Abstract

As part of the 2006–2011 National Development Plan, the Plurinational State of Bolivia launched two cash transfer programs and one youth labor training program aimed at promoting the accumulation of households’ human capital: the Juanito Pinto Educational Grant, the Juana Azurduy Mother-Child Grant, and My First Decent Job. The objective of this paper is to analyze the effectiveness of the targeting mechanisms utilized in these programs. Based on the information provided by the Ongoing Household Survey, we estimate the mechanisms’ potential inclusion and exclusion errors. The results permit us to suggest that the categorical selection mechanisms used in the three programs are effective in reaching the poorest population, although they present distinct levels of inclusion and exclusion errors associated with both the design and implementation problems of the particular mechanism utilized.

Effectiveness of Targeting Mechanisms Utilized in Social Protection Programs in Bolivia

Ignacio Apella and Gastón Blanco

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Effectiveness of targeting mechanisms utilized  
in social protection programs in Bolivia  

Ignacio Apella and Gastón Blanco¹  

September 2015  

Abstract of main findings:  
As part of the 2006-2011 National Development Plan, the Plurinational State of Bolivia launched two cash transfer programs and one youth labor training program aimed at promoting the accumulation of households' human capital: the Juancito Pinto Educational Grant, the Juana Azurduy Mother-Child Grant, and My First Decent Job. The objective of this paper is to analyze the effectiveness of the targeting mechanisms utilized in these programs. Based on the information provided by the Ongoing Household Survey, we estimate the mechanisms' potential inclusion and exclusion errors. The results permit us to suggest that the categorical selection mechanisms used in the three programs are effective in reaching the poorest population, although they present distinct levels of inclusion and exclusion errors associated with both the design and implementation problems of the particular mechanism utilized.  

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I. Introduction

Social protection policies in the Plurinational State of Bolivia have undergone significant transformations during the last 10 years. These changes parallel what has occurred in the majority of Latin American countries, where diverse household cash transfer and youth labor training programs have been implemented with the goal of alleviating poverty, contributing to the development of human capital, stemming the intergenerational transmission of poverty, and improving employability.

The 2006-2011 National Development Plan articulated four strategies central to the development of the country: Respectable, Democratic, Productive, and Sovereign Bolivia. The first of these\(^2\) refers to asset-creating sectors and inter-sectorial social protection programs. The focus is not centered just on the provision of basic services, but also on the promotion of households’ economic capacities. Its objectives include: a) create an equitable pattern of the distribution of wealth and opportunities; b) promote the full exercise of dignity and individuals’ and social groups’ rights; and c) implement development programs designed to drastically reduce risk situations and their consequences.

As part of this strategy, the country launched a set of cash transfer and youth labor training programs directed at promoting the accumulation of human capital within households. In 2006, the Juancito Pinto Educational Grant was created with the objective of increasing school enrollment and reducing desertion rates among children and adolescents. Three years later, the Juana Azurduy Mother-Child Grant was launched with the goal of decreasing the levels of maternal and infant mortality and chronic malnutrition among children below age 2 through an incentive to use healthcare services. Finally, also in 2009, the “My First Decent Job” Program was started with the goal of confronting the shortcomings in terms of

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\(^2\) The second strategy, Democratic Bolivia, refers to the formation of a Social-Community State where “the people exercise social power and are co-responsible for decisions related to their own development”. The third strategy, Productive Bolivia is aimed at transforming the productive matrix to achieve the development of Comprehensive Productive Complexes and giving the State the power to generate income and employment surpluses based on the economy’s strategic sectors. Finally, the fourth strategy, Sovereign Bolivia, refers to a change in the country’s foreign policy with greater representation of “the people” abroad and the defense of natural resources and biodiversity.
employability for young adults between the ages of 18 and 24 by offering training and internships.

Since their launches, the three programs have faced the challenge of using effective mechanisms to identify and register the target population. Regular evaluations of the effectiveness of the application of the targeting instruments allow for the analysis of potential modifications to the instruments, as well as identifying needs for strengthening their application.

In this context, the goal of this paper is to analyze the effectiveness of the existing targeting mechanisms for each of the programs, while at the same time analyzing the results of the recently launched single mechanism for beneficiary identification from the Ministry of Development Planning. The application of a single mechanism should improve efficiency (by reducing the cost of identifying potential beneficiaries) as well as effectiveness (by reducing inclusion and exclusion errors).

This document presents six sections in addition to this Introduction. In the second section, we present the analytical framework that guides the discussion of the targeting mechanisms utilized by the three programs in the analyses described in the third section. In the third section, we present the three programs’ general characteristics. Subsequently, in the fourth section, we estimate the inclusion and exclusion errors associated with the beneficiary identification tools for the three programs, under certain assumptions and design characteristics, based on the information provided by the 2012 Ongoing Household Survey (ECH), developed by the National Statistics Institute of Bolivia. In the fifth section, we estimate the potential inclusion and exclusion errors for the recently launched Single Registry of Beneficiaries for social programs. Finally, we offer some final reflections and provide a bibliography of the works consulted.
II. Analytical Framework

The design and implementation of social protection policies rely on correctly diagnosing the problem or risk to be addressed. Examples include: vulnerability of a specific population group in the face of a situation of poverty or an elevated school desertion rate – a lack of accumulation of human capital – among children and youth, with a special emphasis on those that belong to households living in poverty, to mention a few. An accurate diagnosis permits one to define the target population that the initiative aims to reach with greater precision. This leads to the necessity of choosing a mechanism that allows for the identification of potentially eligible individuals. In general terms, there are two alternatives for reaching these individuals: either a universal program or a targeted one.

