



EARLY CHILDHOOD DEVELOPMENT FOR EVERYONE

SCALING-UP HOME VISITING INTERVENTIONS IN PERU

Second Year Policy Analysis

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CLIENT PROFILE

Out hypothetical client would be the National Program Cuna Más as it is the institution that is legally accountable for the Home Visiting Program and who has discretion on the execution of the public budget of this program. Nonetheless, since the program fall under jurisdiction of the Ministry of Development and Social Inclusion, it is important to understand that the whole ministry would also be partner client. Additionally, this paper should also be shared with the Ministry of Education, Ministry of Health and Ministry of Economics and Finance, as policy proposals would also need to account for their participation.

TABLA DE CONTENIDO

EXECUTIVE SUMMARY	1
INTRODUCTION.....	2
<i>Why Scaling-Up?</i>	<i>3</i>
THE HOME VISITING PROGRAM FROM “CUNA MÁS”	4
<i>Delivery Mechanism</i>	<i>6</i>
DIAGNOSTICS OF THE HOME VISITING PROGRAM.....	7
<i>Cost and Coverage</i>	<i>7</i>
<i>Effectiveness</i>	<i>8</i>
<i>Delivery</i>	<i>9</i>
EVALUATING POLICY PROPOSAL RECOMMENDATIONS	12
<i>Mapping political support and implementation capacity</i>	<i>12</i>
<i>Policy Recommendations.....</i>	<i>14</i>
Policy Proposal 1: Enhancing Existing Home Visiting Program	15
<i>Policy Description</i>	<i>15</i>
<i>Political Support & Administrative Feasibility.....</i>	<i>16</i>
<i>Scalability</i>	<i>17</i>
Policy Proposal 2: Parenting Support & Education Group Sessions	18
<i>Technical Correctness</i>	<i>18</i>
<i>Policy Description.....</i>	<i>19</i>
<i>Political Support & Administrative Feasibility.....</i>	<i>21</i>
<i>Scalability</i>	<i>22</i>
Policy Proposal 3: Leveraging Technology for Scaling-up	22
<i>Technical Correctness</i>	<i>23</i>
<i>Mobile Usage Context.....</i>	<i>25</i>
<i>Policy Description.....</i>	<i>25</i>
<i>Political Support & Administrative Feasibility.....</i>	<i>31</i>
<i>Scalability</i>	<i>32</i>
CONCLUSIONS	33
REFERENCES	35
APPENDIX TABLES	41

EXECUTIVE SUMMARY

Since 1993, Peru has started implementing efforts to address and support the correct development of children. Thus, the Wawa Wasi (House of Children) served as a daycare intervention from 1993 – 2011, year after which it was enhanced and turned into the National Program Cuna Más.

Cuna Más provides low-income families with children under the age of 36 months old or a pregnant member with a home visiting intervention where visitors offer counseling, advises and information regarding good parenting and child development. As of now, Cuna Más serves approximately 100 thousand eligible families. However, there is still a big gap of families that are not receiving the program – 38% of eligible families and 92% of total families.

Moreover, even though the government has started scaling-up the program from its creation in 2012. Scaling has slowed down due to the increase of delivery costs per family which have increased in 16% between 2016 and January 2018. Thus, the program should start thinking in more cost-efficient ways to scale-up the program faster, as the current delivery implementation is yielding lower impacts than similar intervention from countries as Colombia and Mexico. Consequently this paper looks to analyze the effectiveness, implementation characteristic and costs of alternative manners to provide the same service at scale in order to close the access gaps as soon as possible.

Policy recommendations are divided in three categories: i) Enhancing the current Home Visiting Program, ii) Migrating to Parenting Group Sessions, and iii) Migrating to Technology-Based Interventions. From all the three alternatives proposals, two of them are the less costly. The first one would be scaling the current home visiting program without any modification. Yet, it is important to highlight that the current program has limitations that are hindering its effects. The second one would be migrating to all technology delivery. However, this may be cumbersome and would require higher networking efforts from the Ministry to get buy-in from key stakeholders (i.e. congress, prime minister office).

The structure of the paper will start with a description of the importance of early childhood in public policy, followed by the urgency of scaling-up. Next, a short summary of the Cuna Más Program will set context of the organization, delivery and effectiveness of the program. Finally, policy proposals are provided with information of its effectiveness, cost, implementation strategy, political support and scalability.

INTRODUCTION

Early Childhood Development (ECD) Policies have been of increasing interest for governments worldwide and more specifically in Latin America countries where since 2003 there has been a huge will into designing policies that account for the holistic approach ECD requires due to the multiple dimensions children develop. Nonetheless, firsts attempts in addressing some ECD dimensions have been done in the past.

In the year of 1993 the Peruvian government started to look at what other complementary services were needed to close poverty and opportunity gaps in the population. It is during this moment that the government opted for looking at the importance of child development interventions as “prevention” mechanisms that affect individuals later in several adulthood outcomes.

This is why in 1993 the government created a program called: Wawa Wasi – “House of Children” in Quechua – which serve as a type of day care program where the government would give children living in poverty and extreme poverty a space where they could develop all their skills, abilities and competencies by providing access to basic needs such as safety, learning, nutrition and health. Also, this program sought to engage families and communities as active actors for children’s development.

By 2011, the Wawa Wasi program covered approximately 60,000 children in around 319 districts in 24 regions of Peru¹. However, on the impact evaluations, for both quantitative and qualitative studies there has been no consensus on the actual impact on the final outcomes; and media showed information on staff discomfort, parental dissatisfaction and delivery deficiencies related to infrastructure conditions and other inputs².

This gap on the delivery of the service led – in March of 2012 – the then President of Peru, Ollanta Humala, to redesign the National Program Wawa-Wasi into the National Program Cuna Más (NPCM) that was assigned to the Ministry of Development and Social Inclusion³.

In this redesign the NPCM had as target population families at risk due to low-income and lack of other basic needs that had children between the ages of 0 to 36 months old. Additionally, the NPCM was divided into two sub-programs: i) the Home-Visiting Program (HVP), which targets rural population and that wants to change parenting behavior that enhances child development through a one-to-one coaching intervention once a week, and ii)

¹ Ministerio de la Mujer y Desarrollo Social (2011). *Programa Nacional Wawa Wasi. Impactos y Logros 2011*.

² La Dura Realidad de un Wawa Wasi in La Republica Newspaper. June 19, 2011. Available at: <http://larepublica.pe/sociedad/550000-la-dura-realidad-de-un-wawa-wasi>

³ Decreto Supremo N° 003-2012-MIDIS, available at: http://www.cunamas.gob.pe/images/nl_cunamas.pdf.

the Day Care Service (DCS), which targets urban population and that seeks to give a holistic service to children from 6 until 36 months old that helps the children develop their different skills and abilities through free-play⁴. Given that the NPCM has two different sub-interventions, we will focus only on the Home Visiting one across the Policy Paper.

The government of Peru has done a good job in building the path to programs that look for adequate ECD. Nonetheless, the government needs to continue this path and try to universalize the program so that all families independent on their socio-economic status could benefit. However, with the status quo of the intervention and its intensiveness on human resources as well as the current political situation, two questions rises. The first one is on whether the one-to-one coaching is the most cost-efficient way to scale-up this program. The second one would be how to gain political support so the program could actually be scaled-up.

For this we will evaluate the technical, political and administrative feasibility of three options: i) Home-visiting Program, ii) Group Parenting Sessions, and iii) Technology Based Interventions.

Why Scaling-Up?

Early Childhood stage of development it's the most important one as it is across these years where the more windows of opportunity in brain and basic competencies development occur⁵. Thus, children are very susceptible to their environment at all levels, which can have important positive or negative impacts on future outcomes.

Following this point, we should also consider that there is less costly for the government to invest in early childhood prevention interventions rather than treatment intervention. There are high benefit-cost rates related to ECD programs that range from an average of 3.3 when all costs are assumed by the government⁶ to 6.26 on some specific studies⁷. This serve as evidence showing that prevention interventions can lead to greater savings in future governmental budget, by reducing high-cost health care provision as well as participation on public social welfare systems. Also it can increase the investment returns of public services such as health and education, and incentivize the future economy by increasing gross domestic product (GDP) rates on 0.05% in a 15-year period to up to 0.45% after 45 years⁸.

⁴ Decreto Supremo N° 003-2012-MIDIS, available at: http://www.cunamas.gob.pe/images/nl_cunamas.pdf.

⁵ National Research Council and Institute of Medicine (2000).

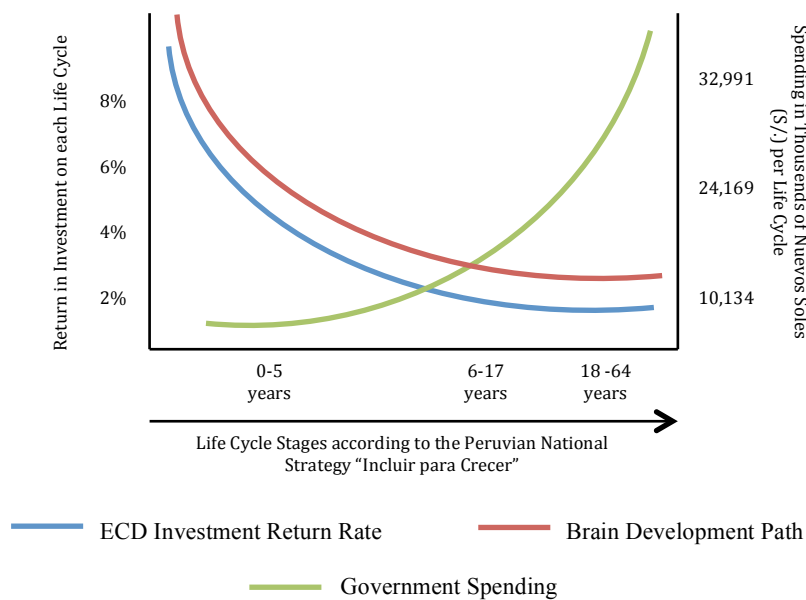
⁶ The Government Benefit-Cost rates would comprise all costs associated with the program but in the benefits would only contain benefits related with future savings on governments budget due to the ECD program.

⁷ Lynch (2004).

⁸ Lynch (2004).

Considering this evidence, Figure 1 depicts the fact that Peruvian government investment path flows contrary to the human development path and returns of monetary investment trend, meaning that government spending is more focused on the later years rather than in the early ones, suggesting that there is a government policy on investing on treatment programs in lieu of prevention programs.

Figure 1. Developmental Paths, Spending and Returns by Life Cycle.



Source: Graphic made by author. Spending figures obtained through the SIAF system of the Ministry of Economics and Finance of Peru. Investement percentages taken from Ronilck & Grunewald (2007); Carneiro & Heckman (2003); Heckman et al. (2009, 2010). Human Brain Development path taken from National Research Council and Institute of Medicine (2000).

Given the importance of this developmental stage and the current amount of families being served, which comes to 100, 665 families, this leaves a gap on the provision of the program by the government of approximately 38% of the eligible families and 92.12% of the total families independent of the socio-economic status. Thus, it is crucial that the government should consider increasing their coverage in a faster and cheaper way.

THE HOME VISITING PROGRAM FROM “CUNA MÁS”

The Home Visiting Program (HVP) targets families in rural areas within different districts in Peru, that have a pregnant family member or children below 36 months old and that are

categorize as living in poverty or extreme poverty by the National System of Household Targeting (NSHT)⁹. The main goal of the program is threefold:

- a) Develop knowledge, skills and parenting strategies related on how the child learns and how to take care of their child.
- b) Promote child-learning experiences in the everyday situations such as, when the child is playing and when it is interacting with family members.
- c) Strengthened the emotional bond between caregivers and the children.

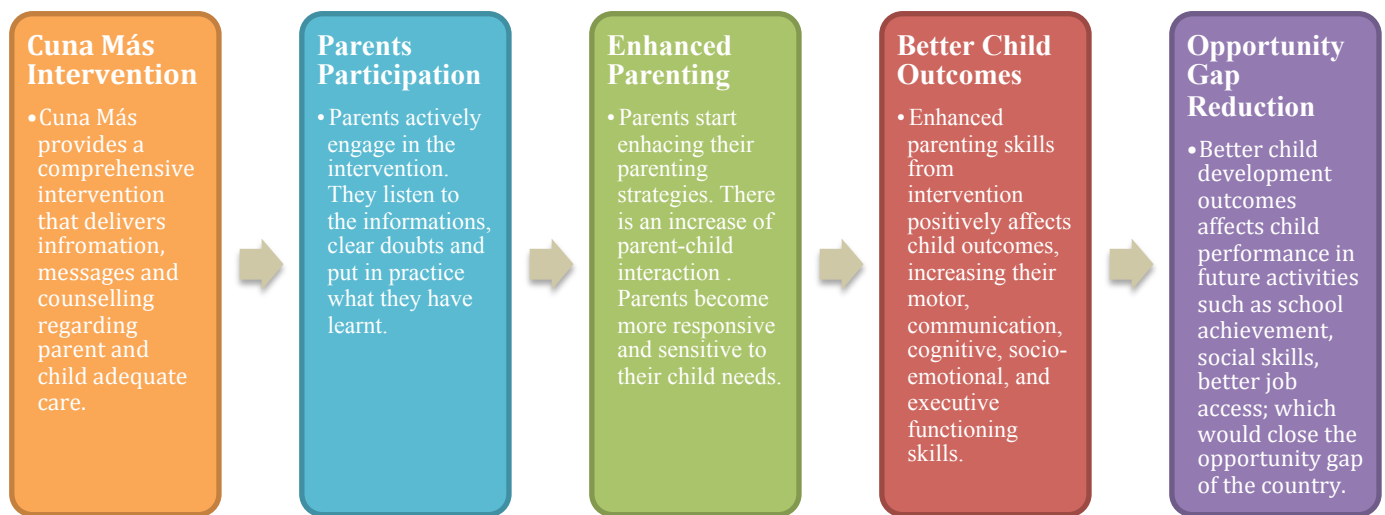
In order to achieve this, the HVP uses a co-management model with communities and therefore relies mainly in four main local actors: i) Technical Companions, ii) Management Committees, iii) Surveillance Councils, and iv) Visitors. All these actors interact for setting the base platform for the provision of the program.

