

**Cost-Benefit Analysis**

JA-L1053

Integrated Support to Jamaica’s Social Protection Strategy

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Cost-benefit analysis for the program “Integrated Support to Jamaica´s Social Protection Strategy” (JA-L1053)

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# Executive Summary

*The ex-ante cost benefit analysis for the project Integrated Support to Jamaica’s Social Protection Strategy shows that the investments of the program have a positive net present value. In the base case in which: (i) the impact of PATH on schooling is 6%; (ii) the social discount rate is set at 4%; (iii) each additional year of education has a return of 6% in terms of future higher earnings, following a Mincerian approach; (iv) 75% of the legal minimum wage of J$ 5600 for a 40-hour week is used as a basis to calculate future earning; and (v) future labor incomes are projected based on a working life lasting from 18 to 65 years old for beneficiaries of the Program of Advancement Through Health and Education (PATH); the present value of the Benefit/Cost ration is estimated at 3.09.*

*The analysis values the benefits of PATH transfers in terms of the increased future earnings that result from increased years of schooling and improved health. The effects of the program are based on the extensive literature about the positive impacts of Conditional Cash Transfer programs, as documented by Fiszbein and Schady (2009) and by the IDB’s Poverty and Social Protection Strategic Framework Document (2014). Additionally, Jamaica’s PATH had a rigorous impact evaluation that confirmed the program’s positive impacts in line the international evidence, which was conducted by Dan Levy and Jim Ohl s (2010).*

*The analysis considers both direct costs (implementation and operational costs of the program) and indirect costs for beneficiaries, including costs of collection of transfers in terms of transportation and lost earnings, opportunity costs of compliance with PATH conditionalities and opportunity cost of studying and not working for children aged 14 - 18 years.*

# Introduction

This report presents the results of the ex-ante Cost Benefit Analysis (CBA) for Inter-American Development Bank (IDB) Integrated Support to Jamaica´s Social Protection Strategy (JA‑L1053). The objective of the program is to support consumption and to protect and promote human capital accumulation of poor families that are beneficiaries of the Jamaica Conditional Cash Transfer Program, PATH. The program will achieve this objective through: (i) supplementing Government of Jamaica (GOJ) cash grant budget to eligible beneficiaries under the program to ensure their consumption levels are maintained in a period of structural adjustment within the policy arrangement with the International Monetary Fund; and (ii) support the modernization of key social services and processes within the Ministry of Labour and Social Security in Jamaica in line with implementation of the Social Protection Strategy (SPS) approved in 2014.

This report will be structured as follows. Section 2 presents some background on Conditional Cash Transfer programs (CCTs) in terms of their rationale, impacts and challenges, followed by Section 3 that the discusses relevant literature on the cost – benefit analysis of conditional cash transfer programs (CCT), while Section 3 will provide an overview of the expected results of the operation; Section 4 will focus on the objective of the cost-benefit analysis, define its key variables, present the chosen methodology, list all assumptions made in the analysis, and provide relevant sources of data and of key parameters; Section 4 will present the results of the study with specific assumptions on all costs and benefits and will provide a sensitivity analysis for key variables; Section 5 will outline the findings with recommendations on the economic desirability of the operation. A final annex presents the result calculations of the CBA.

# Conditional Cash Transfer (CCT) programs[[1]](#footnote-1)

**Motivation and Rationale of CCTs**

Conditional Cash Transfers (CCTs) are a major policy innovation first introduced in Latin America in the mid-Nineties that has progressively spread to numerous developing countries around the world (e.g. Philippines, Turkey and Pakistan). The theory of change is that CCTs contribute to breaking the intergenerational transmission of poverty by conditioning cash transfers to poor families on actions that contribute to the accumulation of children’s human capital. Two factors are at play. First, the cash transferred today reduces current poverty and allows families to increase consumption. Second, the conditionalities (typically school enrollment and attendance, and attendance to health units for regular checkups) increase access/usage of health and education services, which contributes to breaking the intergenerational transmission of poverty under the assumption that health and education services actually provide skills and human capital that will allow children from beneficiary households to escape poverty when they join the labor market.