The arguments in favor of universalization as a strategy to eradicate poverty have an ethical, political, and practical basis. The principal point of reference is the European experience, where poverty has been successfully fought via a framework of policies centered on guaranteeing services with universal coverage.

Supporters of universal policies posit that the State should effectively guarantee basic rights, distributing the available resources among all citizens, regardless of whether or not they will be recovered, through direct general revenue schemes. Funds should originate from individuals with higher incomes. Nonetheless, available resources are generally limited. This requires policymakers to maximize their impact when they are put to use—in other words, to utilize the funds efficiently such that the greatest expected impact is achieved.

Therefore, the arguments in favor of creating targeted policies are based on the need to focus the benefits on the target population, thus increasing efficiency in the use of cash transfers aimed at combating the problem or risk factor as previously identified through an assessment of the situation. Targeting criteria commonly used in social protection programs are age, gender, employment status, level of poverty, and/or geographic location. The utilization of targeting criteria as a condition for potential beneficiaries facing poverty requires policymakers to develop more complex, specific tools.
In any case, following the situational assessment, the way in which the potentially eligible population is defined and the argument behind this definition are key factors in terms of the policy’s effectiveness. In contrast, incorrectly defining the target population could result in design errors in the selection of beneficiaries. Based on the previous examples, the target population could be households living in poverty and school-age children and youth living in poverty. Once the problem and/or risk factor is assessed and the potentially eligible population is defined, one must design a tool that allows said population to be identified and reached.

In all cases, applying targeting criteria in social programs entails an administrative cost associated with the work of creating, implementing, updating, and supervising the selection tools (socioeconomic records, household surveys, poverty maps, etc.). One relevant aspect when targeting mechanisms are designed is to evaluate whether the additional costs associated with targeting are greater than the costs of universalization, represented as the amount of transfers that reach the non-poor population for example (Atkinson, 1995).

The goal of targeting is for a social program’s resources to only reach the population whose socioeconomic status is situated below the established threshold, as well as attempting to ensure as much as possible that all members of the target group benefit from the program. However, in addition to the increased administrative costs, there is a risk of committing two types of targeting errors: inclusion and exclusion (Cornia and Steward, 1992). While universalization schemes do not face exclusion errors (the exclusion from the program of individuals and households that belong to the target group), in the case of targeted policies, and depending on the effectiveness of the mechanisms utilized, these schemes can face both inclusion and exclusion errors.

A standard exercise when one wants to evaluate the effectiveness of targeting mechanisms is to analyze the tradeoff that exists between both types of errors. As a program attempts to minimize inclusion errors—in other words, the more a program tries to avoid that the ineligible population (the non-poor, for example) is included—the probability of committing an exclusion error increases, meaning that poorer people are left out of the program. In other
words, the more eligibility requirements there are and the stricter they are, the smaller the
group of potentially eligible beneficiaries.

The risk of committing these kinds of errors can originate during two stages of the policy: design and implementation. Regarding the former, inclusion and exclusion errors can emerge as a consequence of incorrectly identifying the target population. For example, they could result from design flaws in the mechanism: selecting personal and household characteristics that are not correlated with the real problem or risk factor. In addition, the implementation process, in other words identifying and approaching the program’s target population, can find itself dependent on or limited by the program’s ability to reach the target population: it is not clear who they are, where they are located, or how to approach them.

**Targeting Mechanisms.** The objective of targeting mechanisms is to correctly and efficiently identify which households meet the eligibility requirements and which do not. The methods for reaching a beneficiary group are divided into three categories: individual/family evaluation; categorical and geographic selection; and self-targeting.

The [individual/family evaluation](#) determines for each household or individual if the applicant meets the eligibility requirements established by the program. This type of tool requires the highest level of effort from the program.

Within this category, the [verified proxy means test](#) stands out. It compiles (nearly) complete information on household income level and/or assets and verifies this information with independent sources, such as spending, tax, and other records. This requires that verifiable records for the beneficiary population must exist and be updated regularly, as well as the need for the administrative capacity to process this information.

In the absence of the capacity to carry out a verified means test, other individual evaluation mechanisms are generally used. The three most common are simple proxy means testing, substituted proxy means testing, and community-based selection.

In *simple means testing*, the conditions stated by the beneficiaries are not verified. A household visit from one of the program’s social workers could help to qualitatively
corroborate that the apparent living conditions reasonably coincide with the stated data. On the other hand, evaluations performed by social workers could be completely qualitative and account for many factors related to the household’s needs and means, without the requirement to quantify them.

*Proxy means testing* is a system that scores each of the household or individual applicants based on easily observable characteristics, such as the location and quality of the residence, ownership of durable goods, household demographic structure, educational level, and employment status. The indicators or formulas used to calculate these scores and their weighting are derived from a statistical analysis of data from detailed household surveys. Generally, the information provided by the applicant is partially verified by gathering information from a household visit performed by a representative of the program.

