Assessing the Effectiveness of Micro-level Poverty Interventions in the Highlands of Guatemala

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ASSESSING THE EFFECTIVENESS OF MICRO-LEVEL POVERTY INTERVENTIONS IN THE HIGHLANDS OF GUATEMALA

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ASSESSING THE EFFECTIVENESS OF MICRO-LEVEL POVERTY INTERVENTIONS IN THE HIGHLANDS OF GUATEMALA

In Partial Fulfillment of the Requirements for the Degree

MASTER OF ARTS

in

INTERNATIONAL STUDIES

by

JACQUELINE ANNETTE CASTRO

May 1, 2016

UNIVERSITY OF SAN FRANCISCO

Under the guidance and approval of the committee, and approval by all the members, this thesis project has been accepted in partial fulfillment of the requirements for the degree.

APPROVED:

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Academic Director                                                                      Date

__________________________________                                _________
Dean of Arts and Sciences

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Despite immense efforts of poverty alleviation in the Western highlands of Guatemala, poverty is intense and widespread. Amidst an abundant array of poverty interventions, existing evidence on those interventions are not sufficient. Highlighting basic knowledge regarding impact evaluations, this paper aims to determine the most effective poverty intervention for the Western highland areas of Guatemala. Focusing on impact evaluations, this paper reviews 17 Latin American interventions, paying close attention to what may be applicable to this region. Using only the highest quality data from Latin America, it is clear that cash transfers and graduation programs are the most impactful interventions currently available. Also very clear is that international development stakeholders’ knowledge regarding impact evaluations is limited. For this reason, this paper provides a basic yet thorough explanation regarding impact evaluations so that international development stakeholders can make effective decisions regarding the lives of the poor.
# TABLE OF CONTENTS

vi. List of Tables  
vii. Acknowledgements  
ix. Abbreviations  

## I. Introduction

- What is impact evaluation? .................................................................3  
- What defines program impact? ..............................................................5  
- Omitted Variable Bias ........................................................................5  
- Minimizing Selection Bias ....................................................................6  
- Randomized Evaluation ..........................................................................7  
- Difference-in-Difference .........................................................................7  
- Regression Discontinuity .......................................................................8  
- Ethical Considerations ...........................................................................8  

## II. Methodology

- Screening Criteria and External Validity .................................................10  
- Definitions of Poverty ...........................................................................12  
- Measurement of Poverty .......................................................................13  

## III. Guatemala Background

- Geography ..............................................................................................14  
- Civil War .................................................................................................15  
- Indigenous Maya and Isolation ..............................................................17  
- Natural Disaster Occurrence ..................................................................18  
- Poverty Indicators ................................................................................19  
- Violence and Human Rights .................................................................19  

## IV. Guatemalan Health

- Guatemalan Child Nutrition and Adult Economic Productivity ............24  
- Community Health in Brazil .................................................................26  
- Nutrition in Rural Colombia .................................................................27  
- Health Synthesis ..................................................................................30  

## V. Education

- International and Regional Evidence ....................................................32  
- Education and Earnings in Mexico .........................................................35  
- Education and Earnings in Guatemala ...................................................36
Education and Earnings: Chile, Colombia, El Salvador, Honduras, Paraguay and Peru

VI. Microbusiness

High hopes and low impacts
Compartamos Banco
Banco Azteca in Mexico
Banco Sol in Bolivia
Banco Azteca in Mexico Bruhn and Love
Microbusiness Synthesis

VII. Gifts In Kind

Poverty Impacts of PAL
The impact of transfers on local prices
The nutritional Nature of Transfers
Gifts in Kind Synthesis

VIII. Graduation Programs

Conditional Cash Transfers (CCTs)

Mi Familia Progresa and Mi Bono Seguro
Mi Bono Seguro
Progresa/Oportunidades in Mexico
Familias en Accion in Colombia
Conditional Cash Transfer Synthesis

IX. Conditional Cash Transfers (UCTs) in Latin America and Beyond

X. Conclusion

Review of Key Finding and Future Research
Health
Education
Microbusiness
Gifts in Kind
Conditional Cash Transfers
Unconditional Cash Transfers
Main Findings
Importance of Impact Evaluations
Recommendations for INGO stakeholders and practitioners
Appendix
Bibliography
LIST OF TABLES

Table 1...........................................................................................................12
Table 2...........................................................................................................85
Table 3...........................................................................................................86
Table 4...........................................................................................................87
Table 5...........................................................................................................88
Table 6...........................................................................................................89
Table 7.........................................................................................................90
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This thesis would have remained a dream had it not been for conversations with my Uncle Mitch Herd and dear friend Allie Dolan who looked me in the eyes and told me I could do this. My sincere thanks goes out to all of my family and friends who have had to put up with my inability to spend time together and whose willingness to find small moments of connection kept me going. Dad, thank you for setting the example of studying International Studies and calling to check in. To George, thank you for listening to my ideas over lunch and dinner and putting up with all the time I had Mom on the phone. I cannot find the words to express my gratitude to my partner Greg for his patience, honesty and encouragement. Greg, your words, “Just get’er done” will ring in my head forever. I owe my deepest gratitude to my mother Renate Flynn, who with countless hugs, phone calls, and constant support helped guide me to this place of completion even as she finished her Doctoral program. Mom, your dedication to education is the biggest inspiration of all, thank you. Finally, I would like to thank all the scholars before me whose commitment to work in Indigenous Latin America helped fill these pages with words, data and heart.
ABBREVIATIONS

CCTs Conditional Cash Transfers

COP Colombian Peso

DiD Difference-in-Difference

ENSD Encuesta Nacional Socio-Demográfica

GDP Gross Domestic Product

FeA Familias en Acción

GP George Psacharopoulos

ICBF Instituto Colombiano de Bienestar Familiar

IDB InterAmerican Development Bank

IE Impact Evaluation

INCAP Institute of Nutrition of Central America and Panama

INGO International Non-Governmental Organization

IPA Innovations for Poverty Action

LAC Latin America and Caribbean

MIFAPRO Mi Familia Progresa

MIX Microfinance Information Exchange

MFIs Microfinance Institutions

PAL Programa de Apoyo Alimentario

PSM Propensity Score Matching

Q Guatemalan Quetzal

RCT Randomized Controlled Trial
**RDD** Regression Discontinuity Design

**SISBEN** System for the Selection of Beneficiaries for Social Programs

**UNESCO** United Nations Educational, Scientific and Cultural

**UNICEF** United Nations Children’s Emergency Fund

**UNODC** United Nations Office on Drugs and Crime

**USD** United States Dollars

**WB** World Bank

**WHO** World Health Organization
Cease to do evil; learn to do good; seek justice; correct oppression; defend the fatherless; plead for the widow.

Isaiah 1:16-17 (King James Version)

I. Introduction

With all of the current poverty intervention programs in the world, one might think that international development stakeholders would have a good idea which would be the most effective. Assessing the most effective development tool for all impoverished communities is not possible. That scope is too broad to be covered here. In fact, strategies for effective poverty alleviation may differ for one community alone. What works well in one community in China may not work as well in Guatemala. This paper focuses on the most effective micro poverty interventions available to the people of the highlands region of Guatemala. Five major program categories will be assessed: health, education, microbusiness, gifts in kind, and conditional cash transfers (CCTs). An equally important goal will be to provide support for the use of impact evaluation as a tool to discern positive or negative program impact.

Impact evaluations concerning the highlands of Guatemala and other comparable Latin American countries will be analyzed in order to determine the most effective poverty intervention strategy for the indigenous population in the highlands of Guatemala. It is important to study one community at a time due to the major differences in each country, region, community and neighborhood or village. However, not all countries and communities have received an equal amount of attention and research, especially with regard to impact evaluation studies (IE).
Although the use of IE continues to increase, only a small number have been implemented and Guatemala, in particular, lacks a sufficient amount of IE from which to resource. One reason for this is that many rigorous IE studies are frequently done over a range of years. Hence, the public has much greater access to studies from the past 15 years or so. Due to this lack of data, especially regarding Guatemala, the majority of this paper will analyze impact evaluated studies conducted in other relevant countries and communities that are strong in external validity. A more satisfactory explanation for the use of external validity in this paper and what specific countries and comparisons will be made is presented in the methods section.

Only inputting data (monitoring) versus doing both monitoring and evaluation is should no longer be the norm. The global trend of utilizing evidence-based policy (using monitoring and evaluation) is now widely recognized as a highly effective, efficient and reliable means of assessing programs that now many stakeholders deem necessary “to enhance accountability, inform budget allocations and guide policy decisions,” for instance.¹ ² Stakeholders most commonly involved with this process can be found within governmental agencies and outside of government within aid and humanitarian agencies whom often work with governments to begin or expand budgets for specific poverty alleviation programs.

One does not have to be an economist in order to read economic data. Performing the actual equations is another story, however. Not surprisingly, many social scientists

² Ibid, 3.
interested in international development and poverty alleviation are subjected to the reading of impact evaluation studies. However understandable it might be for the social scientist to disregard complex equations proving a specific correlation or impact (and reviewing the abstract and conclusion only), it is of utmost importance that scholars invested in the understanding of the above mentioned topics, become acquainted with reading and understanding the “statistical significance” that is often the main objective in most of development’s most rigorous research.

What is impact evaluation?

According to economist Paul Gertler, “impact evaluation assesses the changes in the well-being of individuals that can be attributed to a particular project, program or policy.”

This is done by estimating the average impact of a program on the welfare of beneficiaries. The welfare of the beneficiaries are usually calculated as variables. It can take one year or more to design an evaluation and collect baseline information. Tack on another 3-4 years of work and the entire evaluation may be anywhere from 4-6 years of work. Impact evaluations are far more than a policy or governmental resource but also serve as a global public good. For example, an evaluation done in one country may answer questions for another country. As Gertler et. al puts it simply, “…more recent conditional cash transfers programs in Africa, Asia, and Europe have drawn lessons from the original evaluations of Colombia Familias en Acción, Mexico’s Progresa, and other

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4 Ibid.

5 Ibid, 225.
Latin American conditional cash transfer programs established in years past.”

In a similar fashion, this paper aims to draw from lessons from other parts of Latin America and apply those lessons to Guatemala.

Esther Duflo, co-founder and co-director of the Abdul Latif Jameel Poverty Action Lab (J-PAL) and economics professor at MIT believes that impact evaluations are trying to answer a few questions about programs: “How would individuals who participated in the program have fared in the absence of the program? How would those who were not exposed to the program have fared in the presence of the program?”

These questions allow economists to create a rational and reliable comparison group, also known as a control group.

However, in order to have a valid comparison group, the researcher must be positive that the group is as similar to the treatment group as possible. Basically the only main difference (hopefully) between the comparison group and the treatment group, is that the comparison group did not receive the treatment and the treatment group did. Every other demographic quality should be as similar as possible. Having a valid comparison is the core of an impact evaluation because without it there would be no way to measure the counterfactual.

The Abdul Latif Jameel Poverty Action Lab, a notable organization in the impact evaluation field, states that, “Measuring what would have happened requires entering an imaginary world in which the program was never given to these participants. The outcomes of the same participants in this imaginary world are

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6 Ibid.
9 Ibid, 230.
referred to as the counterfactual. Since we cannot observe the counterfactual, the best we can do is to estimate it by mimicking it.”

What defines program impact?

Impact evaluations give us a good idea what the outcome of a group would have been if participants had not been exposed to a program. It specifically allows evaluators to obtain an estimate of the average impact on the group of participants involved in the program. Duflo (2008) articulates the caution that must be involved with a reminder that an individual has experienced more than just the program since the introduction of the program and many other factors besides the program in question could impact how that individual’s life has changed. Therefore, one cannot fully evaluate the impact of the program on just one individual. However, random impact evaluations can calculate the average impact of the program on the exposed group of people if there is a comparable counterfactual, otherwise known as a control group.

Omitted Variable Bias

If participants who are not getting good results and drop out of a study, data cannot be included and will affect the data, this is called attrition. Contamination can happen, “when members of the control group are affected by either the intervention (see or another intervention that also affects the outcome of interest.” What if individuals in

10 Abdul Latif Jameel Poverty Action Lab, Case Study: Learn to Read Evaluations
the control group have actually received the intervention and accessed the treatment through other means like another program or donor? Although the program might have been effective, the randomized controlled trial (RCT) would not show this. It is important to gather information about treatment and services received by the control group and not to assume that those in the control group have not received the proposed treatment, or a similar treatment.

Minimizing Selection Bias

Finding a good counterfactual can be very difficult and often it is difficult to measure selection bias.\textsuperscript{15} Selection bias occurs where “the inference based on subsample is not appropriate for the entire population,” essentially, selection bias occurs when the unobservable features determining the probability of being observed in the sub-sample used for inference are correlated with unobservable (such as pre-existing differences in the sample) variables determining the outcome of impact on a certain subject.\textsuperscript{16} “One can see from the example above that adjusting for selection bias essentially requires controlling for the role of the unobservable.” RCTs are generally thought of as an important tool for minimizing selection bias.

Randomized evaluation

One of the main appeals of randomized evaluations is that they reduce selection bias. Participants are randomly assigned, however, in order for the RCT to “work,” the treatment group and the comparison group must be identical.  

An important term that will be used later in this paper, is the term, “natural experiment.” A natural experiment occurs when the treatment group and control group are randomly assigned and are naturally divided into each group and not for the purposes of the experiment itself.

Difference-in-difference Technique

The difference-in-difference (Did) technique measures improvements of program participants (over time) to the improvements of the comparison group over time (the group that does not receive the treatment.) It is important to note that data is collected on the comparison group before the program starts and after the program ends. We can then assume that the trajectory of both the treatment group and the comparison group would be the same if the program did not exist. Many of the studies presented in this paper utilized DiD.

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19 Abdul Latif Jameel Poverty Action Lab, Case Study: Learn to Read Evaluations
**Regression discontinuity Design (RDD)**

 RDD is considered a quasi-experimental evaluation method; essentially, a pretest-posttest program-comparison group strategy. However, unlike randomized controlled trials (RCTs), with “RD Design” it is not necessary to develop a comparison group due to the specific cut-off thresholds that organize the study. The benefit of having a cut-off threshold is that it allows for more specific targeting for people who deserve or need the program or treatment the most. The threshold also actually creates its own comparison group. Those who do not make the cut-off are in the comparison group.20

**Ethical Considerations**

 Is it fair that another group receives an intervention that may improve their lives when another group does not? An RCT is only done when there is not sufficient info about whether or not the program is beneficial. Are there sufficient funds to scale up so that the control group can later be a part of the program? These concerns are incredibly important when considering an IE. Contemplating more than economic impacts are crucial. The “data” and samples are more than numbers and results, they are human beings. Many impact evaluations reviewed in this paper make sure to offer program benefits to the control group at a later time.

 The following section will introduce the methodology utilized in this paper. Then, a basic introduction of impact evaluation will be given.

