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"FAIRNESS IN SOCIAL POLICY: THE DILEMMA BETWEEN UNIVERSALISM AND TARGETING

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I wanna thank me for... for never quitting
I wanna thank me for always being a giver
And tryna give more than I receive
I wanna thank me for tryna do more right than wrong
I wanna thank me for just being me at all times

Snoop Dogg

Tenue rey, sesgo alfil, encarnizada
reina, torre directa y peón ladino
sobre lo negro y blanco del camino
buscan y libran su batalla armada.

No saben que la mano señalada
del jugador gobierna su destino,
no saben que un rigor adamantino
sujeta su albedrío y su jornada.

También el jugador es prisionero
(la sentencia es de Omar) de otro tablero
de negras noches y de blancos días.

Dios mueve al jugador, y éste, la pieza.
¿Qué Dios detrás de Dios la trama empieza
de polvo y tiempo y sueño y agonía?

Ajedrez - Jorge Luis Borges (1899-1986)

ABSTRACT

In the context of social policy, policymakers don't have complete certainty about who deserves or needs a social program. This uncertainty can lead to two types of errors: false positives (giving to those who do not deserve it) or false negatives (not giving to those who do deserve it). However, this has not been studied under scenarios of inequality. The aim of this study is to examine the relationship between: inequality type, inequality level, and uncertainty in how an spectator allocates a transfer resource between two individuals labeled as potential beneficiaries of a social program. Employing concepts from behavioral and experimental economics, and using a novel experimental design; the findings indicate that both uncertainty and the type of inequality, whether fair or unfair, influence the how individuals allocate resources with them being more averse to false negatives relative to their aversion to false positives. Furthermore, people also have a preference to lose budget when there is uncertainty. The findings suggest that governments should take into account the concept of deservingness when shaping social policy, while also considering the fairness of inequality. This consideration extends beyond social policy to include compensations that enterprises may offer, which could be perceived as unfair between workers.

Contents

1. Introduction

1.1. Motivation

In the realm of public policy application and design, particularly in the context of social programs, it is often challenging to definitively determine who should receive a social benefit and who should not. This challenge can result in a situation where people who should receive a benefit do not receive it and people who should not do in fact receive a social benefit; this is also called a Pareto suboptimal equilibrium, prompting economists to advocate for the pursuit of a "second best" option. Within the framework of redistributive policies, the "second best" entails the inability to provide assistance to those who deserve it (false negative) and the provision of assistance to those who do not deserve it (false positive). However, there is limited research on preferences in second-best scenarios (Cappelen, Cappelen, and Tungodden; 2023). In this study I expand this research to investigate: how does inequality perceptions and fairness preferences impact on the acceptance of universalizing social programs?

Moreover, in the discourse surrounding the design of social programs, the principles of fairness play a significant role in shaping economic decisions and redistributive initiatives. Nonetheless, during the implementation phase, our efforts to provide assistance can inadvertently lead to errors, causing a misallocation of resources. These errors are what we called the second best scenario and the preference for each type of error (be it a false positive or a false negative) may depend on the initial distribution of resources within the population.

The study by Cappelen et al. (2007) presents experimental evidence showing that people do not only take inequality into account when distributing resources, but also consider fairness. The researchers used a modified version of the dictator game to conduct their study. This diversity in preferences highlights the need for further exploration.

The consideration of fairness is essential when dealing with second-best scenarios, particularly in the allocation of resources to vulnerable populations in uncertain situations where the optimal solution is a second best. It's important to highlight that while a particular solution may be deemed efficient in theory, there may be other solutions that are not efficient in monetary terms but align with a broader, more abstract definition of what is considered the best option.

I will describe he discussion of what is considered fair through two fundamental

pillars. The first is the axiological (normative) pillar, which discusses the values of social programs themselves, while the second pillar is the empirical one (usually through experimental economics) that is complemented with economic theory.