Technical Companions are chosen by the national level office and provide the education, informative and monitoring workshops for Visitors, as well as some in site monitoring is possible. At the same time, the Visitors are chosen by the Management Committees from the community and according to the needs of the district. Additionally, both the Visitors and the Management Committee are supervised and monitored by the Surveillance Council of the district. Finally, the actor that directly interacts with families is the Visitor.

Thus, the theory of change is that through HVP families would be provided with adequate and promptly information and parenting strategies using a one to one weekly coaching system, which will lead to mother's changes in behavior and if these new strategies are put into practice, there would be an increase on health and learning outcomes of their children, which in the future would allow them to increase their life opportunities, reducing gaps in society. Due to this definition, it is important to highlight that success of the HVP will depend on how the visits are being done. This is why the delivery mechanism is a very essential part on the success of the program.

⁹ Sistema Nacional de Focalización de Hogares – SISFOH.

Figure 2. Home Visiting Program looks to close Opportunity Gaps by enhancing parenting and child outcomes.



Source: Graphic made by author

Delivery Mechanism

The HVP is delivered through home-visits and community socialization sessions.

A) Home Visits

Visitors have weekly-individualized sessions with the primary caregiver of the child – or the mother in case of pregnancy – of the eligible families. Each session lasts 60 minutes in case of physical presence of the child, or 30-45 minutes in case of pregnancy. The date and time of the weekly session is set in advance between the visitor and the caregiver in the previous session. The sessions are always carried out at the caregiver’s house. Requirement for becoming a visitor have been reduced to individuals over the age of 21 years old.

B) Session of Community Socialization

Technical Companions provide monthly group sessions for communities with closer geographical distance and once every three months for communities that are more disperse. Each of these sessions lasts 90 minutes and is carried out on community spaces. The date and time of each community session are determined between the families and the technical companion in the previous session.

Furthermore, even if the mission and vision of the program target low-income families since they have higher number of risk factors; it is important to highlight that risk factors that affect

development are not exclusive to families living in poverty but also from high-income in other aspects such as parenting, quality of time with children, anemia or other rearing myths which are deepened in the beliefs of families in Peru and that are not necessarily differentiated by areas (i.e. urban, rural) since according to UNICEF and the National Institute of Statistics and Informatics (NISI) there are whole regions – including rural and urban areas – that are in the lower quintile of child development index such as Huancavelica, Cajamarca, Cusco, Huánuco y Ayacucho¹⁰.

DIAGNOSTICS OF THE HOME VISITING PROGRAM

Cost and Coverage

As of January of 2018, the National Program Cuna Más (NPCM) and its Home Visiting Program (HVP) had an initial budget of S/.144'977,329.00 nuevos soles¹¹, which represents 37.2% of the total budget of NPCM without the need to spend in infrastructure as the Day Care Service does (DCS). Likewise, with this budget they were able to reach 100, 665 families in 877 out of the 1874 total districts of Peru – S/. 1,440.00 nuevos soles per family. However, in 2016, the reach of the program was to 85,221 families using a budget of S/. 105'458,562.00 nuevos soles which yielded a cost of S/. 1,237.47 nuevos soles per family. This meant an increase of approximately 16% of the service's delivery cost per family¹².

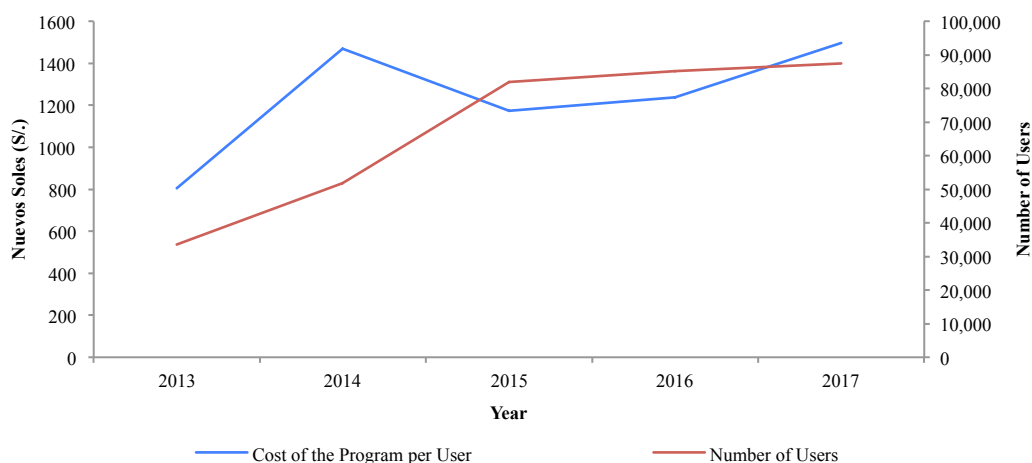
Given the actual situation of the HVP it seems that from 2016 to January 2018 there has been an increase of a bit more than 18% on the eligible families, by increasing the cost per family on 16% (see Figure 3). From this, the cost of providing the service is increasing faster than the increment of the number of user of the service. If this trend continuous this way then it would be unsustainable for the government to scale it up and meet the national demand that is of approximately 160, 076 families living in rural settings, without considering that there are almost 1.392 million families overall (i.e. urban, rural).

¹⁰ UNICEF & INEI (2008). *Situation of Children in Peru. Executive Summary*. Lima, Peru: Tarea Asociación Gráfica Educativa.

¹¹ The Exchange rate as of the 9th of March is of approximately S/. 3.2596 nuevos soles per dollar according to the Central Bank of Peru. Available at: <http://www.bcrp.gob.pe>

¹² Though there is no research on the reasons about the cost increase, it is very unlikely that it is related to geographic reasons due to the fact that the ratio visitor-family has remained at 10. Additionally, the program does not cover transportation fees for technical companions nor for visitors. It only covers transportation cost for administrative staff, which budget is 0.8% of the total budget. Thus, more information and research is needed to analyze reasons for the increase.

Figure 3. Cost of the program per family is increasing faster than eligible families.



Source: Graphic made by author. **Information obtained** through the SIAF system of the Ministry of Economics and Finance and the website of the Ministry of Development and Social Inclusion of Peru.

Effectiveness

The NPCM and its HVP was implemented using an RCT design in 2012, for which baseline data was collected in August 2013 and the follow-up round in December 2015.

Results of the impact evaluation of the program done in 2016¹³ showed that by using and intention-to-treat (ITT) mechanism, after two years of the program, there were modest impacts on child development outcomes such as problem solving, communication, gross and fine motor development and socio-emotional; with positive effects of around 0.064 to 0.079 standard deviations for children whose parents participated on the HVP. These effects fall below the average effect home-visiting programs have on child development outcomes found in the literature. For instance, home-visiting programs have approximately 287% greater effects on cognitive development and 145% greater effects on socio-emotional development¹⁴. Even if we compare it with the program from which it was inspired in Colombia¹⁵ the results show that there effects are lower for the Peruvian case for every significant dimension (see Figure 4).

Thus, current effectiveness of the NPCM-HVP raises a doubt on whether the program is being cost-effective, and on what are the main features that affect it. According to the literature, home-visiting programs are delicate in the sense that if the delivery protocol is not

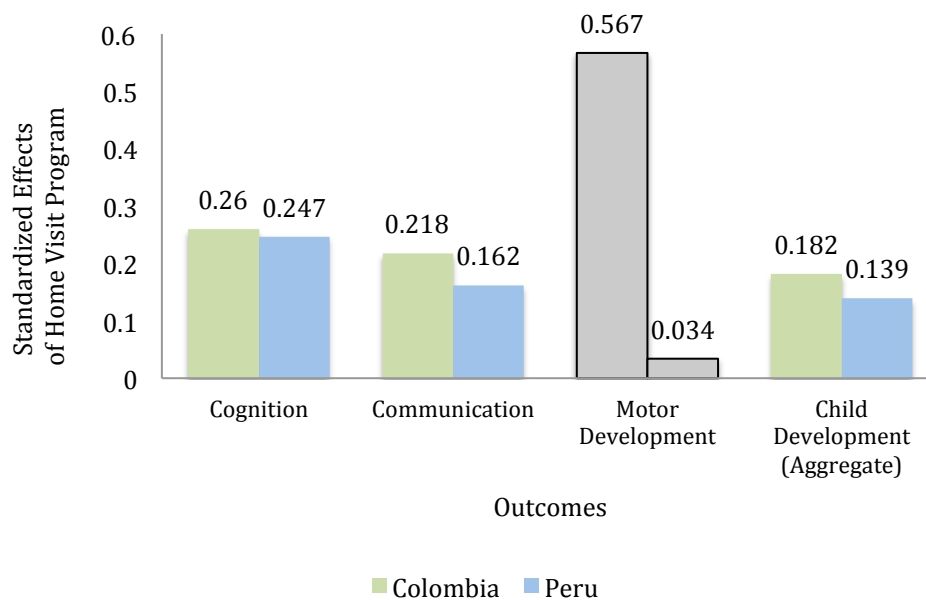
¹³ IDB & MEF (2016)

¹⁴ Shah, Kennedy, Clark, Bauer & Schwartz, A. (2016); Peacock, S., Konrad, S., Watson, E., Nickel, D. & Muhajarine, N. (2013); Sweet & Appelbaum (2004).

¹⁵ Attanasio, Fernández, Fitzsimons, Gratham-McGregor, Meghir & Rubio-Codina (2014).

implemented perfectly, this will hinder the effect of the program. For instance, characteristics of the visitors are important in determining the effects of the program, with professionals yielding to higher effects than nonprofessionals¹⁶. Other factors are related to information content transmission and design, as well as perceptions of the caregiver with respect to the visitor (e.g. age, gender, trust)¹⁷. Then, as stated before, how the program is being delivered is crucial to understand the success of the program.

Figure 4. Peruvian Effects of Home-Visiting Program are lower than Colombian Effects



Source: Graphic made by the author. Motor Development resulted on effects that are not significant.

Delivery

In 2016, the Ministry of Development and Social Inclusion carried out a diagnostic study on the performance of the delivery mechanism of the HVP. This diagnostic found that the HVP succeeds in adequately provide the information concerning hand washing and exclusive breastfeed for children under 6 months old. Also, it was found that families are very open and willing to host visitors meaning that the rejection rate is very low. Moreover, there is a great interest on early childhood concerns and families have disposition in receiving advices about this topic.

¹⁶ Sweet & Appelbaum (2004).

¹⁷ MIDIS (2016).

Nevertheless, given that there is a positive willingness from the demand to participate on the program; the low effects on the program should be explained by other factors that arise during the delivery of the program. Hence, the study also found several issues that hindered adequate provision of the program.

a) Exogenous Factors (Cultural and Environmental)

Geography and weather play an important role in the adequate provision of the program. The Ministry of Development and Social Inclusion (2016) research found that this problem is more salient in the tropical regions of the country where depending on the time of the year, visitors need to move through the river in order to reach their assigned families. This rises two issues: i) cost of boat transportation, which is higher than the usual car and that many times it is not in budget, and ii) lack of continuous supply of boat transportation, which makes it difficult for visitors to depart from the regional center to the communities as well as moving to another community if families are disperse.

Language is also a bottleneck factor in the provision of the service. Peru, being a multicultural country with multiple ethnicities and dialects, there is the need for visitors to speak and understand them in order to transmit the information correctly as well as helping caregivers with any doubt they may have. Even with visitors being elected within the community, there might still be the need of a translator as there might be many ethnic communities speaking different dialects within the same community. However, the program's budget does not account for a translator, but visitors should look for someone within the community who could help them with translation.

b) Demand Factors (Families)

Caregivers' perceptions on who is providing the information as well as how is the information being provided are important to adherence rates and effects of the program. Thus, since there are visitors that are not yet parents, caregivers hesitate to trust them since their belief is that they cannot provide good advice or information of practices that they themselves have not used.

c) Supply Factors (Providers)

Some visitors take their children to the visits, which not only causes significant inconveniences for caregivers but at the same time it is disruptive for the adequate provision of the service since the visitor tends to be divide its focus on the assigned caregiver and his/her child. This reflects low professionalism from the visitor reducing the adherence rate of the caregiver for that session.

