issues, provide education, and develop livelihood security for women.

The key differences between the two NGOs are their size and the focus of their activities. Nishtha’s primary focus has been on social education of women of all ages, to change culture and behaviors, fight poverty, and improve the lives of the poor through the empowerment of women. Sabuj Sangha, on the other hand, focuses on the well-tested methods of creating self-help groups and providing micro-financing as approaches to fighting poverty and improving village life for women (Bali Swain & Wallentin, 2007; Mazumder & Lu, 2015; Purna & Sinha, 2010). Improving health and education are pivotal to providing the extreme poor with an opportunity to increase their income potential and rise out of poverty. The combined resources of governments, NGOs, and public-private collaborations in poor regions of India drive the long-term strategy to fight poverty. Both NGOs in this study invest more than 70% of their program funds on targeted health and education improvement initiatives as a means to improve the lives of the poor.

### **SURVEY METHODOLOGY AND RESULTS**

In the first stage of this study, surveys were administered and interviews were conducted with 172 female participants in Sabuj Sangha’s and Nishtha’s women’s empowerment programs between October and December 2014. Girls and women join these programs and may stay with their cohort for several years. Three primary groups comprised of three different age ranges of women were surveyed and will be the focus of the remainder of this study. The youngest group of respondents were members of Nishtha’s Youth Nari Bahini (n = 63; average age 18), followed by Nishtha’s Mahilamandal Bahini (n = 77; average age 34), and Sabuj Sangha’s Nandakumarpur Village SHG (n = 32; average age 43). The women’s groups surveyed from Nishtha represented 15 different villages in West Bengal, while the group from Sabuj Sangha was comprised of women from the same village. Questionnaires and interviews/observations were designed to gauge critical responses related to women’s health, education, income, and their relative importance within their families.

Overall observations based on surveys and interviews indicate positive results (impact) from the specific efforts of the NGOs with regard to health and sanitation. It is likely that this data partially benefitted from general improvement in health and sanitation conditions in the region. Questions related to family income and savings yielded limited results. It was clear that serious challenges exist to measure and monitor basic income, expenses, and savings information due to widespread financial illiteracy among youth and adults. As this is one of the

roadblocks in social accounting for the extreme poor, several organizations have developed communication guidelines and handbooks to aid and support self-help groups in this area (<http://www.ruralfinanceandinvestment.org/>). A key recommendation is that organizations employ the services of reasonably-educated locals to help them manage basic income, expense, and loan records, and to help develop accurate and timely bookkeeping and accounting procedures for small businesses. Teaching is often done with pictures, and calculations are often based on 10s only to simplify the math. This information provides insight into ways to help participants estimate income and expenses based on real life events and examples (e.g., how many crops per season). It also points to the opportunity to implement modern data management software to improve the accounting processes utilized by NGO management.

Survey data and interviews of village women also revealed a dramatic generational improvement in education level, from largely elementary education of parents to high school, college, and beyond for young adults. This shift in education among the younger generation is consistent with trends in the developing world including India. If children with higher literacy levels than their parents are introduced to basic financial training for daily life at an early age, they can help with their parents' and families' financial management. Higher levels of education, later marriage age, and increased sense of value within the family are desirable trends that emerged from the survey data, which represents the NGOs' impact on empowerment, confidence, and attitudes of women. Specific results follow.

### **Nishtha's Youth Nari Bahini**

Sixty-three young women who are active members of Nishtha's Youth Nari Bahini (YB) were surveyed in 2014. All were single, with an average age of 18 years. Some had been a member of this cohort since 2004, while others joined as recently as 2013. The average length of time in the cohort was seven years. Fifteen worked and earned money (e.g., embroidery, farming, tutoring); 48 did not work. Five had assumed various leadership roles in the YB, while 58 had no leadership experience. These women could not report or had no concept of their family income. One hundred percent saw improvements over the past five years in health and sanitation. Forty-two of the women were in high school or had completed high school, while 21 were in a bachelor's program. Twenty-seven percent of the women desired a bachelor's degree; the remainder desired a master's degree. Sixty-one percent of their mothers had received a primary education only, while 39 percent had no education at all. The average age their mothers married was 14 years, while their average desired marriage age is 25. All reported an increase in their importance in their families; 98 percent responded that they were not important at all before the YB, and 98 percent responded being very important after participating in the YB. This increase is statistically significant at a 95% confidence interval using a Wilcoxon Signed Rank Test of the difference between the median values of a non-normally distributed sample (Wilcoxon, Katti, & Wilcox, 1963). Overall, the results of the survey support the conclusion that the YB has met some of its program goals and these successes when combined with other factors have made a significant positive impact on the lives of its members. The results also reveal a critical need to provide these young women with financial literacy training so that they can better understand the economic significance of improvements in their lives.

### **Nishtha's Mahilamandal Bahini**

Seventy-seven women who are active members of Nishtha's Mahilamandal Bahini (MB) answered the same questionnaire administered to the younger women of MB. All were married, with an average age of 34 years. Average cohort membership was 5 years, with membership as early as 1997 and as recent as 2014. Forty-seven women (61 percent) worked and earned money (e.g., embroidery, hand crafted goods, agriculture, housekeeping, tutoring, retail), and they reported an average income of 2950 rupees per month before the MB, and 4123 rupees after joining. Sixteen women reported holding leadership roles within the MB at some time. All reported benefits from joining the MB beyond health and sanitation, but only 57 percent said it helped increase their household income. Only one member had a bachelor's degree (a teacher), two had high school educations, 36 had secondary education, 21 had primary only, and 17 had received no formal education. These older women's mothers had even less education (65 percent had no education, 30 percent primary education). They desired more education for their daughters rather than for themselves. The average age their mothers married was 12 years, theirs was 15, and the minimum marriage age desired for their daughters is 22. MB members did not report as great an increase in importance in the family as a result of their cohort membership as the younger women, with 45 percent responding a change from not important to very important. However, this increase is statistically significant at a 95% confidence interval using a Wilcoxon Signed Rank Test of the difference between the median values of a non-normally



distributed sample (Wilcoxon, Katti, & Wilcox, 1963). The results of the survey show that MB membership has made a positive difference in the lives of its members, and also reveal an opportunity to focus MB program activities on improving adult education, and linking business/entrepreneurship training and education to meaningful and economically lucrative work.

### **Sabuj Sangha's Nandakumarpur Village Self-Help Group**

Thirty-two members of Sabuj Sangha's Nandakumarpur Village Self-Help Group (NV) responded to the survey administered in November 2014. The overall results were similar to those of the MB, but this cohort of women has been together much longer and they all reside in the same village. All are married, with an average age of 43, and with most of them being members of this cohort since age 30. Seventy-five percent worked and earned money (e.g., poultry and other farming, retail, healthcare, housekeeping, positions at Sabuj Sangha). Some could not quantify income before or after belonging to NV, but 20 women were able to provide financial data. The mean monthly income of these individuals rose from 193 to 1,990 rupees per month, a statistically significant increase tested using a Paired T-Test at a 95% confidence interval ( $p = 0.000$ ) (David & Gunnink, 1997). Eight women (25 percent) reported holding leadership positions within the group at some time. Education levels were generally low, with 8 having no formal education, 13 with primary only, 9 with secondary, and 2 with high school educations. As with the women of MB, they had more education than their mothers had, and desired higher education for their daughters rather than themselves. The average age their mothers married was 11, theirs 18 (ranging from 12-22), and they desired their daughters to marry at 21 or older. A little over half reported being only somewhat important to the family before the NV, with 72 percent responding that they were now very important. This increase in status is statistically significant at a 95% confidence interval using the Wilcoxon Signed Rank Test of the difference between the median values of a non-normally distributed sample (Wilcoxon, Katti, & Wilcox, 1963). Their common village membership, average age, and the length of time they have been in this self-help group can account for the types and levels of income, leadership, and education opportunities they have experienced. Again, the results obtained from this group show the success of the NV, as most were unaware of their family income before joining but now are aware; many attribute their increase in importance in the family to having their own income. Some attribute their success in reaching goals to financing received from the group.

The descriptive data above provide evidence that the NGOs studied contributed to an overall positive impact on the lives of female participants. We found significant changes in health and sanitation practices, increases in levels of education attained, greater importance of women in the family, a decline in marriage age, and an increase in income or employment corresponding with membership in women's empowerment groups. However, these results do not provide evidence that the efforts of the NGOs are the sole driver of positive change for women, as general societal improvements also influence the results. By the same token we cannot ignore the other stakeholders in the organization that experience benefits or earn some type of return on their investment in NGOs.

### **Measuring Impact, an Integrated Approach**

Measuring the impact of social programs and evaluating the social return on investment in NGOs requires significant and often prohibitive demands on an organization's resources (Sept, et al, 2011). In order to be meaningful, attempts to measure return must be narrowly focused and consistent with the organizations goals, resources, and objectives. The first step in choosing an evaluation method is to clarify what information each group of stakeholders needs. Assume first that the NGO management and donors are the most important stakeholders in the project eco-system – they are the decision makers and influencers critical for project survival. Management must continuously allocate limited resources to activities that justify the effort and investment, and then demonstrate some type of output. Their decision making process is often guided by the demands of the donors (e.g., donors may want to fund specific education initiatives) and/or local government policies (e.g., improvements in education or sanitation), and the success of a program is measured generally by its completion (e.g., number children placed in early education programs or number of new toilets built). While there is societal value in such data in the short and long-term, accountants have little or no role in these measurements. We propose an integrated approach to measuring financial and non-financial performance (impact) of individual programs, thus providing an alternative means for allocating limited resources.

## Jobs To Be Done

Impact has different meanings to different stakeholders (e.g., decision makers, influencers, and users) of an NGO and its programs. Using Harvard Professor Clayton Christensen's marketing theory "Jobs To Be Done" (JTBD), (Christensen et al., 2007) we can ask the question: which "jobs" would be most important to NGOs with limited resources in order to earn the highest return on social investment? Table 1 outlines some of the critical stakeholders in a typical small NGO project eco-system and examples of the "jobs" that they may want to accomplish within the goals and bounds of these projects. For example, the primary focus for NGO management and donors (the decision makers and influencers) is to show improvement in the targeted sectors (e.g., education, sanitation, income, etc.) on a yearly basis to ensure continuity of programs and to show long-term positive results from their activities. Most NGO projects, for practical reasons, are driven by the JTBD demands of the NGO management and donors, and therefore the project focus and desired outcome are those that satisfy these primary stakeholders. In this study, we began by evaluating the JTBD expectations of a sample of beneficiaries/users (adults and youths). However, all the primary stakeholders should be considered when identifying opportunities to improve impact and estimate return on social investment. Each "job" needs to be translated into a measurable goal or benefit derived from an NGO project. If we use for an example of one of Nishtha's programs, a small, private donor funded project with the goal of ensuring grade 11 and 12 (equivalent of junior college) education for girls from remote villages, we can define the stakeholders and what they hope to accomplish:

## Expected Return on Social Investment

While the Jobs to Be Done approach comes from innovation marketing, the William and Flora Hewlett Foundation's Expected Return methodology (Tuan, 2008) provides an approach with its roots in accounting and finance that estimates the potential impact of a philanthropic program at the time it is approved for funding, rather than evaluating performance after the fact. Expected return is calculated based on a measurable benefit and a known cost. Brest et al. (2009) provide examples of how foundations apply this type of cost-benefit analysis when making funding decisions, and Brest (2012) applies the original formula created for the Hewlett foundation to investment programs where the likelihood of success is either small or difficult to quantify.

The expected return calculation is represented by the following simple equation:

$$\text{Expected Return} = \text{Benefit} \times \text{Likelihood of Success} / \text{Cost} \text{ (Brest, 2012)}$$

If we adapt this formula to the multiple stakeholders in the small NGOs identified earlier, we find that the different stakeholders measure benefits (jobs) differently (financially or non-financially), and accordingly, expected return will be expressed differently. Identifying benefit in terms of expected financial or social output or performance is challenging, and in most cases will be based on a combination of historical data and expected results. Estimating the likelihood of success may be even more difficult. Both measures can be based on research and previous results, but will be subject to risk of strategic inaccuracy and external conditions. Cost can be measured in terms of the stakeholder's actual contribution or income forgone; for the NGO this amount should include direct program costs and overhead, for the donor cost can be the amount donated, while the cost to users may be more difficult to quantify (time, lost wages). The resulting expected return will be expressed in a rate applied to the benefit defined by each stakeholder.