*Community-based selection* uses a group of community members or one of their leaders whose principal function is not related to the transfer program to decide which members of the community should benefit from the program. An example of this is using special committees comprised of community members or a combination of community members and local officials to establish eligibility for a program. The idea behind this method is that local knowledge of families’ living conditions could be more accurate than data gathered via means testing performed by a program representative.

The risk of committing inclusion and/or exclusion errors resulting from the setting up and utilizing this type of mechanism is related to the level of correlation that exists between the individual or household characteristics that are evaluated and those which truly determine whether one is eligible or not, poverty for example. The more correlated actual poverty is with the means that are measured (educational level, household property, mobile phone ownership, etc.), the fewer inclusion and exclusion errors there will be.

The implementation of a targeting mechanism can result in these kinds of errors as well. For example, the capabilities of the workers responsible for gathering data from each individual/household determines the degree of error minimization.
**Categorical selection** refers to a method by which all of the individuals in a specific category meet the requirements to receive the benefit. This method is also known as statistical selection, classification, or group targeting and determines eligibility in terms of easily observable individual or family characteristics that are difficult to distort and are correlated with the relevant characteristic (for example, poverty). Examples include: age, gender, ethnicity, land ownership, demographic makeup, geographical location, the type of educational institution attended, and the type of formal healthcare coverage possessed. Age is a category that is frequently utilized in family cash transfer programs which are principally used in transitioning countries, in supplemental nutrition programs for children below age five which are common in poor countries, and in non-contributory pensions for the elderly. Characteristics like unemployment and disabilities are more difficult to verify, but it is also possible to use categorical selection for cash transfers to these groups.

Here again, correctly defining category in terms of its correlation to the real risk factor determines the degree of inclusion and/or exclusion error that may result.

**Geographic targeting** means determining the eligible population based on where they live (state, municipality, neighborhood, etc.). This type of mechanism is frequently used and is generally combined with other methods.

Finally, via **self-targeting** a program is open to the entire population, but its design includes features meant to incentivize just the participation of those households or groups that belong to a specific group (for example, poor households), thereby disincentivizing the participation of those that do not belong to this group. This is achieved by recognizing the differences in the private costs of participation faced by poor and non-poor households. Examples of self-targeting include:

- employment programs with low salaries, so that only unemployed workers with low or no opportunity costs will participate;
- delivering the transfer via a mechanism that includes lining up and is limited to certain hours;
• transferring in-kind benefits with characteristics of “inferior goods” (for example, flour, low-quality rice, etc.); and
• situating service delivery points (supply warehouses, clinics or hospitals, and participating schools, etc.) such that the non-poor population would incur greater costs (private and social).

III. Transfer programs in Bolivia

3.1 Juancito Pinto Grant (BJP)

In 2006, the national government of Bolivia decided to incentivize school enrollment and reduce desertion in the formal education system as one of its principal goals. Supreme Decree 28,899 created the conditional cash transfer program known as the Juancito Pinto Grant (BJP). The BJP provides an annual transfer of Bs. 200 as an incentive to reduce school absence and desertion and to increase children’s enrollment and continuity in the country’s educational institutions.

The target population consists of children and youth that attend the formal education system at public institutions. The program increased its target population over time, including more educational levels over the years, as shown in Table 1.

<table>
<thead>
<tr>
<th>Year</th>
<th>Decree</th>
<th>Educational levels reached</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>No. 28,899</td>
<td>1st through 5th years of primary school.</td>
</tr>
<tr>
<td>2007</td>
<td>No. 29,321</td>
<td>1st through 6th years of primary school.</td>
</tr>
<tr>
<td>2008</td>
<td>No. 29,652</td>
<td>1st through 8th years of primary school.</td>
</tr>
<tr>
<td>2011</td>
<td>No. 1,016</td>
<td>1st through 6th years of primary school and 1st and 2nd years of secondary school.</td>
</tr>
<tr>
<td>2012</td>
<td>No. 1,372</td>
<td>1st through 6th years of primary school and 1st, 2nd and 3rd years of secondary school.</td>
</tr>
</tbody>
</table>

Source: Authors’ elaboration based on official Decrees and Orichuela and Daga (2012)
For each year, the mechanism to identify potential beneficiaries uses categorical selection given that their eligibility is defined in terms of their individual characteristics.

After multiple modifications to the regulations, Supreme Decree 1,372 of 2012 established that the program’s target population consisted of all primary school students (first through sixth years) and students from the first, second, and third years of secondary school, including Special Education and Alternative Youth Education students from all public sector educational institutions and private institutions with agreements with the government. Additionally, the BJP sets an age limit of 18 years old in order to receive the grant for the formal education and alternative youth education systems. Based on this categorization, those children and adolescents that attend private educational institutions are excluded from the program’s benefits. Students must achieve a regular attendance rate of at least 80% during the school year in order to receive the transfer. Figure 3.1 shows the evolution of the number of beneficiaries and the total expenditure directed toward financing the BJP from 2006 to 2012.

Figure 3.1. Beneficiaries and total expenditure for the Juancito Pinto Grant. 2006-2012.