CCTs represent a paradigm change in social policy. They have a positive track record as an efficient redistributive instrument and in terms of promoting human capital-enhancing behaviors, and have changed the debate on anti-poverty programs for several reasons. First, they replaced (or were intended to do so) inefficient redistributive tools such as generalized subsidies and in-kind transfers. Second, CCTs are based on a holistic understanding of chronic poverty, which is the joint result of insufficient income, poor health and nutrition, and low levels of schooling. Finally, CCTs set a new standard in terms of transparency and monitoring and evaluation.

The debate on social protection for the poor in Latin America and the Caribbean (LAC) recognizes the relevance of CCTs, and is largely defined around how to complement, enhance and improve the results achieved with CCTs. While CCTs are not enough to achieve social inclusion of beneficiaries, they are an extraordinary platform on which to build and launch complementary interventions to provide social services to the poor and vulnerable. Every major player, including ILO, ECLAC, UN and other agencies, recognizes the contributions and potential of CCTs to build social protection networks.

**Current state of the evidence for CCTs in LAC**

This section briefly describes the state of the evidence for CCTs in the region, both in terms of impacts and in terms of design and implementation features.

*Main impacts*

*Consumption and Poverty.* Various impact evaluations, summarized in Fiszbein and Schady (2009), show that CCTs have unambiguously met their primary short-run objective of increasing consumption and reducing poverty. Decomposition exercises, like those carried out by Stampini and Tornarollli (2012) and Levy and Schady (2013) also suggest that CCTs have been important in reducing poverty and inequality in the region in the last decade. CCT have not only increased consumption, they have also improved its composition. For example, Ruiz-Arranz et al. (2006) show that CCTs have increased the quantity, quality and variety of food intake, leading to consumption of more nutritious and expensive goods such as meat and vegetables.

*Education*. Another consistent finding across rigorous impact evaluations is that CCTs have substantially decreased child labor (Galiani and McEwan, 2013; Levy, 2006; Edmonds and Schady, 2012) and increased school enrollment and attendance (with rates that vary from 0.5 percentage points (pp) in Jamaica to 12.8 pp in Nicaragua). This is –together with higher use of health services- the key behavioral outcome intended by the theory of change of CCTs. CCTs also increased school attainment. For example, in Mexico after 3-5 years of participation in Oportunidades, the beneficiaries accumulated between ½ and 1 year of additional schooling.

The evidence on learning achievement is mixed (Fiszbein and Schady, 2009; García, 2012; Saavedra and Garcia, 2012). Barham et al. (2014) find that, in Nicaragua, receiving the CCT for three years had significant impacts on years of schooling and on mathematics and language learning for young men 10 years after participating in the program. Learning increased by ¼ of a standard deviation, which loosely corresponds to half a year of learning. On the other hand, Behrman et al. (2009) find that higher enrollment levels have not resulted in better performance on achievement tests in Mexico. Evidence from outside the region is also mixed. Baird et al. (2011) report positive impacts on learning for a pilot CCT in Malawi, while Filmer and Schady (2014) and Benhassine et al. (2014) find no effect of a CCT on learning outcomes in Cambodia and Morocco, respectively.

From the perspective of CCTs, increasing schooling is the relevant indicator and main responsibility. At the same time, from a social perspective, learning is the purpose of schooling and the possibility that some children that go to school –whether they are CCT beneficiaries or not- may not learn is a reason for concern. The mixed findings stress the need to seriously address the issue of quantity and quality of education services, and how this interacts with the demand-side subsidies provided by CCTs.

**Health.** CCT programs have consistently shown positive effects on the use of preventive health services. Estimated impacts range between 6.3 pp in Nicaragua and 33 pp in Colombia. Some evaluations have also found that CCTs contributed to improvements in child height among some population groups, although the evidence is mixed (Fiszbein and Schady, 2009),. There is some evidence that program beneficiaries have better health status and reduced morbidity (Gaarder et al., 2010). Rasella et al. (2013) report that Bolsa Família reduced infant mortality caused by conditions associated with poverty, such as malnutrition and diarrhea. As is the case for education, health outcomes depend largely on the quality of health services, an issue that lies outside of CCTs’ direct responsibility.