Visitors also have difficulties to understand or remember certain concepts, more specifically those related to emotional bond, even after training. This may lead to the non-transmission of messages related to the topic or misinformation due to the different understandings of the topic from the provider.

Additionally, development of a stable trust relationship between visitor and caregiver is important to change caregivers' behavior and quality of the program delivery¹⁸. In the program, there is a whole month dedicated in building this relationship when a new family is assigned to a visitor. However, visitors turnover rate is high due to the high workload, difficult schedule and low-payment – which is S/. 360.00 per month, approximately a bit more than USD\$ 100.00.

Furthermore, the protocol of the home visits has specific sections where visitors need to provide families with certain kits – which includes toys, equipment for hand-washing – to demonstrate caregivers particular practices that they can replicate after visitation.. However, number of kits is limited and below the total number of participants in the program; and those that are assigned to participants deteriorate fast and there is no thought on replacing them. Since the objects of the kits are costly to families, if kits are deteriorate beyond usage; then caregivers would probably stop performing certain practices with their children, hindering the effects of the program.

Finally, community socialization sessions suffer also from barriers, mainly related to transportation costs both opportunity and monetary costs. This is true for caregivers and visitors. Even if the program covers all the setting up expenses, it does not cover the caregiver's or visitors transportation. Therefore, for more disperse communities, caregivers have a harder time to move into wherever the session would be held.

¹⁸ Schodt, Parr, Araujo & Rubio-Codina (2015).

Additionally to cost issues, sometimes families sometimes have chores that arise during the month, which prevents them to participate in the session even being able to cover their transport.

EVALUATING POLICY PROPOSAL RECOMMENDATIONS

This section would start providing information on how stakeholders are distributed regarding their interest and awareness of the importance of Early Childhood Development Policies – independent from the policy option being suggested. Finally, policy recommendations are provided and carefully explained.

Mapping political support and implementation capacity

To any policy design or redesign proposal it is important to embed what degree of capability and political willingness each stakeholders related to the policy has (see Appendix I for list of stakeholders). Following Bryson (2004) we can organize each stakeholder depending on how attractive is the Early Childhood topic in their agenda in order to count for their resources mobilization to innovate in policies, and what capacities each stakeholder has in order to actually implement the policies (Figure 5).

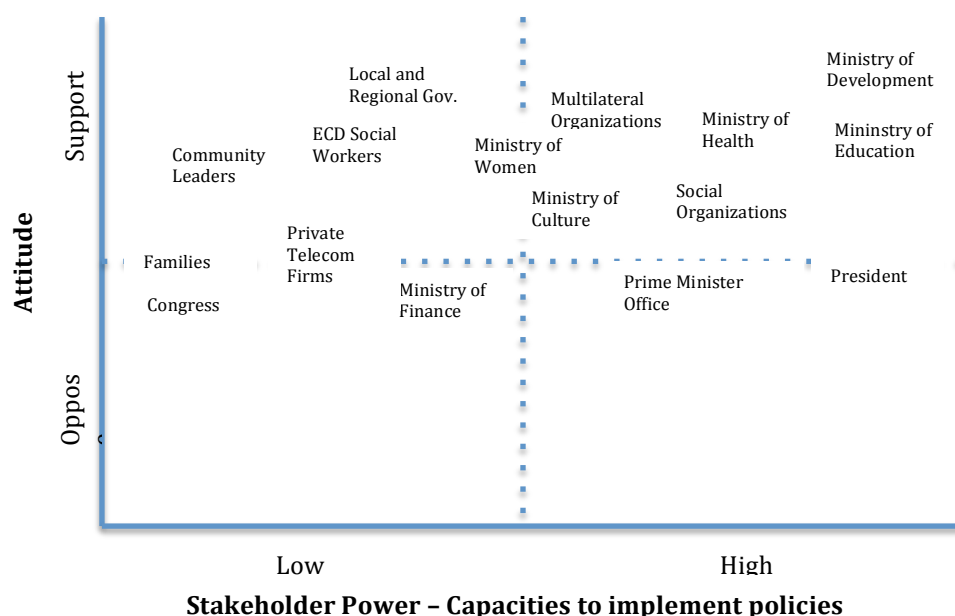
Figure 5 shows a clearly that there is little or no opposition attitude towards ECD policies. This might be because of two reasons. The first one is that, from the side of the government there exists a high priority bullet in the political agenda related to actions to decrease anemia prevalence¹⁹ in children under the age of 5 in the country. Even though anemia by itself does not represent all what ECD comprises, it helps to have the government interested in programs and interventions that help address this issue. The second reason is that with respect to citizens, especially the more vulnerable there exists a high interest in programs that help them not only with nutrition for at school children – as QALI WARMA does – or with economic ease – as JUNTOS does – but also with parenting and care for children in pre-school age.

Additionally, even if across administrative capability there exists a more uniform distribution of stakeholders, we need to highlight that stakeholders that have higher administrative capability are of three types: i) *High-end political authorities* (President and Prime Minister), which lead the political agenda and priorities for which the rest of the governmental institutions govern; though this actors do not have any power for actual implementing

¹⁹ Actual prevalence of anemia has been higher than 40% in the past 2 years making it a National Public Problem according to the WHO (¿?)

programs they set the framework and overall guidelines for the rest of the public institutions, ii) *National Executive branch* (Ministries), which by mandate have the power to design, implement and evaluate interventions, programs and policies as well as having budget spending discretionary within their area, and iii) *Multilaterals and Social Organizations*, which have lobbying power to include topics and programs in the political agenda due to funding resources.

Figure 5. There is need for actions that raise awareness of the importance of early childhood policies in Political Authorities.



Source: Graphic made by author.

On the side of low administrative capability there are also three types of stakeholders overall: i) *External actors* (Community, private sector, social workers), which are actors that are affected somehow by the programs or intervention and for which we need their completely buy-in in order to ensure program or intervention efficacy, ii) *Local and Regional Governments*, which theoretically should have enough capability to implement programs due to the fact that Peru is a decentralized country with local governments with discretionary power to invest their own budget; nonetheless, this power is hindered by low human capacity within their organizations and with a partial decentralization that still ties them with the National Government and its agenda; and iii) *Political and National authorities* (Congress and Ministry of Finance), which given their legal mandates are in no position to implement

any type of program or intervention, however, it is important to get their buy-in on any action that is being design as they may hinder the implementation politically or economically.

Policy Recommendations

The following policy recommendations are structure for policymakers to understand how each policy can be implemented, how it should be displayed, what factors – positive and negative – should be taken into account when considering them, what is the cost of scaling it and what the magnitude of effects that should be expected. Additionally, no policy recommendation would change the theory of change previously presented, as the only difference would be the delivery mechanism. Table 1 provides a summary of the policy recommendations.

Table 1. Scaling-up through HVP Status Quo and Technology-Based Interventions are the most efficient ways to scale-up.

Scaling Option	Literature Effectiveness	Estimated Cost per Scaling Magnitude		Execution Complexity	Political Support
		Eligible Families	Total Families		
Policy Proposal 1: Enhancing Existing Home Visiting Program					
Option A (Status Quo)	✓	\$	\$\$	✓	✓✓
Option B (I, II, III, V)	✓✓	\$\$	\$\$\$	✓	✓✓
Option B (I, II, III, V)	✓✓✓	\$\$	\$\$\$	✓	✓✓
Policy Proposal 2: Parenting Support & Education Group Sessions					
Option (Group Session)	✓✓	\$	\$\$	✓	✓✓
Policy Proposal 3: Leveraging Technology for Scaling-up					
Option A (Just Tech.)	✓✓	\$	\$\$	✓✓	✓
Option B (Tech & HVP)	✓✓✓	\$\$	\$\$	✓✓	✓

Source: Table made by author. All comparisons are with respect to Option A (Status Quo). ✓ Low, ✓✓ Medium, ✓✓✓ High. \$ Low cost, \$\$ Medium Cost, \$\$\$ High Cost. Execution Complexity is defined as how cumbersome would it be to migrate from Status Quo to the elected Proposal Option.

Policy Proposal 1: Enhancing Existing Home Visiting Program

Policy Description

A. Option A: Scaling-up without modifications of the current HVP

Scaling-up the HVP as it is without modifying implementation mechanisms, protocol or curricula design would mean mainly a case of increasing resources capacity in order to be able to reach all eligible families. Therefore, if there were a desire to cover the total number of eligible families that are not receiving the program, the total cost would increase approximately 40% of the current spending to up to S/. 204 million of nuevos soles. Moreover, if scale-up goal were to provide the program to all families independent of their socio-economic classification, total cost would increase 1125% of the current spending to up to S/. 1, 776 million of nuevos soles. However, this scaling-up strategy will still account for all implementation difficulties that the program is already experiencing. Thus, there is a risk that cost-effectiveness would still be below other programs average.

B. Option B: Scaling-up enhancing the current HVP

Considering the difficulties and issues explained in the diagnostics section, there are certain strategies that the national management of the HVP could follow in order to increase the quality of the program's delivery.

- *Strategy I:* Increase visitors' stipend in order to reduce turnover rates. This increment should be such that the new stipend meets the minimum wage – S/. 750.00 nuevos soles – or wages in similar sector where the professional requirements are the same like PRONEI²⁰ Assistants – S/. 500.00 nuevos soles.
- *Strategy II:* Set transportation budget for visitors and technical companions in order to reduce rate of missing visits and for caregivers to be able to participate in community socialization session. This monthly budget should be S/. 500.00 nuevos soles per visitor, S/. 250.00 nuevos soles per technical companions, and S/. 100.00 nuevos soles per family²¹.
- *Strategy III:* Increase training session for visitors, which would increase standardization of concepts, messages and information relates to content of the program. As of now,

²⁰ Programa No Escolarizado de Educación Inicial (Kindergarden Non-Educational Program).

²¹ Joseph, Guerrero & Coddington (2017).

there is a training cost of S/. 829.72 nuevos soles per local workforce (i.e. visitors, technical companions, management and surveillance committees).

- *Strategy IV*: Increase visitors' recruitment requirements to higher levels of education in order for better knowledge of the programs content, easier and faster training. However, this would mean that the wages should match the market. For instance, on average a technical professional on early childhood education or a nurse would earn s/. 1,055.00 nuevos soles and a college degree professional in the same majors would earn S/. 1,409.00 nuevos soles²².
- *Strategy V*: Increase kits budget in order to cover all eligible families and to renew those that have deteriorated. The actual budget for the kits is approximately S/. 10.64 nuevos soles.

Considering these options and strategies, combining strategies II, IV and V in option B would yield a more stable program with parents enjoying new kits every year, visitors being professionals – whether they are technical or college professionals – and both technical companion and visitors enjoying a premium for transportation costs. A second best would be combining strategies I, II, III and V in option B, with parents enjoying new kits every year, visitors staying as non-professionals but with a higher wage comparable to that of their market peers and both technical companion and visitors enjoying a premium for transportation costs, as well as longer and deeper training session. Finally, status-quo option A does not introduce any improvements on the current delivery system. Figure 6 provides an estimation of costs for each scale-up option as well as by whether the scaling-up would consider total number of eligible families (160, 076) or total eligible families in Peru independent of their socio-economic status (1,392,050).