Source: Orichuela and Daga (2012)
3.2. Juana Azurduy Mother-Child Grant (BJA)

The Juana Azurduy Mother-Child Grant (BJA) was created in 2009 with the objective of “decreasing the levels of maternal and infant mortality and chronic malnutrition among children younger than two years old”. The target population comprises all pregnant women and children younger than two years old that do not have formal healthcare coverage. The stipend is a cash incentive of Bs. 320 that is given to the pregnant woman for attending four prenatal checkups, Bs. 50 for each one, a delivery attended by healthcare personnel, and one postnatal checkup (Bs. 120). For children younger than age 2, the program delivers a transfer of Bs. 125 for each of the child’s two-month development checkups. In total, the mother receives an incentive of Bs. 1,820.

The program comprises a “demand” incentive for healthcare services and covers all of the municipalities in the country.

Figure 3.2 shows the evolution of the number of beneficiaries and the program’s expenditure on transfers between 2009 and 2013. Given the high degree of turnover of pregnant women and children due to their short participation in the program, reduced annual affiliation efforts have resulted in a reduction in the number of beneficiaries.
3.3. My First Decent Job

The “My First Decent Job” Program’s (MPED) principal objective is to increase labor force insertion and improve employability among youth. It is directed at men and women between the ages of 18 and 24 that have completed primary school in the public system and/or schools with an Agreement with the public system, have limited resources, are from urban and suburban areas, and are unemployed.

In order for a young person to be considered eligible for the program, he or she must have a per capita family income below the poverty line and meet one of the following requirements:

- Electricity consumption per family. The government has determined that households with consumption equal to or less than 70 kWh per month are charged a “Dignity” rate because they are considered to be low-income families. Consequently, youth that

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3 The poverty line values are updated once they are published by the National Statistics Institute (INE) and take effect for eligibility evaluations performed for potential beneficiaries following the data’s publication by the INE.
come from households that consume up to 70 kWh of electricity are also considered low-income.

- Type of educational institution. The Bolivian Government has established that the Juancito Pinto Grant will be directed to children that study in state educational institutions or those that have agreements with the state, with the assumption that these institutions provide services to low-income families. This government-defined criterion is one of those adopted by the Program. Consequently, youth from state secondary schools or those with an agreement with the state meet the eligibility criteria established by the Program.

Implementation of the program began as a pilot in five cities (El Alto, La Paz, Santa Cruz de la Sierra, Cochabamba, and Montero) in 2009 and was extended to mid-2010, reaching a total of 2,562 beneficiaries. Following an evaluation process with an eye toward beginning the expansion phase, the program’s design was modified, coverage was expanded to the cities of Tarija and Sucre and the management of the program in Santa Cruz de la Sierra and Montero was combined.

The expansion phase was finally launched at the beginning of 2012 and was expected to be completed in the first semester of 2015, with a total of 1,400 young people trained. Beginning in July 2015, the Ministry of Labor, Employment, and Social Security (MTEPS) will launch a third phase of the program, increasing coverage to the nine departmental capital cities and Ciudad del Alto, in addition to 5 medium-sized cities with more than 50,000 inhabitants. During the next 5 years, the program is expected to provide 1,200 beneficiaries per year with basic and intermediate technical degrees.

In budget terms, even though the program received budget increases throughout the period, with the most significant in 2014, its implementations capabilities were weak. On average it has not surpassed an annual execution of more than 50% of its resources.
IV. Analysis of the effectiveness of the programs’ targeting mechanisms

4.1 Juancito Pinto Grant (BJP)

In the case of the BJP, two analyses of the targeting mechanism were performed utilizing the 2012 Household Survey. First, the program’s exclusion errors were analyzed, and secondly we evaluated whether or not the categorical selection criterion showed a relationship with the beneficiary household’s socioeconomic status.

Analysis of targeting errors in the BJP. The program’s target population is students under age 18 that are enrolled in the first 8 years of formal education in public educational institutions and private institutions with agreements with the state. Table 4.1 shows the distribution of beneficiaries by the type of educational institution they attend.
Table 4.1. Distribution of the beneficiaries of the Juancito Pinto Grant by educational institution and area of residence. 2012

<table>
<thead>
<tr>
<th>Type of educational institution</th>
<th>Total</th>
<th>Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public or State</td>
<td>91.1%</td>
<td>85.7%</td>
<td>98.7%</td>
</tr>
<tr>
<td>Private with agreement</td>
<td>8.9%</td>
<td>14.2%</td>
<td>1.3%</td>
</tr>
<tr>
<td>Private</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Source: Authors’ elaboration based on the ECH (2012)

According to the information provided by the 2012 ECH, the majority of the program’s beneficiaries attend public institutions, while less than 10% attend private schools with agreements.

With the goal of determining if the program is making exclusion errors, Table 4.2 presents the distribution of students under age 18 that have studied up to the eighth year of formal education, according to whether or not they receive the BJP transfer.

Table 4.2. Distribution of students up to the 8th year in public schools by their beneficiary status. 2012

<table>
<thead>
<tr>
<th>Institution</th>
<th>Non-beneficiaries</th>
<th>Beneficiaries</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public or State</td>
<td>18.69</td>
<td>81.31</td>
<td>100</td>
</tr>
<tr>
<td>Private with agreement</td>
<td>24.35</td>
<td>75.65</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Authors’ elaboration based on the ECH (2012)

The results presented in Table 3 suggest the existence of some 18.7% of students up to the eighth grade in state institutions and 24.4% of those that attend private schools with state agreements that do not receive the BJP’s cash transfer.