1.2. Social Policy in Mexico

So far, we have observed that policymakers are faced with the challenge of navigating complex social dynamics when deciding on the distribution of welfare social programs. My motivation to study the fairness perception of social programs stems from a recent event in Mexico, where in 2018, a government came into power that placed social policy at the center of its discourse. (Medrano-Buenrostro and Velazquez-Leyer; 2023)

This recent development on Mexican social policy sparked debate among inequality experts (Esquivel-Hernández; 2023, Jaramillo-Molina; 2023a,b,c, 2022), as some academics viewed the change as positive in principle but flawed in implementation. They argued that individuals in higher deciles (the wealthier ones) received a larger share compared to those deemed more deserving. While some simply mentioned that the discussion should not focus so much on the distribution within the program, but on the specific assistance it provided to those in the lowest deciles. In that sense, there seems to be a question of how open someone is to universalism, in other words, how resistant they are to false negatives and false positives. This discussion can be seen in both the previously cited articles and the following link where Dr. Esquivel, Dr. Jaramillo, and Dr. Cárdenas present their viewpoints on the issue in a moderated discussion forum at El Colegio de México.

In this way, there are several examples of non-academic people expressing aversion to false positives which can be found. For instance, in a X (Twitter) post, a student from Ibero mentioned during a forum with the mayoral candidate Clara Brugada that her grandparents should not be receiving "Pensión Adultos Mayores" because, since they are rich, they don't need it[1].

Given the amalgamation of preferences for redistribution and the relevance of social policy in Mexico, it seems noteworthy to discuss this preferences to understand what motivates the reasoning behind them.

[1]For the Mexico City 2024 mayor election.

1.3. Evolution of social policy in Mexico

Based on the discussion mentioned on the previous section, I analyzed the evolution of social programs to give a bigger picture of social policy in Mexico. Using data from ENIGH the figure 1 illustrates the coverage evolution of social policy in Mexico. In Figure 2, the evolution of the average amount received by individuals is shown, grouped by per household decile and per capita decile.

Upon observing Figure 1, it becomes evident that social policy has become less progressive: fewer individuals in the first decile are receiving any type of social program, while the coverage has increased from 7% to 24% for the tenth decile (the wealthiest). This trend is intriguing and, devoid of moral judgement, it is easy to see why some people could consider unfair that poorer people receive less social benefits compared to the wealthier.

On the other hand, upon examining Figure 2, it is apparent that the wealthiest individuals (the tenth decile) have long been receiving a larger share of social program resources. However, it is also important to note that the amount received has increased for all deciles, indicating that the poorest deciles are receiving more.

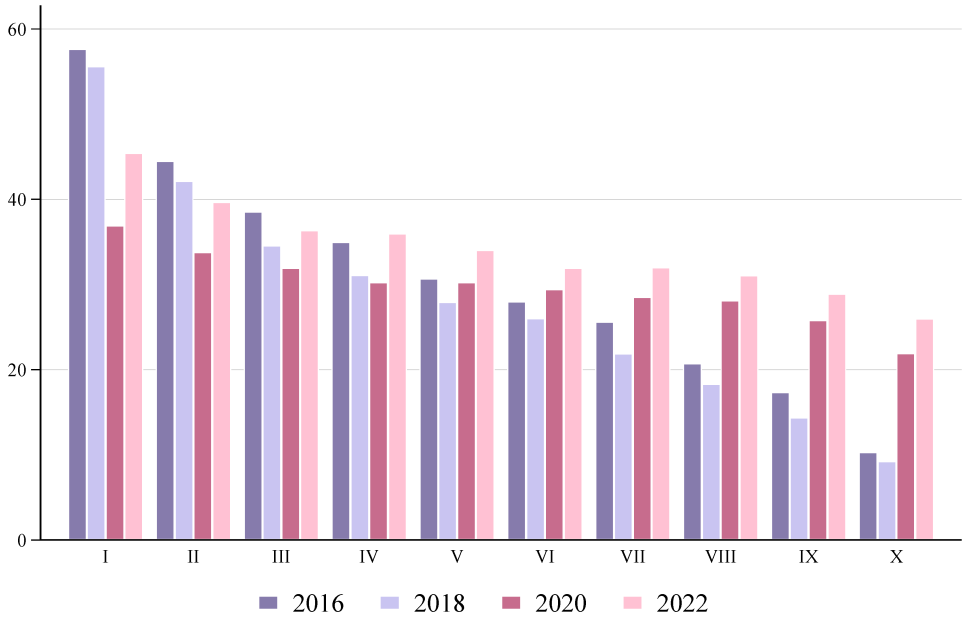
In other words, we have observed an increase in coverage for the poorest deciles but a decrease for the richest deciles. This is evident for both household income deciles and income per capita deciles. However, we also note that the average support amount has increased for all deciles. When we break down this information by decile, we find that fewer people in poverty receive financial support, but they receive a higher average amount (when measured at the household income level). Additionally, more wealthy individuals receive support and they receive a higher amount.