**Long-term impacts.** Evidence from Nicaragua, discussed above, suggests that transfers resulted in better learning outcomes 10 years after the program ended. Barham et al. (2014) also find long-term effects of CCTs on non-farm income of a substantial magnitude, about 20%. A ten-year follow-up of Familias en Acción in Colombia finds long-term impacts on nutrition, health and education outcomes, including a 6.4 pp increase in high-school graduation (García, 2012). The evidence on Oportunidades is mixed. Rodriguez-Oreggia and Freije (2008) report that, after ten years of implementation of Oportunidades, there is some evidence of program impacts on employment, wages and intergenerational occupational mobility among beneficiaries, which is explained by increased educational attainments. On the other hand, Behrman et al. (2011) find no effects of the program on medium-term labor market performance of beneficiaries. A concern with both of these evaluations is possible selective migration by Oportunidades beneficiaries.

Other impacts

*Child development.* Rigorous evaluations suggest that CCT programs have positive impacts on child development. Fernald and Hidrobo (2011) find that children randomized to receive Bono de Desarrollo Humano (BDH) in Ecuador had higher scores on a test of the number of words children can say. Paxson and Schady (2010) also study the BDH, and find significant effects on somewhat older children, although only for those in the poorest wealth quintile. Macours et al. (2012) find that the Atención a Crisis program in Nicaragua had an effect of about 0.12 standard deviations on the family of cognitive and behavioral outcomes they analyze.

**Labor supply.** As with all transfer programs, there are concerns about whether CCTs generate dependency, reducing labor supply and/or affecting the type of job selected by participants. The evidence to date is mixed. Alzúa et al. (2010) focus on different CCT programs that had an experimental design, and find no discernible effects on individual or household-aggregated adults’ labor supply in the short run. Barrientos and Villa (2013) find positive long-term effects on labor market outcomes in the urban areas of Colombia, including an increase in formal employment among women beneficiaries. On the other hand, Bosch et al. (2013) find that the BDH encouraged some women to switch from formal to informal jobs in Ecuador (although the magnitude of the effect is modest). Amarante et al. (2011) find that the PANES program in Uruguay reduced employment in the formal sector. Firpo et al. (2014), using cross-sectional data from 2006, find that Bolsa Familia reduced the labor supply of beneficiaries, especially women. On the other hand, using the same data for Brazil, Neves et al. (2014) use the variation that comes from the family composition eligibility requirement (age of the youngest child) and find that Bolsa Familia did not affect the decision to work or the sector of employment among adults in beneficiary households.

Several countries have taken preventive steps to avoid any drop in formal employment among the eligible population. For example, some countries have excluded labor variables from CCT application forms and eligibility formulas. Chile’s Ingreso Etico Familiar has introduced bonuses for female beneficiaries entering formal employment. In addition, a number of programs are making significant efforts to increase beneficiaries’ labor participation through linkages with active labor market policies (e.g., job training and intermediation through national employment services in Mexico and Brazil).

Design and implementation issues

*The role of conditionalities.* Most studies suggest that CCTs have larger effects on school enrollment than unconditional transfers of similar magnitude (evidence includes Benedetti et al. (2014) for Honduras, de Brauw and Hoddinott (2008) for Mexico, Schady and Araujo (2008) for Ecuador, and Baird et al. (2011) for Malawi). Benhassine et al. (2014) on Morocco is an exception, as they do not find larger effects of a conditional than an unconditional transfer on school enrollment. Turning to health, Akresh et al. (2012) find larger effects of a CCT than an unconditional cash transfer on routine preventative health visits in Burkina Faso.

**Operational issues.** Paes-Sousa et al. (2013) document key features for the successful implementation of CCTs, which include:

• Coordination with sector ministries and with local governments to ensure the availability and quality of health and education services.