Analysis of the incidence of poverty in the BJP. Even though it is not explicitly explained in the law that created the program, it is possible that the categorical selection related to the presence of state funding in the schools that are the target of the program is related to the
objective of incentivizing the accumulation of human capital among the population that attends those schools. Additionally, it is assumed that the population that attends public schools or private ones with state agreements is poor and requires this type of incentive for the formation of human capital. Table 4 shows the incidence of poverty among students under age 18 by the type of educational institution that they attend.

**Table 4.3. Incidence of poverty among children up to 8th grade, by educational institution.**

<table>
<thead>
<tr>
<th>Institution/Area</th>
<th>Total</th>
<th>Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public – State</td>
<td>58.76</td>
<td>50.82</td>
<td>68.6</td>
</tr>
<tr>
<td>Private with agreement</td>
<td>40.63</td>
<td>39.05</td>
<td>62.88</td>
</tr>
<tr>
<td>Private</td>
<td>18.47</td>
<td>18.42</td>
<td>19.76</td>
</tr>
</tbody>
</table>

Source: Authors’ elaboration based on the ECH (2012)

Although the incidence of poverty among students at public institutions and private institutions with state agreements is greater than that among private institutions, there is a high percentage of non-poor students in those institutions. In effect, some 41.2% of the students at state schools and 59.4% of those that attend schools that have agreements with the state are not poor. Figure 4.1 shows that the presence of BJP beneficiaries among the above 60 percent of the income distribution in private institutions with agreements is much important than in public institutions. Finally, the use of public funding at schools as a proxy of poverty, leads to inclusion errors based on the mechanism’s design, especially for private schools with agreements, and to exclusion errors as almost 20% of students in private institutions is poor.
In conclusion, if one assumes that the objective of the BJP is to support poor children so that they complete their secondary education, then the targeting mechanism, based on its design, creates inclusion errors (non-poor children that attend public schools or those with state agreements) as well as exclusion errors (poor children that attend private schools).

4.2. Juana Azurduy Mother-Child Grant (BJA)

Just as we performed with the Juancito Pinto Grant, in this section we undertake an evaluation of the application of the program’s targeting mechanisms and an analysis of the incidence of poverty.

Analysis of targeting errors in the BJA. Table 4.4 shows the distribution of women by their status as beneficiaries of the Juana Azurduy Grant and whether they care for children under age 2.
Of the total number of women enrolled in the Juana Azurduy Grant, 88.4% have children under age two, while the remaining 11.6% do not have children. Of the total number of women in the latter group, 26.4% of them are pregnant and thus eligible for the grant.

With the goal of obtaining a better understanding of the profile of the program’s beneficiaries, Table 4.5 presents the distribution of beneficiary women in the Juana Azurduy Grant program by the type of healthcare coverage they have.

Of the total number of beneficiaries, 81.9% do not have short-term coverage, while 8.8% are covered by social security in health. In addition, 7.8% of the women beneficiaries have health insurance from the departmental governments. Finally, 1.5% of beneficiaries state that they have private healthcare coverage. These latter three categories of coverage signal clear inclusion errors. Although this inclusion error is small, concerns emerge related to the failings of the operational mechanisms of the categorical selection tool, inasmuch as it is not possible to clearly identify the type of coverage that some beneficiaries enjoy.
Keeping the eligibility criteria around the coverage of social security in health is a good proxy to the households’ level of poverty. Table 4.6 shows the distribution of women according to their level of poverty and the type of health coverage they have and it ratifies a strong correlation between the lack of health coverage and poverty. In effect, of the individuals that belong to poor households, one observes that 83% do not have health coverage.

Table 4.6. Incidence of poverty and type of health insurance. 2012

<table>
<thead>
<tr>
<th>Type of Health Insurance</th>
<th>Non-poor</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>No coverage</td>
<td>61.85</td>
<td>83.09</td>
</tr>
<tr>
<td>National Healthcare Fund</td>
<td>26.45</td>
<td>7.76</td>
</tr>
<tr>
<td>Universal Maternal-Infant Insurance</td>
<td>2.13</td>
<td>3.52</td>
</tr>
<tr>
<td>Departmental Government Health Insurance</td>
<td>5.99</td>
<td>4.46</td>
</tr>
<tr>
<td>Private</td>
<td>3.38</td>
<td>0.84</td>
</tr>
<tr>
<td>Other</td>
<td>0.2</td>
<td>0.33</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Authors’ elaboration based on the ECH (2012)

However, the table also shows a strong correlation between the lack of coverage and not being poor, with almost 62% of the non-poor also not having healthcare coverage. These results suggest that the use of the category of no healthcare coverage could also create an inclusion error based on the mechanism’s design.

Analysis of the incidence of poverty in the BJA. A poverty incidence analysis was undertaken, for which status as a beneficiary of the program was compared to level of poverty (Table 4.7) among the BJA’s target population.
Table 4.7. Status as BJA beneficiary and level of poverty.