Political Support & Administrative Feasibility

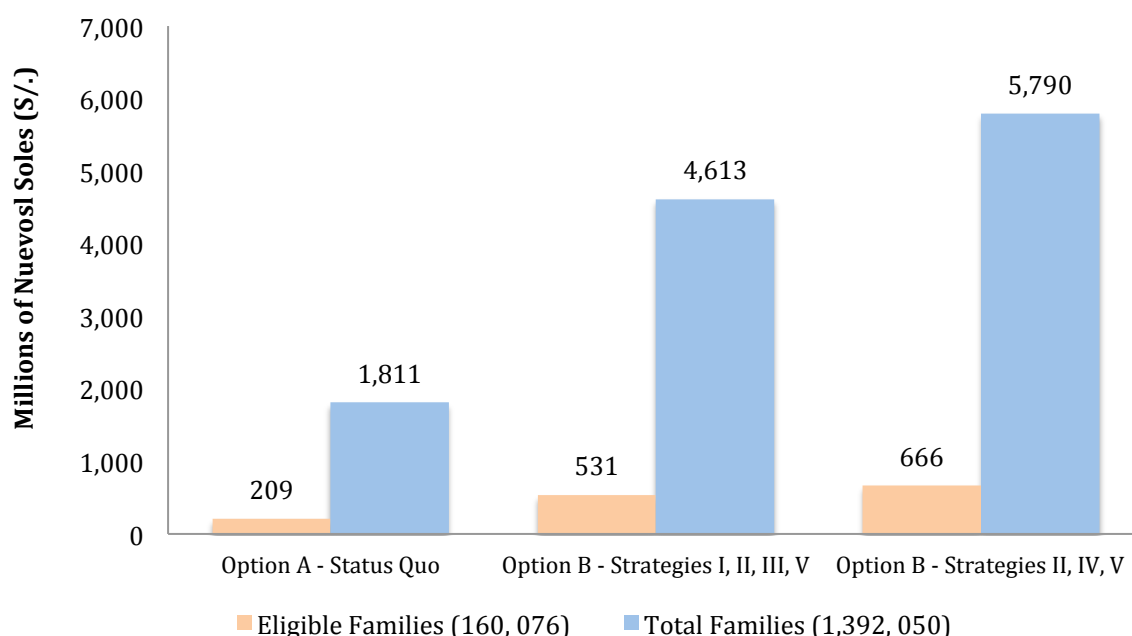
Policy Proposition 1 would have medium political support, mainly due to the great percentage of budget increase required to carry it out. The Ministry of Finance would be reluctant to increase budget for covering the total number of families as in both scenarios of Option B, budget requirement for scaling up the HVP matches the total current 2018 assigned budget for the Ministry of Development and Social Inclusion, which is S/. 4,474 millions of nuevos soles; and at the same time the country's mindset of early childhood policies is set on low-income families. On the other hand, scaling-up for eligible families would only require

²² Data from the Ministry of Labor and Employment Promotion, years 2010-2014.

doubling the current total NPCM budget, which is S/. 348 millions of nuevos soles. Though this amount is at least 12 times lower than the total cost for scaling-up the total number of families, is still large for the Ministry of Finance to cover it in the short-run.

However, there are key stakeholders that could help rising pressure to high-end authorities, but there is a need for the Ministry of Development and Social Inclusion to begin networking strategies and get their buy-in in the scaling-up project. Furthermore, if the Ministry would like to scale-up the HVP for the total instead of the eligible number of families, it should consider that many non-poor and urban households would be reluctant to host a governmental visitor in their homes to receive counseling on how to raise their children. Additionally, governmental services have a bad reputation on quality and delivery, reason for which many non-poor and urban households would prefer to enroll their children into a daycare center from early ages assuming that learning responsibility lies on them.

Figure 6. Scaling-up enhanced HVP costs between 250% to 320% more than scaling-up the Status-Quo



Source: Graphic made by author.

Scalability

Considering the budget needed to scale-up and the political support provided by partner public authorities. The process of the scalability of each of these options would require a time frame in which the Ministry of Development and Social Inclusion would need to gradually increase coverage. According to a document by Joseph, Guerrero and Coddington (2017), the

expected increase in HVP coverage by the Ministry would be of 20,000 families between 2018 and 2020, and then after an increase of 25,000 families per year. At this rate and considering and considering the population growth rate of 1.3%, it would take the Ministry around 8 years to cover all eligible households.

Policy Proposal 2: Parenting Support & Education Group Sessions

Home-visiting interventions to address parenting skills, information, child development and behavior change are effective if provided correctly as it allows to focus on the needs of each family, tailor the messages, information and practices to family socio-economic context. However, as seen previously, scaling-up home visiting programs can be expensive due to the intensity of human resources needed to deliver the service.

An alternative mechanism for which we can achieve the same goals and provide quality of parenting education and support is by providing Support & Education Group Session. This alternative would analogous to the current Community Socialization Sessions that the HVP already provided once a month.

Technical Correctness

Literature shows that group-parenting intervention have positive impact on parental behavior and child outcomes²³, and there are no differences in effects with respect to individualized intervention like home-visits²⁴. For instance, experiences found in Uganda, Mexico showed that there are positive effects of group interventions on aggregate child development scores, which range from 0.26 to 0.36 standard deviations²⁵. These effects are similar to those found in some home-visit interventions like the one in Colombia²⁶, suggesting that both types of intervention could yield similar results if implemented adequately. Nevertheless, group sessions have some difficulties that should be taken into consideration:

- a) *Transportation Costs*: Due to the nature of the group session, there is a need for participants to be gathered in a same place for the sessions. Therefore, geographic plays an important role in active parents participation. Peru's variable geography, more specifically in the mountain and tropical areas, may cause transportation

²³ Fernald, Kagawa, Knauer, Schnaas, García-Guerra & Neufel (2016), Fujiwara, Kato & Sanders (2011), Dumas, Arriaga, Moreland-Begle & Longoria (2011).

²⁴ Niec, Barnett, Prewett & Chatham (2016).

²⁵ Fernald, Kagawa, Knauer, Schnaas, García-Guerra & Neufel (2016); Singla, Kumbakumba, Aboud (2015).

²⁶ Attanasio, Fernández, Fitzsimons, Gratham-McGregor, Meghir & Rubio-Codina (2014).

difficulties for parents such as: long time travels and high transportation costs; which may conflict with parents scheduling and activities.

- b) *Content*: Due to the nature of the group session, participant parents may have different characteristics, children with different ages and may come from different cultural background. Even if parents are segmented in characteristic homogeneous groups, the content being delivered will address this specific group as a whole, leaving little space for tailored messages.

Policy Description

To leverage the existing design of socialization community sessions, this policy structure proposes to use the national and decentralized management of the HVP program.

Group session would be done weekly, preferably during the weekends and time should be set between the attending parents and the person in charge of setting up the session. Each session would last up to 120 minutes²⁷, which includes a break of 15 minutes after the first 50 minutes.

Given that parents have children of different ages, it is important to divide parents in groups according to their child developing age. Following Piaget's theory of development²⁸, parents should be divided in three categories: i) pregnant women, ii) parents with children between 0-24 months old, which children are in the sensorimotor stage of development, and ii) parents with children between 25-36 months old, which children are in the first year of the preoperational stage.

Implementation of the group session would be based on the capital of the district. The number of groups would depend on the number of caregivers allocated in each category. In case demand is too high, the maximum number of parents per group should be no more than 30 in order to achieve the best result. Parents should be assigned to their nearest gathering point which will be capital of the district. Additionally, the NPCM would need to pay for round trip transportation costs for caregivers in order to ensure assistance to the program.

With respect to resources needed for the intervention, most group interventions are provided by a technician or a college professional, for whom we would need to pay market wages – approximately S/. 1,232.00 nuevos soles – and parents should be given the kits needed to carry out what they have learned in their house.

²⁷ Wittkowski, Dowling & Smith (2016).

²⁸ Siegler, DeLoache & Eisenberg (2011). *How Children Develop*. New York: Worth Publishers.

Considering literature on intervention content to address parental education and child outcomes the session layout should consider the information in Table 2 (See Table 4 in the Technology section for relevant topics):

Table 2. Sessions are divided in two parts: an information one and an empirical one.

Session Part I		
Time	Activity	Description
10 minutes	Reception and Greetings	Session moderator would need greet all caregivers and have them sign the participation list.
25 minutes	Informational Session	Session moderator will provide information in a friendly matter about the topics chosen for the given week.
15 minutes	Questions and Answers	Parents would have time to ask question regarding the information provided by the moderator, as well as the possibility to interact between parents.
15 minutes	Break	
Session Part II		
20 minutes	Video Feedback examples on Child Interaction	Session moderator provides video examples of parent and child interaction regarding the topics explained earlier.
20 minutes	Comments on Video Feedback	Session moderator describes the most important practices in the video and links them to the information provided previously and encourage parents participation. Parent can intervene if they have any questions.
15 minutes	Session Feedback, Expectations and Closure	Parents comment on their experiences regarding the topics presented that week. This moment also provides parents to give their personal feedback on the current or pasts sessions implementation as well as their expectations for the next sessions.

Source: Table made by author.

When considering the cost structure of this intervention²⁹, the scale-up cost for both scenarios – when trying to scale-up to all eligible families and the total of families – is on average 209% higher than that of the Status-Quo for the corresponding scenarios.

Table 3: Scaling Group Session Intervention costs 209% higher than the Scaling the Status Quo

Cost Structure of Parenting Support & Education Group Sessions						
	Cost per Expense Type (s/.)	Payments per Year	Eligible Families: 160,076		Total Families: 1,392,050	
			Nmbr.	Total Cost (S/.)	Nmbr.	Total Cost (S/.)
Moderator and transportation cost	1,732.00	12.00	5,336	110,903,424.00	46,401	964,398,384.00
Tecnical Companions	3,062.00	12.00	1,883	69,188,952.00	16,377	601,756,488.00
Program Coordinator	3,662.00	12.00	17	747,048.00	17	747,048.00
Community Socialization Sessions	111.00	12.00	160,076	213,221,232.00	1,392,050	1,854,210,600.00
Training for Technical Teams and Local Actors	109.00	1.00	160,076	17,448,284.00	1,392,050	151,733,450.00
Curricula Development Inputs	144.00	1.00	160,076	23,050,944.00	1,392,050	200,455,200.00
Kits and Equipment Adquisition	11.00	1.00	160,076	1,760,836.00	1,392,050	15,312,550.00
Total Cost				436,320,720.00	3,788,613,720.00	

Source: Table made by author.

Political Support & Administrative Feasibility

Policy Proposal 2 would have medium low political support, mainly due to two facts. The first is that it means a great percentage of budget increase to carry it out. In this case, the Ministry of Finance won't be able to immediate disburse the S/. 436 millions nuevos soles to scale-up to the total eligible families, or the S/. 3, 788 millions nuevos soles for the total families. The second is the fact that this policy proposal would mean the total migration of the HVP to a Group Intervention Program. It is important to highlight that no administrative human resources from the NPCM would need to be reduced with exception from the local actors. Since all local positions are voluntary, in order to make the change of delivery mechanism we should wait until the beginning of the fiscal year. To cope with the reduction

²⁹ Cost structure is based on that of the Community Socialization Sessions from HVP.

of local actors from the provision of the program, the Ministry of Development and Social Inclusion could think on complementing the redesign of the HVP with a training program for most efficient HVP Visitors so that they can become Session Moderators in the group intervention. This could be done through a merit-based mechanism.

Finally, considering that this is a proposal with an extreme change on the delivery mechanism this should be talked with the congress and the Prime Minister's office, to get their buy-in. Nonetheless, given the lower costs, both monetary and logistical, there is a high probability that all high-authorities stakeholders would prefer scaling-up the Status-Quo; unless there are demonstrated higher impacts on parental and child outcomes from group interventions than from home visiting intervention to offset the higher cost of implementation.

Scalability

Given that there is a limitation from the Ministry of Finance on budget, scalability on eligible families would be the first approach. Additionally, considering that geography is a crucial factor as well as transportation access and costs; efforts for scaling-up could start with communities and localities that are more agglomerated and for which transportation is less time consuming or less costly.

Another way to do scale-it up and assuring compliance would be to deliver the program through the Conditional Cash Transfer JUNTOS as has been done in other settings like Mexico and Colombia³⁰.

Policy Proposal 3: Leveraging Technology for Scaling-up

Lately, the Mobile Health (mHealth) movement has been increasing in coverage as a mechanism to efficiently transmit messages that are thought to change behavior³¹. Developed countries like the United States, Australia, Germany, France, the United Kingdom and Canada have already developed systems, such as BabyCenter App, Text4Baby, Triple P Online Brief, which provide future parents or current parents with information and advices on maternal and child health and care as well as positive parenting. Additionally, in developing countries like India, South Africa, Bangladesh, Nigeria, Mali, Ghana and Thailand, are some of the countries that have started providing health and care information for pregnant and non-pregnant mothers through mobile phone devices, with programs like MomConnect, Aponjon, May May, ZMD. The main idea of mHealth products and services is to overcome costs –

³⁰ Fernald et al. (2017), Attanasio et al. (2014).

³¹ Fjeldsoe, Marshall & Miller (2009).

from the side of the supplier through budget allocation to the program and from the side of the demand opportunity and transportation costs – access and standards³².

However, one of the main problems with respect to mHealth is registering for the usage of any of the delivery mechanism and adherence to app or SMS messaging; experiences around the world – that are not experiments but real products that are currently serving a market – show that number of individuals registering for any maternal or child mHealth product varies from as little as 1.3 million during the first two years to 400 million across several countries after 7 years in the market; with a approximate drop-out rate of 4%.

Technical Correctness

Concerning the effectiveness of a technology delivery mechanism to change parental behaviors, practices and attitudes as well as child outcomes, there exists an acceptable amount of literature dedicated in finding these effects. Thus, it was found that by using technology that allows parents to access information from home, it is possible to have effects of 0.38 standard deviations on parental outcomes and 0.42 standard deviations on child behavior outcomes, which are still significant in the long-term³³. Furthermore, a mobile phone-based education in Ecuador was able to change caregiver's behavior with respect to exclusive breastfeeding and attendance to infants' post-natal check-ups³⁴.

It is clear for the literature that there are positive impacts of technology-based parenting intervention in child and parental outcomes, and market products and services worldwide provides evidence that there is a demand for such products, meaning that there are potential user that are not only willing to use the product/service but in some cases even pay for them. Additionally, technology-based interventions can overcome certain barriers that home visiting programs and group intervention have³⁵.