• Accurate targeting to increase program political capital and legitimacy.

• The need for a coherent policy regarding updates of the roster of beneficiaries.

• The need for advanced information and monitoring and evaluation systems, which have contributed to consolidate CCTs as benchmark social policies.

• The potential to reduce administrative costs, reduce corruption and promote financial inclusion through bank payment of the cash transfers.

# Jamaica’s CCT: Program of Advancement Through Health and Education (PATH)

The GOJ has established a SSN aimed to alleviate poverty and foster the human capital development of the poor. Its main elements are the CCT Program of Advancement through Health and Education (PATH) and the School Feeding Program (SFP), each representing about 0.2% of GDP. The Steps-to-Work (STW) is a smaller program recently launched to promote the welfare to work transition of PATH households. PATH and STW are implemented by the MLSS, while SFP is implemented by the Ministry of Education.

Since the early 2000s Jamaica has reformed social protection policies to promote advancement of the poor through PATH, which is supported by evidence of positive impacts of CCTs regionally, globally and in Jamaica. PATH is making improvements that puts it in a second wave of CCTs: adapting conditionalities to issues related to the accumulation of human capital of the poor in the Jamaican context (by substituting a health visit that was not required by the health ministry with a parenting program for parents of children 2-5 year old); using technology to communicate with beneficiaries and to improve the efficiency of payment mechanisms, and adopting comprehensive recertification and graduation strategies to improve its targeting efficiency (as shown by the recently approved Graduation Strategy). These efforts are underway and the Bank´s support will contribute to their full implementation.

Social Protection Strategy. The GOJ has advanced with the consolidation and modernization of its social protection system, as set forth in the 2014 Social Protection Strategy (SPS). The SPS takes elements from the rights-based, social risk management, and social protection floor approaches to provide a complete framework. The SPS emphasizes the importance of income support to the poorest so as to support consumption and protect as well as to promote human capital accumulation; the importance that children of poor households are exposed to parenting practices that promote their emotional and cognitive development; and the need to promote effective school-to-work and welfare-to-work transitions.

# Cost – Benefit Analysis of CCT programs

The most recent literature on economic analysis of social programs (Duflo et al, 2011, McEwan, 2011) center on cost-effectiveness, which is most useful when policymakers are deciding which intervention to implement in order to maximize its impact in a given indicator (for example, what is the most effective way to increase schooling by one year?). This literature, however, discusses some core issues that are very relevant for any type of economic analysis:

* **Multi-purpose programs.** CCTs are probably the best example of a multi-purpose program. They aim at reducing current poverty with the increased consumption that results from the transfers, as well as to achieve greater human capital accumulation among the children of beneficiary households. This process entails improved health and education, which generate a particular stream of benefits. Hence, it is possible to analyze subprograms within a CCT and analyze their CB ratio. Great care needs to be put into distributing total costs among different components.
* **Are transfers a cost?** From the perspective of society pure transfers do not represent costs, and this has been increasingly the practice in the analysis of CCTs. However, CCTs in general and PATH in particular have non-negligible administrative costs that need to be taken into account. At the current stage of implementation and based on projections for the next years, the program does not impose incremental costs to the education and health sectors. Hence, we will only include a fraction of the transfers as cost, in order to account of additional implementation or administrative costs. In the base scenario, we take administrative costs to represent 12.5% of the transfers (the highest value reported by PATH in the last three fiscal years).

It is worth noting as well that although CCT have been extensively evaluated with rigorous experimental and non-experimental impact evaluation techniques, the literature on cost-benefit analysis (either ex-ante or ex-post) is scarce. In terms of ex-ante analyses, Todd and Wolpin (2006) wrote an ex-ante evaluation of social programs, basically using a behavioral model to predict changes in school enrollment based on alternative transfer schemes. Also, Acevedo and Robles (2011) showed that school enrollment could be increased in Mexico without additional resources by restructuring the transfer scheme. These analyses are more in line with the cost-effectiveness perspective, focusing on a basic result (increased school enrollment) and determining through simulation what the new impact of the program could be under different circumstances.