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II. Methodology

In order to create as equal of a measurement as possible, IE studies were utilized the most. When IE studies were not available, the most rigorous research methods available were utilized. Each intervention section (i.e. health, education, microbusiness, conditional cash transfers and gifts in kind) contains background information, an overview of three to four evaluations, and a discussion synthesizing the implications for Guatemala. Methods for studying the included impact evaluations comprised:\textsuperscript{21}

- Reading of entire evaluation paper with particular emphasis on the research design section in order to understand what variables are being presented and how they are coded.
- Reviewing the regression co-efficient to determine a positive or negative relationship.
- Determining statistical significance via analysis of regression table data by dividing regression co-efficient over the standard error (the number in parenthesis.) If the absolute value of that division is about two, then it is possible to conclude the effect is “statistically significant” and discernable from 0. These significant relationships are denoted in asterisks. However, the asterisks cannot be (and in this case, were not) relied upon.

\textsuperscript{21} Steven V. Miller, “Reading a regression table – A guide for students.”
Screening Criteria and External Validity

Most evaluations are concerned with determining internal validity, essentially, finding proof that specific impacts are caused by an intervention in a sample. A crucial yet rarely discussed topic in the world of impact evaluations is external validity.

The screening criterion ensures that this review focuses solely on evaluations that impact other Latin American populations similar to the Western highlands of Guatemala. As the screening questions and the background in this paper indicate, in the Western highlands of Guatemala the population is mainly indigenous, low-income, living in rural areas that are known to have ethno-racial inequality.

Dufloy, Glennerster and Kremer (2008) define external validity,

“External validity has to do with whether the result that is established in the study will be true elsewhere.” And “[…] whether the impact we measure would carry over to other samples or populations. In other words, whether the results are generalizable and replicable.”

According to Peters et.al, the majority of RCTs performed do not address important internal validity questions that influence the transferability of the study’s data for a different but similar context in a community. Because of this extreme lack of internal and external dependability, it is quite difficult to qualitatively and accurately assert that the findings from a study in Mexico could be transferable to a community in Guatemala. Despite these challenges, this paper uses screening criteria to determine

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23 Ibid, 3950
research papers with data that could be transferable to the Western highlands of Guatemala.

It is necessary that the intervention studies reviewed in this paper and the populations they impact are as similar as possible to Guatemala. In order for the study to qualify, it must first contain a sample of individuals or a household that is “poor” or “very poor” as defined by the country the study is in. The study must also include not only rural and highland populations but also multi-ethnic or indigenous. Multi-ethnic refers to more than one ethnic group with different cultural groups who speaks different languages and have different customs. In Guatemala, as will be described below, equality for women and Indigenous Maya is limited and affects the daily lives of these people. This study values the challenges that accompany this inequality and as such it would be unfair and ineffective to compare the lives of those who face these inequalities to those who do not. In order to answer a question pertaining to poverty, the conversation must involve income, consumption, or any other economic factors. This paper aims to include as many impact evaluations (which inherently use a counterfactual) as possible. An in-depth discussion analyzing the evaluation method will be given, if no relevant study with a counterfactual was available.
Table #1: Screening criteria for selection

<table>
<thead>
<tr>
<th></th>
<th>Does the study sample consist of poor or low-income individuals?</th>
<th>No/Yes If no, then stop.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Does the study sample consist of an indigenous or multi-ethnic population?</td>
<td>No/Yes If no, then stop.</td>
</tr>
<tr>
<td>2</td>
<td>Does the study sample live in a rural and highland location?</td>
<td>No/Yes If no, then stop.</td>
</tr>
<tr>
<td>3</td>
<td>Does the study sample population live in country or area widely known to have ethno-racial inequality?</td>
<td>No/Yes If no, then stop.</td>
</tr>
<tr>
<td>4</td>
<td>Does the study sample focus on household, individual, or client outcomes? (income, profits, consumption, etc)?</td>
<td>No/Yes If no, then stop.</td>
</tr>
<tr>
<td>5</td>
<td>Does the study construct a counterfactual?</td>
<td>No/Yes If no, then assure that there are no other papers to select from that do contain a valid counterfactual. If none exists, proceed with the study that does not contain the counterfactual. In this case, a discussion will be given.</td>
</tr>
</tbody>
</table>

Definitions of Poverty

What does it mean to be poor in Guatemala? Does poverty’s definition ultimately connect to economics? Director of the Institute for Research on Poverty at the University of Wisconsin-Madison, Tim Smeeding says, “Ultimately, all social scientists need to first establish the breadth and depth of this social phenomenon called ‘poverty’ before they can meaningfully analyze it and explore its ultimate causes and remedies.  

The United Nations Educational, Scientific and Cultural Organization (UNESCO) defines income poverty as the following, “When a family's income fails to meet a federally established threshold that differs across countries. Typically it is measured with  

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respect to families and not the individual, and is adjusted for the number of persons in a family.”26 The World Bank recently updated the international poverty line at $1.90 or less a day.27

There are few different perspectives that are worth investigating in the discussion about how to alleviate poverty. First, why should poverty be alleviated? Who should deliver the alleviation? Are we really benefiting people when we help them alleviate poverty (whether that is through large scale government or International Non-Governemental Organizations (INGOs) development or personal donations online)?

Is the method being utilized to alleviate poverty proven using data collection which has been scrutinized for a positive impact? Before one can measure the impact, whether it be negative or positive one, must be sure that measurements of poverty or struggle are also conducted. There are many ways that large international institutions measure poverty and the scope is widening.

**Measurement of Poverty**

Further discussion of this topic is found in the work of Angus Deaton, Nobel Memorial Prize in Economic Sciences winner and groundbreaking economist. The majority of Deaton’s research is focused on consumption, poverty and welfare.28 However, this section will focus on his contributions to the measurement of poverty via

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consumption and expenditures and his giant push toward household surveys. Deaton, in the 1980s paved the way toward the collection of household survey data. His 1980 paper on practical guidelines on how to measure household income were and still are greatly treasured and applied.29 The popularity of the idea and use of collecting household data greatly influenced a change in development economics measurement of development and poverty. What used to be a theoretical and macro-data approach turned into what is now a field based empirical approach to gathering micro data. Deaton also played an important role in establishing the use of measuring consumption as opposed to income. Deaton’s findings and contributions are far too large a topic to be covered here, but it is only fair to point out that he also made valuable contributions in the areas of family discrimination, income and calories and more broadly speaking: consumption demand systems and the fluctuations of consumption over time. The term consumption, in the context of this paper refers to household expenditures, which can often be a more reliable indicator of poverty than income because income only measures the money a household makes versus the amount that they must spend on houses, vehicles, crops, clothing, food, etc. In the context of a very poor area, evaluating expenditures can be very helpful.

III. Guatemala Background

Geography

With a population of 15 million people, Guatemala is a fast growing nation. Neighboring country Honduras, with a population of 8 million and other neighbor El Salvador, with a population of 6 million, have not seen the steep incline in growth that

Guatemala has. Guatemala is truly a world of incredible and dramatic polar opposites. Dramatic geographical and cultural beauty contrasted by a large income disparity and violence make this country complex.

**Civil War**

Guatemala won independence from Spain in 1821 and became a part of the United Provinces of Central America, which included Honduras, Nicaragua, El Salvador and Costa Rica.\(^{30}\) After a civil war, Guatemala became an independent republic in 1839 led by Rafael Carrera.\(^{31}\) This independence, promoted by the elite, contributed to the creation of an authoritarian state that would perpetuate decade after decade. The Commission for Historical Clarification (CEH) is a well-respected document that presents information summarizing thousands of testimonies from Guatemalans, mostly Mayan, but generally anyone who witnessed or was involved during the 36-year civil war on any side.\(^{32}\) The CEH determined that the following behavior by the state of Guatemala aided the outbreak of armed confrontation:

…Structural injustice, the closing of political spaces, racism, the increase exclusionary and anti-democratic nature of institutions, as well as the reluctance to promote substantive reforms that could have reduced structural conflicts…\(^{33}\)

In an anti-communist climate, from 1978 to 1982, Guatemalan citizens tired of the country’s behavior, participated in social and political mobilization, easily becoming a

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\(^{31}\) Ibid, 28.


Concurrently, a Guatemalan insurgency arose in reaction to decades of, “injustice, exclusion, poverty and discrimination.” What ensued were different periods of armed conflict. From 1962 to 1970, armed conflict was mostly concentrated in the eastern part of the country, Guatemala City and the south coast which victimized peasants, rural union organizations, teachers, students and guerilla supporters. During the years of 1971 to 1977, the armed confrontation was more intentional and dispersed throughout the country. In the most brutally violent years from 1978 to 1985, the most impacted areas were concentrated in Quiché, Huehuetenango, Chimaltenango, Alta and Baja Verapaz, the South Coast and Guatemala City affecting mostly Mayan victims. In the final years of the war, from 1986 to 1996, the violence perpetuated was incredibly selective where communities of resistance in rural areas remained.

The committed atrocities committed by the Guatemalan military (partially funded by the United States of America) are often too gruesome to reference when discussing the civil war. However, for the sake of understanding the current state of Guatemala and honoring the past and the truth which is rarely spoken, this quote from CEH is included:

Acts such as the killing of defenseless children, often by beating them against walls or throwing them alive into pits where the corpses of adults were later thrown; the amputation of limbs; the impaling of victims; the killing of persons by covering them in petrol and burning them alive; the confinement of people who had been mortally tortured, in agony for days; the opening of the wombs of

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36 Ibid, 22.
37 Ibid.
38 Ibid.
pregnant women, and other similarly atrocious acts were not only actions of extreme cruelty against the victims, but also morally degraded the perpetrators… the cultural rights of the Mayan people were also violated. The army destroyed ceremonial center, scared places and cultural symbols.\textsuperscript{40} 

An estimated 500,000 to 1.5 million people from 1981 to 1983 went abroad to avoid the violence, while an estimated 200,000 people were killed or disappeared, establishing genocide.\textsuperscript{41} The impacts of such human rights violations are unfathomable and yet many were and still are observable in Mayan life. In 1996, President Alvaro Arzu Irigoyen, his government and the Guerilla organization, The Guatemalan National Revolutionary Unity organization (URNG), with the support of the United Nations (UN) as a moderator, finalized a long negotiation process by signing the Peace Accords.\textsuperscript{42} Reparations and continued acts of restorative justice are a continual process in modern day Guatemala.

**Indigenous Maya and Isolation**

Despite the many acts of justice that continue to occur, there remains a social and cultural divide between the ladino population, who mostly reside in urban areas and the indigenous Maya, who mostly reside in the rural highland areas of the country. The term Ladino refers to a mixture of Native American, African and Spanish ancestry.\textsuperscript{43} There are more than twenty different indigenous Maya ethnic groups that are characterized by a

\textsuperscript{40} Christian Tomuschat, Otilia Lux De Coti, and Alfredo Balsells Tojo, Guatemala, Memory of Silence = Tz'nil Na'tab'al ; Report of the Commission for Historical Clarification, Conclusions and Recommendations. Guatemala, Guatemala: CEH, 1998, 34.  
\textsuperscript{41} Ibid, 16, 30.  
\textsuperscript{42} Ibid, 44.  
variation of language and cultural characteristics.\textsuperscript{44} Statewide oppression against the Maya, especially during the armed conflict, contributed to current political and economic isolation.\textsuperscript{45} Geographically, the distance to city centers has also created a physical isolation that perpetuates a rural agricultural workforce for Maya living in the countryside.

**Natural Disaster Occurrence**

Guatemala is in constant flux and repair due to large amounts of frequent and intense natural disaster. Guatemala is covered in active volcanos, experiences large hurricanes, the frequent rains and extreme weather causes mudslides, and earthquakes.\textsuperscript{46} These natural disasters have greatly impacted Guatemala’s economy and threaten humanitarian and social services that try and sustain themselves to support low income individuals and families.\textsuperscript{47} In one of the worst disasters in 1976, an earthquake killed 23,000 people affecting the gross domestic product by (GDP) 17.9\%.\textsuperscript{48} Hurricane Mitch cost the GDP 4.7\% and Hurricane Stan caused a 3.4\% impact.\textsuperscript{49} The constant cleaning up and repair from these natural occurrences undoubtedly stall country wide development in both households and city and state wide.

\begin{footnote}
\textsuperscript{44} Ibid, 1.  \\
\textsuperscript{48} Ibid.  \\
\textsuperscript{49} Ibid.
\end{footnote}
Poverty Indicators

The World Health Organization (WHO), in a 2014 report, found that the life expectancy in Guatemala at birth is 72 years of age.\textsuperscript{50} The World Bank considers the poverty in Guatemala “widespread and severe” poverty in Guatemala. According to a 2014 World Bank statistic, 59.3% of the population lives at national poverty levels. \textsuperscript{51}

Violence and Human Rights in Guatemala

According to the United Nations Office on Drugs and Crime (UNODC), there were 6,025 Homicides in 2012 in Guatemala.\textsuperscript{52} There as an average of 6,000 homicides per year in Guatemala from the years 2006-2011. The UNODC pulled this data from the United Nations Surveys on Crime Trends and the Operations of Criminal Justice Systems (CTS) and Guatemalan Police records. To understand the severity of those numbers, this roughly equates to 39 murders per 100,000 citizens per year in Guatemala.\textsuperscript{53} From 1995 to 2006 though, the numbers were on average half of what they were from 2006-2011.\textsuperscript{54} Undoubtedly, with homicides increasing by double, it is safe to say that Guatemala has become a more dangerous country.

According to the UNODC, “The implementation of Mexico's security strategy in 2006, which disrupted the northbound supply of cocaine, triggered conflict over new

\textsuperscript{54} Ibid.
"plazas" at key border crossings, notably along the Guatemalan/Honduran border."55 As drug trafficking becomes internationalized and the demand for cocaine is sustained in the United States and all over the world, the amount of money involved is undoubtedly very high.56 In an interview with Al Jazeera, Alvaro Colom, the President of Guatemala from 2008-2012 and first left-wing president to sit in office in 53 years spoke about the dangerous effect drug trafficking is having on the country, “Drug trafficking contributed to more than 42% of violence in Guatemala…The weapons of the drug traffickers are better equipped than the Guatemalan army.”57 He also claimed that $11 billion of assets had been confiscated which was about one half of the national budget. Colom believed that the cartels had reached the private, financial and government institution and they were buying off police, intelligent services, mid to high ranking officers, judiciary, and nationally and locally elected officials.

Reporting of violent actions by the public is low and “fair” and “just” follow-through by the Justice system is not generally trusted by the Guatemalan public,58 especially in the rural areas where the population is largely indigenous. “According to Impunity Watch’s (IW) monitoring findings in 2012, impunity in Guatemala follows a cyclic pattern, the elements of which include social and legal structures that reproduce violence and social distrust in state authorities.”59

55 Ibid.
59 Ibid, 7.
IV. Health

In the following section, an introduction to Guatemalan health will be given. Three studies regarding health programs in Latin America will then be reviewed. The first will cover a rural Guatemalan nutrition intervention and long-term economic impacts of children exposed to the program. The second study will review the impacts of a rural and urban Brazilian family health program while the third study will discuss the impacts of a nutrition and childcare program in rural Colombia. These highlighted studies investigated health impacts and though some of those health impacts will be discussed here, the main focus will be the economic and workforce impacts.