- i. *Accessibility*: Technology-based interventions provide easy access to information from anywhere the parent is located, eliminating transportation costs. Also, it is accessible anytime at parents' discretion, eliminating parental opportunity costs and work schedule conflicts.
- ii. *Availability*: Technology-based interventions are less costly than that using home visiting or group interventions. Therefore, it is not restricted to the availability

³² Russell, Maksut, Lincoln & Leland (2016), GSMA & McKinsey&Company (2010)

³³ Burke Lefever et al. (2017), Baker, Sanders, Turner & Morawska (2017), Nieuwboer, Fukkink & Hermanns (2013).

³⁴ Maslowsky, Frost, Hendrick, Trujillo-Cruz & Merajver (2016).

³⁵ Prinz & Sanders (2007), Klasnja & Pratt (2012), McGoron & Ondersma (2015),

number of visitors, moderators or high governmental budget for the provision, but it can easily be scaled for anyone to use.

- iii. *Standardization of Information*: Technology-based interventions allow standardizing messages, content and information being provided across individuals. This will ensure that the exact same information is delivered to all parents, eliminating interpretation biases from providers.
- iv. *Multiculturalism*: Technology-based as home-based interventions have the ability to tailor de content and messages to parental specific context, needs, interests and languages or dialects; yielding to higher engagement and satisfaction rates towards the program.

Nevertheless, as the previous policies proposal there are certain factors that limit or could hinder the scope of intervention.

- i. *Connectivity*: Technology-based interventions required good data or network connectivity in order to be delivered adequately. Bad mobile connectivity could lead to not being able to receive SMS, not being able to stream videos, download articles or see images; which in the long run, if issues persist, could lead to intervention dropout.
- ii. *Mobile Turnover*: Adherence to technology-based interventions do not only depend on connectivity, moreover it depends on whether individuals have low device rotation. For instance, SMS and IVR through calls adherence will depend on whether an individual retains the same number since enrollment, whereas Apps adherence will depend on whether an individual retains the same mobile device.
- iii. *Interactivity*: Engagement to technology-based interventions also depend on how interactive is the program with the user. Programs that lack of interactive and expect for a passive user; would in the long-run loose interest or find themselves with questions that won't be able to solve doubts – if any – due to the absence of a reference individual.
- iv. *High-risk Children or with Special Needs*: Technology-based interventions though can be tailored to the needs of the family, it is important to highlight that the intervention scope is limited to non-special cases. This means that if a family has a child with special needs (e.g. autism, cerebral palsy) or living in a high-risk environment (e.g. maltreatment, neglect, domestic violence); it is difficult for the

intervention to address this issues without a specialist. Therefore, the program should make a referral to corresponding specialist or institution.

Finally, there exists literature that merges home visiting or group session with technology-based interventions. Implementation of technology-based interventions is focused in increasing parent engagement, and reducing dropout rates from the main interventions (i.e. home visit, group session)³⁶.

Mobile Usage Context³⁷

Currently in Peru there are 4 carriers that provide communications network through phone line and Internet data access: i) Claro, ii) Movistar, iii) Entel, and iv) Viettel. Moreover, Peru has full mobile coverage if we aggregate all areas covered by each these carriers have coverage. Additionally, mobile Internet data access coverage for cellphones is around 58%.

With respect to mobile device market; Peru is still one of the lowest counties with mobile phone ownership in Latin America. However, in 2016, the percentage of people that own a cellphone exceed the current population by 17% - which would mean that individuals could have more than one mobile phone – but 18% have declared not to have a cellphone. From the total number of devices, around 36% are smartphones with an average growth rate of 3% per year and for which 94% use Android or iOS operative system. If we disaggregate data by Peru's different geographical zone, both the North and Orient of Peru have the highest rate of people without a mobile device – between 23% and 37%. Also, all zones but the Orient have rates of smartphone ownership higher than 29%.

Smartphone usage is mainly limited to receiving and producing call (97%), SMS texting (83%), browsing Internet (74%) and communicating through social media (71%).

This first glance data provides evidence that Peru has a mobile context that allows for technology-based interventions to innovated and carried out.

Policy Description

A. Option A: Using only technology-based intervention

This option would leverage only the use of and interactive technology-based interventions in order to scale-up the program. Thus, this proposal would consider the different needs and

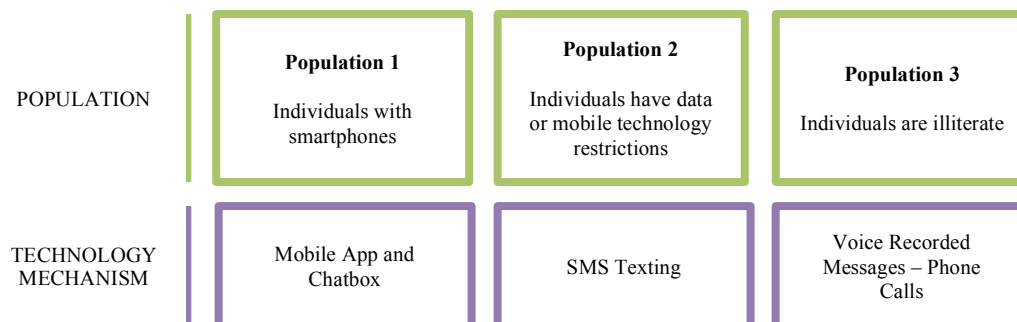
³⁶ Carta, Lefever, Bigelow & Borkowski, (2013)

³⁷ Mobile telecommunication information from Peru was collected from the National Telecommunication Regulator (OSIPTEL), and literature from studies by market research firm GfK; and Franco (2016) from eMarketer.

characteristics of the population across the country with respect to mobile access and usage (see Figure 7).

- a) *Population 1*: Individuals who own a smartphone, do not have Internet data restrictions and are literate. The best technology-based program for this population would be using a Mobile App, an Interactive Chatbox or both in order to provide messages, reminders, information, videos and images.
- b) *Population 2*: Individuals with analog cellphones, or with smartphones but that have Internet data restrictions, would have a difficult time accessing a Mobile App or an Interactive Chatbox; and even if they do, probably there would be frustration on waiting for videos, images or information to download. Also there might be opportunity costs of data usage. Therefore, the most suitable program for this population would be SMS.
- c) *Population 3*: Individuals who are illiterate: Since these individuals would not be able to read texts, and with a great percentage of who do not own a smartphone; the technology-based program that best suits them would be using Interactive Voice Response (IVR) and phone calls for information and reminders³⁸.

Figure 7. Three different technology mechanisms for three different population’s needs.



Source: Graphic made by author

Each of these mobile technologies should need to consider cultural specific characteristics mainly related to language. For this, the National Program Cuna Más should consider the Ministry of Culture as a key actor for culturally contextualizes the messages that will be provided. Also, each technology would count with 6 modules depending on the developmental stage of the child and the situation of the mother, and that will allow for

³⁸ PATH (2014).

parents to interact with it (e.g. respond texts, a free toll number, send questions). Table 4 provides an overlook of these different modules and in what stage the specific information should be provided, following the guidelines from the World Health Organization (WHO), the Peruvian Ministry of Health and other organizations such as Baby Center, the Incredible Years, Zero to Three.

Additional to the content, each technology mechanism would need to consider certain services to increase the likelihood of adherence and behavior change; and certain mechanisms features.

a) IVR – Phone Call

This mechanism should account for daily reminder calls on key activities parents need to perform at specific times during the day. Additionally, short calls (1-2 minutes maximum) should be made to users four times a week in order to transmit information from that week's topic. Finally, this mechanism should be interactive and should account for a free toll number where parents could get answers to their doubts.

b) SMS

This mechanism should account for daily reminder texts on key activities parents need to perform at specific times during the day. Additionally, parents would be able to receive approximately 20 messages per day – of to a maximum of 160 characters – with key messages on that week's topic. SMS's could also account for images and audio messages. Finally, this mechanism should be interactive and should account for a number of free questions and answers messages in order for parents to reply to the texts if needed or to clear their doubts.

c) Mobile App – Chatbox

This mechanism should account for a calendar that allows the App to provide with reminders on practices agreed by the user, as well as informational articles, messages, images, videos, audio recordings and resources that parent could use to practice what they learn with their children at home. Additionally, the App should allow downloading any information parents find important in order to access them later without having to be connected to Internet. Moreover, the Apps may account for a small sign-up page where users insert basic information of themselves and their children so that information can be tailored to their needs. Finally, this mechanism

Table 4. Each technology intervention would consist on 6 modules depending on child age development or mother situation.

AGE	MODULE	TOPICS
First Trimester Pregnancy	MODULE 1A	i) Attend to 1 check-up visit with health provider; ii) request general obstetrical examinations; iii) screening for anemia, STDs (syphilis & HIV), proteinuria; iv) supplementation with iron and folate, v) adequate self-care (nutrition, rest, sleep, alcohol and tobacco use), vi) birth and emergency plan.
Second Trimester Pregnancy	MODULE 1B	i) Attend to 2 check-up visit with health provider; ii) screen for anemia; iii) examine fetal growth, movement and multiple pregnancy; iv) supplementation with iron and folate, v) birth and emergency plan; vi) infant feeding; vii) postnatal care; viii) reinforcement of adequate self-care (nutrition, rest, sleep, alcohol and tobacco use).
Third Trimester Pregnancy	MODULE 1C	i) Attend to 1 check-up visit with health provider; ii) screen for anemia; iii) examine fetal growth, movement, multiple pregnancy and malpresentation; iv) supplementation with iron and folate, v) birth and emergency plan; vi) infant feeding; vii) postnatal care; viii) birth and emergency plan; ix) reinforcement of adequate self-care (nutrition, rest, sleep, alcohol and tobacco use); x) parental sensitivity and responsiveness.
Child's Age 0 – 12 months	MODULE 2	i) Attend the 15 child visits to health provider; ii) screen for developmental irregularities (e.g. weight, growth); iii) referral institutions per expertise, iv) vaccination and child care (e.g. bathing, corde care, supplementation); v) exclusive breastfeeding up to 6 months old; vi) complementary nurturing after 6 months; vii) understanding cues and signals, viii) providing child-parent interaction (responsiveness, stimulation), ix) encourage communication strategies (e.g. songs, talking), x) strategies to cope with baby's behavior and temperament.
Child's Age 13 – 24 months	MODULE 3	i) Attend the 6 child visits to health provider; ii) screen for developmental irregularities (e.g. weight, growth); iii) referral institutions per expertise, iv) vaccination and child care (e.g. bathing); v) nutrition; vi) parental sensitivity and responsiveness, vii) child-parent interaction through child directed play, viii) promoting language with child-directed coaching, ix) socio-emotional coaching, x) praising and encouraging your child.
Child's Age 25 – 36 months	MODULE 4	i) Attend the 4 child visits to health provider; ii) screen for developmental irregularities (e.g. weight, growth); iii) referral institutions per expertise, iv) nutrition; v) parental sensitivity and responsiveness, vi) child-parent interaction through child directed play, vii) promoting language with child-directed coaching, viii) socio-emotional coaching, ix) praising and encouraging your child, x) handling separations and reunions, xi) adequating disciplinary methods for limit setting and misbehavior handling.

Source: Table made by author. Topics were extracted from World Health Organization (2017, 2016), Ministerio de Salud (2017), The Incredible Years Program, Baby Center and Zero to Three.

should developed a Chatbox, an interactive program that allows parents to interact with it to ask questions, share beliefs or doubts and get answers in real time.

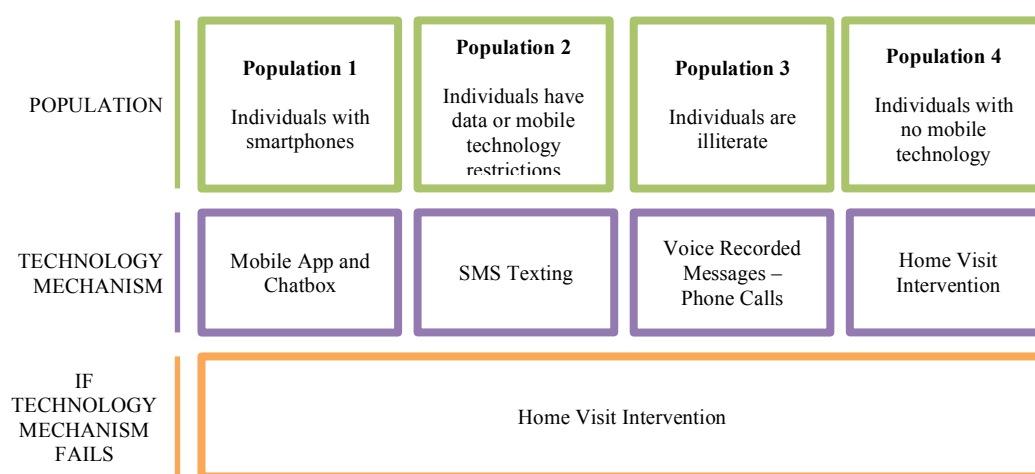
B. Option B: Complementary Interventions: Technology & Home Visit

Contrary to Option A, this proposal does not look for substituting the actual format of the Home Visiting Program by the National Program Cuna Más³⁹, but it looks for increasing the coverage of people receiving messages provided by the program with a different, less costly mechanism, which uses mobile technology; leaving HVP mechanism for special cases where access of technology is difficult, its adherence is low, or if the scope is limited due to the family needs (e.g. maltreatment, neglect, autism).