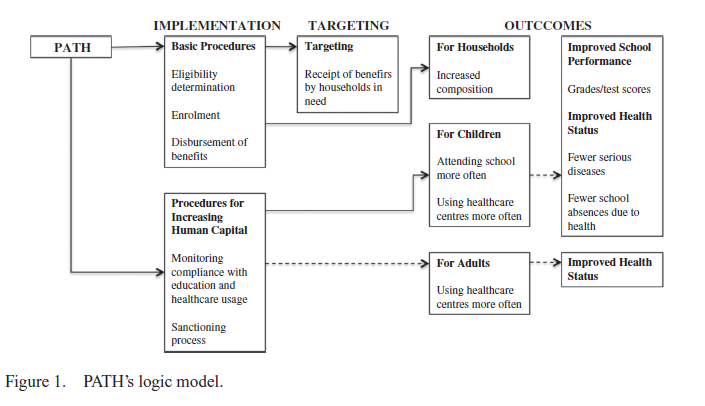
In 2000, and as part of the evaluation agenda of the early implementation of PROGRESA-Oportunidades that was done by IFPRI, David Coady summarized an application of Social Cost Benefit Analysis to the impact estimates of the program. This report is one of the few that has a thorough discussion of private costs as well as a discussion on how to weight transfers by the income level of beneficiaries, which we use below in the analysis of the welfare gains from redistribution.

Other analyses have focused on the ex-post analysis of particular subcomponents of CCTs. For example, Dufflo et al. (2011) analyze the effectiveness of Oportunidades in terms of the additional years of education achieved by $100 spent. Other studies (Barrero et al 2004, Gonzalez et al, 2009) focus on the cost-benefit ratio of specific interventions, for example the education transfer or the nutrition intervention.

# Expected results of the operation

The main expected results from the operation will be the increased human capital accumulation of children that are beneficiaries of PATH. The program is expected to sustain the documented impacts on health and education from PATH (Levy and Ohls, 2010) and to increase the effectiveness and the efficiency of the social protection system through higher rates of compliance with PATH co-responsibilities, which will lead to higher human capital accumulation and hence higher schooling and higher wages when the youngsters join the labor market. Given that PATH will test and scale up (if it is efficient to do so) the parenting pilot, participation in parenting education classes is expected to increase parenting skills in the areas of nutrition, discipline, safety, learning, and health needs. In the medium term, this should lead to an increase in the rate of compliance with health conditions for 2-6 years old beneficiaries, which will also have an impact labor market performance.

The following figure from Levy and Ohls (2010) impact evaluation of PATH illustrates the pathway from the program to the expected benefits, improved school performance and improved health status. In terms of the CBA, these benefits translate into higher wages when joining the labor market.



# Objective and scope of the Cost-Benefit Analysis (CBA)

The objective of this study is to produce an ex-ante cost-benefit analysis for the operation, in order to determine whether total benefits exceed total costs and hence decide if the project is socially desirable. The objective of this analysis is to determine the economic impact of the CCT program PATH. The main benefits of PATH are the increase in future income associated with higher labor productivity result of years of education. Furthermore, the benefits resulting from better nutrition among children beneficiaries are increased productivity, as better outcomes in nutrition and health lead to increased accumulation of human capital (schooling) and hence of labor market incomes down the road. On the other hand, the costs of PATH include administrative expenses (including fees for payment transfers), costs associated with institutional strengthening and expenditures scheduled for assessment, monitoring and tracking. This analysis considered the cost of an operating period of one year and the benefits associated with one year of intervention. This is an important feature of this analysis: each year that the GOJ invests on PATH generates long-lasting benefits as additional years of education are accumulated, which will generate positive impacts on labor market earnings when youngsters join the labor market.

The CBA will be focused on PATH, by far the most important social protection program implemented by the Ministry of Labour and Social Security (MLSS). The project under consideration, the *Integrated Support to Jamaica’s Social Protection Strategy* project has two main components: cash transfers to support consumption and increase human capital accumulation of children and pregnant and lactating women in poor families (component 1) as well as investments to improve the functioning and modernize social services provided by MLSS, some of which will contribute to improve the effectiveness of PATH.