As shown in Table 1 the potential benefit derived by each stakeholder group will differ. The benefit for NGO management for example, may be the achievement of a higher education before marriage for each girl, or the continuation of a major grant funding the project. For the donor the benefit may be as simple as a feeling of well-being, or a tax deduction for the contribution. For the family the benefit could be the earning potential of a child who completes her education, or the child completing college before marriage. For the child, the benefit could be the opportunity to go to college, or to leave the village for a career that can help her support her family. The likelihood of success is an estimate in most cases, based upon prior experience. However, some grant providers stipulate a completion rate to continue funding, thereby setting a required rate of return. By measuring expected returns on investment for the various stakeholders, substituting the financial and non-financial "jobs" or benefits, costs, and likelihood of success for each group, we can identify the best performers. By measuring historical and expected returns over time, or by comparing the performance of two projects competing for resources, NGOs can make more informed decisions.

## **Balanced Scorecard for a Small NGO?**

When an organization considers the JTBD from the perspectives of its primary stakeholders, it should then delve into each job and identify specific measurable goals and the strategies necessary to achieve them. For this type of analysis, larger NGOs have turned to the management and accounting theory of the Balanced Scorecard. The Balanced Scorecard strategic method of measuring and managing organizations' performance (Kaplan, 2001) integrates four perspectives: financial, customer, internal business processes, and learning and growth. The scorecard balances external, internal, objective, and subjective measures to help identify performance drivers (causes) and resulting measures (effects). When adapted and applied to not-for-profit organizations, the Balanced Scorecard has provided a strategically sound method for measuring and improving operational success (Hartnett & Matan, 2011; Martello, Watson & Fischer, 2008; Ronchetti, 2006; Zimmerman, 2004). However, adoption of this method takes considerable time, staff, training and participation at all levels of the organization, resources that small NGOs do not have to devote to this level of strategic planning. Most small NGOs run on a shoestring budget with the administrators performing several hands on roles, from running board meetings to working one-on-one with program participants. When we consider the application of the concepts of the Balanced Scorecard to the women's empowerment programs and their education mission to at Nishtha and Sabuj Sangha, we can identify the perspectives and some of the possible outcomes, measures, targets, and strategic initiatives of each, but this level of management is impractical. Our combination of the JTBD and expected return will do well within a small NGO framework to assist in the development of meaningful measures of performance, both in financial, non-financial and relative terms, and allow the NGO to realize the goals of both internal and external stakeholders.

### **CONCLUSION AND FUTURE APPLICATIONS OF THE INTEGRATED APPROACH**

By blending and then applying the innovation marketing concepts from the JTBD and adapting the not-for-profit accounting and finance-based formula for expected return, small NGOs will be better equipped to measure performance and thus enhance return on social investment. Utilizing this process should help NGOs identify the factors they can control and areas to target to increase return. Lowering costs is an obvious way to increase return on investment, and reducing overhead allocations (including outside accounting services) is possible if management is trained in and commits to adopting this blended approach. By examining the measures of performance valuable to each stakeholder, NGOs can focus on increasing overall value of programs for stakeholder groups. Increasing the probability of success is also critical to increased return on investment, and NGOs can develop strategies such as being selective among participants or intervening when participation drops to boost the success rate. NGOs are also aware that projects with the highest probability of success are those with external factors contributing to or even driving their accomplishment. For example, a program that encourages financial entrepreneurship education and training for young women would be complemented by a government-wide push for higher education for girls and women. Other contributing factors such as later marriage age and increase in importance within the family would also increase the probability of success of an educational program. In many cases the outcomes of programs are not realized for years, so NGOs must measure impact in terms of estimated return on social investment as progress is made toward the ultimate outcome. In the event that a stakeholder must choose among alternative investments, this integrated approach to measuring impact can provide a ranking of programs by estimated return, and provide NGOs with further insight into areas that need attention. If a program that has some financial and social impact data compiled or available, we can demonstrate that by utilizing this method small NGOs and their stakeholders will have access to information that will not only help them measure performance but improve it in the future.

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**Table 1**

Stakeholders, their Roles, and examples of the “Jobs To Be Done” in the Project Eco-system

Stakeholders in the Eco-system	NGO Management	Donors	Village Adults	Village Youths
Role of Stakeholders	Decision Makers	Influencers	Beneficiaries/Users	Beneficiaries/Users
Jobs To Be Done (JTBD) example	Show successful completion of grades 11 and 12, overall improvement in girls’ education, and ensure program continuity in the future	Make a positive difference in the lives of girls, something I cannot do on my own; channel my donations effectively; provide me with a tax deduction	Provide my daughter with education I did not have; provide her with opportunities for a better future; help her to earn a livelihood before marriage	Help me stay in school so that I will not be married; show me how to use my education to support myself, my family, and improve my future

# THE ECONOMIC GROWTH IN PERU AND THE ECONOMIC STRUGGLES OF ZIMBABWE

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## ABSTRACT

Zimbabwe experienced a lost decade starting with the year 2000 and Peru suffered through a lost Decade in the 1980s. These lost decades demonstrated are denoted by a decline in gross domestic product (GDP) and periods of hyperinflation. Peru has recovered and has led South America with strong economic growth starting with the year 2000 (including the global economic crises 2007-2009). Zimbabwe continued to struggle throughout these same years. Peru is a developing economy with a limited global presence but with an economic growth of 9 percent in 2007 (the largest growth rate in the world during the global economic crises) whereas Zimbabwe has continued to struggle with a negative growth rate of 14 percent in 2008. Peru has continued this growth at an average rate of 5.7% during the period 2009-2015 (OECD, p. 17). This paper provides the argument that the well-managed informal economy of Peru using microfinance to provide funding provides a solid base for their economic growth. The reliance on foreign capital inflows and the lack of a dependable informal economy has hindered the economic growth of Zimbabwe.

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## INTRODUCTION

The Peruvian economy struggled in the 1980's and the 1990's because of inflationary pressures and a lack of a consistent economic strategy. There was a reversal as Vera & Wong (2013) stated, "Over the period 2002 - 2012, the Peruvian economy almost doubled in size". The economy of Zimbabwe grew in the 1980s and started to struggle in the mid-1990s. It has continued to struggle and has not experienced the growth identified in Peru. "Zimbabwe's economy remains in a fragile state, with an unsustainably high external debt and massive deindustrialisation and informalisation" (African Development Bank Group (AFDB) Zimbabwe Economic Outlook, 2014).

It is interesting to note that these countries changed their governmental structures in 1980. Peru elected a president in 1980 after 12 years of military rule and Zimbabwe gained independence from Britain in 1980 after more than a hundred years of colonial rule. The contrast of these two countries after the government change was significant in part caused by the reliance of Zimbabwe on the global economy as compared to a local approach used in Peru.

The global economy was strong from the 1990's to 2007 but this economic growth was reversed because of the global economic crises that lasted through 2012. Peru has not only maintained a strong economy but the country has also decreased poverty rates by half since 201 to a level of 24% in 2013 (OECD, p. 48). The economic downturn was not as severe in many of the developing nations including Peru but Zimbabwe experienced severe hyperinflation at this time and a negative GDP growth rate.

The microfinance industry in Peru is a significant part of the reason for the economic growth in Peru during the global recession. It may also have been added by what is described as the informal economy that is less dependent on global economic trends. As the global economy grew between 2000 and 2007, Zimbabwe was experiencing the worst economic performance in the history of the country. This was measured by a cumulative 50% decline in the gross domestic product caused by a broad-based economic decline in the country's key sectors including agriculture, manufacturing, mining, and services (AFDB, 2014).

Peru has had an economic recovery during the last decade caused by a reversal of factors from the 1990's that caused an inflationary economy with problems throughout many of the sectors of their economy. The hyperinflation rate in Peru was as high as 7,650% in 1990 and has leveled to an inflation target of the current 1 to 3% (Orrego, 2015). Peru has experienced a growing economy from 2002 to the present because of their ability to control inflation and stabilize the economy. The long term forecast for Peru is strong although the ability to double the GDP as Peru accomplished from 2002 to 2012 is unsustainable. Peru has been able to maintain a 3% annual growth of their gross domestic product through 2015 and into 2016 (CreditCorp 4Q15, 2015).

As the global economy grew between 2000 and 2007, Zimbabwe was experiencing the worst economic performance in the history of the country to the extent that studies note the period 2000 to 2008 as the “lost decade” (AFDB 2014). Studies attribute a number of causes for the lost decade characterized by a sustained and broad-based economic decline as the country’s key sectors including agriculture, manufacturing, mining, and services shrunk significantly (AFDB, 2014). Between 2000 and 2008, there was a cumulative decline of nearly 50 percent in real GDP growth. The inflation rate increased substantially from 2000, reaching triple figures in 2006. It then moved to severe hyperinflation in 2007 before peaking at five hundred billion percent at the end of 2008 (AFDB, 2014). Studies note that one of the causes of the lost decade was the “concomitant loss of support from the international community and foreign capital flight following the land redistribution program of 1999” (AFDB, 2014).

The demand for microfinance services in Zimbabwe increased as the macroeconomic performance deteriorated. The industry however faced many challenges that hampered its growth and ability to provide adequate support to the small scale enterprises. The government’s role in supporting the poor through microfinance services was minimal and the lack of a supportive legal framework hindered the development of the microfinance industry.

The recovery for Zimbabwe started in 2009 with the adoption of a multicurrency approach and removal of price controls on basic commodities. This dual currency approach is still used in both Zimbabwe and Peru as a type of hedge against the potential for hyperinflation returning to their economies.

This paper makes a contribution to the literature on microfinance and sustainable development by comparing the impact of microfinance and domestic investment strategies between the Peruvian long term economic outlook and the economic status of Zimbabwe. We argue that an emphasis on microfinance can be a basis for growth not only for alleviating poverty among the unbankable but can also become a strong basis for a country’s sustainable economic growth and development. The Peruvian economy has demonstrated the use of microenterprises as a tool to maintain economic performance during a global crises. We argue that the contrast between the emerging market economy of Peru and the emerging market economy of Zimbabwe is due to the reliance on globalization using NGO’s for micro-financing in Zimbabwe while Peru maintained a local economy with the use of microfinance and the informal economy.

## **METHODOLOGY**

This paper will look at the role of the microfinance and domestic investment strategies in the comparison of the Peruvian long term economic outlook compared with the economic status of Zimbabwe. Peru is one of the leaders in the microfinance industry with many of the Peruvian banks competing for market share in this lending industry. Zimbabwe relies on the non-governmental organizations (NGOs) for their micro-lending and the formal economy including corporations. The reliance on corporations and NGOs creates an economy that is volatile during global economic pressures. Peru has demonstrated how the use of microfinance may be able to stabilize an economy during a global recession.

A case study research methodology was used to obtain the data for this study. The information was obtained by the authors spending time in Peru (Gallagher, May 2013, May 2015, and May 2016) and Zimbabwe (Muzorewa). The study used direct observations, unstructured interviews and document review to obtain the data. Information was gathered from unstructured interviews with executives from MFIs, NGOs and international organizations based in Zimbabwe and Peru. The authors attended lectures and visited companies along with the US Embassy and was hosted in Peru by Universidad Peruana de Ciencias (UPC). The professors at UPC provided lectures and examples of the Peruvian economy and the economic statistics. Data was also obtained from public reports published by the World Bank, African Development Bank, and the United Nations.

## **MICROFINANCING IN PERU**

The Peruvian economy has demonstrated the use of microenterprises as a potential to maintain economic performance during a global crises. The Peruvian economy is still in the development stage with almost 60% of the total employees participating in the informal economy (World Bank, 2015). Dischner & Gabriel (2009) stated, “The Peruvian microfinance market is one of the most dynamic, well developed in the world” (p.1). This is a strategic competitive disadvantage when the global economy is thriving but the advantage of the informal economy is that



these businesses do not experience the volatility created by the reliance on multinational corporations during a global economic crisis.

The microenterprises in Peru accomplish this performance by participating in the “informal” economy. The informal economy is made up of various factors that cause participants to operate outside the banking system and the tax requirements of a “formal” enterprise. The Worldbank (2015) describes the informal economy as activities and income that are partially or fully outside government regulation, taxation, and observation. According to the presentation to the DeSales University on our visit May, 2015, this informal economy was created (in part) by the Chicha Culture moving from the rural areas because of the threat of the Shining Path terrorist organizations in this region. These indigenous people were not welcome in Lima, Peru and survived by creating an informal economic sector that still exists in Peru.