Where does this money come from? We can observe a new breakdown in section 6 where I present this results for each social program. Another noteworthy comment is that the decile presented here is for post-transfer income, in the appendix C, I present information for deciles pre-transfer.

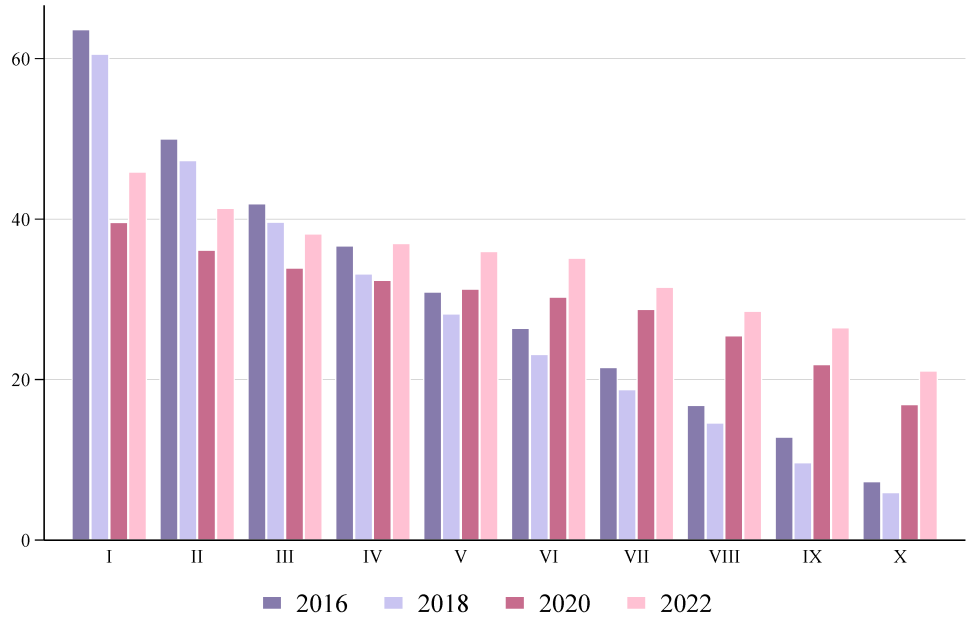
From the previous descriptive analysis, the question arises as to whether people agree (in general terms) with the idea that more universal social programs are preferable. This, of course, without the risk of someone in need not receiving them. Or if more targeted social programs are preferred, where there is a risk that someone in need may not receive them.