The analysis is based on the yearly investments by PATH on school-aged children of poor families according to the program’s data as of April 2015. Additional analysis could be done for the younger kids, for which the education benefit should be complemented with improvements in nutrition and health (that would, in any case, be modelled with higher education and thus higher wages).

Sources of data include: PATH Beneficiary Management Information System; Ministry of Labour and Social Security publications; demographic and socioeconomic information from household survey and population and housing census; special studies on impacts of education, health and nutrition on productivity and earnings.

The following are the main parameters used in the analysis:

* Number of beneficiaries: based on the most recent administrative data for February 2015, the number of beneficiaries from the educational grants are as follows:

**Table 1: PATH Payment by Benefit Group and Sex for December 2014 & February 2015**

| December 2014 & February 2015 PATH Differentiated Payments | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| Benefit Category | | | Dec-14 | | Feb-15 | |
| Education | **Grade** | **Gender** | **# Paid** | **Amount Paid (J$)** | **# Paid** | **Amount Paid(J$)** |
| No Grade |  | 9,765 | 20,397,240.00 | 2,258 | 4,686,970.00 |
| Grades 1-6 | Boys | 44,666 | 89,474,200.00 | 45,017 | 80,946,880.00 |
| Girls | 41,014 | 82,741,940.00 | 41,311 | 75,983,870.00 |
| Grades 7-9 | Boys | 25,759 | 67,497,200.00 | 26,213 | 62,994,400.00 |
| Girls | 24,700 | 65,896,000.00 | 25,098 | 62,970,400.00 |
| Grades 10-13 | Boys | 14,474 | 41,435,200.00 | 14,691 | 38,455,200.00 |
| Girls | 15,543 | 45,472,400.00 | 15,786 | 43,120,400.00 |
| **All Students** | | | **175,921** | **412,914,180.00** | **170,374** | **369,158,120.00** |

* Impact of the program on school attendance (based on Levy and Ohl, 2010; Fizbein and Schady, 2009; IDB, 2014):
  + Low: 4%
  + Medium: 6%
  + High: 8%
* Impact of schooling on wages (based on Mincer regression on most recent Survey of Living Conditions for 2012 and previous literature)
  + Low 6%
  + Medium 8%
  + High 10%
* Discount rate[[2]](#footnote-2)
  + Low 4%
  + Medium 8%
  + High 12%
* Employment rate: 63.18%
* Base wages (wages on which incremental benefits are computed):
  + High (minimum wage): J$5600 per week
  + Low (75% of the minimum wage)
* Administrative costs: 8% of transfers (representative value in the last three years), which is in line with costs of other similar CCT programs in the region. In their study, Grosh et al. (2008) gather administrative costs for ten CCT programs, showing a range from 4 percent to 12 percent of total program costs, with a median administrative cost for CCT programs of 8 percent.
* Other associated costs: 12% of transfers, which include opportunity costs to participants[[3]](#footnote-3)

The analysis starts from assuming, based on existing evidence, that receiving PATH during one year will increase schooling in 6%. This increase will result in higher wages when the individual joins the labor market (if she received PATH at age 10, then in eight years when she joins the labor market she will have .06 more years of schooling, which will earn her .06\*.06 higher wages, in the case of a wage equivalent to ¾ of the minimum wage that would be .06\*.06\*0.75\*US$5600 per week\*52 weeks per year \* 0.6318 which is the employment rate).

The definition of an analytic time horizon to perform the CBA will entail choosing a period long enough to include the implementation of the project and to capture as much possible future costs and benefits associated with the interventions under analysis. We choose a time horizon of 65 years, in order to capture costs and benefits over their whole working life of the beneficiaries. In the case of the youngest beneficiaries which are 6 year sold they will join the labor market in 12 years and work for 53 years. These benefits are discounted using different alternatives of the social discount rate.