<table>
<thead>
<tr>
<th></th>
<th>Beneficiary</th>
<th>Non-beneficiary</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>14.2%</td>
<td>33.5%</td>
<td>47.6%</td>
</tr>
<tr>
<td>Non-poor</td>
<td>10.7%</td>
<td>41.6%</td>
<td>52.4%</td>
</tr>
<tr>
<td>Total</td>
<td>24.9%</td>
<td>75.1%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Authors’ elaboration based on the ECH (2012)

Based on these values, if one adds a household’s level of poverty to the categorical eligibility criteria, then the exclusion error is 33.5% and the inclusion error is 10.7%. In terms of the first error, it is associated with the program’s operational problems, insomuch as it does not manage to reach the entire population of potentially eligible individuals. Figure 4.2 shows that almost 23% of beneficiaries of the BJA of the third quintile of income distribution, a population group that is vulnerable and eventually only exceeds the poverty line after receiving a transfer from the program. Finally, the existence of 25% of beneficiaries in the two highest quintiles of income distribution could be explained by the inclusion errors created by the lack of objective mechanism of verifying the coverage of social security in health (the program uses self declaration instead of cross data base checking).

Figure 4.2. Distribution of Juana Azurduy beneficiaries by quintile of household income

Source: Authors’ elaboration based on the ECH (2012)
Figure 4.3 shows the *Pen’s Parade* of the beneficiaries according to the household’s gross per capita income net of the transfers received from the Juana Azurduy Grant along with the value of the official poverty line. The objective is to obtain a better understanding of the importance of the value of the transfer on the level of household income. The results uncovered suggest a null impact from the stipend on individual income levels.

**Figure 4.3. Pen’s parade for the beneficiaries according to gross income and net of the transfer from the Juana Azurduy Grant.**

2012

Source: Authors’ elaboration based on the ECH (2012)

### 4.3. My First Decent Job (MPED)

The “My First Decent Job” Program’s principal objective is to increase labor insertion and improve employability of young people. It is aimed at men and women between the ages of 18 and 24 that have completed primary school in public schools or those with agreements with the state, have low income, are from urban and suburban areas, and are unemployed.

As was mentioned previously, an individual targeting mechanism based on simple means testing is applied which combines a self-declared household income with the presentation of an energy bill or demonstration of attendance at a public educational institution. The
program’s eligibility limits are a per capita income below the poverty line and household energy consumption below 70 kWh.

Due to the impossibility of identifying the beneficiaries via the ongoing household survey, the following paragraphs present an approximation of the target population based on estimating electricity expenditure, the type of educational institution that young persons attended, and their level of poverty.

Household expenditure on electricity associated with consumption less than 70 kWh per month is calculated based on the information presented in Table 4.8:

<table>
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<th>Charges</th>
<th>Consumption band</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Charge</td>
<td></td>
<td>Bs/month</td>
<td>22.420</td>
</tr>
<tr>
<td>Variable Charges</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st Block</td>
<td>0 to 50</td>
<td>Bs/kWh</td>
<td>0.065</td>
</tr>
<tr>
<td>2nd Block</td>
<td>51 to 140</td>
<td>Bs/kWh</td>
<td>0.414</td>
</tr>
<tr>
<td>3rd Block</td>
<td>141 to 300</td>
<td>Bs/kWh</td>
<td>0.380</td>
</tr>
<tr>
<td>4th Block</td>
<td>301 to 500</td>
<td>Bs/kWh</td>
<td>0.408</td>
</tr>
<tr>
<td>5th Block</td>
<td>Above 500</td>
<td>Bs/kWh</td>
<td>0.439</td>
</tr>
</tbody>
</table>

Source: Supervision and Social Control Authority for Electricity

Based on this information, consumption of 70 kWh is equivalent to:

\[
G_{l,c \leq 70} = (22.420 + 50 \times 0.065 + 20 \times 0.414) \times 1.15 = Bs40
\]

A household that spends up to Bs40 per month would be consuming less than 70 kWh during said period. Based on this calculation, and with information from the ECH (2012), it is possible to identify those households that consume less than 70 kWh per month.

**Analysis of the incidence of poverty in the MPED.** Figure 4.4 presents the distribution of the population under age 24 that has completed primary school, according to their level of

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4 An additional cost should be added to the total amount calculated here, representing the cost of Public Lighting which on average is equal to 15% of the total amount.
poverty, type of educational institution they attend or attended, and the energy consumption of the household to which they belong.

Figure 4.4: Distribution of youth under age 24, according to level of poverty, educational institution, and monthly electricity consumption.

2012

Source: Authors’ elaboration based on the ECH (2012) and Table 10.

Among the young people that are below the poverty line, some 45.8% attend/attended a public educational institution and consume less than 70 kWh of electricity; 0.2% only consumed less electricity than the established parameter; and 51.4% only attended a formal public educational institution.

These results suggest that the probability of committing an exclusion error is not significant from the point of view of the design of the eligibility requirements, to the extent that the majority of young people living in poverty also meet at least one of the other two requirements. Nonetheless, this mechanism contains some risks. On one hand, it could create an exclusion error, if a phenomenon of stigmatization of poverty were to present itself. This has a greater probability of occurring in geographic areas with heterogeneous income levels. On the other hand, an inclusion error could occur if there were incentives to understate income. With this in mind, given that a large proportion of non-poor young people (85.5%)

- 24 -
meet at least one of the other requirements, there could be incentives to understate household per capita income.

In this context, and considering institutional capabilities, one alternative in order to avoid these risks is to utilize records for means testing. Having recognized this possibility, in the future the Ministry of Labor, Employment, and Social Security has decided to use the results of the Single Registry of Beneficiaries targeting mechanism implemented by the Ministry of Development Planning for the Program. The next section analyzes the general characteristics of the Registry and its potential to be used in Bolivia’s social protection programs.