FIGURE 1. Percentage of Individuals Receiving a Social Program by Decile

A. Household Decile



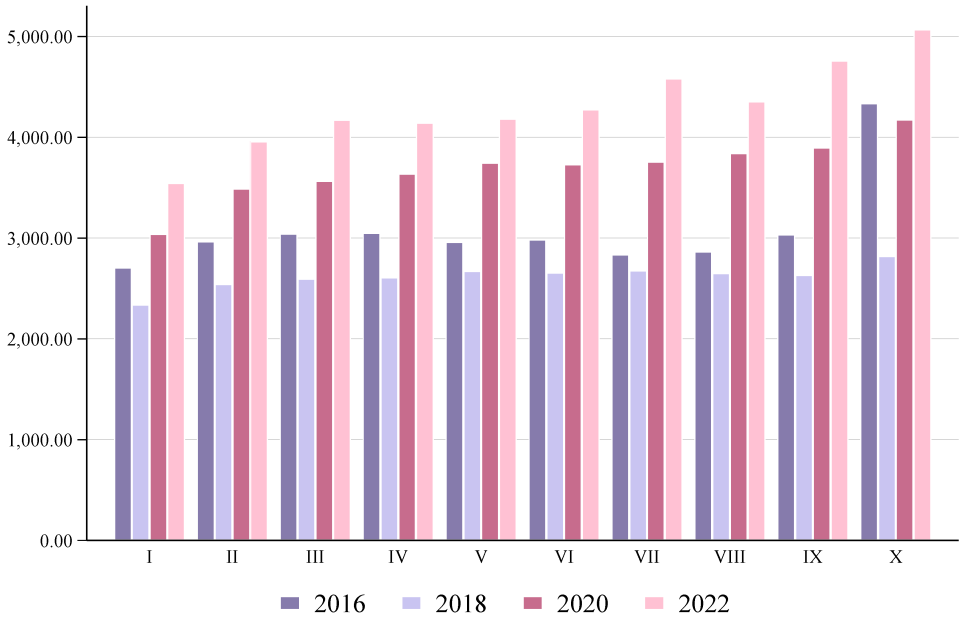
B. Person Decile



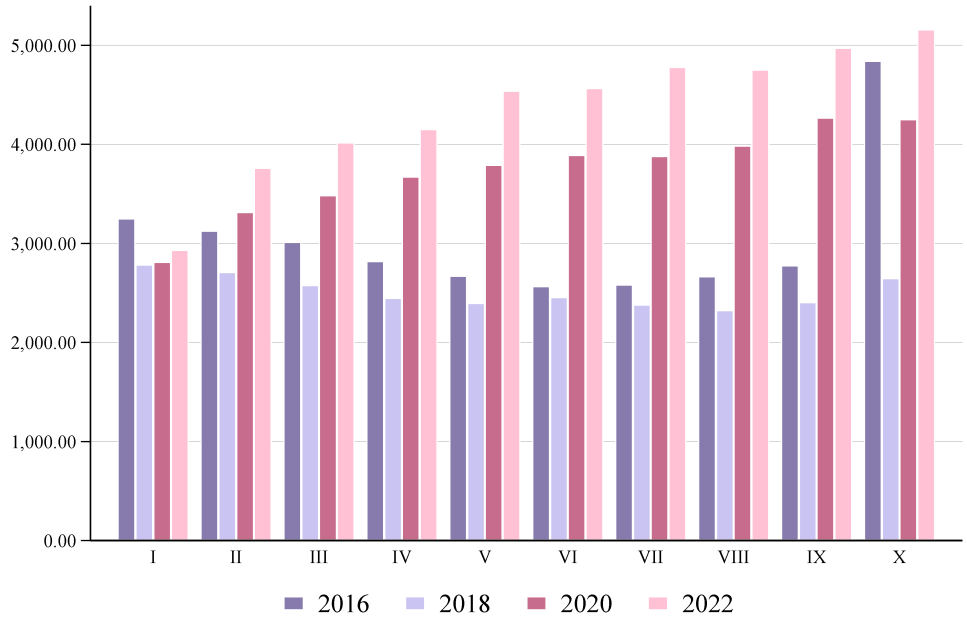
Notes: Authors own construction using ENIGH data. The panel 1A displays the percentage of individuals receiving government program transfers, broken down by household income decile. The panel 1B displays the percentage of individuals receiving government program transfers, categorized by per capita income decile.

FIGURE 2. Average Income via Social Program by Income Decile

A. Household Decile



B. Person Decile



Notes: Authors own construction using ENIGH data. Both panels have been conditioned that the individuals analyzed are in fact receiving a social program. The panel 2A shows the average ammount of money individuals received by government program transfers over household income decile. The panel 2B shows the average ammount of money individuals received by government program transfers over per capita current income decile. Both graphs have been adjusted for 2018 prices.

1.4. Contribution

Finally, before proceeding with the literature review in which I analyze the axiological (normative) and theoretical discussion, the significance of my investigation lies in the different forms of redistribution and the potential reactions from the population. For example, implementing a universal program may result in a situation where the wealthy appropriate more benefits than the poor, leading to false positives. However, if the level of inequality is relatively low, the aversion to the false positives could also be lower. It is important to note that while universalism does not guarantee it, it does increase the probability of the poor receiving support, thereby reducing the probability of false negatives.