The next step will be to compare the discounted benefits (B) with the discounted costs (C), and given that the amount of costs and benefits depends on the scale of the program, we report the benefit-cost ratio (BCR), from dividing the present value of benefits and the present value of costs (which are defined as the costs of implementing the PATH transfers in a given year):

# Results of the Cost-benefit Analysis

The table below shows the parameters presented above:

|  |  |  |
| --- | --- | --- |
| Wage | Low (75% min wage) | 218400 |
| High (min wage) | 291200 |
| Impact of PATH on Schooling | Low | 4% |
| Moderate | 6% |
| High | 8% |
| Impact of Schooling on Wages | Low | 6% |
| Medium | 8% |
| High | 10% |
| Discount Rate | Low | 4% |
| Medium | 8% |
| High | 12% |

The following table shows the Benefit Cost Ratio under a combination of approaches, and shows that the program is sociably desirable, as it has values greater than one except for the worst-case scenario when the highest discount rate is used and the impacts of PATH on schooling and of schooling on wages are low.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Wage** | **Impact of PATH on Schooling** | **Impact of Schooling on Wages** | | | | | | | | |
| **Low** | | | **Medium** | | | **High** | | |
| **Discount Rate** | | | | | | | | |
| 4% | 8% | 12% | 4% | 8% | 12% | 4% | 8% | 12% |
| Low | Low | 2.04 | 1.02 | 0.60 | 2.72 | 1.36 | 0.80 | 3.40 | 1.70 | 1.33 |
| Moderate | 3.06 | 1.53 | 0.90 | 4.09 | 2.04 | 1.19 | 5.11 | 2.54 | 1.49 |
| High | 4.09 | 2.04 | 1.19 | 5.45 | 2.71 | 1.59 | 6.81 | 3.39 | 1.99 |
| High | Low | 2.72 | 1.36 | 0.80 | 3.63 | 1.81 | 1.06 | 4.54 | 2.26 | 1.33 |
| Moderate | 4.09 | 2.04 | 1.19 | 5.45 | 2.71 | 1.59 | 6.81 | 3.39 | 1.99 |
| High | 5.45 | 2.71 | 1.59 | 5.45 | 3.62 | 2.12 | 9.08 | 4.52 | 2.65 |

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1. This section is based on the research note “Conditional Cash Transfers” prepared by the IDB’s Social Protection and Health Division in coordination with the Social Sector Department. [↑](#footnote-ref-1)
2. There is an extensive theoretical and empirical literature that justifies the use of rates lower than 12% to analyze values ​​social projects since these projects have important externalities, are performed in the medium and long term, and the monetization of benefits is not as straightforward. Analysis Zhuang et al. (2007) found that developed countries as France, Germany, Italy and Spain use rates between 3 and 7% for evaluating social projects while developing countries opt for rates between 8 and 15%. The work of Lopez (2008), estimating discount rates for nine Latin American countries indicates that the selection of the rate depends on growth expectations. That is, in a scenario of economic growth in the discount rate should be between 3 and 4%, while in a stage of accelerated growth rate may be from 5 or even 7%. In the case of Latin America, some authors have used lower rates 12% to evaluate projects. For example, De Castillo and Lema (1998) used a discount rate of 8% to economically analyze some social funds in Bolivia, economic impact assessments of projects of nutrition in health and education use rates 8% Martinez and Fernandez ( 2008), Heckman et al. (2010) used a discount rate of between 3 and 5%, and Lomborg (2010) using a discount rate of 3 and 6% to analyze the cost benefit in terms of education Conditional Cash Transfer Program in case of three Latin American countries. Finally, for projects of Health, WHO (Edejer Tan-Torres et al. 2003) recommends using 3% discount rate and suggest that sensitivity analyzes for health effects are discounted at a rate of 0% and costs with 6%. [↑](#footnote-ref-2)
3. There are different kinds of opportunity costs of participants. For example, there is evidence that foregone earnings may have an impact on potential enrollees that lack information on the payoff of going to college(Bettinger, Long, Oreopoulos, and Sanbonmatsu (2012). [↑](#footnote-ref-3)