The microfinance industry has been a part of the economic development in Peru and strategies are being developed to bring these businesses to the formal economy. The cost of capital is low in countries where there is an established economy based on entities with accounting controls and established markets. The risk rate of return for start-ups is higher and in the case of microenterprises it may be extremely costly. The more established economies have a low percentage of the workforce participating in the informal economy. The informal economy is made up of various factors that cause participants to operate outside the banking systems and the tax requirements of a “formal” enterprise. During our May, 2016 visit we were quoted with percentages that ranged from 50% of the economy to 70% of the economy for the informal sector. According to the World Bank (2014), the average for 104 countries was 33% with a range of 3% (Canada) to 67% (Bolivia and Georgia) (2013). The more established economies have a low percentage of the workforce participating in the informal economy. These percentages are not changing in Peru even with more Peruvians becoming part of the middle class with estimates quoted during our trip of 55% to 22% during the previous 10 years of economic performance.

One of the benefits of this strategy is that the enterprises will become eligible for lower interest loans through the formal banking sector. The cost of capital is low in countries where there is an established economy based on entities with accounting controls and established markets. The risk rate of return for start-ups is higher and in the case of microenterprises it may be extremely costly. Another cause of the reliance on microfinance is the lack of use of financial statement reporting for taxation and accounting. Many of the businesses not participating in the formal economy are also not part of the banking or taxation systems. Even though the interest rates are high in the micro-finance industry these rates include management advisory services and the informal market is not subjected to many of the taxes paid by multinational corporations operating in Peru.

Efforts are also being made to increase the use of the formal banking services. The current banking penetration in Peru is 5.3 branches per 100,000 people. This ranks at the bottom with Nicaragua for all the Latin American countries (Creditcorp, 2013). According to Ricardo Pelaez (Senior Commercial Officer at the US Embassy in Peru), the interest rate charged by MiBanco and other micro lending institutions in Peru may be as high as 60% because these loans require a high amount of due diligence (2015). The banks and other microfinance lenders also act as both bank and accountant to develop the business plans for these small enterprises. The microfinance industry is starting to develop in Peru led by CreditCorp who has a substantial stake in the microfinance business because of the acquisitions of Edyficar and MiBanco. CreditCorp acquired MiBanco through its subsidiary Edyficar on February 10, 2014 (GlobeNewswire, 2/10/2014).

This merger has demonstrated excellent results in this business function. It has the potential to “formalize” these businesses which is an important part of the strategy for the government of Peru. The interest rates on these types of loans has fallen to 18% as a result of the incorporation of the segment to the Creditocorp banking umbrella. This is supported by several statistics obtained from the annual report of Creditcorp for the year ending December 31, 2015. The combined entity MiBanco/Edyficar is in first place in the microbusiness segment with a portfolio of 2,322 million nuevos soles in loans and 513,083 customers (about 4,500 soles per loan).

The method of market penetration may be through the use of mobile phone technology rather than the typical online banking. Only 15% of Peruvians have internet access, 30% use the financial systems, but 80% have mobile phones. “The mobile or electronic wallet is a product introduced by Banco de Credito del Peru (BCP) to increase banking penetration on a basic level” (Creditcorp, 2013). The strategy in Peru is to provide access to banking services for these microenterprises allowing the businesses to access loans at a more reasonable interest rate. The interest rate

for micro-loans is higher than the small business loans available in Peru. The informal economy using the new technologies would be able to interact with the formal economy through the use of technology. Clients are also paying their loans and receiving loan proceeds through a system that is similar to prepaid debit cards that is used for transactions in developed economies.

The challenge for Peru and the banking system within the country is to maintain the results of the informal economy and to transform this sector to a formal system using loans from banks and paying taxes to help the country of Peru develop basic services throughout all parts of the country. The results of the “formalizing” of the Peruvian economy would allow these businesses to grow into a small and medium business entity (SME). The SMEs would be incorporated into the tax and health care systems.

The strategy is to provide a framework for these businesses to grow into small businesses that have access to banking and governmental services. This movement to the formal economy has been hindered by the culture of the people. While visiting in Peru we heard many of the locals state, “The law in Peru is only a suggestion”. The people we met in Peru discussed many of the cultural preferences in Peru that include a strong work ethic but a reluctance to rely on the government and the legal system. The informal economy has created many opportunities for the current generation of Peruvians. One of the outcomes is the ability to provide their children with the opportunity for a formal education to become tax paying citizens of Peru.

### **MICROFINANCING IN ZIMBABWE**

Following independence in 1980, Zimbabwe embraced the Micro Finance Platform (MFP) as a mechanism for poverty alleviation and economic empowerment for the masses who had been marginalized during the colonial period. Thus microfinance was touted as the framework that would be used for personal and economic empowerment by providing capital to the 60% of the population of Zimbabwe who lived in poverty, did not have access to formal banking services and were considered unbankable (UNDP, 2014). Zimbabwe like the UN and the rest of the world hoped that making small loans to these unbankable, especially the women, would help start up enterprises that would grow into thriving business thereby lifting their owners out of poverty. These enterprises would then grow into SME and eventually expand into large formal enterprises creating employment and feeding into a strong flourishing Zimbabwe economy (UNDP, 2014).

With a favorable international community outlook and the noted positive transformative capacity of MFP donors and Non-governmental organizations (NGO’s) capital flowed into Zimbabwe to establish MFIs. The Grameen Bank MFP group-based lending model was adopted in most instances. The group-lending model of micro-finance is where borrowers are organized into small groups or cooperatives and individuals make regular cyclical monetary contributions into a savings pool. Small-scale loans for income-generation activities are then made to the group members who do not have to provide material collateral. The other group member’s savings accounts act as collateral. Thus they run a revolving loan funds so as to remain sustainable. Such a model helps mitigate delinquency problems as peer pressure is used to ensure that repayments are made (Schurmann, et. al 2009).

Early models of MFP were successful and as GDP grew in the early 1980s, poverty levels declined from 60% to mid-40% in the early 1990s (UNDP 2014, World Bank 2014). As the economic performance declined in the 1990s, so did the real per capita income, falling sharply from about US\$644 in 1990 to \$433 in 2006 and to an estimated \$338 in 2008. (UNDP 2014, World Bank 2014). Financial liberalization following the Economic Structural Adjustment Program (ESAP) era (1991-1995) led to, among other things, an increase in interest rates (Moyo, 1999). This posed a threat to micro-credit activities in the country. As the real per capita income declined, incidences of poverty increased from 42 percent in 1995 to 63 percent in 2003 and is currently estimated to be over 70 percent (Klinkhamer, 2009, UNDP 2014, World Bank 2014). In 1980, Zimbabwe had the tenth highest gross national income (GNI) per capita in Sub-Saharan Africa, but by 2005 it ranked 34th out of the 48 Sub-Saharan countries. (Klinkhamer, 2009; Robin, Harpe, & Mandivenga, 2002; UNDP 2014; World Bank Development Statistics, 2014).

The HIV/AIDS pandemic exacerbates the situation as an estimated 1.2 million people, nearly 10 percent of the population, live with HIV/AIDS in Zimbabwe (Klinkhamer, 2009, UNDP 2014, World Bank 2014). Dealing with HIV/AIDS negatively affected borrowers. It diverted resources from income generating processes to mere consumption as borrowers used the funds from the enterprises to take care of the sick and dying family members. This in turn led to higher loan default rates as clients failed to make loan installment payments in a timely manner.

Studies also note a decrease in the number of borrowers seeking loans for fear that caring for sick family members would impact their ability to service the loans. Lending groups were also negatively impacted by the departure or death of group members (Mago, 2013).

Unfortunately the poor macroeconomic environment prevented the businesses from gaining the adequate scale economies necessary for continued growth and expansion. The micro and small enterprises were mostly owner managed with an average of 3 employees. The enterprises paid low average wages often insufficient for workers to live on (Chimhowu et.al, 2009, pp. 21-34, Klinkhamer, 2009). The earnings were not enough to lift the owners out of poverty relegating them to mere subsistence existence. Thus poverty levels increased with at least 72% of the 13.3 million people in Zimbabwe living below the international poverty line of \$1.25 per day per person in purchasing power parity (PPP) terms (UNDP 2014; World Bank Development Statistics, 2014).

Microfinance in Zimbabwe has faced many challenges including hyperinflation and acute foreign currency shortages between 2000 and 2009, periods of drought, high unemployment levels, high incidences of poverty and a decline in real incomes and standard of living. As the economic crisis in Zimbabwe worsened, the demand for microfinance services increased, as people were now relying on the informal sector for a living (AFDB 2014, Klinkhamer, 2009, Mago, 2013).

In 2005 there were 213 registered microfinance institutions. That number grew to 209 in 2007 but fell drastically to almost zero in 2008 as the hyperinflation decimated the institutions' balance sheets (RBZ 2014). The number of licensed MFI has grown following the economic stability introduced by the adoption of a multicurrency regime in 2009 (RBZ 2014). As of the end of March 2014 there are 153 microfinance institutions (MFIs) in Zimbabwe (RBZ 2013).

Studies note that the microfinance sector in Zimbabwe has been operating without a policy for decades (Mago, 2013). The lack of a supportive legal framework hampered the development of the microfinance industry. The combination of a high demand for microfinance services and the lack of a proper legal framework enabled the exploitation of the vulnerable poor. Private moneylenders became exploitative monopolists who systematically squeezed the poor by charging high exorbitant interest rates (Armendariz de Aghion and Morduch, 2005:27). There was also poor management of donor funds by some organizations that acted as conduits that received money from the donors but did not pass it on to the poor people in the informal sector.

The government also tried to play a role in supporting the poor with microfinance services. The government provides small loans in kind especially for agricultural purposes (Mago, 2013). The program however was negatively impacted by drought making it difficult for the farmers to repay their loans. The default rate on these loans is also extremely high due to poor governance and poor risk management systems among other factors. The programs also became too politicized to be effective. Some formal banks have also tried to expand into microfinance by setting up micro enterprise finance division within their organizations (Mago, 2013).

In August 2013, a new Microfinance Act was introduced to regulate and strengthen the microfinance institutions (Mangudya, 2014) prior to August 2013, the microfinance institutions were regulated by the Moneylending and Rates of Interest Act also under the supervision of the Reserve Bank. The new Microfinance Act seeks to strengthen the consumer protection framework by requiring among other things, mandatory full disclosure of the terms and conditions of their services (Mangudya, 20114). Currently, the MFI industry is dominated by ten microfinance institutions which control 83.76% of the market share in terms of total loans. The general liquidity constraints of the economy have a negative impact on the MFI's ability to provide loans. The high interest rates also hinder loan consumption as the high interest rates leads to high default rates. As at March 31, 2014 the total loan portfolio is close to \$170 million serving about 199,000 clients (RBZ 2014), however, loan delinquency levels are high. Other challenges for this sector include weak corporate governance and weak risk management systems (RBZ 2014).

With a weak economy, high unemployment and an increasing rate of poverty there seems to be a market for microfinance services in Zimbabwe and this sector seeks to play a crucial role in the building of an inclusive financial systems for inclusive economic growth and development. A serious question however that needs to be examined is whether the microfinance industry in Zimbabwe will be an instrument for economic growth through poverty alleviation? The majority of the loans as at the end of March 2014 are salary based consumer loans (72%)

and only about 28% of the loans are for economic production (RBZ 2014). To mitigate the high default rate, salary based loans are granted provided the loan recipient has a job whereby the employer withholds the loan installment which is paid directly to the loan provider. The purpose of the microfinance loan industry in Zimbabwe may be more of a consumer basis whereas Peru has a microfinance structure aimed at growing the informal businesses. Thus one marked difference in the market for micro-finance in Zimbabwe is the reliance on these loans for consumer goods while the Peruvian micro-lending industry is using these loans for businesses. “Peru ranks number 1 in the annual Economist Intelligence Unit survey of world’s best business environments for micro lending” (Schmall, 2010).

### **DOMESTIC INVESTMENT PERFORMANCE IN PERU**

The domestic investment performance in Peru and Zimbabwe is not as well developed as it should be in order to create a sustainable economy. The Peruvian economy is based on the informal economy. The advantage to businesses in Peru is that they may be eligible for bank loans rather than the micro-lending rates in effect in Peru. The cost of capital for a business in the informal economy is higher than the cost of capital for businesses working within the formal banking structure. The micro finance industry in Peru has experienced a competitive environment with the multinational company CreditCorp using their micro finance sector Edyficar to establish a significant market share for small loans. Edyficar has since been purchased by MiBanco. MiBanco functions as a type of finance company specializing in micro loans.