This debate between universal or targeted social policy is not new, as I mentioned during the introduction, different population groups have different points of view. While the discussion has mainly taken place in the axiological field of social policy and in terms of the effectiveness of social programs, little has been said and explored empirically about fairness preferences, whose impact is also important for evaluating the scope of social policy.

This type of preference heterogeneity is something I will explore, learn from, and understand how it can lead us to improve the well-being of everyone in society. Social preferences are important but not fixed; the improvement of society is possible, and my contribution is through research and learning. My hope is that this thesis can help steer the discussion on universalism of social policy.

2. Literature Review

2.1. The Axiological Discussion

Social programs are a phenomenon that impacts the economy of the population. This phenomenon is fraught with moral dilemmas with questions such as "Is it fair to give to everyone?" or "How do we define who should receive what?" These questions are the reason why the axiological discussion (the normative discussion) of what is fair within the framework of social programs is necessary.

To begin, I will provide an overview of the global discourse, followed by a discussion of the dialogue within Latin America.

2.1.1. The discussion between universality and focalization

When policy makers are deciding on which welfare policy to implement, they are often influenced by historical circumstances and the power dynamics among different actors involved in the policy process. These factors play a significant role in shaping the approach towards either universal or targeted welfare. (Sefton; 2008)

Advocates of universal welfare contend that imposing more stringent eligibility criteria based on subjective notions of "deservingness" can be invasive upon individuals' personal and financial circumstances. Such an approach may also result in the stigmatization of recipients and potentially exacerbate social divisions. Moreover, since identifying needs can be challenging, many individuals in need may not receive assistance, making non-take-up a more significant issue than eligibility requirements (Atkinson; 1983, 1993, 1995). These arguments can be understood as false-negative aversion. That is, aversion to not giving help to those who deserve it.

Supporters of targeted welfare argue that it is a more efficient approach to tackling poverty and can be equally effective. By not providing universal aid, resources can be directed towards helping those who are below the poverty line. This allows for minimized transfer costs through better targeting. Additionally, it is important to note that stricter eligibility requirements should not be stigmatizing. Instead, they can help ensure that those who truly need assistance are the ones receiving it (Mitchell, Harding, and Gruen; 1994). These arguments can be understood as false-positive aversion. That is, aversion to giving help to those who do not deserve it.

2.1.2. The discussion in Mexico and Latin America

This discussion has had significant echoes in Latin America given the importance of redistributive policies in the region. In this section, I provide a review of some articles that address this issue.

For example, on the approach proposed by Ochman (2016), social cohesion is discussed as a desirable yet debated phenomenon in its nature. The material inequality undermines social cohesion[2]. Although the focus of social programs is to reduce this material inequality, it can inadvertently lead to symbolic inequality. She says that when targeted social policies designate individuals as deserving, they may inadvertently portray them as weak or incapable of self-sufficiency. This creates a symbolic inequality,

[2]The term social cohesion is widely discussed in academic circles one definition could be described as the glue that binds society together. More can be consulted on Moustakas (2023).

positioning deserving individuals as dependent on the assistance provided, rather than as empowered and capable individuals. Meanwhile, material inequality promotes the isolation of privileged groups, creating physical and symbolic separation that stigmatizes others. This results in the poor being discriminated against and unjustly represented as irresponsible or criminal, leading to the misconception that they do not deserve public assistance.

In this article, based on (Esping-Andersen; 1990) she mentions that social policy is derived by three main political ideologies of welfare capitalism[3] and that under the criteria of deserving (not rights) potential beneficiaries are evaluated under 5 elements, among them are: Degree of control over the causes of need, Need, Identity, Attitude, and Reciprocity.

In this approach, Dr. Ochman mentions that the perception of deservingness is socially constructed and therefore, also modifiable. With the conclusion that social policies should be universal with a focus on rights. She uses as an example the "Programa de Atención Integral para Madres Solas Jefas de Familia (2014)".

One interesting perspective is presented by Gonzales-Martínez (2017), who advocates for a mixed strategy in the implementation of social policy. According to this perspective, universal coverage should be the primary policy in areas with low polarization but high levels of poverty and an early stage of demographic transition. However, in regions with higher polarization and lower poverty, a targeted policy that promotes employment among vulnerable sectors is justified due to the potential productive population. The analysis focuses on Paraguay and calculates a multidimensional polarization coefficient, which forms the basis of the study and is defined as a form of symbolic inequality, as mentioned by Dr. Ochman in previous research discussed.