Guatemalan Health

In the highlands of Guatemala, numerous health related problems exist such as communicable diseases, chronic undernutrition, maternal mortality and child stunting and injuries due to road traffic or violence.60

Non-communicable disease rates are on the rise in Guatemala. In 2015, the World Health Organization defined “non-communicable diseases (NCDs), as chronic diseases that are not passed from person to person. They are of long duration and generally slow progression. The four main types of non-communicable diseases are cardiovascular diseases (like heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructed pulmonary disease and asthma) and diabetes.”61

According to the World Bank’s research in 2014, mortality in Guatemala due to

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61 http://www.who.int/mediacentre/factsheets/fs355/en/
communicable diseases has decreased by 63% over the last 25 years.\textsuperscript{62} However, non-communicable disease mortality rates have increased by 61%.\textsuperscript{63} The mortality rate due to communicable diseases remains high in children under 5 and the mortality rate due to non-communicable diseases is increasing in adults over 45.\textsuperscript{64} Chronic diseases are the main cause of death in the general population.\textsuperscript{65}

In the western highlands of Guatemala specifically, the above health concerns remain. However, one can highlight specific problem areas such as chronic respiratory health issues from indoor and outdoor air pollution. In the case of indoor air pollution, many indigenous people in the highlands of Guatemala do not live in homes where smoke is filtered out of the house without entering the home and the lungs of residents.\textsuperscript{66} A study conducted by Bruce et. al cross examined 340 women ages 15-45 in the western highlands of Guatemala who used either an open fire in their homes or a plancha (fire place with a chimney) and concluded that the occurrence of cough and phlegm were significantly higher for the women who used opened fires in their homes.\textsuperscript{67} This study also noted the significant observation that homes with an open fire plan most frequently


\textsuperscript{63} Ibid.

\textsuperscript{64} Ibid.


\textsuperscript{67} Ibid.
also contained dirt floors. Whereas the homes that had planchas, had a higher percentage of cement or tile floors.  

Another major concern in the highlands of Guatemala is maternal and child undernutrition and the implications of child stunting. According to UNICEF, child stunting is, “below minus two standard deviations from the median height for age of referenced population.” Martorell and Young, in their 2012 research, state that occurrence of child stunting in Guatemala exceeds any other Latin American country. The authors also state that approximately 1 in 5 children in Guatemala were stunted in their first month of life, which they believe indicated considerable intrauterine growth failure. It is easy to look toward maternal prenatal and postnatal health challenges for an explanation. Being a thin and young mother was associated with stunting as was wealth or a lack thereof. Even with these associations, a large fraction of the variability was left unexplained in Martorell’s and Young’s research. The authors suggest that we turn to, “recognized causal factors… prenatal (e.g., maternal height, weight gain, anemia, malaria) and postnatal (e.g., infant and young child feeding, infections) periods.” In addition to eradicating wealth discrepancies in Guatemala, the authors believe that,

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72 Ibid.
“Improved environmental sanitation and hygiene, safe water, primary health care, and other efforts to control infections will also help to prevent stunting and wasting.” 73

A large body of evidence shows associations between height and outcomes in the labor market in developing countries (Immink & Viteri 1981, Deolalikar 1988, Behrman & Deolalikar 1989, Haddad & Bouis 1991, Strauss & Thomas 1996, Thomas & Strauss 1997, Schultz 2002, Schultz 2003). International evidence that shows the link between nutrition and economic outcomes later in life are also abundant. UNICEF defines undernutrition (malnutrition is the umbrella term for both undernutrition and overnutrition) as the following:

When individuals are undernourished, they can no longer maintain natural bodily capacities, such as growth, resisting infections and recovering from disease, learning and physical work, and pregnancy and lactation in women. Poor feeding of infants and young children, especially the lack of optimal breastfeeding and responsive complementary feeding, along with such illnesses as diarrhoea, pneumonia, malaria and HIV/AIDS, often exacerbated by helminths, are major causes of undernutrition. 74

Guatemalan Child Nutrition and Adult Economic Productivity

Hoddinott et.al (2008) investigated a nutrition program in Guatemala that was started by the Institute of Nutrition of Central America and Panama (INCAP). Between 1969 and 1977, the 2392 children that were enrolled in the program received nutritional support. 75 Two villages were randomly assigned to determine which would receive “atole,” a nutritious vegetable protein supplement and which would receive a less

73 Ibid.
nutritious and proteinaceous supplement called “fresco.” The supplements were available to all village children aged 0-7 twice a day. Later in 2002-2004, Hoddinott and his team were able to investigate 1424 Guatemalan adults who were involved in the study as children (about 60% of the 2392 children involved.)

As mentioned above, a major health concern in rural Guatemala is the occurrence of stunting of children. In this particular study, the researchers found that about 45% of 3-year-old children in the three groups were severely stunted according to the World Health Organization (WHO) in 1969. By the end of the study in 1977, the prevalence of stunting in the above group of children was reduced to less than 20% in atole villages and left unchanged in “fresco” villages. Even more impressive are the results found in these individuals later in life. Researchers investigated the impact of the nutrition supplements on annual income, hours worked and average hourly wages from all economic activities. Exposure to atole (but not after age 3) was associated with higher hourly wages for men (and not women.) To be more specific, boys aged 0-2 years who were exposed to atole and experienced a .67 (USD) increase per hour in wages, that is a 45%

77 Ibid.
79 Ibid.
increase in total wages. The authors of the study proposed that the major reason that there was no effect on women is because there is a typical difference between women and men labor force participation in Guatemala, where men participate more actively.

Long-term studies such as this one are rare and prized. The data here is important because it proves that improving early childhood nutrition greatly impacts economic well-being later in life. While this is only true for men in this particular study, the data can serve as an incentive for further investigate health impacts on economic well-being for women in Guatemala and Latin America.

Community Health in Brazil

Rocha and Soares (2009) evaluated the impact of a community health intervention in both rural and urban Brazil. The most significant impact of the study was observed in rural populations which makes the data relevant for the highlands of Guatemala and other rural areas of Latin America. A family health care program called Program Saúde da Família (The Family Health Program) (PSF) provided a less centralized health care system focusing on improvement of basic health practices, prevention and early detection. More specifically, health specialists visited family homes and focused on handling food, diet, cleanliness and health management and often coordinated immunization campaigns. The program is run by teams of medical providers who are

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83 Ibid.
responsible for 3,000-4,500 people which is around 1,500 families. This structure of healthcare could be relevant for poor rural areas because they may be further away from public hospitals and thus may be less likely to seek and receive necessary healthcare.

Using national household and municipality data, the researchers analyzed labor supply, fertility, school enrollment and child labor impact for 118,269 children and 279,943 adults. By means of difference-in-difference estimators they took advantage of the staggered process of implementation since 1994. The yearly cost of maintaining just one PSF team in 2000 was 109,610-173,400 (USD) and while that is a significant amount of money, considering the positive impacts, it is a worthwhile investment.

The most significant reductions in this study were on mortality. However, the most relevant impact for this paper’s focus is the impact of a 6.8 increase in labor supply of adults between 18-55 years of age (with 8 years of exposure to the program.) In addition, a 4.5 increase in school enrollment for children aged 10-17 was found and a 4.6% reduction in the probability of a women between the age of 18-55 giving birth.

**Nutrition in Rural Colombia**

A study by Attanasio and Vera-Hernandez (2004) evaluated the Hogares Comunitarios de Bienestar Familiar program run by the Instituto Colombiano de Bienestar Familiar (ICBF). The very large program is comprised of community nurseries

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88 Ibid, 3 and 24.
89 Ibid.
91 Ibid.
that are run by “madre comunitarias” (community mothers) who give food to the children which is paid for by the government.\textsuperscript{92} This particular intervention measured the effects of the programme on nutritional status of children, long-term effects on school achievement later in life and female labour supply.\textsuperscript{93} Eligible families with children ages 0-6 form community parent associations and pay a low monthly fee of about 4 USD to the madre comunitaria.\textsuperscript{94} The program benefits the parents, allowing them to go to work, supports the the child nutritionally, while also giving the madre comunitaria the opportunity to work. The food received by the children (including a nutritional drink) provided the children with 70\% of the advisable daily amount of calories via lunch and two snacks.\textsuperscript{95}

The long-term impacts of the program were significant showing that “attending an HC when less than 6, increases the probability of being in school of children aged 13-17 by 0.198.”\textsuperscript{96} This is significant because the average rate was .63.\textsuperscript{97} Later in life, the study also found a .28\% increase in school attendance for girls and a .19\% increase for boys. \textsuperscript{98}

The results most relevant to this paper were the impact on female labor supply. The probability of a woman becoming employed increased from .12\% to .37\% \textsuperscript{99} The

\textsuperscript{93} Ibid.
\textsuperscript{94} Ibid, 4.
\textsuperscript{95} Ibid.
\textsuperscript{97} Ibid, 28.
\textsuperscript{98} Ibid, 30.
program also increased the number of hours worked by 75 hours per month for women.

Financed by a 3% tax on wages, the program grew rapidly and by 2004 was the largest welfare program in Colombia. Unfortunately, due to the fast rollout of the program, not many evaluations have been done on this program, and no evaluations with a control group were ever completed. Another reason it has been difficult to identify a control group is because the geographic coverage of the program is incredibly large and covers much of the country. Attanasio and Vera-Hernandez address this predicament with rigorous solutions.

Using the data from another one of Colombia’s large social programs, Familias en Accion (FeA), the researchers were able to analyze 4,426 households and 4,147 children. It was not challenging to identify children that do not attend Hogares Comunitarios for the purpose of obtaining a control group, but the choice to attend would most likely be due to outcomes of interest that would cause bias. Due to the absence of a control group, the researchers used an instrumental variable technique assuming that, “conditional on some observables, the distance of each household from the nearest HC is

101 Ibid.
102 Ibid, 5.
103 Ibid, 7.
104 The sample comprised individuals from the FeA program that were not in the FeA treatment group.
106 Ibid, 8.
exogenous\textsuperscript{107} to the outcome of interest.”\textsuperscript{108} They essentially identified one variable that would impact the family’s decision to send their child to a HC but would also not interfere with or impact the outcomes of interest in the study.\textsuperscript{109} Still, the scientific rigor of this instrumental variable technique is debatable.

The first major endogeneity\textsuperscript{110} concern is that perhaps the government through the process of forming parent associations purposely targeted the program toward the parents that are more inclined to participate.\textsuperscript{111} Or maybe the parents that want to be a part of the program locate their families closer to the HC.\textsuperscript{112} However, the authors give evidence that refutes the above concerns via a government questionnaire other government info.\textsuperscript{113}

**Health Synthesis**

This sectioned reviewed three different health and nutrition interventions while also focusing on the economic and labor outcomes later in life due to the intervention. Please see Table 2. in the Appendix for an overview of all three studies. While two of the studies had reliable control groups, the last was not conventional. However, the techniques utilized proved the study’s rigor sufficient enough to be included in the study. Also, there is currently a very small amount of rural Latin American impact evaluations

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\textsuperscript{107} Exogenous is defined as “Exogenous variables designates variables that appear in an economic/econometric model, but are not explained by that model (i.e. they are taken as given by the model)” by the [https://stats.oecd.org/glossary/detail.asp?ID=890](https://stats.oecd.org/glossary/detail.asp?ID=890).


\textsuperscript{110} OECD defines endogenous as, “endogenous variables designates variables in an economic/econometric model that are explained, or predicted, by that model.” [https://stats.oecd.org/glossary/detail.asp?ID=794](https://stats.oecd.org/glossary/detail.asp?ID=794)

\textsuperscript{111} Ibid, 8.

\textsuperscript{112} Ibid.

\textsuperscript{113} Ibid, 9.
and the last evaluation reviewed in this section proved to be the most rigorous within what is currently available.

The Brazil community health model study presents the possibility that this type of healthcare model in Guatemala could:

1. Increase adult labor supply,
2. Increase school enrollment for children,
3. Reduce occurrence of pregnancy and
4. Reduce mortality.

Overall, the above studies present the possibility that similar nutrition programs in Guatemala could:

1. Reduce stunting in children,
2. Increase wages later in life for men,
3. Increase female labor supply and hours worked and
4. Increase the probability of children being enrolled in school.

The stunting and nutrition and community health challenges in Guatemala are startling. However, it seems that with more direct and aggressive healthcare and health education not only could major health concerns be addressed, but longer term outcomes in education and labor could be achieved as well. It is clear that more evidence is needed before declaring that health interventions would be the most effective in rural Guatemala however, it is also evident that investing in further research is crucial. These three studies are currently enough to state that nutrition and rural community health interventions could have a long lasting and deep impact in Guatemala today.
V. Education

The importance of education on developing nations’ economic well-being is usually not questioned, and is often assumed. For the sake of this paper, however, this will not be assumed. In this section, a short overview of the impact of education on earnings and income in an international context will be given, then a review of the same within the Latin American area, with a concentration on Guatemala. Finally, three of the most rigorous education evaluations in Latin America will be presented along with concluding implications for Guatemala.

International and Regional Evidence

It is difficult to find current rigorous research on this topic (especially in Latin America, let alone Guatemala); one must refer to those studies conducted in twenty or more years ago. Notable research from Becker (1975), Mincer (1970, 1974), and Schultz (1961) proved that education increased workers’ productivity which later increased income.\textsuperscript{114} \textsuperscript{115} \textsuperscript{116} \textsuperscript{117} Psacharopoulos (1993) showed that not only does education attainment raise earnings, but also that increased quality of schooling does the same. Dos Reis and De Barrios (1991) and Lam and Levinson (1992) found that decreasing educational disparity is associated with equitable income distribution.