The Small Business Network of the Americas (SBNA) was created to provide access to finance for small and medium size entities. “SBNA offers the opportunity for financial institutions and investors to find high quality investments and expand lending to SMEs” (Small Business Networks of the Americas). The SBNA has also established a website (laidea.us) with resources such as an SME toolkit to start your own business (SME Toolkit: Start Your Own Business).

Infrastructure in Peru may also aid domestic investment. The infrastructure in Peru is growing and may experience some of the same problems as the “Celtic Tiger” in Ireland and the growing pains of Eastern Europe after the expansion of the European Union to twenty five countries. One example of the development of the Peruvian infrastructure is the Chinchero Airport Project. “The project involves the design, construction, financing, administration, operation, maintenance and exploitation of the new International Airport of Chinchero (Cusco). Estimated investment amount: US\$ 420 million. Estimated investment amount: US\$ 420 million” (UK Trade and Investment, 2012). Several projects in Peru are joint ventures with private companies in a program called, “Works for Taxes” (Trapunsky, 2014).

“The long-term global slowdown is projected to 2025 and will be driven largely by structural transformations in the emerging economies. As China, India, Brazil, and others mature from rapid, investment-intensive ‘catch-up’ growth to a more balanced model, the structural ‘speed limits’ of their economies are likely to decline, bringing down global growth despite the recovery we expect in advanced economies after 2013” (Conference Board, 2013).

The maturing of the Peruvian economy has a potential to create economic pressures to become a global economy. This will allow growth and create economic prosperity. The scale created may cause problems when the next global crisis materializes. The smaller economies will experience this crisis and may not have the scale to manage these economic problems. This phenomenon was evident in Ireland when the “Celtic Tiger” was tamed. The Irish economy experienced phenomenal growth but when the global economy turned the citizens were not prepared for this downturn. The European Union (EU) has also experienced “growing pains” after the expansion of the EU to twenty-five countries. The rise and fall of the “Celtic Tiger” is another example of a small economy basing their economic development on a global strategy. The Irish housing industry was hit hard during the global economic crisis; however, the Peruvian housing market was not affected by the global economic crisis because of the strong domestic economy fueled by the micro-loans.

### **DOMESTIC INVESTMENT PERFORMANCE IN ZIMBABWE**

Zimbabwe’s poor growth performance is also a result of a low rate of domestic investment. During the period 1980-89 gross domestic investment averaged about 18 percent of GDP and 19 percent during 1990- 1999 but fell drastically to about 3 percent of GDP in the period 2000-2006 (AFDB 2014, UNDP 2014, World Bank Statistics

2012). These investment rates are below the average of about 19 percent of GDP for low income Sub-Saharan Africa. Studies note that these levels of investment are not adequate to maintain the existing stock of capital let alone for the expansion of the productive base (AFDB 2014, UNDP 2014 World Bank Statistics).

As the global economy grew between 2000 and 2007, Zimbabwe was experiencing the worst economic performance in the history of the country to the extent that studies note the period 2000 to 2008 as the “lost decade” (AFDB 2014). Studies attribute a number of causes for the “lost decade”. While the international community seemed to have tolerated the poor economic policy environment, the economic mismanagement and poor governance, they did not tolerate the government’s fast-tracked land reform program in 1999. Following the land redistribution program there was the concomitant loss of support from the international community and capital flight resulting in lowering the domestic investment rate further (AFDB, 2014). This resulted in a sustained and broad-based economic decline as the country’s key sectors agriculture, manufacturing, mining, and services shrunk significantly (AFDB, 2014). Between 2000 and 2008, there was a cumulative decline of nearly 50 percent in real GDP growth. Inflation rate increased substantially from 2000, reaching triple figures in 2006. It then moved to severe hyperinflation in 2007 before peaking at five hundred billion percent at the end of 2008 (AFDB, 2014).

Inflation was fueled by years of money creation to finance public expenditures and quasi-fiscal spending by the Reserve Bank of Zimbabwe (RBZ, 2014, AFDB, 2014, World Bank, 2014). Sustained high inflation contributed to real output contraction prompting the government to institute price controls. The widespread controls of producer and retail prices accentuated shortages of most consumer items leading to severe shortages of basic consumer products. Expropriation of farm land and resettlement in communal and commercial agriculture exacerbated the decline in food output (AFDB 2014, World Bank, 2014).

## **DISCUSSION AND CONCLUSION**

This paper provides for a comparison of the growth of Peru as compared to the struggles of Zimbabwe. Both of these countries are considered developing economies. Peru and other Latin American countries experienced rapid inflation and economic turbulence. Zimbabwe and other countries in Africa have many of the same problems as the Latin American countries. Peru was able to stabilize and grow their economic development by use of a well-defined and structured micro-finance industry fueling a vibrant informal economy. The economic conditions in Peru are not defined by the global economic indicators.

Mayer-Schonberger & Cukier (2013) states, “the typical economic indicators are based on a “handful of strong (or weak) signals” (p. 47). The contributions of the informal economy are not identified in these economic projections. The paradigm for economic decision making is different in the mature economies as compared to the developing economies. “There’s always a large amount of missing data” (Mayer-Schonberger, & Cukier, p. 47) when analyzing countries that have a large percentage of their economics in the informal and small business sectors. The still developing countries were not affected by this crisis as severely as the mature economies because the economic framework is not based on the measurements that are formally recognized. One of the reasons was the reliance in many developing countries on the informal economy. Portes, Castells, & Benton (1989) state, “the growth (and decline) of the informal economy has an inverse relationship to the changes in the formal economy” (p. 25). The reliance on the informal economy mitigates the effects of a global crisis on the small and medium size entities (SME’s) and the large multinational firms reducing their employment. Furthermore, the informal organizations have the capacity to grow into SME’s and eventually to large firms able to participate in the formal sector.

The developing countries may look at the global economy and the global economic crises and develop a strategy that will propel their economies to a higher level without many of the risk factors caused by unsustainable global economic growth. One risk factor evident in Zimbabwe as compared with Peru was the reliance of Zimbabwe on foreign investment. The high levels of foreign capital inflows masked an unsustainably poor economic policy environment that existed in Zimbabwe. The question of whether globalization is a prudent economic policy within developing nations continues to be asked with a mixed response. The use of micro-financing ideas is an important consideration for developing countries. Peru has developed a model that has worked even during the global economic crises. The challenge is the ability to maintain this economic advantage as the economy matures.

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# **KEY INFLUENCER ANALYSIS OF EMPLOYEE CHOICE BETWEEN CONSUMER DIRECTED AND MANAGED CARE HEALTH PLANS**

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## **ABSTRACT**

This study examines key influencers of health plan choice when Managed Care and Consumer Directed Health Plans (CDHPs) are offered as a new choice set. CDHP market share has increased to approximately 20%, and these high deductible cost structures have become familiar in both employer sponsored insurance (ESI) programs as well as the health care insurance exchanges. Gaining greater insights into factors that influence plan choice is vital to identify risk pool segmentation and meeting employee health insurance needs. This study employs a Microsoft clustering algorithm analysis that examines the categorization of enrollees' relative factors associated with plan choice. Data include administrative and claims data for 9,617 households of a large national ESI program. Findings suggest plan cost characteristics and household demographics are key influencers in plan choice independent of plan categories of Managed Care and CDHP.

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## **INTRODUCTION**

This paper examines financial and demographic factors associated with enrollee health plan choice between Managed Care and Consumer Directed Health Plans (CDHPs). Consumer Directed Health Plans (CDHPs) emerged as a new plan design to add an emphasis on demand side controls of health care utilization. CDHPs are designed to engage consumers in health care planning and use through greater enrollee cost-sharing, enhanced cost and quality transparency, and medical spending accounts. Health Reimbursement Arrangements (HRAs) and Health Savings Account (HSA) eligible High Deductible Health Plans (HDHPs) have emerged as the prominent CDHP models that represent approximately 20% of the Employer Sponsored Insurance (ESI) market in 2014 (Kaiser Family Foundation, 2013).

Factors examined in this study include enrollee household demographics, health status, prior cost-sharing per household and plan cost characteristics. Analyses of plan choice factors are operationalized through a data mining technique that uses clustering algorithms to identify similar categorical characteristics of multiple enrollee groups. Analyses also examine key influencers within these clusters that are associated with enrollee plan choice. This approach provides insights regarding common characteristics attributed to enrollees' choice between Managed Care and CDHPs. Preliminary findings suggest enrollees may be categorized largely by their tolerance or disposition toward plan cost characteristics, such as premium contributions, co-insurance and deductibles. Interestingly, health status and other demographic characteristics are not identified as key influencers.

## **BACKGROUND**

In today's health care insurance market place, high deductibles have become more common. Health Reimbursement Arrangements (HRA) and Health Savings Accounts (HSA), which comprise the primary CDHP market, are generally associated with high deductible plans (Effros, 2009). Although HRAs do not specify coupling with any plan, most are offered in combination with a high deductible Managed Care plan design. HSA eligible plans, on the other hand, require coupling with an "HSA eligible" high deductible plan. High deductible plans have also become common for those offered through the Patient Protection and Affordable Care Act's (PPACA) health care exchanges (Gary Claxton, Cox, & Rae, 2015). The trend toward increasing deductibles and out-of-pocket spending by consumers for health care has become the modern standard for many insurance plans which is expected to influence consumers' spending on health care services (Effros, 2009).

An important aspect of the recent trend in health insurance cost-sharing structures is the impact on why enrollees choose one health plan over another. If available health plans' cost sharing or utilization parameters



change, it is essential to understand potential changes in the factors that influence plan choice. Factors that determine enrollees' plan choice can influence the distribution of socio-economic, health risk, and behavioral characteristics across plans (Bloche, 2007; Marquis & Kapur, 2005; Zaslavsky & Epstein, 2005). These factors in turn may affect financial costs, risk pools, and long-term solvency of such plans. Furthermore, many enrollees have little or no choice in the decision to switch plans (Cunningham, 2013; Geyman, 2008). In 2012, nearly 67% of all enrollees who changed plans, did so due to employer-initiated changes to the plans offered in their Employer Sponsored Insurance (ESI) program (Cunningham, 2013). Understanding the factors that affect consumers' decision-making processes in selecting a health plan is important, as it is for employers to consider that characteristics of new or different plans may have a significant impact on their employees and the ESI program (Jordan, 2013).

Employer Sponsored Insurance (ESI) makes up the largest market for CDHPs. In fact, approximately 48% of the US population is insured through ESI (Kaiser Family Foundation, 2013). Of that number, CDHP enrollment has grown from 4% in 2006 to 20% in 2014, with 31% of employers offering at least one CDHP plan (Kaiser Family Foundation, 2013). Furthermore, the largest portion of insurance premiums for health care is borne by employers at an average of nearly \$12,000 for family coverage in 2013 (Gary Claxton et al., 2014). Insurance premiums are directly linked to claims experience and expected payout of benefits. As health care costs increase, premiums increase to cover expected payouts (Eibner & Marquis, 2008; US Department of Labor, 2006).

There have been a number of efforts to slow the rate of inflation in health care costs due to its impact on ESI costs. To remain competitive, third party payers have played a primary role by experimenting with ways to reduce ESI cost inflation (Jordan, 2013). Many factors such as an aging population and technology advancement contribute to health care cost inflation, but they are not affected by third party payer intervention (Kaiser Family Foundation, 2007; World Health Organization, 2011). Therefore, cost containment efforts have largely focused on the structure of insurance policies that establish consumer cost sharing parameters, provider incentives, and procedures that control how services are utilized and financed (Jordan, 2013). CDHPs have emerged as part of this effort.

## **PRIOR RESEARCH**

Consumer Directed Health Care (CDHC) plan choice findings are based on research that studies homogeneous enrollee groups with low CDHP enrollment, most of which pre-date 2003 IRS rule clarifications on the guidelines for medical spending/savings account use (Barry, Cullen, Galusha, Slade, & Busch, 2008; Dicken, 2006; Fowles, Kind, Braun, & Bertko, 2004; Fronstin & Collins, 2003; Greene, Hibbard, Dixon, & Tusler, 2006; Lo Sasso, Rice, Gabel, & Whitmore, 2004; Parente, Feldman, & Christianson, 2004b; Tollen, Ross, & Poor, 2004). Furthermore, three of these studies examine the same employer over the same period of time (Fowles et al., 2004; Lo Sasso et al., 2004; Tollen et al., 2004).