Unlike Option A, this proposal program would consider a contingency plan if technology fails to engage parents or if it limited by specific family context (i.e. high-risk children or children with disabilities), and an additional population (see Figure XX).

- d) *Population 4*: Individuals with no mobile device won't be able to receive the intervention from any of the mechanism in Option A. Therefore, for this population HVP should be de default intervention.

Figure 8. Four different technology mechanisms for four different population's needs.



Source: Generated by author

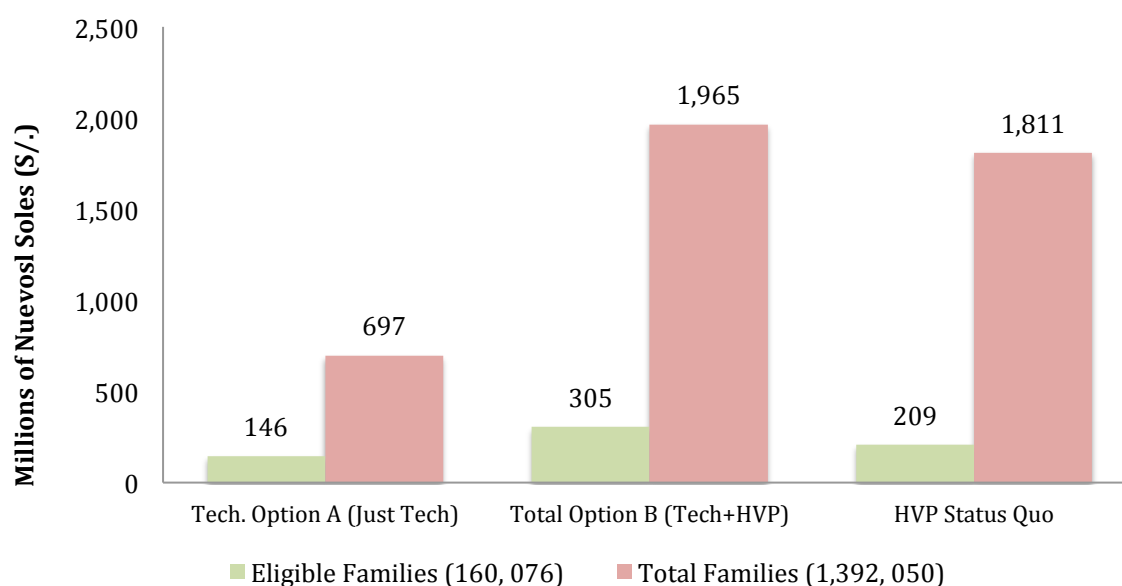
³⁹ Notice that the only change in eligibility rules is the fact that families with children under the age of 36 months should no longer need to be categorized as “poor” or “extremely poor”.

Contingency plan would require for parents to be provided with the HVP if technology is not working for them or is having difficulties to provide adequate information due to specific contexts.

Content of technology-based intervention modules and HVP would replicate that from Option A and Status Quo, correspondingly.

Finally, Figure 9 compares cost estimates of both options with respect to the scaling-up option of the Status Quo obtained in proposal 1. Then, when considering scaling-up through only using the technology-based program – that is with no complementary HVP – costs to cover all eligible families decrease by 30% with respect to costs if scaling-up through the Status Quo mechanism, and for the total amount of families independent of their socio-economic status by 62%. However, if we think about scaling-up using a technology-home visit-based program, costs to all eligible families increase 45% - approximately and additional S/. 104 millions nuevos soles, which would mean to almost double the programs budget – and costs to all families independent of their socio-economic status would increase by only 9%⁴⁰.

Figure 9. Just scaling-up with using technology-based interventions is 30% cheaper than scaling through the HVP Status Quo.



Source: Graphic made by author

⁴⁰ Cost structure and estimations relied on the cost structure of the HVP Cun Más and the PATH (2014) Messaging Cost Tool. Estimation for Mobile Technology costs were base on research of similar programs developed in foreign countries and then contextualized to the Peruvian context considering the wage scale from the Ministry of Development and Social Inclusion. Additionally, mobile strategy segmentation of the population was estimated using data from the National Institute of Statistics for illiteracy rates for urban and rural areas – 3.3% and 15.9% correspondingly – from literature for user’s average dropout rates (50% on average), usage of smartphones, analog cellphones; and from the Telecommunication Regulator Organization (OSIPTEL) for connectivity quality.

Political Support & Administrative Feasibility

As stated before, high political support would be difficult and given the current situation of the government, there would be little space for “mistakes” without resulting in political crisis (e.g. impeachment of a minister, the prime minister or the president). This means that the national government – including all its institutions – would be reluctant in investing time and resources in a redesigning a program or an intervention on the magnitude we are proposing. Nonetheless, it is important to highlight that there is an important topic that is related to early childhood interventions, which is at the top of the political agenda and for which the Ministry of Development and Social Inclusion is investing resources and “lending” the Cuna Más structure to address it. This topic is the high prevalence of anemia in children under the age of 5 years old. Not only, this is an important outcome of early childhood but it should be seen as an opportunity by including a rationale on how a multidimensional intervention such as Cuna Más could and should incorporate messages related to anemia, what are its effects on child outcomes and how to fight it from the beginning by using the different services and treatment provided freely by the Ministry of Health – information which a small percentage of the population has. The evidence on how technology intervention have helped changing parental practices and behaviors that lead on the reduction of stunting prevalence and effects on other related child health outcomes can serve as innovative mechanism to achieve the “Anemia Zero”, which can allow the stakeholder’s buy-in on any program or intervention that tries to actively help reduce anemia prevalence.

Enrollment to the program would ideally be voluntary for high and middle-income families but a national marketing campaign should be encouraged in order to reach families in these sectors. For low-income families, local and regional governments should include in their efforts the task of signing-up families in the program considering what delivery mechanism fits them the best mixed with which one would they prefer. Local and regional government should not think on investing a great amount of budget to sign-up families, but should leverage the institutions and datasets already established in order to be more efficient⁴¹

Finally, it is important to consider when designing each of the technologies their corresponding monitoring and evaluation system that should accounts for indicators (e. g.

⁴¹ For instance, local governments have access to the Health Census of their district where there is nominal information of all children under the age of 5 as well as parental nominal information. This information can include: address, name of the school the child goes to, name of the health care provider, what social programs they are enrolled in and age. Local governments with this information should be able to not only locate mother that are eligible for the program but can also allow to diversify efforts of sign-ups if health care providers, school teachers, and social programs help the process in their continuous meetings with parents.

number of calls answered, minutes before hanging up, completion of modules, time taken to complete a module, SMS opened, responded, number of questions asked) that could inform the policymakers which families are actively using the technology, which families are having difficulties and which families need to be redirected to the Home Visiting intervention.

Scalability

Budget to scale this intervention for all eligible families is lower than the amount needed to scale-up the Status Quo and just S/. 2 millones nuevos soles more expensive than the current budget for 68% of eligible families. This means that scaling through technology in the short run would be very feasible.

On the other hand, since this is a proposal that is based in technology, it is important to pursue several pilot studies before going national. The government should understand that this would take time and an iterative process of design, trial, evaluation and redesign. First, we should consider a pilot to try the interface of the technology and whether it is working correctly. This should be done with a small group of individual in each of the 4 previous scenarios. Also, a pilot to try out the messages being delivered in all languages in order to find out whether the information is being transmitted as expected and there are no misunderstandings that could lead to undesirable changes in behavior or practices. Finally, the government should carry out a small national pilot where two districts per region would participate in order to try out the monitoring and evaluation system (M&E) as well as having a first approach on intervention take-up. Also, the M&E should account for a daily indicator that measures whether a user has stopped using the service due to change of phone number.

Logistically, after the pilot phase, it is important to consider that scale-up of the program would be slow and should consider local and regional government efforts and responsibility as well as the decentralized regional health and education offices.

The process of scale-up could start massively in urban areas where middle and high-income families live due to the easier access of technology and carefully and slower into rural/urban areas where low-income families live, as technology could yield to difficulties, whether it is because of the interface, software or data access as well as understanding of usage.

CONCLUSIONS

Scaling-up Home Visiting Program in Peru is costly. The Ministry of Finance should allocate at least a total of S/. 500 million to S/. 600 million of nuevos soles to adequately scale any proposal for 160, 076 eligible families; and between S/. 1,800 – S/. 2,000 million of nuevos soles. The only proposal options that are within the budget range of feasibility are Scaling-Up the Status Quo or the Technology Based intervention by itself, both having a budget of less than S/. 210 million nuevos soles, budget that is 45% from the current one.

Careful consideration should be made in order to scale-up both proposal interventions as well as the trade-offs each intervention would bring.

a) Scaling Home Visiting Interventions

- Intervention impact could still be low and under the average expected impact from their peer programs in Colombia and Mexico.
- High turnover rates from Visitors hinder effectiveness through lack of adequate bond building between provider and caregiver.
- There is the need for extra training for Visitors in order to standardize quality message delivery.
- Community socialization sessions are not being pursued because of transportation and opportunity costs from both providers and families.

b) Scaling Technology-Based Interventions

- Technology-based intervention have proven to have high impacts in changing parenting behaviors and child outcomes.
- Technology-based intervention help in overcoming barriers from home-visiting programs such as: transportation and opportunity costs, availability of adequate providers, quality and cultural differences.
- Some intervention barriers are quality of network connectivity, lack of tailoring intervention for families with special needs, and mobile turnover.
- The intervention should be interactive in order to increase engagement, satisfaction and reduce dropout rates.
- The intervention would divide population in 3 groups with 3 different technology mechanisms: i) illiterate – IVR/phone call, ii) phone users with connectivity or

technology difficulties – SMS, iii) smartphone users with Internet data access – Mobile App and Chatbox.

Finally, the year 2018 is a delicate year for the National Government in Peru as the President's figure has crumbled after complaints against him due to possible corruption activities while he was Prime Minister and Minister of Economics and Finance during the years 2001-2006. This constant and on-going political crisis makes the implementation of a program more difficult, mainly because there exists high rate surveillance on the government's actions as well as a harsh penalization for as little the mistake or the ineffectiveness of the program is. Given all this, the current political environment leaves little discretion for design and implementation of innovative policies, programs or interventions. Nevertheless, a buy-in stakeholder strategy to not only pressure the actual government to carry out with the implementation of the program but also reduce the harsh overlook of the congress, would be to link the scaling-up proposal as a mechanism to help solve the anemia public health problem

REFERENCES

- Alderman, H. & Behrman, J. R. (2006). *Reducing the Incidence of Low Birth Weight in Low-Income Countries Has Substantial Economic Benefits*. World Bank Research Observer, Vol. 21(1), pp. 25–48.
- Attanasio, O. P., Fernández, C., Fitzsimons, E. O. A., Grantham-McGregor, S. M., Meghir, C. & Rubio-Codina, M. (2014). *Using the infrastructure of a conditional cash program to deliver a scalable integrated early child development program in Colombia: cluster randomized controlled trial*. BMJ, Vol. 349(7979).
- Baker, S., Sanders, M. R., Turner, K. M. T. & Morawska, A. (2017). *A randomized controlled trial evaluation a low-intensity interactive online parenting intervention, Triple P Online Brief, with parents of children with early onset conduct problems*. Behaviour Research and Therapy, Vol. 91, pp. 78-90.
- Black, R. E., Morris S. S. & Bryce, J. (2003). *Where and Why Are 10 Million Children Dying Every Year?* The Lancet, Vol. 361(9376), pp. 2226–34.
- Burke Lefever, J. E., Bigelow, K. M., Carta, J. J., Borkowski, J. G., Grandfield, E., McCune, L., ..., Warren, S. F. (2017). *Long-Term Impact of Cell Phone-Enhanced Parenting Intervention*. Child Maltreatment, Vol. 22(4), pp. 305-314.
- Camilli, G., Vargas, S., Ryan, S. & Barnett, W. S. (2010). *Meta-Analysis of the Effects of Early Education Interventions on Cognitive and Social Development*. Teachers College Record, Vol. 112(3), pp. 579-620.
- Carneiro, P. & Heckman, J. (2003). *Human Capital Policy*. National Bureau of Economic Research. Working Paper 9495.
- Carta, J. J., Lefever, J. B., Bigelow, K. & Borkowski, J. (2013). *Randomized Trial of a Cellular Phone-Enhanced Home Visitation Parenting Intervention*. Pediatrics, Vol. 132(S2), pp. S167-S173.
- Comer, J. S., Furr, J. M., Cooper-Vince, C., Madigan, R. J., Chow, C., Chan, P., ..., Eyberg, S. (2015). *Rationale and Considerations for the Internet-Based Delivery of Parent-Child Interaction Therapy*. Cognitive and Behavioral Practices, Vol. 22(3), pp. 302-316.
- Cortázar, A. (2015). *Long-term effects of public early childhood education on academic achievement in Chile*. Early Childhood Research Quarterly, Vol. 32, pp. 13-22.