Ideally, impact evaluation studies would track students over many years of their lives in order to understand the long term impact of education on their lives. This type of tracking is expensive and labor intensive, requiring long-term dedication by the researcher. However, some notable and rigorous research has been accomplished recently. Spohr (2003) evaluated the impact of Taiwan’s extension of tuition-free education from 6-9 years upon schooling and labor outcomes and found large effects of schooling on females’ workforce participation and market outcomes, especially work income.\footnote{Chris A Spohr, “Formal Schooling and Workforce Participation in a Rapidly Developing Economy: Evidence from “compulsory” Junior High School in Taiwan.” Journal of Development Economics 70, no. 2 (2003): 291-327. doi:10.1016/s0304-3878(02)00099-8.} Spohr found a 9-16% increase in annual earnings per year of school for women.\footnote{Ibid.} Alternatively, Duflo (2001) found adverse effects of schooling; an average 3.8% decrease in wages was discovered while evaluating adults ages 20-62 (who received primary school education between the years of 1974 and 1978.\footnote{Esther Duflo, “The Medium Run Effects of Educational Expansion: Evidence from a Large School Construction Program in Indonesia.” Journal of Development Economics 74, no. 1 (2004): 163-97. doi:10.1016/j.jdeveco.2003.12.008.}}

In 2014, the United Nations Educational, Scientific and Cultural Organization (UNESCO) reported that the net enrollment rate in Guatemala\footnote{UNESCO defines net enrollment rates as the,”total number of pupils or students in the theoretical age group for a given level of education enrolled in that level, expressed as a percentage of the total population in that age group.”} for pre-primary education (includes children aged 5-6) was 51%, for primary education (children ages 7-12) 86%, for secondary education (children aged 13-17) 46 % and for tertiary education (young adults aged 18-22) in 2013 the enrollment rate was 18%.\footnote{UNESCO. Institute for Statistics. Country Profiles-Guatemala. Accessed: February 12, 2016. http://www.uis.unesco.org/DataCentre/Pages/country-profile.aspx?code=GTM.} In 2013, the Guatemala government spent 2.8 % of its GDP on education.\footnote{Ibid.}
Guatemala for people aged 15-65 years in 2015 was 79% and in 2013, the literacy rate for adults aged 65 years and older was 45%. 125

Today, evidence based research mostly focuses on enrollment as an indicator for improvement of education and social well-being; essentially, what are the most effective ways to convince families to send their children to school every day? Recent RCTs suggest that providing uniforms, school materials, meals and even cash transfers and healthcare (see the Conditional Cash transfer section) greatly improve children school attendance. 126

The above mentioned impact on earnings were found all over the world and were not all conducted in rural areas, some were found to have an impact in urban and non-indigenous areas. The amount of rural and indigenous evidence based evaluations regarding education and income is miniscule. In fact, after searching rigorously for impact evaluation studies regarding education’s impact on income, no applicable studies were found. The education statistics presented above confirm the necessity of evidence-based research on improving enrollment rates in Guatemala. Still, there is a need for evidence-based research in rural areas of Latin America. Below the most current and relevant Latin American studies demonstrate the perceived influence that education has on the earnings of individual in rural and poor areas.

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124 UNESCO defines literacy rate as the “total number of literate persons in a given age group, expressed as a percentage of the total population in that age group. The adult literacy rate measures literacy among persons aged 15 years and above, the youth literacy rate measures literacy among persons aged 15 to 24 years, and the elderly literacy rate measures literacy among persons aged 65 years and above. The sources of data are mainly national population censuses, household surveys, and labour force surveys.”


Education and Earnings in Mexico

George Psacharopoulos (GP) et. al (1996) investigated the relationship between earnings and education in the context of Mexico’s recessions and booms in the years 1984, 1989, 1992. Using three household surveys from the aforementioned years, he randomly selected a sample of individuals aged 14-65. These individuals had to have had positive earnings in the third quarter of each year. The data pertaining to Mexico’s recession and booms is not highlighted here. What is more important to stress is that secondary education in Mexico provided the highest profitability. Even more important, is that overall, the rate of return for each year of education was 15%. Every year of additional education received also decreased the chance of a household being classified as poor. Investment in female education yielded a higher rate than that for males.

George Psacharolpoulos (GP) spent his life’s work studying the returns of education while mostly using the mincerian human capital earnings function which Willis defines as, “any regression of individual wage rates or earnings on a vector of personal, market, and environmental variables thought to influence the wage.” While GP is widely respected in his field for his influential contributions which have spanned many countries, his research has also been critiqued and rightly so. The major area of concern in this particular study on Mexican earnings, is that GP does not control for self-selection.

128 Ibid.
129 Ibid.
According to Cooke, self-selection can occur “when behavioral processes sort individuals into nonrandom samples.” Even though GP states that he uses a stratified random sample, he selected individuals with positive earnings only. One can assume that these positive earnings are derived from wage employment in the formal sector; which comprises a small percentage of total labor force in rural Guatemala and other rural Latin American countries. A more in-depth analysis of household income including other supplementary sources of income must be included in order for the sample households to be truly representative of the intended sample.

GP also does not control for individual opportunity sets. For instance, some students enrolled in school may or may not have a higher ability to learn (ability-bias), or have access to quality schools or transportation. GP mostly uses “years of schooling” as the main variable impacting education and labor market outcomes, which does not take into account many more possible individual circumstances. These circumstances may greatly affect a student’s ability to succeed in school and gain positive earnings later in life. For these reasons, this study and the following study are included in this study (as some of the best research completed on the subject) yet, analyzed further to show the importance of establishing a valid counterfactual and random representative sample.

**Education and Earnings in Guatemala**

Psacharopoulos (1993) determined the effect of differential educational attainment on earnings, given ethnicity; specifically comparing earnings of indigenous

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population with non-indigenous populations. A household survey using 11,000 households from both rural and urban areas highlighting a total of 12,000 persons was used for this study. Similar to the Mexican study above, if the individuals reported positive earnings from employment, they were included. The data came from the Encuesta Nacional Socio-Demográfica (ENSD) which was conducted in 1989 by the Instituto Nacional de Estadística. An overall significant 15% rate of return was found by GP. More specifically, the rate of return for educated indigenous persons was also very significant at 12%. GP found that males earned 30% more than females and also that indigenous individual earned 46% less than non-indigenous. These very significant findings are susceptible to the same possible selection and omitted variable bias as the study above.

Despite these biases, GP has contributed copious amounts of invaluable data overviewing socioeconomic trends in indigenous Latin America and all over the world. As such, these studies by GP are the most applicable for this paper.

**Education and Earnings: Chile, Colombia, El Salvador, Honduras, Paraguay and Peru**

In their book, “Rural Poverty in Latin America,” López and Valdés (2000) showcase several studies regarding land, labor, and poverty. The evaluation design implemented was not explicitly stated though it is evident that econometric regression analysis was used. It appears that the authors might have utilized the mincerian human

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135 Ibid.
136 Ibid.
137 Ibid.
138 Ibid.
capital earnings function to evaluate their data.\textsuperscript{139} A total of 4,646 household surveys
were utilized; 1,300 from Chile, 418 from Colombia, 562 from El Salvador, 418 from
Honduras, 1,300 from Paraguay, and 557 from Peru.\textsuperscript{140}

In one specific study, the researchers analyzed the contribution of various life
factors to total per capita income. Land size, household labor, family size and other
variables were taken into account, but the most important variable that is worth
mentioning is the “Contribution of 1 additional schooling year (USDS)” which basically
asks the question, “what is the impact of one additional year of schooling on household
income in Chile, Colombia, El Salvador, Honduras, Paraguay, and Peru?”\textsuperscript{141}

The returns from education on household income were positive but small with the
only significant impacts on income occurring in Chile and Paraguay.\textsuperscript{142} The study
specifically evaluated the return to education in farming which showed a very small
impact.\textsuperscript{143} The returns for one additional year of schooling are as follows: Chile 62 USD,
Colombia 14 USD, El Salvador 3.70 USD, Honduras 19 USD, Paraguay 43 USD and
Peru 30 USD.\textsuperscript{144} Individuals earned more money if they immigrated to urban areas and as
such the availability of off-farm employment increased income.\textsuperscript{145}

The large amount of households involved in this research adds credibility to the
analyses; however in the description of the authors’ book, there are no clear references to
counterfactuals or acknowledgements of biases. The large amount of data and the focus

\textsuperscript{140} Ibid.
\textsuperscript{141} Ibid.
\textsuperscript{142} Ibid.
\textsuperscript{143} Ibid.
\textsuperscript{144} Ibid.
on rural populations in Latin America (which are quite similar to the highlands of Guatemala) is important for this paper.

**Education Synthesis**

The lack of current rigorous evidence-based impact evaluations of education on earnings, especially in rural indigenous areas in Latin America is incredibly apparent. From the above studies, we have seen both high and low impacts. Psacharopoulos’ (1993, 1996 and 2004) all showed high rates of return. To review, GP (1993) in Guatemala, showed a very significant 15% rate of return (for females, males, non-indigenous and indigenous populations) and a 12% rate of return for educated indigenous individuals. In the 1996 GP study, he reported a 15% rate of return for each year of education in Mexico. López and Valdés’ (2000) research revealed different results, with only two countries with a significant impact income. Paraguay had a 43 USD return per year of schooling and Chile had a 62 USD rate of return per year of schooling. All other countries in their study showed little to no impact. Please see Table 3. in the appendix for an overview of these education studies.

Overall, the above studies present the following possibilities for Guatemala:

1. Secondary education may exhibit a very high rate of return later in life,
2. A 15% return for each year of education,
3. Investment in female education may lead to higher rates of return than that for males,
4. Education in subjects other than farming can lead to employment in non-farming employment, which may lead to higher earnings,
5. The availability of off-farm employment (perhaps in rural areas) can lead to higher earnings.
Current international education research (though not always rural and in Latin America) has proved the positive impact that education can have on the incomes of poor individuals throughout the world. Because of this, many development stakeholders still assume that education can make a huge difference in the lives of the poor in Guatemala and Latin America. As is apparent, Guatemala (and most of rural Latin America) need more long-term studies done to show not just that education increases earnings, but also, to address what type of education increases earnings. It would also be interesting to discover whether most indigenous Guatemalans need to relocate to urban areas in order to reap the benefits of higher education or to discover what types of non-farming education in rural areas may lead to employment in rural areas.

VI. Microbusiness

Microfinance as defined by MIX\(^{146}\):

…Refers to a variety of financial services that target low-income clients, particularly women. Since the clients of microfinance institutions (MFIs) have lower incomes and often have limited access to other financial services, microfinance products tend to be for smaller monetary amounts than traditional financial services. These services include loans, savings, insurance, and remittances. Microloans are given for a variety of purposes, frequently for microenterprise development.\(^ {147}\)

Although microcredit has been in use for four decades, it gained significant notoriety with the claimed success of Grameen Bank in Bangladesh. The founder of Grameen Bank, Muhamad Yunus and many other microcredit proponents believe that the opportunity to have credit and support poor people (mainly women) in becoming

\(^{146}\) MIX Market (www.mixmarket.org) is a public data hub where microfinance institutions (MFIs) and supporting organizations share institutional data to create transparency and market insight http://www.themix.org/about/#ixzz3uDT9l8Vx

\(^{147}\) http://www.themix.org/about/microfinance
entrepreneurs is empowering and ultimately a successful tool for alleviating poverty. Providing small loans to poor families and growing businesses to increase income, well-being and productivity soon became a huge global trend. The microcredit movement has drawn public attention and has become a billion dollar industry touching the lives of millions of borrowers. Now, people and women in rural and urban areas have access to credit, an opportunity and responsibility that many borrowers are eager to experience.

Amidst the miraculous claims that people make about microfinance there is the belief among economists that microfinance may not be everything that proponents say it is. What if the evidence that has been provided has not been robust enough? Has the given evidence truly provided accurate measurements of impact on the lives of the poor, for instance by measuring household consumption or income? In the following section, some of the most influential studies from around the world will be presented to demonstrate how well these questions have been answered and what that may mean for the people in the Western Highlands of Guatemala.

**High hopes and low impacts**

The rising popularity of microfinance makes sense. Give money to poor women, increase consumption, increase business profits and productivity and reduce poverty, and in the process empower the lives of women. In Pitt and Khandker’s 1998 Bangladesh study, they introduce their very influential and hotly debated findings concluding that household consumption increased 18 Bangladeshi taka for every 100 taka borrowed.

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149 Bangladeshi Currency. 1 Taka=0.013 US Dollar as of December 15, 2015.
which positively impacted women borrowers, essentially finding a positive impact on poverty reduction. Another argument in favor of microfinance was given by Dunn and Arbuckle (2001) who suggested that borrowers’ businesses performed better than non-borrowers in terms of business profit, fixed assets, and employment. On the other hand, more recent studies have shown no impact on poverty alleviation. Banjeree et. al (2013), Crépon and Duflo et.al (2011), Tarozzi (2013), Morduch (1999), Karlan and Zinman (2010), and Coleman (1999) in their impact evaluations found no impact on levels of consumption and poverty. Bear in mind that these are studies from other parts of the world with only one stemming from Latin America, Dunn and Arbuckle (2001), which was done in urban Lima and hence non-applicable to Guatemala under this paper’s inclusion criteria.

The major debate on Pitt and Khandker’s findings stem from Mordoch (1998), and more recently Roodman and Mordoch (2009) who revisited the Bangladeshi data and found no evidence that the programs increase household consumption. Mordoch (1998) believes there was a reduction in vulnerability, not poverty. Moreover, the eligible program households had significantly lower consumption compared to controls. Coleman (1999), in his study based in Thailand that high-interest debt perpetuated a vicious loan cycle for women borrowers. In the past decade, microfinance has received negative attention specifically regarding high interest rates and the difficulty women have

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150 Mark M. Pitt and Shahidur R. Khandker, "The Impact of Group-Based Credit Programs on Poor Households in Bangladesh: Does the Gender of Participants Matter?"
paying back the loans. Stories of people committing suicide due to the inability to pay back the loans were shocking and quickly added to microfinances diminishing image.\textsuperscript{153} Another major concern is the lack of savings and education opportunities within microfinance institutions. Quick injections of money with no access to savings or education on how to save can be dangerous, some say.\textsuperscript{155} One cannot deny, however, the data regarding business improvement. For instance, Banjee et.al (2013) showed that business profits for already profitable businesses increase with access to credit. Adversely, Crépon et.al (2011) found no effects on business outcomes. They did, however, see an increase in food and durable expenditures.\textsuperscript{156}

It is helpful to bear in mind the general trend toward zero to little impact on poverty, income, or subjective well-being, amidst the never-ending debate regarding poverty alleviation and microfinance. Conversely, Karlan and Zinman (2010 or 2011) presented a straightforward benefit gleaned from their data: programs may not have generated larger businesses or increased their incomes, but risk management proved to be stronger because of lenders’ involvement in the program. Crepon et.al, (2011) also deconstructed the miraculous microfinance image and replaced it with a concise explanation:

It is worth noting that a fairly low take-up (16\% after two years), similar to what was found in other studies, suggest that the effect of the program on poverty

reduction and welfare is necessarily going to be relatively limited, even in the longer run. This is not necessarily a failure of this program in particular, or microcredit in general. It may well be a very effective tool precisely for the minority of households who wants to expand their activity.157

Comparing across continents, the Latin American microfinance industry is much less focused on providing services to the very poor and instead emphasizes the delivery of financial services to the unbanked and most specifically, to women.158

The proliferation of the microfinance industry is undeniable. By the end of 2009, the total loan portfolio of the Latin America and Caribbean microfinance industry grew from $12.3 billion159 to $36.1 billion in 2013.160

The following section will cover four studies, three of which are Mexican studies (Compartamos Banco and Banco Azteca) and lastly a Bolivian study. As previously noted, an attempt was made by the author of this paper to gather the highest quality Latin American studies with strong external validity for the western highlands of Guatemala.