In de Barros and de Carvalho (2004), the authors discuss the relevance of both universal and targeted policies in addressing inequity. They first present a conceptual discussion of the definitions of both types of policies. They argument that targeting can be defined in two ways. First, as *giving priority to the most deprived,* where it can coexist with universalization as it prioritizes specific groups equally. Second, as *only attending to the most deprived,* where only specific priority groups are addressed. In this sense, the position of both authors is based on the reduction of inequality that universality does not have sufficient tools to combat.

In Boltvinik (2005), the mention was made of how poverty-targeted programs make

[3]Liberal, Obligatory social security and Social Democrat.

two known errors, namely type I (false negative) or type II (false positive). These focalized programs focus solely on correcting type II errors, avoiding the wastefulness of benefiting those who do not need it, but affecting many who are actually in poverty. The author argues, based on Sen (2003), that the targeting system of Oportunidades fails against the poor, as it generates discriminatory processes against them while attempting to prevent false positives (type II error).

In de la Jara (2011), they mention the Brazil's Bolsa Familia program, which innovated within the field of social programs. In Latin America, targeting became the paradigm following the relative success of Prospera/Oportunidades/Progresa. The Bolsa Familia program universalized targeting (sic) by defining a target population of individuals falling below a certain income threshold, but providing benefits to all, similar to the approach of the "Pensión Adultos Mayores" program where there is a target population based on age but everyone over that age has the right to claim it.

2.1.3. A small conclussion

As we can see, there are many ways to think about redistributive social policy, which is defined through different objectives. This demonstrates the varied preferences for redistributive justice, as well as different geographical perspectives.

2.2. The Empirical Discussion

2.2.1. Fairness preferences and inequality aversion

Different approaches to the idea of fair redistribution in economics have been explored. For instance, Le-Grand (1982) argues that taxpayers may be willing to support redistribution to the poor if it takes the form of providing specific services that they deem fair: I would argue as an example that we could be paying taxes to provide water to the poor but not if it meant to provide cinema tickets. This is based on the *merit good argument*, which suggests that taxpayers may have an altruistic, but paternalistic concern for the welfare of others. Tobin (1970) argues for *specific egalitarianism*, stating that certain commodities should be distributed more evenly than just based on the ability to pay for them: For example, poor communities may not be able to pay for health services a reason to contribute for social security services. This is important in contexts with high levels of inequality, markets cannot achieve perfect efficiency in allocation, especially when fairness preferences are taken into consideration. This is because those with

larger incomes tend to monopolize the consumption of goods in question. Therefore, it is crucial for policy makers to be aware of this issue.

One of the primary responses to income redistribution is the issue of inequality, as it is one of the most prominent topics in the discussion of political economy. Considerations of inequality impact economic decisions such as wages or resource allocation within a household (Atkinson; 2015). Hence, the critical question arises: Is there an unequal distribution that can be considered fair? Starmans, Sheskin, and Bloom (2017) argue that fairness is a universal moral concern they argument this from the conclusion from comparative psychologists whom claim it to be a universal and unlearned human capacity. However, there is no consensus on what is fair and unfair. Some may view inequality as unfair because it reflects luck, while others may see it as fair because it reflects effort (Cappelen, Falch, and Tungodden; 2020).

In the seminal papers by Fehr and Schmidt (1999) and Bolton and Ockenfels (2000), the analysis of economic behavior models inequality aversion. Cappelen et al. (2013) propose a new allocation model that consider a function of fairness preferences.

2.2.2. Pluralism of fairness ideals

The current focus on fairness stems from the discussion proposed by philosopher Rawls (1999), which led to liberal egalitarian theories of justice. These theories make a distinction between factors for which a person is responsible and those for which they are not, such as effort and luck (Cappelen, Falch, and Tungodden; 2020).