Early research suggests that when CDHPs are introduced to an ESI program comprised of traditional Managed Care, plans experience initial favorable selection (Barry et al., 2008; Fowles et al., 2004; Greene et al., 2006; Lo Sasso et al., 2004; Parente et al., 2004b; Tollen et al., 2004). Prior to enrollment, those who choose a CDHP have lower expenditures on health care services, fewer prior health care visits, and are in better health (Barry et al., 2008; Fowles et al., 2004; Greene et al., 2006; Lo Sasso et al., 2004; Parente et al., 2004b; Tollen et al., 2004). Findings suggest CDHP enrollees may expect to use fewer future health care services, thus avoiding high CDHP deductible costs, and prefer the plan's lower premiums. However, enrollees who anticipate greater future health costs may perceive CDHPs to represent a greater risk of high out of pocket costs, and choose a Managed care option (Jordan, 2013). Another possible explanation may be that Managed Care enrollees are simply averse to coordinating the initial financing for the first several thousand dollars of care required by CDHPs (Jordan, 2013). Although demand side cost sharing is a key feature of CDHPs, existing research does not examine the influence of enrollee cost sharing on plan choice (Jordan, 2013; Robinson, 2005).

Research suggests CDHP enrollees are more likely to have single subscriber coverage than Managed Care enrollees, which may be associated with enrollee expectations of future healthcare costs (Barry et al., 2008; Dicken, 2006; Fowles et al., 2004; Parente, Feldman, & Christianson, 2008; Tollen et al., 2004). Single

subscribers may perceive CDHPs to represent lower risks for future out of pocket costs than multiple enrollee households where the scale of future health care needs can be less predictable (Jordan, 2013).

CDHP enrollees are more likely than Managed Care enrollees to have higher income (Barry et al., 2008; Dicken, 2006; Fowles et al., 2004; Parente, Feldman, & Christianson, 2004a; Parente et al., 2004b, 2008; Tollen et al., 2004). According to Hanna and Chen (1995), higher income enrollees may have greater emergency or discretionary funds (Hanna, 1997). Thus, they have lower relative financial risk for selecting a CDHP with higher cost-sharing. Additionally, high cost enrollees may be more likely to have greater formal education and relative work experience, which increases their ability and willingness to engage in complex health care use decisions represented by CDHPs. Employee earnings is used as a proxy for household income by studies where data are not available for sources of income other than the study employer (Jordan, 2013). Findings for exempt status and CDHP choice are consistent with higher income and better health status. Exempt status is a measure often used to represent higher income, education and better health (Greene et al., 2006; Jordan, 2013). Findings of a positive association between exempt employees and CDHP enrollment are consistent with those between CDHPs, higher income, and better health (Barry et al., 2008; Fowles et al., 2004; Greene et al., 2006; Jordan, 2013).

Findings on the relationship between Flexible Spending Accounts (FSAs) and CDHPs are mixed. Parente et al. (2004a) finds enrollees who previously funded an FSA are more likely to choose a CDHP, while Jordan (2013) actually finds FSA participation negatively associated with an HSA eligible plan and not significant for an HRA. A possible association between FSA participation and CDHP choice may suggest that more educated employees with experience in coordinating the complexity of planning for and coordinating some basic future healthcare costs, and could benefit from additional study. Research finds lower plan premiums are associated with plan choice (Barry et al. 2008; Fowles et al. 2004; Parente et al. 2004a, 2004b, 2008). These same studies also find a positive association between CDHPs and income.

## METHODS

This study employs a cross sectional non- experimental ex post facto design that examines data from a single large employer in multiple regions of the United States. The unit of analysis is the enrollee household. Data include administrative and claims data for 9,617 households. The study data are retrieved from two data sets: 1) a data set extracted from the employer's human resources information system (HRIS), and 2) a data set extracted from a health insurance claims system by a data management firm that is contracted by the employer's insurance broker for managing the ESI data. Data are available for one full year prior to the plan choice. Appendix A describes the HRIS data set constructs while Appendix B presents the claims data constructs. Plan Cost Characteristics are listed in Table 1. Cost characteristics for four different levels of coverage (employee only – single (S), employee/single + spouse (SS), employee/single + children (SC), and family (F) coverage tiers. The Managed Care PPO requires no deductible, 15% co- insurance after the deductible and prior to an out-of- pocket maximum of \$2,000 to \$6,000. Annual employee PPO premium cost is the highest of the three plans between \$933 and \$2,610. The PPO was considered most generous for initial cost sharing because of the zero deductible, yet has the highest sunk cost in the form of premium contributions. The HRA represents the moderate/middle cost and generosity plan in the choice set. The HRA has a deductible between \$500 and \$1,000, and 15% co- insurance after the deductible and prior to an out-of- pocket maximum of \$3,000 to \$6,000. However, the employer funds the HRA account from between \$1,000 to \$2,000, which is used prior to the deductible phase of the plan. HRA premium contributions are between \$757 and \$2,117. No employer contributions are made to the optional HSA spending account HDHP, which includes the highest deductible between \$2,500 and \$7,500. The HSA is considered the least generous plan due to the high deductible and no employer spending account contributions. However it requires no premium contributions and has no co-insurance. The HSA has a \$2,100 to \$6,300 out-of-pocket maximum.

Much like using undirected data mining to determine what products should be grouped together for a specialty catalog, finding groups of readers or listeners with similar tastes in books and music, and discovering natural customer segments for market analysis, (Berry & Linoff, 2000), Similar methods are used in this study to examine data to find groups of financial and demographic influencers on health plan choices.

First, descriptive statistics are used to describe the enrollee population relative to available plans. Then, a Microsoft clustering algorithm analysis is conducted that examines the categorization of enrollees' relative factors associated with plan choice. For categorization via clustering, data were imported into Microsoft (MS) Excel and formatted into a data table. Using MS SQL Server as the analysis engine, three analyses were run on the data: Shopping Basket Analysis, Detect Categories Analysis, and the Key Influencers Analysis.

The Shopping Basket Analysis uses the MS Association Rules algorithm (Microsoft, 2014a) to identify patterns in the data and detect the relationship of items frequently found together in records. The algorithm uses iterative techniques to group cases in a dataset into clusters that contain similar characteristics. These groupings are useful for exploring data, identifying anomalies in the data, and creating predictions. Association models are built on datasets that contain identifiers both for individual cases and for the items that the cases (records) contain. A group of items in a case is called an item set. An association model consists of a series of item sets and the rules that describe how those items are grouped together within the cases. For example, in a shopping basket, the rules that the algorithm identifies can be used to predict a customer's likely future purchases based on the items that already exist in the customer's shopping cart. In our research, these rules can be used to predict which health plan a customer will choose based on his or her characteristics relative to other customers' characteristics.

The Detect Categories Analysis uses the MS Clustering Algorithm to automatically find rows in a table that have similar characteristics, and then creates a report that lists the categories found together with its distinguishing characteristics.

The Key Influencers Analysis uses the MS Clustering Algorithm to enable selection of a column that contains a desired outcome or target value, and then analyzes patterns in data to determine which factors have the strongest influence on that outcome.

The Detect Categories and Key Influencers Analyses use the same MS Clustering algorithm (Microsoft 2014b). This algorithm uses iterative techniques to group cases in a dataset into clusters that contain similar characteristics by first identifying relationships in a dataset and then generating a series of clusters based on those relationships. "Clustering...can be used for two purposes: it can be used for data exploration [and] to understand the structure of data... If such groups are found, these may be named (by application experts) and their attributes be defined" (Alpaydin, 2010). These groupings or clusters are useful for exploring data, identifying anomalies in data, and creating predictions. "Cluster analysis divides data into groups (clusters) that are meaningful, useful, or both. If meaningful groups are the goal, then the clusters should capture the natural structure of the data" (Tan, et al, 2006, p487). In the case of the data in this study, the groups or clusters were not immediately obvious, and since the "Microsoft Clustering algorithm finds natural groupings inside your data when these groupings are not obvious" (MacLennan, et al 2008, p292), it was decided this algorithm to be a good choice for this study's data analysis and the clusters were validated using Anova with post hoc t- tests (Tamhanes Tsq was used since equal variances were not assumed) and chi square tests.

Using these three analyses will allow us to find associations among the variables, as well as which variables might possibly determine the other variables as well as the choice of health plans.

## **VARIABLE FREQUENCIES**

The following describes the number and percentage of cases that fall into each categorical variable for the study population (N=9,617) including healthcare plan enrollment for 2006. The study population is predominantly male (82%), married (79% with second most single, 12.3%), white (86%) (second most common ethnicities are Hispanic and African American 6% each), hourly or non-exempt (60%), non-union (71%), and reside in the Midwestern United States (48%) (second most residing in the West South Central 27% and third in the South Atlantic 20% regions). Of the 9,617 households in the study, 58% chose the Preferred Provider Organization (PPO), 37% chose the HRA, and 5% chose the HSA eligible CDHP. Coverage tiers within each health plan do not reflect any significant differences when compared to all plans in the study. The PPO has less single coverage and the HSA eligible CDHP has fewer households enrolled as employee plus children and family. Finally, 18% of households funded an FSA in 2005 prior to the plan choice for 2006.

## DESCRIPTIVE STATISTICS

The mean, median, and standard deviation for employee age and continuous variables in the analysis are listed in Table 2. The mean age of employees for the study employer shows a mature workforce at nearly 50 years old with a median of 51. The average number of enrollment months is 35 with a median of 36 months suggesting the average household had roughly three persons enrolled for full year policy periods (35 member months / 12 months per year = 2.9 persons). Average earnings for employees is \$69,615 with a median of \$66,181; average variable (out-of-pocket) and fixed (premium contributions) cost sharing for 2005 is \$1,470 and \$1,817 respectively with medians of \$995 and \$2,120. Mean total cost sharing (fixed and variable costs combined) is \$3,286. Table 3 presents the descriptive statistics.

## RESULTS

The Shopping Basket Analysis was run and the algorithm analyzed the data to detect the relationship of items frequently found together. The analysis found no significant groups or patterns in the data, and no significant relationships of items that were in the records. These results suggest that there were no clusters containing similar characteristics.

The Detect Categories Analysis was run and seven categories (clusters) were found. These results suggest that while there are only three health plan choices, there are seven enrollee profile clusters, each with their own unique set of characteristics (see Table 2 below). Tables detailing the characteristics of each category are shown in the Appendix C. Enrollee profile labels are created in Table 3 to identify characteristics profiles for each cluster across the three health plans (Managed Care PPO, HRA and HSA eligible HDHP).

Three enrollee profile clusters were identified for PPO choice. The first was “Family Coverage - Generous Plan,” which made up the largest cluster of PPO enrollees with 2,689 households. Enrollees in this profile cluster were most likely to seek coverage for the whole family (employee, spouse and child/children) and prefer more generous coverage with low initial cost sharing via no deductible. The second largest PPO enrollee cluster (1,758 PPO enrollees) was “Employee + Spouse Coverage - No Kids - Moderate Out-of-Pocket Max.” Those in this profile cluster were identified with employee plus spouse only coverage, and a moderately low out-of-pocket maximum of \$4,000. The \$4,000 out-of-pocket maximum for two enrollees (see Table 1) is the lowest, and limits this cluster’s maximum financial risk. The third PPO cluster was for 519 “Higher Earners” who earned between \$104,259 to \$252,123.

Two enrollee cluster profiles were identified for HRA plan choice. The first was “Moderate High Deductible,” which made up the largest cluster of HRA plan enrollees with 1,738 enrollees. Enrollees in this profile cluster were most likely to seek the plan in the choice set with the moderately high deductible. The HRA plan has a lower deductible than the HSA eligible HDHP, but higher than the PPO. The second largest HRA enrollee cluster (912 HRA enrollees) was “Low Health Care Users.” HRA enrollees in this profile cluster were identified with a lower deductible, lower out-of-pocket maximum, and very low prior out-of-pocket health care spending.

One enrollee cluster profile was identified for HSA eligible HDHP choice. The HSA eligible HDHP cluster profile was not surprisingly “Catastrophic Coverage,” comprised of 551 enrollees. Enrollees in this profile cluster were most likely to seek the plan in the choice set with no co-insurance. The HSA eligible HDHP is the only plan with no co-insurance. Once the high deductible is met (and offset by any HSA funds contributed by employee), this plan covers care with no co-insurance.

Finally, one enrollee cluster profile was identified for enrollees who identified with no specific plan type. This “Single Coverage – Premium Sensitive” cluster identifies with those who sought employee – only coverage and were sensitive to the lowest up-front employee premium contributions. Although one may expect this profile group to include a preference for the HSA eligible high deductible plan that requires no premium contributions, this cluster chose no specific plan. This may suggest that these enrollees, while they share characteristics, do not agree on a specific plan type.