Compartamos Banco

Compartamos is the largest microlending institution in Mexico with around 2.5 million borrowers and a gross loan portfolio of $1.3 billion as of 2010.161 The bank targets women borrowers in both rural and urban areas who either have a business or

157 Ibid, 5.
want to start one. This study was a part of a larger 6 piece study which reviewed whether or not microfinance does more harm than good.\textsuperscript{162} A baseline and endline survey were given to 16,560 respondents from 238 clusters (rural villages and urban neighborhoods). The average treatment exposure was 16 months. Women ages 18-60 with proof of an address and identification are eligible to take out a loan with a term rate of 4 months an APR of 110%. Angelucci, Karlan and Zinman’s (2015) intention was to investigate the effectiveness of the program as a development tool and reported, “modestly positive, but not transformative, effects.”\textsuperscript{163} Despite the lack of transformative effects, the authors feel it is unfair to say that it is due to the borrowers inability to succeed; and rather one should focus on other, albeit more modest, yet still potentially important effects.\textsuperscript{164} These modest impacts include: a 17% reduction in reliance on government aid, a 6% reduction in expenditures of temptation goods (tobacco, sweets, alcohol, etc.), increases in business size, and a few other impacts on well-being. There were no significant impacts on household or business income, consumption and wealth. It is also good to note that in addition to there being no large increases in income, consumption or wealth there were also no large decreases.\textsuperscript{165}

**Banco Azteca and Mexico**

Ruiz (2010) examined the effects of access to credit on household decisions and welfare via natural experiment and difference in difference estimators.\textsuperscript{166} She used a


\textsuperscript{164} Ibid, 3.

\textsuperscript{165} Ibid, 18.

sample of 3,483 households within Banca Azteca municipalities and 2,156 households without access to Banco Azteca. Her main findings were in the areas of consumption and savings, crucial areas that point to economic well-being. The treatment group in this study consisted of informal households in municipalities with Azteca branches in 2005. Informal households from all other municipalities are the control group. Ruiz’ difference-in-difference regression analysis compares informal households’ outcomes of 2001 (before Azteca existed) with 2005 data (3 year operation of Azteca.)

Banco Azteca was the first bank in Mexico to target household members that belong to the informal sector. This study examines the impact of Banco Azteca. Once credit was made available to new households, critical and substantial impacts were observed. The first impact was an increase in bank credit usage and a decrease in loans from more expensive suppliers, such as pawnshops. The next significant effect was that lower income households’ savings declined once they had access to Azteca credit. Ruiz suggests that the sudden credit created a buffer for income changes. According to the simulations of the model that Ruiz created, consumption smoothing improved once households had access to Azteca credit services.

170 Ibid.
171 Ibid.
172 Ibid.
173 Ibid.
174 Ibid.
Banco Sol and Bolivia

Mosley conducted small sample surveys on four micro finance banks in Bolivia: two rural and two urban.\textsuperscript{176} For the sake of this paper rural population outcomes will be the focus. Mosely specifically studied the impact of loans received on income, asset holdings and diversity and measures of vulnerability. This quasi-experimental study examined data from 45 randomly chosen borrowers from Banco Sol and between 15 and 40 randomly chosen borrowed from PRODEM, SARTAWI, and PROMUJER.\textsuperscript{177} The control group was formed by gathering accepted borrowers who had not yet taken out a loan.\textsuperscript{178} Mosely then calculated the difference in means between the control and treatment groups.\textsuperscript{179} Positive impacts were found on income and asset levels.\textsuperscript{180} Also suggested is that poor households chose to invest in low risk and low return assets.\textsuperscript{181}

Banco Azteca and Mexico Bruhn and Love

This study examines the effects of providing financial services via over a 800 branch opening of Banco Azteca in Mexico in 2002 to low income individuals on entrepreneurial activities, employment and income.\textsuperscript{182} However, in order to maintain a focus on the main topic of this paper - poverty alleviation - we shall discuss the findings on education and income only. This was a natural experiment using DiD regression

\textsuperscript{178} Ibid.
\textsuperscript{179} Ibid.
\textsuperscript{180} Ibid.
analysis. In total, 576 municipalities were involved; of which, 249 had access to Banco Azteca financial services and 327 did not. Only individuals between the ages of 20 and 65 were including in the sample.\textsuperscript{183}

Total employment increased by 1.4\% and the average income went up by about 7\%.\textsuperscript{184} However, this effect is not statistically significant because of a rather large standard error.\textsuperscript{185} Bruhn and Love explain this lack of significance to a noisy estimate because many informal business owners did not offer their income on the survey.\textsuperscript{186} Specifically, the researchers “compared the changes in outcome variables before and after Azteca opening across municipalities with pre-existing Grupo Elektra branches and those without branches at a time of the bank opening.”\textsuperscript{187} Bruhn and Love used the Mexican Labor Market Survey (ENE)\textsuperscript{188} to evaluate the impact of the opening bank branches on individuals’ income and employment choices. This is a bit off topic from poverty alleviation and income levels, but nevertheless important to note that the new bank opening resulted in a 7.6 \% increase in informal business formation for male business owners.\textsuperscript{189} Business formation does not necessarily result in higher incomes; however, in this case, the new bank opening did lead to higher income levels for both

\textsuperscript{185} Ibid, 28.
\textsuperscript{186} Ibid, 16
\textsuperscript{187} Ibid, 3.
\textsuperscript{188} The ENE was chosen by the researchers due to its detailed questions on individuals’ economic activity. It reports a persons income, occupation and clearly distinguishes between formal and informal self-employment and firms, which is important in the context of this study because it made it possible for the researchers to understand the effect of Banco Azteca on informal firms. Also, the ENE covers a large amount of municipalities (1,222) for 10 quarters before the banks opened and 9 quarters after.
\textsuperscript{189} Ibid, 3.
women and men by about 7%.\textsuperscript{190} Possible bias for this study could have resulted due to the fact that Azteca was not the only bank that offered credit and savings, and the observed impact could have stemmed from other financial institutions that were already in service to the treatment group.\textsuperscript{191} However, the data still suggests a significant impact on income levels (and the labor market.)\textsuperscript{192} In addition, there was a “clear and rapid growth in savings accounts” within the Azteca municipalities after 2002.\textsuperscript{193} In addition to this bias, Bruhn and Love admit that the main income findings from the ENE were not as reliable as the occupation data because it was not the focus of the ENE survey.\textsuperscript{194} The survey included one question on income and 4.2% of employed individuals did not answer this question.\textsuperscript{195} However, about 60% of the people who did not answer this question on income did answer whether they made above or below minimum wage. \textsuperscript{196}

Overall, Bruhn and Love believe that their findings “support the existing literature that has pointed towards a connection between access to finance and growth and poverty alleviation.”\textsuperscript{197} Moreover, they put forward that their results prove that providing financial services to the poor can produce positive economic activity and growth.\textsuperscript{198}

\textbf{Microbusiness Synthesis}

Despite the fast growth of the microfinance industry around the world, there still remains a large lack of evidence of microfinance on poverty. More rigorous data is

\textsuperscript{190} Ibid, 4.
\textsuperscript{191} Ibid, 3.
\textsuperscript{192} Ibid.
\textsuperscript{193} Ibid, 7.
\textsuperscript{194} Ibid.
\textsuperscript{195} Ibid, 10
\textsuperscript{196} Ibid.
\textsuperscript{197} Ibid, 16.
\textsuperscript{198} Ibid.
needed to prove that microfinance does indeed increase consumption and income levels. The lack of evidence is very apparent in Latin American and Guatemala. However, using the conclusions drawn from the above studies in Mexico and Bolivia allow us to evaluate whether the external validity is strong enough to apply to the Western Highlands of Guatemala.

As of 2015, Guatemala’s gross loan portfolio at $210 million offers more than $326 million in loans with 441,596 borrowers and 39.7 million deposits. In comparison, Mexico’s gross loan portfolio at $3,826 million offers more than $5 billion in loans with 6.4 million borrowers and 2.5 billion deposits. Comparing across these two countries, one can see the large difference in size. However, with all the many similarities that these rural areas of Mexico share with the Western Highlands in Guatemala, it is safe to say that the Mexican studies are comparable, at least in terms of rural and indigenous living. See Table. 2 in the appendix for a comparative look at the studies in this section.

Data from Bruhn and Love’s study regarding a 7% increase on income cannot be externally applied to Guatemala simply because the margin of error was much too large. However, we did see that, in general, job formation increased which can later improve income levels and the local economy. Not including Bruhn and Love’s data on income, three microfinance studies remain: Angelucci et.al (Compartamos-Mexico), Ruiz (Banco

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199 Gross Loan Portfolio- All outstanding principals due for all outstanding client loans. This includes current, delinquent, and renegotiated loans, but not loans that have been written off. It does not include interest receivable. Definition according to Mix online glossary. http://www.mixmarket.org/about/faqs/glossary#ixzz3ts8UpQX1
200 Deposit-Total deposits, whether voluntary, compulsory, retail or institutional. Definition according to Mix online glossary. http://www.mixmarket.org/about/faqs/glossary#ixzz3ts9fPu00
201 Ibid.
202 Ibid.
Azteca-Mexico), and Mosley (Banco Sol, PRODEM, SARTAWI, PROMUJER- Bolivia) all of which show positive outcomes. As Ruiz (2010) points out, the consumption-smoothing reported and the increase in durable goods were noteworthy and are thus possibly applicable to Guatemala. Angelucci et al. (2015) showed a 17% reduction in government aid reliance. While Bolivian microfinance agencies proved to be good at reaching the poor in Mosely’s 2001 study, they are unable to reach the extremely poor. According to Mosley (2001), the “entrepreneurial poor” are not amongst the poorest’ and so in Bolivia at least, microfinance reduces poverty but not vulnerability and extreme poverty. Beyond Mosley’s (2001) study and Bruhn and Love’s (2009) which will not be used due to the large margin of error, there are no other significant impacts on income. Please see Table 4 in the appendix for an overview of these microfinance studies.

Overall, the above studies present the possibility that microfinance in Guatemala could:

1. Help businesses stay afloat,
2. Potentially increase household income if the household is not very poor,
3. Smooth household consumption, and
4. Help households accumulate more durable goods.

This section has highlighted the ways that microfinance has impacted a few Latin American communities and ultimately that although microloans are not effective at increasing income on average for the poorest people on the planet, they can still be useful in other areas such as consumption. Banjeree et al. (2015) gives a succinct and honest description of microfinance that summarizes the balance at which microfinance should be viewed: ”…just as there is little support for microcredit’s strongest claims, there is also
little support for microcredit’s harshest critics” and “…if microcredit’s promise were increasing freedom of choice it would be closer to delivering on it.”203 In the next section, an overview and analysis of Latin American studies on the impact of gifts in kind will be presented.

VII. Gifts In Kind

Gifts In Kind can be defined as gift given without anything required of the recipient. The gift could be a cow, a chicken, malaria net or a food basket, etc. The international discussion on Gifts in kind in terms of economic international development often involves the question, “What is more effective: cash transfers or food transfers (both mostly unconditional; unlike a conditional cash transfers, with the very minimum requirement usually being attendance at an education or training session(s)). The most recent evidence suggests that cash transfers are a very effective transfer (versus tangible gifts like food), showing increases in food and non-food expenditures and increased consumer freedom and lower administration costs.204 Impact evaluation studies by Schwab (2013) in Yemen, Barker et al. (2014) in Cambodia, Sharma (2006) in Sri Lanka, and Ahmed et al. (2010) in Bangladesh show that cash transfers (when compared to in-kind food transfers) have a greater impact on food consumption.205 However, despite the fact that cash transfers are effective and less expensive in some communities may not negate the fact that in-kind transfers may still have a positive impact.

For example, Rawlins et. al (2013) found that the donation of dairy cows and goats by Heifer International livestock donations program to poor families in Rwanda substantially improved nutrition and “dietary diversity.” Specifically, dairy cow recipient’s consumption levels increased three times as much as non-recipient’s levels and goat recipient’s meat intake doubled.

The following three impact evaluations that are presented will review the same program Programa de Apoyo Alimentario (PAL) (literally meaning food support program) in rural southern Mexico. The lack of impact evaluations on the topic of in-kind transfers in rural Latin America and the varied and important topics of each study are the two main reasons why only one program and country are presented (and why the author of this paper only includes a food transfer program versus other transfers such as livestock or laptops as seen above.) First, a study by Skoufias et. al (2013) on the impact of PAL transfers on consumption and poverty alleviation will presented. The second study covered here will be by Cunha (2014), which investigates how both in-kind and cash transfers impact local prices. Leroy et al (2010) investigates household nutrient consumption of program recipients; a topic that is rarely covered but nevertheless important due to increased obesity and overweight populations in communities where food transfers are delivered. Instead of solely investigating household consumption (durable goods and broad food consumption), investigating the actual nutrient delivery

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and consumption is also incredibly important in order to truly aid those in need and not worsen individual health issues.

**Poverty Impact of PAL**

Skoufias et. al, (2013) targeted households living in rural and very poor households in Southern Mexico. With an emphasis on poverty alleviation, he gives a very clear idea of the effectiveness of cash transfers and in-kind transfers on rural households. The study targeted poor rural communities with less than 2,500 people and used a marginality index which took into account housing quality, income and education. Transfers were delivered to a total of 5851 households in 206 poor rural localities in Chiapas, Guerro, Oaxaca, Quintant Roo, Tabasco and Veracruz. The food basket transfer group received 150MX worth of food and the cash transfer group received 150 MX cash which is roughly equal to 15 USD in 2003. There were three different treatment groups and one control group. Localities were randomly assigned into groups that received in-kind food baskets with and without health and nutrition. The third treatment group received the cash transfers.

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211 Ibid.
212 Ibid.
213 Ibid.
214 Ibid.
Difference-in-difference estimators compared the difference between the treatment and control group before and after the start of PAL.\textsuperscript{215} Many conclusions were reached in this study regarding household consumption and poverty alleviation. The in-kind transfers led to 43.99-48.7 pesos per capita increase in food consumption while the cash transfers led to an increase of 39.4-49.7 MX spent on food, showing similar positive impacts.\textsuperscript{216} The in-kind transfers had no significant impact on non-food expenditures.\textsuperscript{217} In terms of poverty reduction, the PAL in-kind transfer decreased poverty by 10.7\% from the 68.3\% baseline.\textsuperscript{218} The cash transfers decreased poverty headcount by 8.9\% from baseline percentage, again showing an almost equal positive impact.\textsuperscript{219}

Overall, the in-kind and cash transfers show almost identical impact on consumption and poverty alleviation. However, the real value of the cash transfer was 75\% of the in-kind value due to lower administration costs.\textsuperscript{220} Southern Mexico is very similar to the western highlands of Guatemala in that both areas have a very large percentage of indigenous peoples living in rural areas.

**The impact of transfers on local prices**

Cunha (2014) uncovered whether or not the frequent assumption that transfers lead to price inflation was actually true.\textsuperscript{221} The data came from surveys from stores and household administered by the Mexican National Institute of Public Health both before

\begin{thebibliography}{9}
\bibitem{216} Ibid, 15.
\bibitem{217} Ibid.
\bibitem{218} Ibid.
\bibitem{219} Ibid, 8.
\bibitem{220} Ibid.
\end{thebibliography}
and after the program was introduced. Baseline data was collected in 2003 and the first quarter of 2004 (even before villagers knew they would be receiving the program.) Follow-up data was collected in 2005. The final sample included: 360 stores in 194 villages and 12,940 good village store observations. Cunha mentioned in his paper that many of the households that were not a part of the CCT program Oportunidades/Progresoa (because their areas lacked accessible schools and clinics) were included in this program started by the Mexican government to make up the difference in communities affected.