- Cuesto, S., Guerrero, G., Leon, J., Zevallos, A. & Sugimaru, C. (2009). *Promoting Early Childhood Development through a Public Programme: Wawa Wasi in Peru*. Young Lives Working Paper N° 51.
- Dekovic, M., Slagt, M. I., Asscher, J. J., Boendermaker, L., Eichelsheim, V. I. & Prinzie, P. (2011). *Effects of early prevention programs on adult criminal offending: A meta-analysis*. *Clinical Psychology Review*, Vol. 31, pp. 532-544.
- Dumas, J. E.; Arriaga, X. B., Moreland Begle, A. & Longoria, Z. N. (2011). *Child and Parental Outcomes of a Group Parenting Intervention for Latino Families: A Pilot Study of the CANNE Program*. *Cultural Diversity and Ethnic Minority Psychology*, Vol. 17(1), pp. 107-115.
- Enlow, E., Passarella, M. & Lorch, S. A. (2017). *Continuity of Care in Infancy and Early Childhood Health Outcomes*. *Pediatrics*, Vol. 140(1).
- Fernald, L. C. H., Kagawa, R. M. C., Knauer, H. A., Schnaas, L., García-Guerra A. & Neufeld, L. M. (2017). *Promoting Child Development Through Group-Based Parent Support Within a Cash Transfer Program: Experimental Effects on Children's Outcomes*. *Developmental Psychology*, Vol. 53(2), pp. 222-236.
- Fjeldsoe, B. S., Marshall, A. L. & Miller, Y. D. (2009). *Behavior Change Interventions Delivered by Mobile Telephone Short-Message Service*. *American Journal of Preventive Medicine*, Vol. 36(2), pp. 165-173.
- Franco, O. (2016). *Mobile Peru 2016: Updated Forecasts and Key Growth Trends*. eMarketer.
- Freeman, J., Murphy, E., Woolfenden, S., Waters, E., Winters, J., ..., Zwi, K. (2017). *Can a child and family health service improve early childhood health outcomes in an urban Aboriginal community?*. *Journal of Paediatrics and Child Health*, 23rd November.
- Fujiwara, T., Kato, N. & Sanders, M. (2011). *Effectiveness of Group Positive Parenting Program (Triple P) in Changing Child Behavior, Parenting Style, and Parental Adjustment: An Intervention Study in Japan*. *Journal of Child and Family Studies*, Vol. 20, pp. 804-813.
- Gertler, P., Heckman, J., Pinto, R., Zanolini, A., Vermeersch, C., Walker, S., ..., Grantham-McGregor, S. (2014). *Labor market returns to an early childhood stimulation intervention in Jamaica*. *Science*, Vol. 344(6187), pp. 998-1001.
- GfK Perú (2016). *Usos y actitudes hacia los celulares*. Available at https://www.gfk.com/fileadmin/user_upload/country_one_pager/PE/documents/GfK_Opinion_Julio_2016- CC_Celulares_v6.pdf

- GSMA & McKinsey&Company (2010). *mHealth: A new visión for healthcare*. Report.
- Heckman, J. J., Moon, S. H., Pinto, R., Savelyev, P. A., Yavitz, A. (2009). *The Rate of Return to the High/Scope Perry Preschool Program*. National Bureau of Economic Research, Working Paper 15471.
- Heckman, J. J., Moon, S. H., Pinto, R., Savelyev, P. A., Yavitz, A. (2010). *A New Cost-Benefit and Rate of Return Analysis for the Perry Preschool Program: A Summary*. IZA Policy Paper No. 17.
- Klasnja, P. & Pratt, W. (2012). *Healthcare in the pocket: Mapping the space of mobile-phone health interventions*. Journal of Biomedical Informatics, Vol. 45, pp. 184-198.
- IDB & MEF (2016). *Resultados de la evaluación de impacto del Servicio de Acompañamiento a Familias del Programa Nacional Cuna Más*. Ministerio de Economía y Finanzas, Lima, Peru.
- John M Bryson (2004) *What to do when Stakeholders matter*. Public Management Review, Vol. 6(1), pp. 21-53.
- Joseph, K., Guerrero, G. & Coodington, C. (2017). *Supporting the Early Childhood Workforce at Scale: The Cuna Más home visiting program in Peru*. Washington, D. C.: Results for Development.
- Lynch, R. G. (2004). *Exceptional Returns. Economic, Fiscal, and Social Benefits of Investment in Early Childhood Development*. Economic Policy Institute. Washington, D. C.: Economic Policy Institute.
- Manning, M., Homel, R. & Smith, C. (2010). *A Meta-analysis of the effects of early developmental prevention programs in at-risk populations on non-health outcomes in adolescence*. Children and Youth Services Review, Vol. 32, pp. 506-519.
- Maslowsky, J., Frost, S, Hendrick, C. E., Trujillo-Cruz, F. O. & Merajver, S. D. (2016). *Effects of postpartum mobile phone-based education on maternal and infant health in Ecuador*. International Journal of Gynecology and Obstetrics, Vol. 134, pp. 93-98.
- McGoron, L. & Ondersma, S. J. (2015). *Reviewing the need for technological and other expansions of evidence-based parent training for young children*. Children and Youth Services Review, Vol. 59, pp. 71-83.
- Ministerio de Desarrollo e Inclusión Social (2016). *Lineamientos para la Gestión Articulada Intersectorial e Intergubernamental orientada a Promover el Desarrollo Infantil Temprano*. Resolución Ministerial Directiva N° 009-2016-MIDIS/PNCM.

- Ministerio de Desarrollo e Inclusión Social (2016). *Lineamientos Técnicos de los Servicios del Programa Nacional Cunamas*. Anexo del Decreto Supremo N° 010-2016-MIDIS. El Peruano, 28th July.
- Ministerio de Desarrollo e Inclusión Social & Apoyo Consultoría (2015). *Diagnóstico de la Situación Actual de las Intervenciones Educativas Orientadas a Promover el Desarrollo Infantil Temprano para la Formulación de Estrategias de Comunicación para Promover los Lineamientos Primero la Infancia*. Consultoría PP 001-2015-bm-8222-PE.
- Ministerio de Salud (2017). *Norma Técnica de Salud para el Control del Crecimiento y Desarrollo de la Niña y el Niño Menor de Cinco Años*. Resolución Ministerial NTS N° 137-MINSA/2017/DGIESP.
- Myers, R. (1992). *The Twelve who Survive. Strengthening Programmes of Early Childhood Development in the Third World*, London: Routledge.
- National Research Council and Institute of Medicine (2000). *From Neurons to Neighborhoods: The Science of Early Childhood Development*. Committee of Integrating the Science of Early Childhood Development. Jack P. Shonkoff and Deborah A. Phillips, eds. Board on Children, Youth, and Families, Commission on Behavioral and Social Sciences and Education. Washington, D. C.: National Academy Press
- Naudeau, S. (2009). *Supplementing Nutrition in the Early Years: The Role of Early Childhood Stimulation to Maximize Nutritional Inputs*. Child and Youth Development Notes 3 (1) (March), Washington DC.: World Bank.
- Naudeau, S., Kataoka, N., Valerio, A., Neuman, M. J. & Elder, L. K. (2011). *Investing in Young Children. An Early Childhood Development Guide for Policy Dialogue and Project Preparation*. The World Bank. Washington, D.C.: The World Bank.
- Niec, L. N., Barnett, M. L., Prewett, M. S. & Chatham, J. R. S. (2016). *Group Parent-Child Interaction Therapy: A Randomized Control Trial for the Treatment of Conduct Problems in Young Children*. Journal of Consulting and Clinical Psychology, Vol 84(8), pp. 682-698.
- Nieuwboer, C. C., Fukkink, R. G. & Hermanns, J. M. A. (2013). *Online programs as tools to improve parenting: A meta-analytic review*. Children and Youth Services Review, Vol. 35, pp. 1823-1829.

- Nores, M., Belfield, C. R., Barnett, W. S. & Schweinhart, L. (2005). *Updating the Economic Impacts of the High/Scope Perry Preschool Program*. Educational Evaluation and Policy Analysis, Vol. 27(3), pp. 245-261.
- PATH (2014). *mHealth Mobile Messaging Toolkit: Selecting a Mobile Messaging Platform Vendor*. Seattle: PATH
- Peacock, S., Konrad, S., Watson, E., Nickel, D. & Muhajarine, N. (2013). *Effectiveness of home visiting programs on child outcomes: a systematic review*. BMC Public Health, Vol. 13(17).
- Pearce, A., Sawyer, A. C. P., Chittleborough, C. R., Mittinty, M. N., Law, C. & Lynch, J. W. (2006). *Do early life cognitive ability and self-regulation skills explain socio-economic inequalities in academic achievement? An effect decomposition analysis in UK and Australian cohorts*. Social Science & Medicine, Vol. 165, pp. 108-118.
- Russell, B. S., Maksut, J. L., Lincoln, C. R. & Leland, A. J. (2016). *Computer-mediated parenting education: Digital family service provision*. Children and Youth Services Review, Vol. 62, pp. 1-8.
- Sameroff, A. J. & Fiese, B. H. (2000). *Transactional regulation: The developmental ecology of early intervention*. In J. P. Shonkoff & S. J. Meisels (Eds.), *Handbook of early childhood intervention* (2nd ed., pp. 135-159). Cambridge, UK: Cambridge University Press.
- Shah, R., Kennedy, S., Clark, M. D., Bauer, S. C. & Schwartz, A. (2016). *Primary Care-Based Interventions to Promote Positive Parenting Behaviors: A Meta-analysis*. Pediatrics, Vol. 137(5).
- Schodt, S., Parr, J., Araujo, M. C. & Rubio-Codina, M. (2015). *Measuring the quality of home-visiting services: a review of the literature*. Inter-American Development Bank.
- Shonkoff, J. P. (2010). *Building a New Biodevelopmental Framework to Guide the Future Childhood Policy*. Child Development, Vol. 81(1), pp. 357-367.
- Sweet, M. A. & Appelbaum, M. I. (2004). *Is Home Visiting an Effective Strategy? A Meta-Analytic Review of Home Visiting Programs for Families with Young Children*. Child Development, Vol. 75(5), pp. 1435-1456.
- Vargas, E. & Vegas, V. (2010). *Strengthening Early Childhood Development Policies and Programs in Latin America and the Caribbean*. The World Bank. Washington, D.C.: The World Bank.

World Health Organization (2017). *WHO Recommendations on new born health: guidelines approved by the WHO Guidelines review committee*. Geneva, Switzerland: World Health Organization.

World Health Organization (2016). *WHO Recommendations on Antenatal Care for a Positive Pregnancy Experience*. Geneva, Switzerland: WHO Press.

Wittkowski, A., Dowling, H. & Smith, D. M. (2016). *Does Engagin in a Group-Based Intervention Increase Prental Self-efficacy in Parents of Preschool Children? A Systematic Review of the Current Literature*. *Journal of Children and Family Studies*, Vol. 25, pp. 3173-3191.

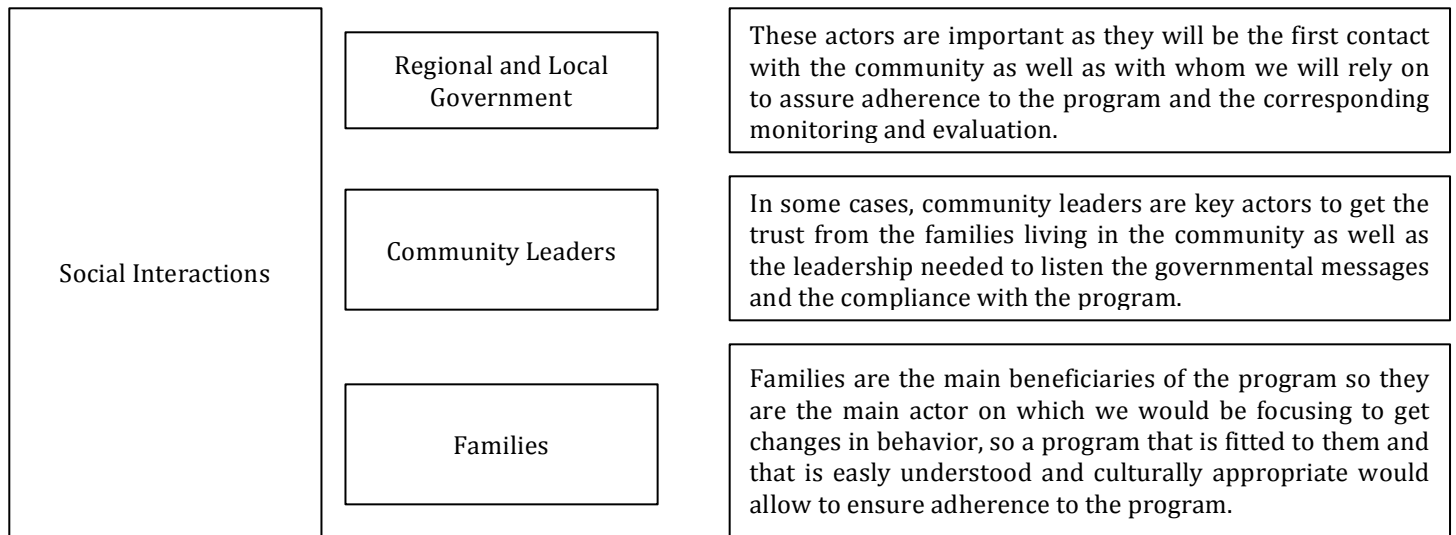
Yoshikawa, H. (1995). *Long-Term Effects of Early Childhood Programs on Social Outcomes and Delinquency*. *The Future of Children*, Vol. 5(3), pp. 51-75.