Detailed results that specify key influencers are listed in Appendix C for each enrollee cluster profile. Appendix C lists all factors associated with each cluster and plan, and graphically displays the probability of the relationship. The Appendix lists the influencers (columns), the value, whether it favors Plan06 (in this case, one of three plans for the choice in 2006), and the relative impact of the influence on participating in each plan. The relative impact is considered key if it is above the relative importance of 50.

The statistical validation of the clusters revealed significant differences between each of the continuous variables. The Chi square tests of association also indicated differences on many of the variables. The following is a brief profile of each of the clusters for characteristics of enrollees for 2005, the year prior to the new plan choice set in 2006.

Three of the enrollee cluster profiles identified with PPO enrollment, Family Coverage - Generous Plan, Employee + Spouse Coverage - No Kids - Moderate Out-of-Pocket Max, and Higher Earners". The "Family Coverage - Generous Plan" cluster had the highest premium fixed costs and also had the second highest means for variable cost sharing, wages, out-of-pocketed maximum, and number of household enrollees (enrollment months). They were most likely to be nonexempt, have chosen a low deductible, and tended to be males in greater percentage than probability would expect. The clustering algorithm indicated that the most important variables in grouping the cluster were the premium fixed cost (over \$2200) and the coverage tier (family). Higher premiums are generally associated with more generous coverage. The "Employee + Spouse Coverage - No Kids - Moderate Out-of- Pocket Max" cluster has modest out-of-pocket expenditures and had the highest mean RSS. This cluster was third in variable cost sharing and fourth in wages. The chi-square analysis revealed married females who were hourly, union workers. The clustering indicates the most important variables to be the length of time they have been members of their plan in months (21-48 months) and an out of pocket maximum of \$4,000. Findings may indicate that this enrollees profile cluster represents those who are married with higher than usual health care needs (as suggested by the highest Relative Risk Scores [RRS]) and seek to minimize financial risk related to greater health care use. This cluster may prefer the lower out-of-pocket maximum and zero deductible of the PPO (greater generosity) to more easily predict and manage higher health care costs through greater utilization. "Higher Earners" had the highest average variable cost sharing, second highest RRS, and the third highest in premium fixed-costs, and out-of- pocket maximum. This cluster tended to be non- union exempt employees who were older (50-60) and coverage most often included the family. The clustering algorithm results indicate the most important variables distinguishing this cluster were wages (between \$104,000 and \$250,000), and a zero deductible plan. This may suggest high earners seek more generous coverage and are more capable of and willing to pay higher premium costs for the perceived to be "Cadillac plan" to reduce the risk of high costs associated with greater health care use.

Two of the enrollee cluster profiles identified with HRA plan enrollment, "Moderate High Deductible and Low Health Care Users." The "Moderate High Deductible" cluster was identified to have the largest number of enrollees per household (enrollment months) and have the highest out-of- pocket maximum on average. They also have the second highest premium fixed-costs and next to last RSS score (suggesting good health). The chi square showed this group to be male, nonexempt employees, and over 35. The clustering shows the most important variables to be the deductible (\$1000) and the HRA plan. This cluster, comprised of healthier enrollees and HRA choice, likely value the employer funded HRA for basic needs, however wish to avoid the risk of high deductibles with the HSA eligible HDHP. "Low Health Care Users" ranked middle to lower with means being fourth in both premium fixed-cost and out-of-pocket maximum. This cluster was seventh in variable cost sharing and seventh in RRS (suggesting better health). The Chi square revealed a profile of female with either a low or no deductible, and whose coverage either included a spouse or kids, but not the whole family. The clustering shows the most important variables to be a deductible of \$750 and out of pocket max of \$4500. These "Low Health Care Users" identified with HRA plan enrollment, which suggests they may seek the moderate deductible, but value the employer funded HRA for routine care yet necessary care associated with women and children.

One enrollee cluster profile identified with HSA eligible HDHP enrollment. The "Catastrophic Coverage" cluster had the highest average income, high deductibles, and female, exempt employees. They grouped either in the under 35 or the 35 to 49 age ranges. The clustering algorithm indicated that, for this cluster, coinsurance rate (0) and plan were the key variables followed by female gender. One enrollee cluster profile identified with none of the three plans. "Single Coverage - Premium Sensitive" cluster enrollees were younger, single, and

tended to be female at a greater rate than probability. The means showed them to have the lowest premium fixed-cost and out-of-pocket maximum and the second to lowest variable cost sharing. The clustering algorithm indicated coverage tier, premium fixed-cost (the lowest category), and number of enrollees per household (the lowest) as the key variables in grouping this category. The size of the means and standard deviations for each cluster are presented in Appendix (D).

## DISCUSSION

One explanation for the key influence of deductibles, coinsurance and out-of-pocket maximums could relate to enrollees basic assessment of insurance cost structure and their anticipated need for future health care use. Employee household composition, prior health care use and cost experience, and the health of household enrollees may largely determine their risk tolerance based on perceived need relative to plan premiums and cost characteristics. Enrollee cluster profiles suggest that each cluster identifies with personal household characteristics, while considering their risk tolerance relative to each plan's cost characteristics.

The analysis indicates that PPO enrollees have the poorest health (highest RRS and highest prior variable cost sharing) and middle employee median earnings (see Table 2). This outcome suggests adverse selection for the PPO, where the more generous cost characteristics of the plan attract those who anticipate a greater need for health care use and more generous benefits to avoid financial risk. The PPO cluster profiles identified in the analysis support enrollee efforts to limit financial exposure. Their plan choice is compatible with seeking greater plan generosity. The three enrollee profile clusters that include PPO choice ("Family Coverage - Generous Plan, Employee + Spouse Coverage - No Kids - Moderate Out-of-Pocket Max, and Higher Earners") have the highest prior year variable cost sharing (out-of-pocket costs) and highest RRS - poorest health. The largest two clusters identified with PPO choice sought more generous coverage and lower out-of-pocket maximums, which would reduce the risk of costs associated with greater health care use. The third cluster of "High Earners" also have the highest average prior cost sharing and second highest RRS prior to plan choice. This cluster's enrollees are also older. Generally, older individuals utilize more health care services and are often the higher earners due to career maturity.

Of the three plans, HRA enrollees have the lowest median earnings, but are much healthier than those who chose the Managed Care PPO (see Table 2). However, HRA plan enrollees are not as healthy as those who chose the HSA eligible HDHP (Table 2). This result may suggest that HRA plan enrollees perceive a need for more health care than HSA eligible HDHP enrollees, but less than Managed Care PPO enrollees. The HRA represents a "middle of the road" choice that balances these factors. The two enrollee cluster profiles that identify with HRA plan enrollment are "Moderate High Deductible and Low Health Care Users." Similar to descriptive plan enrollment statistics, the HRA plan enrollee profile clusters indicate better enrollee health. The HRA plan represents the "middle of the road" plan choice for healthier enrollees who also have dependents requiring routine care. The Moderate High Deductible cluster includes the largest number of household enrollees but is healthier (low RRS). The "Low Health Care Users" are healthier (lowest RRS) but include additional household enrollees. These groups appear to seek some insulation against high deductibles (such as with the HSA eligible HDHP) but value the employer funded HRA to offset routine health care often associated with families and women and lower premiums. In essence they are balancing financial risk and cost.

The enrollee cluster profile that identifies with the HSA eligible HDHP, "Catastrophic Coverage," includes those with the highest earnings and zero coinsurance. High earners have a greater ability to fund the HSA eligible plan that includes no coinsurance, and they are more likely able to incur the initial high cost sharing of this plan.

The new plan choice set offered in 2006 for this study represents a hierarchical order of generosity and cost to enrollees. This order appears to fit with the enrollee cluster profiles identified by the analysis. The PPO represents the more generous, higher premium cost option followed by the "middle of the road" HRA, and finally the lowest generosity, zero premium high cost sharing HSA eligible HDHP. HRA plan premiums are higher than the HSA eligible HDHP, but unlike the HSA eligible HDHP it provides employer funds to cover some initial routine and/or minimal care with no out-of-pocket costs prior to the deductible phase. The HRA plan does have lower premiums than the Managed Care PPO, which represents the most generous benefits of the three available plans and leads to three observations.

The first observation is an HRA plan covers some initial routine and/or minimal care at no additional out-of-pocket cost via an employer funded account. For lower earners who perceive limited or minimal health care need, this account minimizes their financial exposure for lower up-front premium cost and routine preventive or basic health care use than the Managed Care PPO. Second, the HSA eligible HDHP has the lowest premium cost, but highest initial cost (un-subsidized high deductible) when health care is used. The healthiest enrollees who expect to only need routine preventive or basic care, perceive a low likelihood to incur high out-of-pocket costs and is supported by the association between higher wage and healthier enrollees. Additionally, the highest wage enrollees are also willing to risk out-of-pocket costs from unexpected health care needs due to their greater economic resources. Third, the Managed Care PPO has the highest premiums and most generous benefits. Enrollees who have the greatest perceived need for care, prefer the more generous benefits. In each cluster that was identified, enrollees chose plans that appear congruent with their household characteristics relative to health, earnings and plan cost characteristics.

A key area for future research is the employee's perceptions of costs. Do enrollees fully examine or have sufficient information to attempt an assessment of plan choice via their economic resources, needs and abilities to process the available information within each health plan's cost characteristics, and their health attributes? Similarly, do consumers have the ability to effectively manage the financing and coordination of health care use? Management of some initial health care costs through FSA participation, and now HRA and HSA participation, is challenging at best due to information limitations on related health care costs, administration of accounts only partly controlled by enrollees, and the overall complexity of the health care market. Findings related to plan choice for lowest earners highlight a need to better understand the role of variable cost sharing versus fixed enrollee premium contributions. Plan choice based on uncertain future costs versus certain costs may help explain plan choices that are not consistent with the lowest cost option.

## CONCLUSION

This study examines and profiles the key influencer constructs for three health plans. The findings indicate that cost and risk acceptance were key influencers. The balance between plan premium cost and benefits generosity must be considered for ESI programs relative to high users of health care (including families versus single subscribers) and users with diseases and chronic conditions. These key influencers can impact the viability of the program and the health of enrollees. If the cost and benefit generosity of the ESI program are not conducive to employee needs, enrollees could defer necessary care due to cost, miss early detection of more serious problems through avoidance of routine preventive care, or even choose to go without insurance coverage at all.

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**Table 1 -  
Plan Cost Characteristics**

<b>Plan</b>	<b>PPO *</b>	<b>HRA</b>	<b>HDHP †</b>
<u>Deductible</u> In-Network	\$0	<u>After HRA Exhausted ‡</u> \$500/S \$750/SS \$750/SC	\$2,100/per enrollee up to \$6,300/F
		\$1,000/F	
<u>Co-insurance</u> ‡ In Network	15%	15%	0%
<u>Out-of-Pocket Maximum</u>	\$2,000/per enrollee § up to \$6000/F	\$3,000/S \$4,500/SS \$4,500/SC \$6,000/F	\$2,100/per enrollee § up to \$6,300/F
Employer Contributions to medical spending account	\$0	\$1,000/S \$1,500/SS \$1,500/SC \$2,000/F Used prior to deductible	\$0

Notes.

Coverage Tier: (S) = Subscriber, (SS) = S & spouse, (SC) = S & Child(ren), (F) = Family

\* The PPO plan also has co-pays for Primary Care Physician Visit = \$20, Specialist Visit = \$25, Emergency Department Visit = \$50, Chiropractic Visit = \$25.

† The HDHP has a cost structure that does not change based on funding or not funding an HSA.

‡ Co-insurance percentages are applicable after deductibles are met.

§ Up to the family level. The enrollee deductible is taken up to three enrollees.