In cash villages, the transfers caused prices to increase by 0.2% and in in-kind villages prices fell by 3.9% (relative to cash transfer prices.) For farming households, the in-kind transfers increased farm profits by 144 MX (42 MX lower than cash transfer impact.) Overall, the competition between in-kind transfers and cash transfers were not notable as both groups experienced similar impacts. However, it is very relevant to note is that more remote villages had higher impacts. In-kind transfer delivered 61 (MX) more to the average consumer in more remote villages. This information can be transferred to how this type of in-kind program might impact very remote villages in Guatemala.

224 Ibid.
225 Ibid, 18.
226 Ibid, 2.
228 Ibid, 29.
The Nutritional Nature of Transfers

Leroy et al (2010) investigated household nutrient consumption for PAL recipients. Using difference-in-difference estimators the end-line sample size was 5,823. This study is important not only from a consumption standpoint but also from an efficacy standpoint. Other studies assume that an increase in household food consumption can only be positive. However, when delivering food transfers to the populations that tend to see high rates of obesity and health related problems like diabetes, it makes sense to consider the actual nutritional and energy consumption achieved; creating a more detailed and ethical analysis of the program.

The evaluation focused on the following groups and their impact on energy and nutrient consumption: fruits and vegetables, grains and legumes, animal source foods, processed foods (vegetable oils, alcohol, soda, chips, candy, sugar and coffee) and protein and fiber.

Overall, the PAL food baskets increased energy consumption in both treatment groups and increased the consumption of all macro and micro nutrients (with the exception of iron), with the largest consumption effect for vitamin A and C. When compared to the cash transfer group, the food basket led to a significantly greater impact

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232 Ibid, 614.

233 Ibid, 616.
on energy and nutrient consumption. Specifically, the food transfer had a 2-9% increase in the consumption of total energy, a 24-28% increase from fruits and veggies, and a 24-39% increase from animal source foods. Leroy et al. came to the conclusion that it is crucial to redesign and improve food transfer contents especially for populations that are not deficient in energy.

The lack of impact evaluation studies on in-kind transfers is hard to miss especially those without a comparison to cash transfers. Because of the small amount of in-kind impact evaluations in rural Latin America and especially Guatemala, this paper focuses solely on the PAL program. The PAL program has proven to be a successful program and with the help of the above evaluations (and others not mentioned here) it is possible to ascertain important distinctions of the program that were successful and unsuccessful that may serve Guatemala.

**Gifts in Kind Synthesis**

The PAL program had an especially strong impact on more rural and remote communities. For areas in the Guatemala highlands, it would be important to ascertain the community’s reliance on high energy foods and whether or not providing high energy foods would be a good option. Depending on who is delivering the transfers, it would also be important (in the Guatemalan context) to ascertain whether or not the nutrient deficiency would be enough to offset or sacrifice for higher administration costs (as compared to a cash transfer.) Within the debate between in-kind and cash transfers, it is

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evident from the above studies that both transfers are effective at increasing consumption and have an impact on the lives of poor households. Effectively targeting the population is a must so to not give what is not necessarily needed. In certain areas of Guatemala for instance, stunting and wasting is huge problem and a higher energy food transfer would be extremely helpful. Examining the needs of recipients is of the upmost importance. Please see Table 5 in the appendix for another overview. Overall, the above studies present the possibility that gifts in kind in Guatemala could:

1. Increase household food consumption,
2. Decrease poverty headcount,
3. Increase farm profits for a farming household, and
4. Increase energy consumption especially for Vitamin A and C

VIII. Graduation Programs

Graduation programs are one of the newest poverty interventions that the INGO community is now very interested in. Graduation programs are a more expensive and well-rounded intervention that aims to support an individual’s total graduation from extreme poverty. Many poverty alleviation programs work well but many of them only focus on one area of a person’s life such as health, education or microfinance. This small section will review one large, comprehensive and multi-country study by Banjeree et. al (2015) that implemented RCTs in Ethiopia, Ghana, Honduras, India, Pakistan, and Peru with a total of 10,495 participants. This particular graduation program (as most other

programs have thus far) provided: a productive asset grant to help transition to self-employment (chickens, guinea pigs, etc.), technical skills training, consumption support via a monthly cash transfer, a savings account, and frequent household visits providing life coaching. The researcher in this study measured impacts on consumption, food security, productive household assets, financial inclusion, time use, income and revenues, physical health, mental health, political involvement and women's empowerment.\textsuperscript{236} There were significant impacts on all 10 of these areas.\textsuperscript{237} Thirty-six months after the first productive asset transfer 8 out of 10 of the above indicators showed significant improvements.\textsuperscript{238} Each asset transfer varied by country ranging from $437 USD- $1228 USD per household.\textsuperscript{239} In general, the researchers came to the conclusion that the multifaceted approach increased income and well-being in a maintainable and economical way.

The two Latin American countries involved, Honduras and Peru experienced the least significant impacts. Peru with a sample size of 2,403 and with chickens being the most common gift, saw 3 out of 10 significant results with the most significant result being food consumption.\textsuperscript{240} However, according the Banjeree et. al, “even in Peru where we see gains in fewer variables than in other countries, the gains in food expenditures per capita, assets, livestock expenditures, physical health and mental health are all positive

\textsuperscript{237} Ibid.
\textsuperscript{238} Ibid.
\textsuperscript{239} Ibid, 774.
\textsuperscript{240} Ibid, 775 and 783.
and significant.”

Honduras with a sample size of 2,284 and guinea pigs as their most common transfer, only saw significant impact in 3 out of the 10 indicator groups with the most significant impact also being food consumption. One reason for the poor results in Honduras may be a large portion of the chickens dying to illness.

Overall, the researchers found that, “… ultra-poor graduation programs improve the lives of the very poor along many dimensions.” The program’s main goal to increase consumption was achieved and sustained one year after the program.

Although the LAC countries involved did not achieve the 10 out of 10 results that the other countries experienced, the main goals were still reached and the program still had a significant impact. Guatemalan government and INGO stakeholders would be wise to further investigate the possibilities of providing graduation programs in extremely poor western highland villages in Guatemala. As seen earlier in the education portion of this paper, off-farm education in Guatemala saw higher return rates in income. Introducing a more holistic program such as a graduation program may alleviate the risks associated with learning a new trade or starting a new occupation. Although this type of program may have higher upfront costs, the payoff is well-worth it. Please see Table 6. in the appendix for a another overview of this multi-country study.


Ibid, 785.

245 Ibid, 785.
IX. Conditional Cash Transfers (CCTS)

Cash Transfer Programs (CTPs) are arguably the most hotly debated poverty alleviation intervention amongst international development stakeholders. CTPs are delivered to the world’s poor in two major ways. Conditional Cash Transfers (CCTs) give cash transfers to impoverished families only if they meet certain conditions. The conditions range from immunizing a child, enrolling and keeping a child in school, to pediatric and maternal health doctor’s visits. Usually the transfers are delivered to family households. CCT enthusiasts argue that the programs can both encourage family health and education while alleviating poverty by giving families what they need most: cash. Unconditional Cash Transfers (UCTs) are a bit more radical but also more common than people might at first understand. They are given (as the name implies) unconditionally, but not without serious consideration of the importance of targeting populations that need the cash the most; the most vulnerable and impoverished.

According to Cash Atlas, an organization that organizes volunteered information about current cash transfers (both CCTs and UCTs), there are currently 27 million cash transfer beneficiaries in the world.246 This number is not completely accurate because their data solely relies upon offered information. Cash Atlas records Guatemala’s beneficiaries at 24,316. 247

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246 http://www.cash-atlas.org/
247 Ibid.
Mi Familia Progresa and Mi Bono Seguro –

Guatemala launched their first conditional cash transfer program, Mi Familia Progresa (MIFAPRO) in 2008. The program at first seemed very promising as the president at that time used a percent of the GDP to fund the program. In addition, the buy-in from the World Bank (WB) and InterAmerican Development Bank (IDB) was quite substantial. The transfers were targeted for the very poor indigenous populations in the highlands determined by geographical mapping based on poverty maps and proxy means testing (basically uses national household surveys.)

Mothers of the household received Q150 (approximately 20USD) for participation in the education section of the program and another Q150 for participation in the health segment. Bi-monthly cash transfers via a government owned bank Banrural were distributed, with no distinction in benefit levels for age, gender of children and number of children in the household. The education condition required children to attend school 80% of the time. Health conditions made it necessary for children and pregnant women to attend regular checkups, healthy growth measurements, and receive child immunizations, deworming, and vitamin supplements. The program targeted the poorest 20% of the population which came from 130 extremely vulnerable populations mostly in the highland regions.

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250 Q= Guatemalan currency known at the Queztal
252 Ibid, 262.
254 Ibid, 504.
Megan Tan and Gavin Yamey at UCSF interviewed Maria Dolores Perez, director of the National Hospital of Huehuetenango, a western highland community in Guatemala, who stated that, “About 80% of the children here have undernutrition.” According to Tan, MIFAPRO started off well. Tan interviewed doctors that stated they saw a huge increase in the use of healthcare services in their underserved and needy areas. Tan says, “Pregnant women took long bus journeys to attend antenatal visits. Children who had never seen the inside of a clinic were brought in for their vaccinations. For the first time ever, long lines formed outside rural clinics.” Tan also interviewed Jose Calmo, a middle school teacher in Todos Santos, an indigenous village in the rural highlands. He saw his class size increase from 25 to 32 students in a matter of 2 weeks. He noted that more families were not just sending their sons into school, they were sending their daughters as well. In total, the program reached 930,330 households and 2.4 million children by the year 2011.

Unfortunately, the MIFAPRO quickly started experiencing major challenges with program design, corruption, delivery of transfers and lack of infrastructure. Sandberg and Tally quote deputies from the San Pablo la Laguna region from a focus group interview in 2011, “Representative of the Community Promotion Council (CPC) revealed that the mayor of Santa Cruz la Laguna threatened beneficiaries with expulsion from

255 Ibid.
256 Ibid.
258 Ibid.
259 Ibid, 2.
260 Ibid.
MIFAPRO should they fail to vote for him."\footnote{264} Also, the initial design and implementation of the program motivated by a political urgency (from First Lady Sandra Torres) was accomplished in 2 months.\footnote{265} Compare this to Mexico’s Oportunidades/Progres\'a planning and design timeline of 2 years.\footnote{266} The lack of time dedicated to the design and implementation of the program paired with obvious manipulative political actions, allowed the media to create the image of a politically corrupt platform with no intentions of truly helping the poor.\footnote{267} In order to support the restoration of the program’s image, the IDB gave an additional 300,000 (USD) for technical assistance for communication strategies, essentially, help reconstructing the program’s public image.\footnote{268}

The driving force behind the politically motivated First Lady’s candidacy efforts, in addition to local political bribes and threats, and general public distrust of the program aided the eventual collapse of the program in 2012.\footnote{269} The First Lady Sandra Torres was constitutionally prohibited from standing as a presidential candidate and Otto Perez Molina assumed presidency. He replaced MIFAPRO with a new CCT, Mi Bono Seguro.\footnote{270}

\footnote{264} Johan Sandberg and Engel Tally, "Politicisation of Conditional Cash Transfers: The Case of Guatemala," 512.
\footnote{265} Johan Sandberg and Engel Tally, "Politicisation of Conditional Cash Transfers: The Case of Guatemala," 509.
\footnote{266} Ibid.
\footnote{267} Ibid.
\footnote{268} Johan Sandberg and Engel Tally, "Politicisation of Conditional Cash Transfers: The Case of Guatemala," 509.
\footnote{269} Ibid.
\footnote{270} Ibid.
Mi Bono Seguro

Mi Bono Seguro is controlled by the Ministry of Social Development (a new cabinet created at the beginning of President Molina’s term.)\textsuperscript{271} At the time, the Ministry had to deliver social and political reforms for a program that attracted poor communities and secured the rural vote, which would all help to sustain the program.\textsuperscript{272} One of the major necessary reforms was to re-establish the target beneficiary population.\textsuperscript{273} The program’s beneficiaries exceeded the number of poor people living in the region in 2006.\textsuperscript{274}

While the previous attempts at conditional cash transfers are widely considered failures due to corruption and inadequate targeting, the Guatemalan government continues to roll out the program under a different name “Bono por Salud y Educación” and with more intentionality.\textsuperscript{275} The Guatemalan government would be wise to work on the above issues presented regarding corruption, delivery of transfers and infrastructure and to look to other countries that are managing CCT programs is a more efficient way. The remainder of this section will present two programs deemed to have had a positive impact on the neediest in their country that may serve as an example for Guatemala, as they roll out their 2016 program.

\textsuperscript{271} Johan Sandberg and Engel Tally, "Politicisation of Conditional Cash Transfers: The Case of Guatemala," 509.
\textsuperscript{272} Johan Sandberg and Engel Tally, "Politicisation of Conditional Cash Transfers: The Case of Guatemala," 509.
\textsuperscript{273} Johan Sandberg and Engel Tally, "Politicisation of Conditional Cash Transfers: The Case of Guatemala," 509.
\textsuperscript{274} Johan Sandberg and Engel Tally, "Politicisation of Conditional Cash Transfers: The Case of Guatemala," 509.
**Progresa/Oportunidades-Mexico**

Oportunidades (formerly Progresa) first began in 1997. Fizbein and Schady, in their book “Conditional Cash Transfers-Reducing Present and Future Poverty,” give a fine summary of why this program is so well known and respected:

Mexico’s Oportunidades is one the most iconic cases. The program started early, it’s evolution has been carried out thoughtfully, and it has been successful. What really makes Mexico’s program iconic are the successive waves of data collected to evaluate it’s impact, the placement of those data in the public domain, and the resulting hundreds of papers and thousands of references that such dissemination has generated.276

Oportunidades was the first social program in Mexico to carry out a rigorous independent evaluation of program impacts that included randomly assigned treatment and control groups. The targeting of the households was accomplished by using administrative and census data.