V. Estimation of inclusion and exclusion errors in the new Single Registry of Beneficiaries

With the goal of improving the quality and coverage of the current and future registries of beneficiaries of social programs in Bolivia, the Ministry of Development Planning, through the Unit for Analysis of Social and Economic Policies (UDAPE), developed a targeting mechanism known as the Single Registry of Beneficiaries (RUB) that utilizes the means testing method. The Ministry of Development Planning aims to reach agreements with the social programs operated by the various Ministries that utilize beneficiary selection mechanisms based on vulnerability and/or poverty. Following the example of other countries, such as Peru’s Household Selection System (SISFOH) and Colombia’s Social Program Potential Beneficiary Identification System (SISBEN), a single, poverty-based targeting mechanism allows for selection criteria to be standardized, reducing identification costs and improving the final results of the targeting process.

The development of the RUB represents a planning and monitoring tool that would allow policymakers to create a database of households and their members based on their demographic and socioeconomic characteristics in order to categorize households according to their level of poverty. The demographic and socioeconomic characteristics are collected through a survey carried out in a census of households located in specific areas of the country. The RUB uses a probit model in order to estimate the probability that an individual/household will be below the poverty line as a function of the data collected by the RUB survey. The
objective is not just to determine the significance of the collected variables, but also to establish an estimate of the potential exclusion and inclusion errors that could occur.

The regressors to be considered are divided into 3 groups of variables:

i. Personal characteristics: age, gender with a value of one if the individual is male, educational level, and employment status.

ii. Characteristics of the residence: urban/rural, residential property, principal material used in the walls.

iii. Household characteristics: mobile and fixed telephone ownership, household members per room.

In order to evaluate the significance of the variables and the potential inclusion and exclusion errors, we utilized data from the Ongoing Household Survey (ECH) from 2012. The survey’s objective is to generate and follow indicators on the incidence of poverty, wellbeing, and the population’s living conditions. The survey is performed at a national level, covering both urban and rural areas. Therefore, the study population included the sum of all private residences and their occupants in urban and rural areas of the country.

Taking into consideration the demographic and socioeconomic variables from the RUB, we performed a multivariate analysis designed to estimate the probability of belonging to a poor household as a function of this set of characteristics.

The estimates undertaken show a good regression adjustment, with a success ratio equivalent to 69%. As was expected, the educational level is negatively associated with the probability of being poor. Similarly, the number of household members per room positively affects the likelihood of poverty. On the other hand, those households that reside in urban areas and have fixed line and/or mobile telephone service are the households with the least probability of falling below the poverty line.

People’s economic status significantly affects the probability that they are poor in terms of income. In effect, being employed or unemployed has a lesser or greater impact on poverty, respectively, in relation to inactivity.
Finally, the effects of home ownership are not so clear. The estimator of the dummy variable that takes a value of one if the household residence is owned turns out to be statistically significant and positive in terms of explaining the probability of being poor. Although this result is counterintuitive, it is associated with the low variability of this characteristic among the study population.

Table 5.1. Econometric results. Probability of being poor

| Variables                        | Coefficient | Standard deviation | z    | P>|z| |
|----------------------------------|-------------|--------------------|------|------|
| Male                             | 0.0141255   | 0.037              | 0.380| 0.701|
| Age                              | 0.0043429   | 0.006              | 0.770| 0.443|
| Age2                             | -0.0000503  | 0.000              | -0.880| 0.378|
| Identification Document          | 0.2563267** | 0.113              | 2.270| 0.023|
| Member of indigenous group       | 0.2210223***| 0.033              | 6.680| 0.000|
| Healthcare coverage              | -0.4337224***| 0.036           | -12.150| 0.000|
| Primary education                | -0.3145823***| 0.060        | -5.250| 0.000|
| Secondary education              | -0.3815922***| 0.067         | -5.650| 0.000|
| Higher education                 | -0.6860626***| 0.073       | -9.350| 0.000|
| Employed                         | -0.2802988***| 0.053       | -5.260| 0.000|
| Unemployed                        | 0.5471131***| 0.148          | 3.710| 0.000|
| Homeowner                         | 0.1365598***| 0.043          | 3.190| 0.001|
| Renter                            | -0.0259516   | 0.050             | -0.510| 0.607|
| Urban                             | -0.0097166   | 0.047             | -0.210| 0.835|
| Walls with plaster                | -0.0061046   | 0.043             | -0.140| 0.886|
| Overcrowding (members/room)      | 0.2075785***| 0.015           | 13.780| 0.000|
| Has a cell phone                  | -0.1899203***| 0.040      | -4.730| 0.000|
| Has a fixed line telephone        | -0.1358767***| 0.045      | -3.050| 0.002|
| Water service via the public network | -0.0431474 | 0.044       | -0.980| 0.325|
| Sewer service via the public network | -0.2751582***| 0.045     | -6.080| 0.000|
| Electricity                       | -0.3124525***| 0.059    | -5.330| 0.000|
| Constant                          | 0.2488785    | 0.193             | 1.290| 0.198|
| Number of observations            | 8415.0       |                   |      |      |
| Wald chi2(21)                     | 1546.3       |                   |      |      |
| Prob > chi2                       | 0.0          |                   |      |      |
| Pseudo R2                         | 0.2          |                   |      |      |
| Log pseudolikelihood              | -4697.9      |                   |      |      |
| Success ratio                     | 69.0%        |                   |      |      |
Inclusion error 19.1%
Exclusion error 11.9%

Source: Authors’ elaboration based on the ECH (2012)

Based on this theoretical exercise, we estimate that the design of the RUB generates an inclusion error of 19.1% and an exclusion error of 11.9%. The exposure to these kinds of errors is always present. Policymakers’ efforts focus on minimizing their presence, and this is dependent on the number and type of characteristics that are gathered in order to approximate the state of income poverty.