**TABLE 2 -  
Enrollees' Descriptive Statistics (n=9,617)**

<u>Variable &amp; Measure</u>	<b>PPO</b>	<b>HRA</b>	<b>HSA ELIGIBLE</b>	<b>ALL PLANS</b>
Member Months 2005				
Mean	35	35	30	35
Median	36	36	24	36
Std. Deviation	16	17	17	17
Employee Earnings 2005				
Mean	\$68,435	\$70,751	\$75,147	\$69,615
Median	\$66,072	\$65,958	\$70,102	\$66,181
Std. Deviation	\$31,848	\$43,635	\$34,915	\$36,853
Variable Cost-Sharing - 2005				
Mean	\$1,633	\$1,248	\$1,210	\$1,470
Median	\$1,194	\$748	\$508	\$995
Std. Deviation	\$1,765	\$5,682	\$1,953	\$3,750
Premium Fixed Cost - 2005				
Mean	\$1,906	\$1,801	\$851	\$1,817
Median	\$2,120	\$2,120	\$767	\$2,120
Std. Deviation	\$580	\$669	\$950	\$673
Relative Risk Score - 2005				
Mean	91	60	57	78
Median	55	35	22	46
Std. Deviation	111	80	97	101

**TABLE 3 - Enrollee Profile Clusters**

Enrollee Profile	Enrollee Count	Plan of choice
Family Coverage - Generous Plan	2689	PPO
Employee + Spouse Coverage - No Kids - Moderate Out-of-Pocket Max	1758	PPO
Higher Earners	519	PPO
Moderate High Deductible	1738	HRA
Low Health Care Users	912	HRA
Catastrophic Coverage	551	HSA Eligible
Single Coverage - Premium Sensitive	1450	Plan type

**Appendix A: Employer Human Resources Information System (HRIS) Variables**

<u>Employee Level 2005</u>	<u>Contract Level 2005</u>
- Gender, Age in Years, Social Security # <sup>a</sup>	- Prior FSA Funded: Y / N and dollars <sup>b</sup>
- Ethnicity – EEOC categories	- Marital Status: Y / N
- Gross Earnings: Dollars	- Region – zip code <sup>c</sup>
- Salaried / Hourly (Exempt / Non-exempt)	
- Part-time / Full-time	
- Union / Non-union	

*Notes.* All variables are measured as of December 31, 2005

<sup>a</sup> Variables used to merge with data management vendor data – Social Security Number is de-identified prior to acquiring data by researcher(s)

<sup>b</sup> Allocation amount selected during open enrollment when plans are chosen.

<sup>c</sup> Zip code is used by third party data management firm to merge data, and is then cleaned to a three digit zip code prior to access for this study.

## Appendix B: Data Management Vendor Variables

<u>Plan Eligibility and Enrollment Data</u>	
- Encrypted Contract Level ID Number	- Primary Subscriber Age in Years
- Plan Type (HMO, PPO, HRA, HSA eligible HDHP)	- Primary Subscriber Residence 3-Digit Zip Code and U.S. Census 9 Zone Geographic Region
- Coverage Tier (single, plus children, plus spouse, family)	- Primary Subscriber Gender
- Plan Chosen	- Plan Co-insurance Rate
- Plan Deductible	- Employee Premium Contributions
- Enrollee Months for Enrollment Period (Aggregate for the number of months of all enrollees under a subscriber contract, E.g. 1 enrollee all year and 2nd enrollee added mid-year would measure 18 months for the contract.)	- Plan Annual Out-of-Pocket Maximum
Claims Data: Utilization and Risk Profiles	
- Allowed Provider Payments (Total amount provider is paid by health plan for all contract enrollees)	
- Net Provider Payments (“Allowed Amount”, minus amounts owed by enrollee, E.g. co-insurance, deductible, co-pay)	- Relative Risk Score (RRS) (RRS for each enrollee added for contract level score)

**Appendix C: Characteristics of each Category**  
(Family Coverage - Generous Plan)

Variable	Value	Relative Importance
premfxcost	High:2020.36 --- 2521.85	100
covgtier05	Family	85
Plan06	PPO	82
DEDUCT	0	82
OOPOCKMAX	6000	75
maritalstatus	2	26
MemberMonths_sum	Medium:48 --- 52	15
WagesA	Low:< 104259.38	13
COINSRATE	15	7
Female	0	6
male	1	6
MemberMonths_sum	High:52 --- 76	5
agelessthan35	0	4
varcostshare	Medium:2926.62 --- 5059.98	4
HSAcontr	0.0000	4
regioncode	5	2
varcostshare	Low:1204.31 --- 2926.62	2
exemptst	1	2
age35to49	1	1
union	1	1
varcostshare	High:5059.98 --- 13413.50	1
RRS	Low:61.00 --- 152.79	1
regioncode	6	1



**Appendix C, continued...**

(Employee + Spouse Coverage - No Kids - Moderate Out-of-Pocket Max)

age50to60	1	7
RRS	Medium:152.79 -	6
COINSRAT	15	5
RRS	High:333.07 - 506.63	3
exemptst	1	3
HSAcontr	0.0000	2
FSAcontr	0.0000	2
varcostshare	Low:1204.31 - 2926.62	2
regioncode	5	2
maritalstatus	4	1
fsapartic	0	1
union	1	1
agelessthan3	0	1

**Appendix C, continued...**  
(Higher Earners)

Variable	Value	Relative Importance
WagesA	Medium: 104259.39 - 252123.24	86
DEDUCT	0	36
Plan06	PPO	36
exemptst	0	28
premfxcost	Very High: >= 2521.86	19
fsapartic	1	13
WagesA	High: >= 252123.24	13
union	0	12
premfxcost	Medium: 1454.78 - 2020.36	9
regioncode	3	4
COINSRATE	15	4
FSAcontr	3600	4
OOPOCKMAX	6000	2
agelessthan35	0	2
OOPOCKMAX	4000	2
age50to60	1	2
premfxcost	Low: 1064.62 - 1454.78	2
FSAcontr	3000	2
varcostshare	Medium: 2926.62 - 5059.98	2
age35to49	0	1
FSAcontr	2160	1
FSAcontr	1680	1
Female	0	1
male	1	1
RRS	Medium: 152.79 - 333.07	1
HSAcontr	5250	1
FSAcontr	2600	1
FSAcontr	3250	1
FSAcontr	5000	1
HSAcontr	2400	1
FSAcontr	2400	1
FSAcontr	1500	1
varcostshare	Low: 1204.31 - 2926.62	1
HSAcontr	3077.5	1
HSAcontr	4800	1
FSAcontr	1900	1
FSAcontr	3120	1
FSAcontr	3150	1
FSAcontr	4320	1
FSAcontr	2350	1
covgtier05	Employee + Child	1
MemberMonths_sum	Very High: >= 76	1

**Appendix C, continued...**  
(Moderate High Deductible)

Variable	Value	Relative Importance
DEDUCT	1000	100
Plan06	HRA	56
premixcost	High:2020.36 - 2521.86	36
covgtier05	Family	31
OOPOCKMAX	6000	28
maritalstatus	2	10
MemberMonths_sum	Medium:48 - 52	5
MemberMonths_sum	High:52 - 76	4
WagesA	Medium:104259.39 - 252123.24	3
male	1	3
Female	0	3
COINSRATE	15	2
fsapartic	1	2
agelessthan35	0	1
HSAcontr	0.0000	1
exemptst	0	1
varcostshare	Low:1204.31 - 2926.62	1
age35to49	1	1
RRS	Very Low:< 61.00	1

**Appendix C, continued...**  
(Low Health Care Users)

Variable	Value	Relative Importance
DEDUCT	750	100
OOPOCKMAX	4500	100
varcostshare	Very Low:< 1204.31	65
Plan06	HRA	62
covgtier05	Employee + Child	30
RRS	Very Low:< 61.00	25
premfxcost	Medium:1454.78 - 2020.36	11
premfxcost	Low:1064.62 - 1454.78	11
WagesA	Low:< 104259.39	8
covgtier05	Employee + Spouse	7
FSAcontr	0.0000	5
maritalstatus	4	4
COINSRATE	15	4
MemberMonths_sum	Low:21 - 48	4
regioncode	7	3
premfxcost	Very High:>= 2521.86	3
fsapartic	0	3
age50to60	0	1
ethnicity	5	1
ethnicity	2	1
agelessthan35	1	1
exemptst	1	1

**Appendix C, continued...**  
(Catastrophic Coverage)

Variable	Value	Relative Import
Plan06	HSA Eligible HDHP	100
COINSRATE	0	100
Female	.	44
age50to60	.	44
male	.	44
HSAcontr	.	44
agelessthan35	.	44
age35to49	.	44
FSAcontr	.	44
DEDUCT	6300	39
OOPOCKMAX	6300	39
DEDUCT	2100	24
OOPOCKMAX	2100	24
OOPOCKMAX	4200	24
DEDUCT	4200	24
WagesA	Medium:104259.39 - 252123.24	7
premfxcost	Low:1064.62 - 1454.78	6
exemptst	0	4
premfxcost	Very Low:< 1064.62	3
regioncode	3	2
covgtier05	Employee Only	1
union	0	1
maritalstatus	1	1

**Appendix C, continued...**  
 (Single Coverage - Premium Sensitive)

Variable	Value	Relative Importance
covgtier05	Employee Only	100
premixcost	Very Low:< 1064.62	97
MemberMonths_sum	Very Low:< 21	83
OOPOCKMAX	2000	39
OOPOCKMAX	3000	30
DEDUCT	500	30
maritalstatus	1	29
varcostshare	Very Low:< 1204.31	10
male	0	7
Female	1	7
WagesA	Low:< 104259.39	4
maritalstatus	4	3
agelessthan35	1	2
COINSRATE	15	2
FSAcontr	0.0000	1
fsapartic	0	1
HSAcontr	0.0000	1
age50to60	0	1

#### Appendix D: Clusters Profiled by Means

Dependent	Cluster	N	Mean	Std. Dev.
Premfixcost	Catastrophic	551	938.2536	896.1697
	Generous	2689	2319.759	103.6031
	High cost	519	2009.494	702.8242
	Low User	911	1747.024	709.1739
	no Kids	1758	1700.35	329.1121
	Mod. Deduct	1738	2250.56	126.708
	Single Sensitive	1450	816.8421	125.541
	Varcostshare	Catastrophic	551	1231.003
Generous		2689	1926.52	1648.458
High cost		519	1968.7	1758.609
Low User		911	446.1871	323.2625
no Kids		1758	1916.658	8171.258
Mod. Deduct		1738	1546.535	1298.71
Single Sensitive		1450	543.4256	700.9821
MemberMonths_sum		Catastrophic	551	29.64
	Generous	2689	46.05	12.154
	High cost	519	38.93	18.713
	Low User	911	28.93	12.551
	no Kids	1758	26.68	5.091
	Mod. Deduct	1738	47.77	12.941
	Single Sensitive	1450	12.06	0.57
	RRS	Catastrophic	551	62.7813
Generous		2689	77.4908	88.229
High cost		519	100.9329	111.4904
Low User		911	32.9237	33.02268
no Kids		1758	117.2045	128.6785
Mod. Deduct		1738	57.0152	61.37828
Single Sensitive		1450	82.9854	127.272
WagesA		Catastrophic	551	84926.64
	Generous	2689	66934.24	16921.45
	High cost	519	118201.1	74590.95
	Low User	911	60154	19269.22
	no Kids	1758	61894.94	18267.14
	Mod. Deduct	1738	78660.91	47037.91
	Single Sensitive	1450	55820.25	19059.32
	OOPOCKMAX	Catastrophic	551	4453.18
Generous		2689	5878.77	489.654
High cost		519	5132.95	1313.596
Low User		911	4602.63	822.188
no Kids		1758	4335.89	804.231
Mod. Deduct		1738	5947.35	289.852
Single Sensitive		1450	2596.21	722.472

This table shows the clusters and the means for each cluster for the Dependent Variable.

# **JBET Research Notes**

Coupons in Recession

*Clifford F. Thies*



## COUPONS IN RECESSION

Clifford F. Thies, Shenandoah University

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### ABSTRACT

Price-off coupons are in long-term decline. Nevertheless, they remain a significant component of promotion, and made something of a comeback during the hard times that followed the Financial Crisis of 2008. This study uses the data of five national surveys conducted by Louis Harris & Associates on behalf of the Food Marketing Institute during the 1980s to examine the use of coupons. Findings indicate that the demand for coupons is indeed responsive to financial distress as occur during hard times, that the use of coupons is negatively correlated with family income and positively impacted by the presence of a housekeeping spouse. Accordingly, the secular decline and temporary revival of coupons is easily explained.

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### INTRODUCTION

Following World War II, issuance and redemption of coupons grew enormously. By the 1980s, manufacturers were issuing several hundred billion coupons per year, and consumers were redeeming several billion. See Table 1. Coupons were being issued primarily through inserts in newspapers, but are also issued in clip-out form in various periodicals, through mass and targeted mailings and through packaging. Since the mid-1990s, when coupon issuance peaked at 310 billion, issuance and redemption has been in decline. See Figure 1. Even with this decline, coupons remain a significant component of many firms' marketing strategy, with 190 billion issued and 3.5 billion redeemed during 2015. Indeed, since 2006, when redemptions hit a low point of 2.4 billion, coupons have been on a rebound. Recent innovations in coupons include the shortening of time to expiration and internet-based coupons. Also, the focus of discounting seems to increasingly be loyalty programs (Jones, 2015; KMPG, 2015). This study seeks to understand the causes of both the secular decline and the rebound in coupons.