APPENDIX TABLES

APPENDIX 1: Mapping of Stakeholders and Interactions

Political Interactions	President Office	It is important that the President would consider in stating that Early Childhood Development is a Priority for the country, recognizing the holistic approach needed to address this issue.
	Prime Minister Office	The Prime Minister Office needs to be in charge of leading the design of the program, since it is a program that relies on multidisciplinary approaches and buy-in of different ministries, they need to gather all the ministries efforts into one sole goal. The leadership of this Office is important as in a Top-Down approach; they are in charge of supervising the actions of the other ministries.
	Congress	Congress is a delicate actor as depending on which party has the majority they can call for extremely supervision and monitoring actions as well as high outcomes. So it is important to approach them in order to get their buy-in to allow for a iterative design that allows adjusting the program as it is implemented. Nonetheless since this is a project that tackles low-income families it is a good project to try to gain populism between the low-income / middle income families which are the great percentage of the country and gain popularity for next elections.
Political/Economic Interactions	Ministry of Finance	This part is tricky. The Ministry of Finance is in charge of disbursing the budget for any program. However, the HVP is a multidisciplinary approach that considers health and education outcomes as well as cultural context on how to deliver the different messages regarding to child rearing. Finally, since the program is deliver directed to the primary caregiver – mainly mother – the knowledge on household behavior is important to understand the best way to approach the family. However, in this case, the Ministry of Development by law is in charge of the program but would require the buy-in of the rest of the ministries to design the scale-up program. Also, more effort will be needed to try make the Ministry of Health and Education to be involved in a comprehensive program where they both and Ministry of Development would be in charge and accountable at the same level. This is important in order to convince the Ministry of Finance to increase budget understanding that it will help to increase outcomes for three ministries and that they won't be overlapping in their efforts.
	Ministry of Development and Social Inclusion	
	Ministry of Culture	
	Ministry of Health	
	Ministry of Education	
	Ministry of Women and Vulnerable Populations	
	Multilateral Organizations	Multilateral organizations act as donors and they are important when trying to get the buy-in of the government, more specifically the ministries since there is a great amount of loans given by these organizations that add up to the ministries budget. In this sense they could help pushing the agenda of new mechanisms to make home-visiting programs more universal.
Private Telecom Firms	Telecom Firms in Peru would play a great part if they participate in the project development because they are the one able to help deliver the mobile interventions by increasing coverage and reducing costs	

APPENDIX 1: Mapping of Stakeholders and Interactions (continuation)



APPENDIX 2: COST STRUCTURE POLICY PROPOSAL 1 – HOME VISITING PROGRAM: OPTION A

Category	Option A					
	Cost per Expense Type (s/.)	Payments per Year	Nmbr.	Total Cost (millions S/.)	Nmbr.	Total Cost (millions S/.)
Visitors	380.00	12.00	16,008	73.00	139,205	634.77
Management and Surveillance Committees	380.00	12.00	2,354	10.73	20,471	93.35
Technical Companions	3062.00	12.00	1,883	69.19	16,377	601.76
Program Coordinator	3662.00	12.00	17	0.75	17	0.75
Professional Help for Field Work	3300.00	12.00	88	3.48	764	30.25
Community Socialization Sessions	11.00	1.00	160,076	1.76	1,392,050	15.31
Technical Assistance for community management and surveillance	38.00	1.00	160,076	6.08	1,392,050	52.90
Training for Technical Teams and Local Actors	109.00	1.00	160,076	17.45	1,392,050	151.73
Curricula Development Inputs	144.00	1.00	160,076	23.05	1,392,050	200.46
Transportation Costs for Technical Assistance	10.00	1.00	160,076	1.60	1,392,050	13.92
Kits and Equipment Adquisition	11.00	1.00	160,076	1.76	1,392,050	15.31
Total Cost				208.86		1,810.51

Eligible Families:
160,076

Total Families: 1,392,050

APPENDIX 3: COST STRUCTURE POLICY PROPOSAL 1 – HOME VISITING PROGRAM: OPTION B (Strategies I, II, III, V)

Category	Option B					
	Cost per Expense Type (s/.)	Payments per Year	Nmbr.	Total Cost (millions S/.)	Nmbr.	Total Cost (millions S/.)
			Eligible Families: 160,076		Total Families: 1,392,050	
			Strategies I, II, III, V			
Visitors	1,000.00	12.00	16,008	192.10	139,205	1,670.46
Management and Surveillance Committees	380.00	12.00	2,354	10.73	20,471	93.35
Technical Companions	3,312.00	12.00	1,883	74.84	16,377	650.89
Program Coordinator	3,662.00	12.00	17	0.75	17	0.75
Professional Help for Field Work	3,300.00	12.00	88	3.48	764	30.25
Community Socialization Sessions	101.00	12.00	160,076	194.01	1,392,050	1,687.16
Technical Assistance forcommunity management and surveillance	38.00	1.00	160,076	6.08	1,392,050	52.90
Training for Technical Teams and Local Actors	141.70	1.00	160,076	22.68	1,392,050	197.25
Curricula Development Inputs	144.00	1.00	160,076	23.05	1,392,050	200.46
Transportation Costs for Technical Assistance	10.00	1.00	160,076	1.60	1,392,050	13.92
Kits and Equipment Adquisition	11.00	1.00	160,076	1.76	1,392,050	15.31
Total Cost				531.09		4,612.70

APPENDIX 4: COST STRUCTURE POLICY PROPOSAL 1 – HOME VISITING PROGRAM: OPTION B (Strategies II, IV, V)

Category	Option B					
	Strategies II, IV, V		Eligible Families: 160,076		Total Families: 1,392,050	
	Cost per Expense Type (s/.)	Payments per Year	Nmbr.	Total Cost (millions S/.)	Nmbr.	Total Cost (millions S/.)
Visitors	1,732.00	12.00	16,008	332.71	139,205	2,893.24
Management and Surveillance Committees	380.00	12.00	2,354	10.73	20,471	93.35
Technical Companions	3,312.00	12.00	1,883	74.84	16,377	650.89
Program Coordinator	3,662.00	12.00	17	0.75	17	0.75
Professional Help for Field Work	3,300.00	12.00	88	3.48	764	30.25
Community Socialization Sessions	101.00	12.00	160,076	194.01	1,392,050	1,687.16
Technical Assistance forcommunity management and surveillance	38.00	1.00	160,076	6.08	1,392,050	52.90
Training for Technical Teams and Local Actors	109.00	1.00	160,076	17.45	1,392,050	151.73
Curricula Development Inputs	144.00	1.00	160,076	23.05	1,392,050	200.46
Transportation Costs for Technical Assistance	10.00	1.00	160,076	1.60	1,392,050	13.92
Kits and Equipment Adquisition	11.00	1.00	160,076	1.76	1,392,050	15.31
Total Cost				666.47		5,789.96

APPENDIX 5: COST STRUCTURE POLICY PROPOSAL 2 – Group Sessions

Category	Cost per Expense Type (s/.)	Payments per Year	Parenting Support & Education Group Sessions		Total Cost (S/.)	Nمبر.	Total Cost (S/.)
			Eligible Families: 160,076	Total Families: 1,392,050			
Moderator and transportation cost	1732.00	12.00	5,336	110,903,424.00	46,401	964,398,384.00	
Technical Companions	3062.00	12.00	1,883	69,188,952.00	16,377	601,756,488.00	
Program Coordinator	3662.00	12.00	17	747,048.00	17	747,048.00	
Community Socialization Sessions	111.00	12.00	160,076	213,221,232.00	1,392,050	1,854,210,600.00	
Training for Technical Teams and Local Actors	109.00	1.00	160,076	17,448,284.00	1,392,050	151,733,450.00	
Curricula Development Inputs	144.00	1.00	160,076	23,050,944.00	1,392,050	200,455,200.00	
Kits and Equipment Adquisition	11.00	1.00	160,076	1,760,836.00	1,392,050	15,312,550.00	
		Total Cost		436,320,720.00		3,788,613,720.00	

APPENDIX 6: COST STRUCTURE POLICY PROPOSAL 3 – SMS & Mobile App / Chatbox Technologies

		SMS				
Category	Cost per Expense Type (s/.)	Payments per Year	Eligible Families: 160,076		Total Families: 1,392,050	
			Nmbr.	Total Cost (S/.)	Nmbr.	Total Cost (S/.)
SMS (7,300 per individual, per year)	511	1	86967	44,440,137.00	856559	437,701,739.96
Program Coordinator	10,000	12	1	120,000.00	1	120,000.00
Program Staff	5,500	12	4	264,000.00	4	264,000.00
Message and Curricula Development	7,500	12	3	270,000.00	3	270,000.00
Platform Update & Maintenance	20,000	1	1	20,000.00	1	20,000.00
		Total SMS		45,114,137.00		438,375,739.96

		Mobile App - Chatbox				
Category	Cost per Expense Type (s/.)	Payments per Year	Eligible Families: 160,076		Total Families: 1,392,050	
			Nmbr.	Total Cost (S/.)	Nmbr.	Total Cost (S/.)
Platform Development	11,500	12	1	138,000.00	1	138,000.00
Program Coordinator	10,000	12	1	120,000.00	1	120,000.00
Program Staff	5,500	12	4	264,000.00	4	264,000.00
Message and Curricula Development	7,500	12	3	270,000.00	3	270,000.00
Platform Update & Maintenance	20,000	1	1	20,000.00	1	20,000.00
		Total Mobile App - Chatbox		812,000.00		812,000.00

APPENDIX 7: COST STRUCTURE POLICY PROPOSAL 3-IVR & Home Visiting Complementary Program

Category	Cost per Expense Type (s/.)	Payments per Year	IVR			
			Eligible Families: 160,076	Nmbr.	Total Cost (S/.)	Total Families: 1,392,050
Call (7,810 minutes per individual, per year)	3905	1	25452	99,390,388.02	66107	258,148,163.02
Program Coordinator	10,000	12	1	120,000.00	1	10,000.00
Program Staff	5,500	12	4	264,000.00	4	22,000.00
Message and Curricula Development	7,500	12	3	270,000.00	3	22,500.00
Platform Update & Maintenance	20,000	1	1	20,000.00	1	20,000.00
		Total IVR		100,064,388.02		258,222,663.02

APPENDIX 8: COST STRUCTURE POLICY PROPOSAL 3 – Home Visiting Complementary Program & Total Costs

Category	Home Visiting Program (HVP) - Status Quo					
	Cost per Expense Type (s/.)	Payments per Year	Nnbr.	Eligible Families: 160,076		Total Cost (S/.)
				Nnbr.	Total Cost (S/.)	
			Total Families: 1,392,050			
Visitors	880	12	8,003	84,511,680.00	60,603	639,967,680.00
Technical Companions	3,062	12	942	34,598,798.82	8,189	300,879,324.71
Program Coordinator	3,662	12	17	747,048.00	17	747,048.00
Professional Help for Field Work	3,300	12	60	2,376,000.00	240	9,504,000.00
Community Socialization Sessions	110	1	80,038	8,804,125.00	696,025	76,562,750.00
Technical Assistance forcommunity management and surveillance	38	1	80,038	3,041,425.00	696,025	26,448,950.00
Training for Technical Teams and Local Actors	142	1	80,038	11,341,313.75	696,025	98,626,742.50
Curricula Development Inputs	144	1	80,038	11,525,400.00	696,025	100,227,600.00
Transportation Costs for Technical Assistance	10	1	80,038	800,375.00	696,025	6,960,250.00
Kits and Equipment Adquisition	11	1	80,038	880,412.50	696,025	7,656,275.00
			Total HVP	158,626,578.07		1,267,580,620.21
			Total Option A - SMS, Mobile App, IVR	145,990,525.02		697,410,402.98
			Total Option B - SMS, Mobile App, IVR & HVP	304,617,103.09		1,964,991,023.18