The definition of the target population based on its level of income poverty, requires some mechanisms other than self-declaration in order to eliminate the risk of understatement. In general, means testing mechanisms gather a set of characteristics related to the household, the residence, and the members that make it up, and this is actually one of the causes of the existence of these kinds of errors. In that regard, the characteristics of the residence, the building materials for example, are aspects that are more linked to the concept of structural poverty or to unmet basic needs (NBI) than to a lack of resources. In general, the correlation between the direct and indirect concepts of poverty is not one-to-one, due to the fact that a lack of resources does not necessarily mean there are unmet needs, given that goods and services can come from public, family, accumulated capital sources.

Nonetheless, this exercise is a theoretical approximation of the potentially achievable results with this mechanism based on a probit model. The final calibration of the mechanism should be performed when it is put to use with a significant group of beneficiaries.

VI. Conclusions and future challenges

The Plurinational State of Bolivia launched the BJP, BJA, and MPED programs in 2006. They are designed to promote the accumulation of human capital among households and improve employability. The three programs are directed toward well-defined population groups and present specific eligibility requirements. With the exception of the MPED, the programs’ goals do not explicitly include covering the poor population. However, given that the challenges
that the BJP and BJA aim to cover are strongly correlated with a household’s poverty level (secondary school desertion, infant malnutrition, and a lack of access to healthcare services), in this paper we sought to evaluate the effectiveness of the targeting mechanisms for covering the poor population. In order to do this, we evaluated the inclusion and exclusion errors resulting from applying the mechanisms to the general population and to the programs’ beneficiaries.

The inclusion and exclusion errors from the BJP and BJA are moderate when the effectiveness of the design of the identification mechanism is evaluated. If one assumes that the objective of the BJP is to support poor children to complete their secondary education, then the targeting mechanism, based on its design, generates inclusion errors (non-poor children that attend public schools or private schools with state agreements at a rate between 40% and 60% approximately) and exclusion errors (poor children that attend private schools at a rate near 15%). In turn, the BJA, which considers not just the type of health insurance that the beneficiary has, but also her level of poverty, generates a potential inclusion error of 10% and an exclusion error of 33%.

Meanwhile, in the case of the MPED the probability of committing an exclusion error is not significant in terms of the design of the eligibility requirements insomuch as the majority of young people living in poverty also meet at least one of the other two targeting requirements (formal education in the public system or a private school with a state agreement and household electricity consumption at the social rate level). In any case, the mechanism contains some risk of generating inclusion errors associated with the household income level requirement because incentives to understate income could exist, especially within the group of non-poor young people that meets the selection criteria (some 85% of non-poor youth meet at least one of these requirements).

Keeping in mind the limitations of identifying the poor population as demonstrated by the mechanisms evaluated in the three programs, one notes a future opportunity to begin to use the results of the means testing selection mechanism developed under the auspices of the Single Registry of Beneficiaries (RUB), as implemented by the Ministry of Development
Planning (MPD). This tool attempts to obtain an estimate of individuals’ level of income poverty, according to a set of characteristics related to their residences, households, and household members. The results of an initial evaluation of the tool’s effectiveness have shown low inclusion and exclusion errors—fewer than those generated by the current mechanisms.

The MPD is in the process of collecting household data and is beginning to reach agreements with the various social programs so they can use this targeting mechanism. Accordingly, the MPED decided to utilize the results of the RUB once it has covered the program’s target cities. Subsequent agreements with other social programs will improve their effectiveness in terms of targeting, while at the same time increasing their efficiency by decreasing the cost of beneficiary selection.

Clearly, this entails a very significant qualitative change, insofar as the use of the RUB involves explicitly stating the poverty level as an eligibility criterion for social protection transfer programs.
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Abstract
As part of the 2006–2011 National Development Plan, the Plurinational State of Bolivia launched two cash transfer programs and one youth labor training program aimed at promoting the accumulation of households’ human capital: the Juanito Pinto Educational Grant, the Juana Azurduy Mother-Child Grant, and My First Decent Job. The objective of this paper is to analyze the effectiveness of the targeting mechanisms utilized in these programs. Based on the information provided by the Ongoing Household Survey, we estimate the mechanisms’ potential inclusion and exclusion errors. The results permit us to suggest that the categorical selection mechanisms used in the three programs are effective in reaching the poorest population, although they present distinct levels of inclusion and exclusion errors associated with both the design and implementation problems of the particular mechanism utilized.

Effectiveness of Targeting Mechanisms Utilized in Social Protection Programs in Bolivia
Ignacio Apella and Gastón Blanco

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