This section on Oportunidades will cover three different studies that evaluate the impact made and the specific conditions required, however, one should know that the list of studies reviewing this program is extensive and all cannot be reviewed here. The first study that will be reviewed will cover rates of school enrollment; the second study presented will cover adult work incentives and poverty alleviation, and lastly, the nutritional components of the program will be considered. The conditions to be considered for this program were typical of a CCT, a mother receives money when

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children attend school, attend healthcare appointments and spend time and energy receiving education on nutrition.\textsuperscript{277}

A study performed by Paul Schultz in 2004 reviewed the rates of enrollment in school via the program. Control communities and program communities were randomly selected.\textsuperscript{278} This study used data of severely poor rural villages located in central and southern Mexico.\textsuperscript{279} 314 out of 495 localities were randomly selected out of the designated “poor” census households for first two years from the summer of 1998 to the summer of 2000.\textsuperscript{280} The remaining 181 localities were the control groups. The control group received the program in the third year.\textsuperscript{281} The study used a difference and difference evaluation and compared pre-program differences between enrollments in the treatment and control populations.\textsuperscript{282} The evaluators also used additional controls to extrapolate the long-term program effects on lifetime schooling and earnings, essentially offering a hypothetical assessment of how the public outlay on school subsidies in this program would be recovered in the form of enhanced private earnings of the children of the families who were offered school subsidies.\textsuperscript{283}

One of the conditions of the program that this study focused on is fulfillment of attendance at an 85\% rate.\textsuperscript{284} Grants were given to children enrolled in grades 3-9 or the

\textsuperscript{277} Emmanuel Skoufias and Vincenzo Di Maro, "Conditional cash transfers, adult work incentives, and poverty." The Journal of Development Studies 44, no. 7 (2008), 937.
\textsuperscript{279} Ibid, 223.
\textsuperscript{281} Ibid.
\textsuperscript{282} Ibid, 199.
\textsuperscript{283} Ibid.
\textsuperscript{284} Ibid, 202.
late 4 years of elementary schools and the next three years of junior secondary school.\textsuperscript{285}

At the beginning of the program, the grants were promised for 3 years because the 2000 fall election could have led to a change in government and a change in the program.\textsuperscript{286} The grants were upwardly adjusted every 6 months to compensate for inflation. \textsuperscript{287}

The payments for this program differed according to what grade the child was in at the time.\textsuperscript{288} The lowest payment was for children of both sexes in their third year of school at 70 MXN\textsuperscript{289} a month.\textsuperscript{290} Payments increase steadily until the child’s 6\textsuperscript{th} year of schooling when they reach 135 MXN equivalent to about 8 USD\textsuperscript{291}. Payments are significantly higher for secondary school and about 10-20 MXN higher for female students. In the third year of secondary school the student’s family receives 255 MXN, equivalent to about 15 USD.\textsuperscript{292} It is important to note that 255 MXN at the time was about 44\% of the typical male laborers wage for one day in these rural communities.\textsuperscript{293} This is roughly 2/3 of what a child this age would earn working a full day.\textsuperscript{294} Though the amount does not completely offset the amount of the child’s labor earnings that help the household, it still covers a significant amount and enough to persuade families to send their children to school instead of having their children work.\textsuperscript{295} According to Schultz,
“the program should have reduced by 50-75% the economic costs of attending school from children grades 3-9.”\textsuperscript{296}

The data that was used in the Schultz study for the initial household census was for children ages 5-16 and in the subsequent 3 rounds of the program, children ages 6-16 were evaluated.\textsuperscript{297} The final household survey conducted in November 1999, children ages 6-18 were evaluated. The number of children ages 5-16 in the initial census was 40,959, but of this total, only 19,716 children could be followed and matched in all five rounds.\textsuperscript{298}

The largest difference between program localities and control localities was for children who completed grade 6; their enrollment rates increased by 11.1% (from 58% to 69%).\textsuperscript{299} The impact of the program on girls was very good as their enrollment rates increased 14.8% compared with boys at 6.5%.\textsuperscript{300}

Shultz also evaluated the reduction of inequality between program localities and control localities.\textsuperscript{301} The most significant reduction found was for children in grades 4-6. The impact was largest after the last three years of primary school.\textsuperscript{302} Overall, the program reduced income-related inequalities in enrollment localities for all grades.\textsuperscript{303}

\textsuperscript{296} Ibid.
\textsuperscript{299} Ibid, 213.
\textsuperscript{300} Ibid.
\textsuperscript{301} Ibid.
\textsuperscript{302} Ibid.
Familias en Accion – Colombia

Familias en Accion (FeA) is a conditional cash transfer program located in Colombia. The World Bank and The Inter-American Development Bank approved a loan to the Colombian government. The data evaluated came from 11,500 households from 122 towns in Colombia. The data was collected in two sections, one in 2002 and the second in 2003. Although all 11,500 households were poor enough to qualify for the FeA program, only 57 towns were in the sample. The remaining 65 towns were used as the control group. Attrition between the two waves is 6%.

Participants were selected to be in this program if they were a System for the Selection of Beneficiaries for Social Programs (SISBEN) Level 1 family. The SISBEN system contains local information which identifies poor and vulnerable households according to a Basic Unmet Needs Index as well as other income and family earnings information. Geographically, the municipalities involved had to have 100,000 inhabitants or less. Also, in order to be selected the municipalities needed to not be involved with other national programs. In

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309 Ibid.
312 Ibid.
addition to this, the geographic area needed to have a good supply of education and health services as well as a bank.313

The conditionality for family participants was to make sure they their children attended school 80% of the time within a two-month cycle.314 Children were also required to attend regular healthcare visits to monitor childhood growth and development.315 When the education conditions were fulfilled, the Colombian government then transferred 14,000 COP (6 USD) per month per child.316 A family with two children would receive 28,000 COP (12 USD) a month.317 The health and nutrition transfer equaled 46,500 COP (20 USD) per family per month.318

The Attanasio and Mesnard study evaluated consumption poverty versus income poverty as an indicator of poverty and increased well-being. Orazio used a quasi-experimental approach that did not use random assignment.319 However, he was able to perform baseline and follow-up surveys.320 Treatment and control groups both rural and urban were included, although for the purpose of this analysis, only the rural groups are highlighted. 321 In addition to household consumption and food consumption, Attansio

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313 Ibid.
315 Ibid.
319 Ibid.
320 Ibid.
et.al also compared baseline populations and follow-up surveys for preventative health care visits, nutrition outcomes and school attendance.\textsuperscript{322}

Overall, Attansio et. al found the program to be extremely successful in increasing total consumption and food consumption, especially protein-rich foods such as meat, milk and cheese.\textsuperscript{323} Total consumption increased by 19.5\%, which was primarily due to the high increase of food consumption.\textsuperscript{324} The program affected other food items much less than meat, chicken and milk.\textsuperscript{325} There was also a considerable increase in the consumption of clothes and footwear for children.\textsuperscript{326} There was not a significant difference for adults in this arena, however. Informatively, the FeA program had no significant effect on the consumption of tobacco and alcohol.\textsuperscript{327}

School attendance impact for ages 12-17 increased by 10.1\%.\textsuperscript{328} Even though this is a significant impact, attendance levels remained notably low. Children aged 8-11 did not experience a significant impact regarding school attendance and consumption.\textsuperscript{329}

Preventative healthcare visits are beneficial not only for immunizations and other treatments, but also because patients usually receive useful advice about nutrition and disease prevention.\textsuperscript{330} Attendance to healthcare visits for children aged 24 months and younger increased 22.8\%, while visits for children aged 24-48 months increased by

\begin{flushright}
\textsuperscript{322} Ibid.  \\
\textsuperscript{323} Orazio Attanasio Erich Battistin, Emla Fitzsimons, and Marcos Vera-Hernandez, "How effective are conditional cash transfers? Evidence from Colombia." Institute for Fiscal Studies 2005, 5.  \\
\textsuperscript{324} Orazio Attanasio Erich Battistin, Emla Fitzsimons, and Marcos Vera-Hernandez, "How effective are conditional cash transfers? Evidence from Colombia." Institute for Fiscal Studies 2005, 5.  \\
\textsuperscript{325} Ibid.  \\
\textsuperscript{326} Ibid.  \\
\textsuperscript{327} Ibid.  \\
\textsuperscript{328} Ibid.  \\
\textsuperscript{329} Ibid.  \\
\textsuperscript{330} Ibid, 7.  \\
\end{flushright}
33.2%.\textsuperscript{331} Visits for children older than 48 months did not differ much at a 1.5% increase. \textsuperscript{332} Diarrhea was reduced from 32.6% to 22% which is not a huge difference but still significant. \textsuperscript{333} The impact on boys’ height (very similar to those for girls) was .44 centimeters for children 12 months old and younger.\textsuperscript{334}

To summarize, the Familias en Accion program significantly increased household consumption, especially protein-rich foods and children’s clothing and footwear. The FeA also dramatically increased school attendance of 12-17 year-olds. There was no effect on the attendance of children aged 8-11, which Attansio attributes to the already high level of attendance.\textsuperscript{335} The program caused a considerable increase in the percentage of children with up-to-date scheduled and attended healthcare visits. Nutrition also saw a significant increase, but did not affect older children as much as younger children. In this comprehensive evaluation, it is safe to say that FeA was a success. This program was conducted in a very rural and poor area with a large concentration of indigenous people, which is very similar to Guatemala. Familias en Acción was extremely successful with targeting program participants and delivering important resources such as infrastructure and other resources.

**Conditional Cash Conditional Synthesis**

According to the impact evaluation done on Mi Bono Seguro, the actual impacts on human well-being and development were quite impressive. However, the program had

\textsuperscript{331} Ibid.
\textsuperscript{332} Ibid.
\textsuperscript{333} Ibid, 8.
\textsuperscript{335} Ibid, 9.
a slow and disorderly design process which eventually led to widespread pandemonium. While the program had these positive benefits on the lives of indigenous Guatemalans, the transfers were inconsistent and unreliable. The new and hopefully improved CCT program in Guatemala would greatly benefit from learning a few lessons from Mexico and Colombia’s CCT programs.

Overall, the above studies present the possibility that conditional cash transfers in Guatemala could:

1. Increase school attendance rates,
2. Increase household consumption with particular emphasis on protein rich food consumption,
3. Increase preventative healthcare visits for young children and pregnant women,
4. Reduce the occurrence of diarrhea and skin infections and
5. Increase the nutritional health of families.

The above positive and significant impacts are impressive yet it is vital that a program consider potential challenges and solutions to CCT programs. As is clear from the Colombian and Guatemalan studies, corruption, politics, small and unreliable transfers and the costly supply of infrastructure to sustain the project can be monumentally challenging. What is very clear from the Guatemalan experience is that targeting is incredibly important. The Guatemalan government could potentially save a substantial amount of money by simply targeting the ultra-poor who need the most support monetarily, educationally and health wise. During the Mi Bono Seguro era, the transfers

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were given to households who were not ultra-poor or even poor at all.\textsuperscript{337} One could imagine the potential savings when the targeting measures were aimed towards supporting the ultra-poor.

Overall, the above evidence has shown that conditional cash transfers often positively impact the health, education and consumption rates of poor households. There has not been a sufficient amount of impact evaluations on CCT programs in Latin America, especially studies that determine long-term impact. It is evident that cash transfers offer a sudden burst of income that are useful to poor households, but do they alleviate long-term poverty? This question remains unanswered. Given the above evidence and the lack of long-term evidence, it is unclear whether or not CCTs could have a big and lasting impact on impoverished and indigenous households in Guatemala. The short term positive impacts, however, create an impetus to further explore this question. See Table 7. in the appendix for a brief overview of these studies.

\textbf{X. Unconditional Cash Transfers (UCTs) in Latin America and Beyond}

Cash transfers, both unconditional and conditional have been rigorously evaluated using high-quality RCTs all over the world. Unconditional cash transfers, specifically, have been proved especially effective in the human capital and consumption arena. In a rural South African study, Edmond (2006) showed that UCTs reduced child labor and increased school attendance.\textsuperscript{338} Edmonds and Schady (2012) evaluated a rural Ecuadorian UCT and found that families who received transfers postponed their children’s entry into

\textsuperscript{337} Johan Sandberg and Engel Tally, "Politicisation of Conditional Cash Transfers: The Case of Guatemala," 507.

Haushofer and Shapiro (2013) conducted an RCT for GiveDirectly, a UCT program in rural Kenya. Having access to UCTs supported the Kenyan families in:

1. Building more assets (a 58% increase in home improvements and increased livestock holdings was found),
2. Increasing consumption,
3. Reducing hunger,
4. Increasing psychological well-being and
5. Reducing the occurrence of domestic violence.

All of the above impacts were significant. The study also found that the transfers did not cause an increase in the consumption of alcohol and tobacco, which many opponents of cash aid opponents fear.  

Hanlon et. al also argues that recipients of cash transfers use their money well and that cash transfers are affordable for governments, that they effectively reduce poverty and lastly, they have the potential to prevent more poverty. The remaining issue noted

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by Hanlon et. al, is that conditions and targeting remain a challenge and need more research.344

XI. Conclusion

The objective of this paper is to investigate and uncover the answer to this huge yet region specific question, “If an organization had $1 million dollars to spend in the highlands of Guatemala, how would it make the largest lasting impact on poverty?” To the best of the author’s knowledge, the studies presented in this paper represent the most rigorous evidence based research to date regarding the following types of interventions in Guatemala and similar Latin American countries: health, education, microbusiness, gifts in kind and conditional cash transfers. Sourcing only from academic journals or trusted INGO research, the author of this paper included as many impact evaluations as possible. However, there was no compromise when considering the inclusion of non-rural studies; every study presented here is a rural one.

Review of Key Findings and Future Research

Health

The amount of available and relevant health impact evaluations was small but within the available content, it was established that community health models such as the one in Brazil presented here, could have a significant impact on the labor supply in Guatemala. Other significant findings that may transfer over to Guatemala are the increase in child school enrollment and reductions in the occurrence of pregnancy and mortality. The nutrition studies presented here on Guatemala and Colombia outcomes

344 Joseph Hanlon, Armando Barrientos, and David Hulme, Just Give Money to the Poor (Sterling, Virgina: Kumarian Press, 2010), 2.
show that a reduction in the stunting in children and an increase in female labor supply and female hours worked, the probability of children being enrolled in school and wages for men later in life are all positive and significant. With the widespread occurrence of stunting, infection and more in Guatemala, improving the lives of rural western highlanders is incredibly important. As demonstrated in this paper, when an adult is healthy, working more hours and earning more income can become more of a possibility. Health interventions are an obvious and necessary component to alleviating poverty in the western highlands of Guatemala.

**Education**

Education impact studies in Latin America regarding consumption and income were essentially non-existent. What was available showed that a high rate of return (around 15%) for each year of education is plausible in Guatemala. Also, secondary education may exhibit a very high rate of return as well. Investment in female education lead to higher rates of return later in life compared to males. A very important conclusion was that education in subjects other than farming lead to higher earnings and that the availability of off-farm employment can lead to higher earnings. While this makes sense in the modern world, it also begs uncomfortable questions: Would most rural families lead better lives if they relocated to more urban areas? If not, could it be beneficial for rural farm workers to change occupations? How would a rural farm working family change occupations efficiently? The answer to these questions will vary depending on the options available in each community. A good response to the above questions could be investing in gifts in kind, training and cash transfers for individuals or families wishing to change occupations but also stay rural is a good option.
Microbusiness

Many INGO and governmental stakeholders might assume that microbusiness is a very effective way to alleviate poverty; however, the studies in this paper showed that microloans could not increase household income if the family was simply low-income, the family had to be very poor in order for the loans to have a significant effect. The loans helped existing businesses stay afloat, smoothed household consumption and aided households in accumulating more durable goods. The takeaway message here is that microloans in Latin America and possibly Guatemala cannot be solely relied upon to dramatically increase a household’s income or launch a new business.