According to the price discrimination model of coupons, coupons are a way of maximizing profit by charging different prices to different market segments (Narasimham, 1984, see also Ben-Zion, Hibshoosh & Spiegel, 1995; Bester & Petrakis, 1996). Johnson, Tellis & Ip (2013) apply the basic insights of the price discrimination model to the contemporary practice of dynamic pricing. According to the price discrimination model, the market is flooded with coupons, but only some buyers bother with them because - for these buyers - the money savings is more important than the implicit cost of using coupons. This model predicts that coupon-users will tend to have lower incomes and have more time available for activities such as shopping.

An almost opposite prediction comes from the model developed by Salop & Stiglitz (1977). They differentiate buyers by knowledge. Some buyers, they say, are "really smart." They give the example of economists. Other buyers are not so smart. Salop and Stiglitz say that smart buyers will shop for bargains, while not so smart buyers will be ripped off.

A parallel literature focuses on the potential use of coupons to shape perceptions. Raghubit (2004) argues that the offer of a discount in conjunction with a high list price may help to create the perception of premium quality, while maintaining a competitiveness with price-sensitive buyers. Ashworth, Darke & Schaller (2005), on the other hand, argue that a psychological cost attaches to the user of coupons. Nevo & Wolfram (2002) argue that manufacturers of branded goods issue coupons in conjunction with reductions in price in order to induce brand switching.

During the 1990s, Robert L. Wehling, CEO of Procter & Gamble, sought to reduce his company's reliance on coupons. "I don't like couponing. Period." he was quoted as saying. "Couponing inherently motivates brand switching." (Narisetti., 1996) P&G moved cautiously against coupons, and backed away from completely discontinuing their use. More recently, during the revival of coupons, Ron Johnson, CEO of J.C. Penney, attempted to shift from discounting to fair pricing, with disastrous consequences. (Mourdoukoutas, 2013)

Periodic surveys reveal some surprising facts concerning the demographics of those who use coupons: Coupon users tend to be well-educated and high-income (Little, 2012; Valassis, 2016). A 2014 survey by the American Affluent

Research Center indicates that “The typical US millionaire makes lifestyle choices about spending that will lead toward their personal goal: accumulating wealth, not material possessions.” (eMarketer, 2015)

A potential problem arises in the interpretation of the simple correlations of income and of education with coupon use because of the correlations of income and education with other demographic variables such as type of household. Figure 2, aggregated from four national surveys conducted by the Harris Poll during the 1980s, illustrates the point. Frequency of coupon use is highly correlated with type of household. Single men have the lowest frequency of coupon use, married couples with a housekeeping spouse the highest frequency, and single women and married couples both of whom work an intermediate frequency. To isolate the effect of income and education *per se* on the use of coupons, some form of multi-factor analysis is necessary.

### REGRESSION ANALYSIS OF COUPON USERS

To examine the use of coupons, a sample of 5,040 was aggregated from five national surveys conducted by the Harris Poll on behalf of the Food Marketing Institute during the years 1981 to 1986 (Harris, 1981-1986). Each of the surveys involves a nationally representative sample of the general population; and, these five surveys feature many common questions including questions involving the use of coupons. The surveys are further described at the Data Archive of the Odum Institute of the University of North Carolina.

The years 1981 to 1986 were peak years of coupon use, and furthermore involved the transition of the economy from the stagflationary 1970s to stable prices and good times, which transition involved a severe recession. The course of the economy is reflected in several responses abstracted from the surveys for this study. In Table 2, it can be seen on rows 9 and 10 that the numbers of people expressing difficulty in making ends meet and expressing negative economic expectations were falling during the period. It can also be seen, on rows 1 and 2, that coupon use started the period strong and then moderated. Another trend relevant to this study concerns households headed by married couples. Rows 5 and 6 show that the number of households headed by married couples both of whom work was rising, while the number which featured a housekeeping spouse was falling.

Table 3 presents the results of multiple regressions in which frequency of use of coupons is the dependent variable. Among the explanatory variables are household type, income and education, and – reflecting the longitudinal dimension of the aggregate sample - dummy variables representing the year of the survey (the 1981 survey being the excluded case). The coefficients of these dummy variables pick up changes in coupon use not captured by the (mostly cross-sectional) explanatory variables included in the regression.

The first several rows of Table 3 reveal the impact on coupon use of gender, household type and the presence of children. Women, as contrasted with men, and households headed by married couples, especially those featuring a housekeeping spouse, as opposed to households headed by single persons, tend to use coupons more frequently, as do households that have children present.

Rows 6 and 7 focus on the impact of income on the use of coupons, including the level of income and the extent to which income is adequate. It turns out that, when “other things” are held constant, people with higher income use coupons less frequently. Also, that households expressing financial distress use coupons more frequently.

Rows 8 and 9 focus on the impact of education on the use of coupons. It turns out that, when “other things” are held constant, neither high school graduates nor college graduates use coupons more frequently than those who have not graduated from high school.

### CONCLUSIONS

The regression results strongly support the price discrimination model of coupons and caution against drawing conclusions from univariate analysis. Significantly, when household type is controlled through the use of regression, households with low levels of income and those in a pinch use coupons more frequently. Also, households headed by married couples with a housekeeping spouse are much more likely to use coupons than those in which both are working. Education *per se* has no discernible impact on coupon use.

The rise of household income through 1999 and the continuing decline of households headed by married couples featuring a housekeeping spouse augers poorly for coupons. Thus, there has been a secular decline in the use of coupons in this country. But, the fall of household income since 1999 and the distress suffered by many families following the Financial Crisis of 2008 called for a revival.

**Table 1:** Timeline of coupons in the U.S., 1887-2015

1887 – Coca-Cola invents coupon
1909 – C.W. Post invents cents off coupon (for Grape Nuts cereal)
1920s – manufacturer reps settle directly with retailers
1957 – Nielsen becomes first third-party processor
1963 – Nielson outsources coupon processing to Mexico
1965 – 10 billion coupons issued
1968 – Terry Loebe invents Valpack
1972 – George F. Valassis invents cooperative newspaper inserts
1975 – 35 billion coupons issued
1980 – optical scanning used to process coupons
1985 – 200 billion coupons issued
1995 – 310 billion coupons issued
2005 – 285 billion coupons issued
2010 – Target invents mobile coupons (for cell phones)
2015 – 190 billion coupons issued

**Table 2:** Descriptive Statistics of Regression Variables

	1981 survey	1982 survey	1983 survey	1985 survey	1986 survey
Coupon Use A (Index)		0.60	0.60	0.54	0.37
Coupon Use B (Index)	0.73	0.72	0.74		
Coupon Use (Index)	0.73	0.66	0.67	0.54	0.37
Female (%)	0.60	0.60	0.60	0.60	0.60
Married - Both work (%)	0.28	0.28	0.26	0.31	0.32
Married - One works (%)	0.42	0.45	0.42	0.38	0.39
Children (%)	0.49	0.42	0.44	0.44	0.48
Income (\$) (ave.)	21,554	23,390	23,464	26,562	28,907
Make ends meet (Index)	0.60	0.52	0.46		
Negative Expect'ns (Index)	0.45	0.24	0.24	0.08	0.12
Distress (Index)	0.53	0.38	0.35	0.08	0.12
High School (%)	0.59	0.60	0.56	0.58	0.59
College (%)	0.21	0.23	0.26	0.25	0.27

source: Harris Poll.

Index: ordinal data (e.g., four-part) treated as a scalar (0, 0.33, 0.67, 1)

Coupon Use A - use coupons rarely, occasionally, frequently, or almost always

Coupon Use B - increased or began use of coupons

Coupon Use - average of Coupon Use A and Coupon Use B

Married - one works - means at most one works

Children - one or more children in the household

Income - inferred from interval data

Make Ends Meet - are you finding it harder to make ends meet

Negative expectations - average of expectations that personal economic condition will get worse, and that prices of groceries and of gasoline will increase substantially

Distress - average of Make Ends Meet and Negative Expectations

High School - High School graduate but not a 4-year College graduate

College - 4-year College graduate

**Table 3:** Regression Analysis of Coupon Use, N = 5,020

	Coef.	Std. Error	t-stat.	Coef.	Std. Error	t-stat.
Constant	0.8318	0.0743	11.19	0.8271	0.0722	11.46
Female	0.0571	0.0091	6.29	0.0573	0.0090	6.34
Married - Both work	0.0548	0.0126	4.36	0.0548	0.0126	4.36
Married - One works	0.1146	0.0110	10.42	0.1142	0.0109	10.48
Children	0.0205	0.0093	2.21	0.0212	0.0092	2.30
Ln( Income )	-0.0237	0.0078	-3.05	-0.0222	0.0073	-3.06
Distress	0.0311	0.0146	2.13	0.0307	0.0145	2.11
High School	0.0133	0.0125	1.06			
College	0.0090	0.0153	0.59			
1982 survey	-0.0696	0.0140	-4.97	-0.0694	0.0140	-4.96
1983 survey	-0.0543	0.0141	-3.86	-0.0545	0.0141	-3.87
1985 survey	-0.1683	0.0153	-11.04	-0.1686	0.0152	-11.07
1986 survey	-0.3457	0.0150	-23.02	-0.3457	0.0150	-23.04
R-sqr.	17.55%			17.53%		

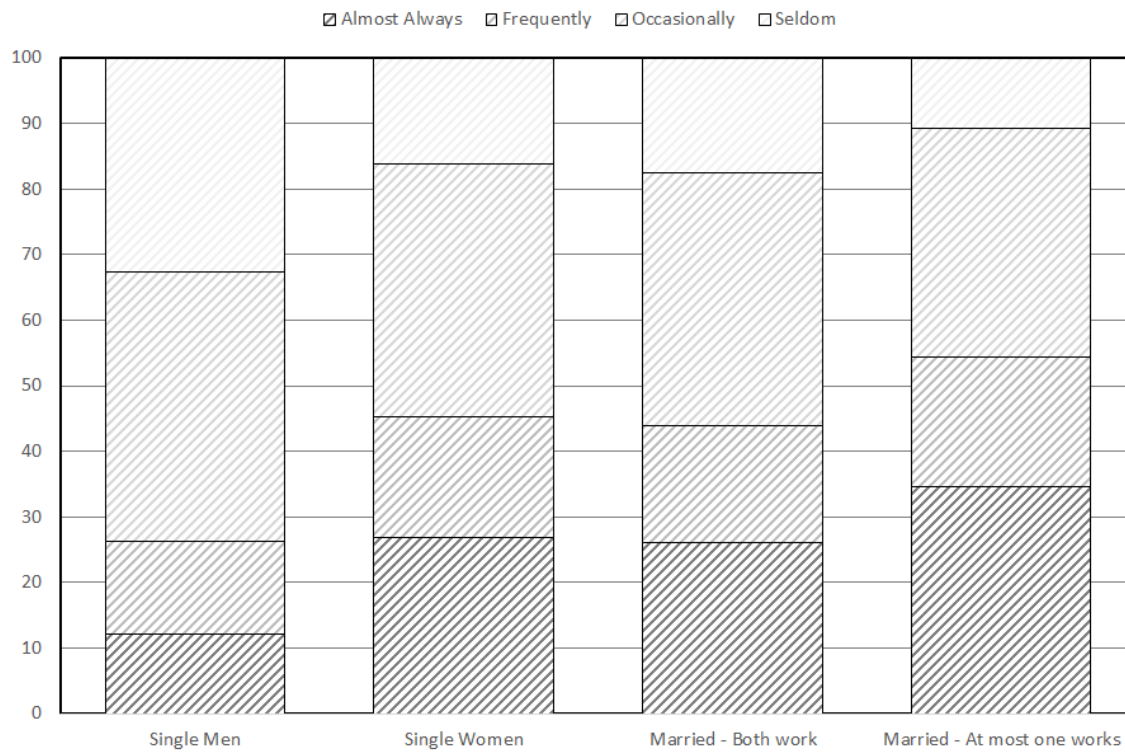
source and definition of variables: see Table 2.

**Figure 1: Coupon Redemption in the U.S., 1980-2015**



source: annual reports of NCH, deflated figures calculated by author.

**Figure 2:** Coupon Use by Household Type, U.S., 1982-1986



source: four national Harris Polls.

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