Gifts in Kind

The PAL program gifts in kind program in Mexico was the only data that the author of this paper could obtain pertaining to rural Latin American impact evaluation studies. Even though the information offered in this section was not varied, the results were still significant. An increase in household food consumption and a decrease in poverty headcount were the most relevant findings. An increase in farm profits for farming households and an increase in energy consumption especially for vitamin A and C were also found. Much more research is needed in Latin America regarding gifts in kind including research without the seemingly always attached food basket and cash transfer comparison. Without the necessary amount of data to pull from, it is not possible to claim that gifts in kind programs in Latin America and Guatemala would be the most effective intervention. However, a gift in kind in conjunction with another aspect of poverty alleviation would be an interesting possibility. Graduation programs would offer the possibility of this combination.
**Conditional Cash Transfers (CCTs)**

The conditional cash transfers presented in this paper demonstrated very strong short term impacts on school attendance, healthcare visits, reduction on infections and increasing the nutritional health of families and most importantly on the increasing of household consumption. The impacts of CCTs are broad and strong but the successes of these impacts seem to be highly contingent upon the presence of corruption and targeting in Guatemala. Overall, CCTs are a very effective tool for alleviating poverty; however, in Guatemala the systematic necessity of reducing corruption and improving targeting towards the ultra-poor would be a burdensome task, if possible at all. Even so, the efforts would be worth it.

**Unconditional Cash Transfers (UCTs)**

Unlike their counterpart CCTs, UCTs are not contingent upon any conditions of the recipient. The lack of health and education conditionalities allows the funding and application of such a program to be much more cost effective than a CCT. The impacts of increasing overall health, consumption, reducing hunger, improving businesses and reducing domestic violence are impressive. Targeting households that are truly in need of a UCT and making sure the family is motivated to use the money well are topics that are still in need of more research. Thus far, UCTs have given little to no direction to recipients regarding how their money should be used. Perhaps, researching different modes of targeting will increase the positive impacts in even more communities.
Overall, the research on UCTs is impressive; however there is a need for more, as CCTs have been researched more fervently. Although the idea of giving cash to the poor may not be as romantic as giving a microloan or a cow, it ultimately works. Not only that, but it puts purchasing power into the hands of the recipient. Hanlon et al. sums this up by noting that, “Spending on health, education, infrastructure, and government itself remains essential. But without cash, poor people cannot make adequate use of these facilities. Thus giving money directly to poor people is just as important as spending on health and education.”

Main Finding

If an INGO had $1 million dollars to use in the Western Highlands of Guatemala, the best intervention to utilize is difficult to determine due to the lack of evidence based research on poverty interventions in Guatemala and Latin America. As such, there is a clear need for more research specifically when deciphering what has the largest economic impact for a household. Longer term studies are needed as well. However, with the studies that are available, it is clear that cash transfers have been proven to be the most effective.

Overall, however, health and education interventions are also incredibly relevant. If one were to choose between a cash transfers intervention and a health intervention, the clear answer from looking at the available evidence, is that cash transfers would be the most effective. From the one large and credible multi-country graduation program study, it is clear that they are very effective in increasing consumption and supporting education and health for households. With more evidence and practice, it is likely that graduation

345 Joseph Hanlon, Armando Barrientos, and David Hulme, Just Give Money to the Poor (Sterling, Virgina: Kumarian Press, 2010), 11.
programs would offer the biggest impacts. Currently, cash transfers and graduation programs offer the largest impact on income, consumption, and overall wellbeing.

**Importance of Impact Evaluations**

There is no one size fits all “development” and thus each community involved in external development aid relationships would reap the benefits of utilizing not just monitoring for a program but also evaluation, especially before the start of the program. The importance of including evaluations in the rollout of a program cannot be understated. Paul Gertler reminds us that, “Impact evaluations should be thought of as another component of a program’s operation and should be adequately staffed and budgeted with the required technical and financial resources.”

How do INGO developers know that their program will work otherwise? With varying social, cultural and economic values and concerns in any given community, one could imagine how different each community might respond to a particular program.

In general, Guatemala currently does not have an adequate amount of evidence-based research to resource from. Other LAC countries also did not have a comprehensive amount of the same. The external application between different countries was the basis for this paper and while it would be preferable to resource solely from Guatemalan studies, international and other LAC data had to suffice.

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Recommendations for INGO stakeholders/practitioners

Currently, impact evaluations are the international development community’s gold standard for evaluating programs. INGO managers and directors interested in learning to read evaluations would find the paper “Using Evidence in Policy Making: Impact Evaluation Workshop” by The Abdul Latif Jameel Poverty Action Lab (J-PAL) and Innovations for Poverty Action (IPA) helpful.347

The practice of questioning the effectiveness of a particular poverty intervention is beneficial on many levels. With thorough evaluation practices in place, an organization or government has the ability to save countless resources of time and money while ultimately showing respect for the recipient community assuring to the best of their knowledge that the program will be ethical, efficient and effective. One might also consider whether self-motivated and empowered methods are incorporated into a program in order for recipients to feel as though they are a part of their own solution? Cash transfers and holistic models such as graduation programs excel at putting purchasing power and self-empowerment back into the hands and lives of recipients. The combination of this self-empowerment with the strong evidence that already exists is a winning solution for poor rural communities in the Western highlands of Guatemala.

347 Visit https://goo.gl/UyHQ2F to access free PDF.
**Main Findings (consumption and well-being findings highlighted)**

- Child stunting reduced by 20% in treatment “atole supplement” villages.
- Exposure to atole until 3 years of age was associated with 45% increase in hourly wages for men (not women.)
- Major impact was a 6.8% increase in labor supply of adults between the ages of 18-55 with 8 years of exposure to the program as a child.
- Program involvement increased the probability of children being in school by 13-17% Involvement also increased the chances of a woman becoming employed by .12-.37% Number of hours worked for women increased by 75 hours a month.

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**Table 2. Health Impact Evaluations**

<table>
<thead>
<tr>
<th>Country</th>
<th>Author (year)</th>
<th>Evaluation Objective</th>
<th>Data</th>
<th>Evaluation Design</th>
<th>Main Findings (consumption and well-being findings highlighted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guatemala</td>
<td>Hoddinott et al (2008)</td>
<td>Investigates the short-term and long-term impacts of a nutrition program in Guatemala.</td>
<td>Sample consists of 2,392 children from 1969-1977 and later in 2002-2004, 1,424 of the same individuals later in life.</td>
<td>RCT</td>
<td>Child stunting reduced by 20% in treatment “atole supplement” villages. Exposure to atole until 3 years of age was associated with 45% increase in hourly wages for men (not women.)</td>
</tr>
<tr>
<td>Brazil</td>
<td>Roch and Soares (2009)</td>
<td>Examines the impact of community health intervention in urban and rural Brazilian communities by analyzing labor supply, school enrollment and child labor impact.</td>
<td>Sample consists of 118,269 children and 279,943 adults.</td>
<td>DiD</td>
<td>Major impact was a 6.8% increase in labor supply of adults between the ages of 18-55 with 8 years of exposure to the program as a child.</td>
</tr>
<tr>
<td>Colombia</td>
<td>Attanasio and Vera-Hernandez (2004)</td>
<td>Analyzed long-term impact of a community nursery and nutrition program on female labor supply and school attendance.</td>
<td>Sample consisted of 4,426 households and 4,147 children.</td>
<td>Instrumental Variable Technique</td>
<td>Program involvement increased the probability of children being in school by 13-17% Involvement also increased the chances of a woman becoming employed by .12-.37% Number of hours worked for women increased by 75 hours a month.</td>
</tr>
</tbody>
</table>
Main Findings (consumption and well-being findings highlighted)

Overall rate of return is 15% for each year of education. Investment in female education yields a higher rate of return than that for male. Every year of education decreases the chance of household being classified as poor by 5%.

Males earn 30% more than females. Indigenous earn 46% less than non-indigenous. Overall, 12% rate of return for educated indigenous.

Only Paraguay and Chile had significant impacts on earnings. Rerun to an education in farming is small. Essentially, no impact or very little impact.

<table>
<thead>
<tr>
<th>Table 3. Education Impact Evaluations</th>
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<tbody>
<tr>
<td>Country</td>
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<tr>
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<tr>
<td>Mexico</td>
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<tr>
<td>Guatemala</td>
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<tr>
<td>Chile, Colombia, El Salvador, Honduras, Paraguay and Peru</td>
</tr>
</tbody>
</table>
### Table 4. Microfinance Impact Evaluations

<table>
<thead>
<tr>
<th>Country</th>
<th>Author (year)</th>
<th>Evaluation Objective</th>
<th>Data</th>
<th>Evaluation Design</th>
<th>Main Findings (wealth and poverty outcomes highlighted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico</td>
<td>Manuela Angelucci, Dean Karlan, Jonathan Zinman (2015)</td>
<td>Examines the impact of Compartamos services on income, entrepreneurship, labor supply, consumption, and a range of detailed social outcomes.</td>
<td>Sample consists of 16,560 respondents within 238 geographic clusters in North-central Sonora Mexico with access to Compartamos Banco services.</td>
<td>RCT</td>
<td>No significant impacts on business or household income, labor income and transfers and remittances. Reliance on government aid decreased by 17%.</td>
</tr>
<tr>
<td>Mexico</td>
<td>Claudia Ruiz (2010)</td>
<td>Examines the effects of relaxing constraints on households’ savings and credit choices</td>
<td>Sample consists of 3,483 households in Banco Azteca municipalities and 2,156 households without access to Banco Azteca services. Total of 136 municipalities.</td>
<td>Natural experiment. DiD</td>
<td>Households were better able to smooth their consumption and accumulate more durable goods.</td>
</tr>
<tr>
<td>Mexico</td>
<td>Miriam Bruhn, Inessa Love (2009)</td>
<td>Examines effects of microfinance on low-income individuals on entrepreneurial activity, employment and income.</td>
<td>Final sample includes 576 municipalities. 249 had access to Banco Azteca and 327 did not.</td>
<td>Natural experiment. DiD</td>
<td>Average income increased by about 7%. Total employment increased by 1.4%.</td>
</tr>
<tr>
<td>Bolivia</td>
<td>Paul Mosley (2001)</td>
<td>Examines the impact of microcredit on poverty using the following indicators: income, assets, and measures of vulnerability</td>
<td>Sample consists of 45 borrowers from Banco Sol. Within PRODEM, SARTAWI, and PROMUJER 15 to 40 borrowers were randomly chosen.</td>
<td>Quasi-Experimental. The control group was formed by accepted borrowers who had not taken a loan.</td>
<td>Positive impacts on income and asset levels. Poor households choose to invest in low risk and low return assets.</td>
</tr>
</tbody>
</table>
### Table 5. Gifts in Kind Impact Evaluations

<table>
<thead>
<tr>
<th>Country</th>
<th>Author (year)</th>
<th>Evaluation Objective</th>
<th>Data</th>
<th>Evaluation Design</th>
<th>Main Findings (wealth and poverty outcomes highlighted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico</td>
<td>Skoufias et al (2013)</td>
<td>Determines the effectiveness of cash transfers versus in-kind food basket on poverty alleviation in Southern Mexico for PAL program.</td>
<td>Sample consists of 5,851 households in 206 rural neighborhoods.</td>
<td>DiD</td>
<td>In-kind transfers led to 43.99 - 48.7 MX increase in household consumption. No sig impact of in kind transfers on non-food expenditures. In –kind transfers reduced poverty by 10.7% from the 68% baseline. Cash transfer has lower admin costs.</td>
</tr>
<tr>
<td>Mexico</td>
<td>Cunha (2014)</td>
<td>Determines whether or not cash transfers and in-kind transfers in PAL program causes local inflation.</td>
<td>Sample consists of 360 stores in 194 villages and 12,940 good village store observations.</td>
<td>RCT</td>
<td>In-kind transfers caused prices to fall by 3.9%. More remote villages experienced larger impacts at 61 MX delivered to the average consumer. Farming households profits increased by 144 MX.</td>
</tr>
<tr>
<td>Mexico</td>
<td>Leroy et al (2010)</td>
<td>Examines nutrient consumption for PAL recipients.</td>
<td>Sample size consists of 5,823 individuals.</td>
<td>DiD</td>
<td>PAL food baskets increased energy consumption from 2.9%</td>
</tr>
</tbody>
</table>
### Table 6. Graduation Program Impact Evaluations

<table>
<thead>
<tr>
<th>Countries</th>
<th>Author (year)</th>
<th>Evaluation Objective</th>
<th>Data</th>
<th>Evaluation Design</th>
<th>Main Findings (wealth and poverty outcomes highlighted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethiopia, Ghana, Honduras, India, Pakistan, and Peru.</td>
<td>Banjeree et al. (2015)</td>
<td>Measured impacts on: consumption, food security, productive household assets, financial inclusion, time use, income and revenues, physical health, mental health, political involvement, and women empowerment.</td>
<td>Sample consists of 10,495 participants.</td>
<td>RCT</td>
<td>Thirty-six months after the first productive asset transfer, 8 out of 10 of the indicators showed significant improvements. In Latin America, Peru showed significant gains for food expenditures, assets and livestock expenditures.</td>
</tr>
<tr>
<td>Main Findings (consumption and well-being findings highlighted)</td>
<td>Evaluation Design</td>
<td>Education Benefits</td>
<td>Education Conditions</td>
<td></td>
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<td>-------------------------------------------------------------</td>
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<tr>
<td>16% increase in household consumption rates. (17% for indigenous households)</td>
<td>RDD (Baseline and follow-up survey)</td>
<td>150 Q (20 USD)</td>
<td>90% school attendance for children</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10% increase in prenatal visits.</td>
<td>PSM</td>
<td>70-255 pesos (MXN)</td>
<td>85% school attendance for children</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14% reduction in the occurrence of diarrhea, 13% reduction in acute respiratory diseases</td>
<td>RCT, DID</td>
<td>14,000 COP (6 USD)</td>
<td>80% school attendance for children</td>
<td></td>
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<tr>
<td>12% reduction in fevers, skin rashes and infection.</td>
<td>Quasi-experimental survey</td>
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<tr>
<td>Girls school enrollment rates increased by 14.8%</td>
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<tr>
<td>Boys enrollment rates increased by 6.5%</td>
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<tr>
<td>Total household consumption increased by 19.5%</td>
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</tbody>
</table>
### Table 7 Conditional Cash Transfer Impact Evaluations

<table>
<thead>
<tr>
<th>Country</th>
<th>Author (year)</th>
<th>Evaluation Objective</th>
<th>Health Conditions</th>
<th>Health Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guatemala</td>
<td>Juan Pablo Gutierrez (2011)</td>
<td>Examine the impact of cash transfers from MIFAPRO on health, school attendance, and household consumption levels.</td>
<td>Children and pregnant women attendance of regular checkups and meet healthy growth requirements.</td>
<td>150 Q (20 USD) per household</td>
</tr>
<tr>
<td>Mexico</td>
<td>Paul Schultz (2004)</td>
<td>Examine s impact of cash transfers from Progresa/ Oportunidades on rates of school enrollment.</td>
<td>No health segment of the study</td>
<td>No health segment of the study</td>
</tr>
<tr>
<td>Colombia</td>
<td>Orazio Attanasio and Alice Mesnard (2006)</td>
<td>Examine the impact of cash transfers from Familias en Accion (FeA) food consumption, and more.</td>
<td>Children attend regular health checkups to monitor growth and development</td>
<td>46,500 COP (20USD) per household</td>
</tr>
</tbody>
</table>
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