In this way, inequality is considered fair or unfair depending on its origin. They identify there are three main theories to explain this phenomenon:

- *Egalitarian fairness view:* Income inequality, whether due to luck or effort, should be eliminated.
- *Meritocratic fairness view:* Inequalities due to effort are considered fair, while inequalities due to luck are unfair.
- *Libertarian fairness view:* Inequalities, whether due to effort or luck, should be allowed as they are considered fair.

The literature has used these theories to focus on how people do consider fairness in the distribution of resources. To demonstrate this, previous studies have used experimental methods, specifically the dictator game, has been used[4]. A significant number

[4]The dictator game is a game theory experimental approach where there is a dictator and a receiver. The dictator has to give an ammount of money to the receiver.

of individuals have been found to be willing to forego their own economic interests in order to avoid unfair outcomes. (Almås, Cappelen, and Tungodden; 2020, Engel; 2011).

Thus, Almås, Cappelen, and Tungodden (2020), Cappelen et al. (2007) aim to identify the distribution of ideal fairness in the population (Norway and the USA) using variations of the dictator game. In Almås, Cappelen, and Tungodden (2020), it was found that while the majority of people in both countries (close to 50%) act in accordance with meritocratic ideals, the second most prominent ideal differs. In the USA, the libertarian ideal is more prominent, while in Norway, it is the Egalitarian ideal. On the other hand, Cappelen et al. (2007) found that people distribute resources based on considerations that cannot be reduced to a mere aversion to inequality.

2.2.3. Second Best Fairness

In the context of public policy, the dynamics are far from being a dictator's game. In their study on social preferences regarding redistribution through social programs, Cappelen, Cappelen, and Tungodden (2023) employ a probabilistic scenario using experimental economics to simulate a second-best outcome.

In their article, the authors examine the changes in the redistribution of individuals in the USA and Norway when there are changes in the probability of experiencing false positives or false negatives. They find that the majority of individuals in both countries are more averse to false negatives even though there is heterogeneity in fairness ideals.

2.3. Contribution to the literature

In this thesis, I aim to build upon the recent paper by Cappelen, Cappelen, and Tungodden (2023) by exploring an unaddressed question: the impact of inequality on perceptions of fairness in second-best scenarios. This is a significant question not only for the field of behavioral economics but also for the analysis of public policy in Latin America, where many countries face high levels of inequality. Additionally, I will connect the existing literature, including political economy and ethics, to the study of fairness preferences. Finally, I will propose a new research design to investigate preferences in second-best scenarios. Therefore, this thesis contributes to the literature in experimental economics, political economics, and the debate on the universalization of public policies in developing countries.

3. Conceptual and Theoretical Framework

3.1. Conceptual Framework

3.1.1. Trade-off between policies

Policy makers consider initial endowments but are uncertain about how to allocate them perfectly. Therefore, they use eligibility criteria to identify those who deserve social programs.For example, consider a program aimed at increasing attendance for disadvantaged students. In order to implement such a program, the government must identify who the disadvantaged individuals are (as well as define what it means to be disadvantaged). With these results, they can establish eligibility criteria.

These criteria serve as disincentives for individuals who are not eligible (and therefore do not deserve) to apply for the program. However, it is a double-edged sword, as even eligible individuals have to go through a tedious process. The main purpose is to ensure that only those who deem the transfer important will go through the procedure, considering that it incurs a cost. So we have the next trade-off based on the strictness of our eligibility criteria. This is our false positive and false negative dilemma. Which type of error is preferred? Which type of error is fair?

3.1.2. Inequality aversion

So far, we have only observed a reluctance to make any kind of mistake, whether positive or negative. However, this reluctance can also be associated with a resistance to inequality. For some, the greater the inequality, the less appealing universalism would appear. After all, why give something to someone who already has everything? On the other hand, for others, greater inequality would make universalism more appealing, since there are too many poor people. They do not mind if a rich person receives a benefit as long as it also benefits the poor.

Let us remember that these types of transfers are a political choice[5], and we do not have unlimited resources. As we saw in the previous trade-off, if we universalize, although everyone receives something, they receive less compared to if we target specific individuals, even if some eligible individuals do not receive it.

To illustrate this consider two potential beneficiaries of a social program whose initial endowments/wealth are represented by $W = \{w_1, w_2\}$, where $w_1 < w_2$. If a

[5]Governments have to engage in the discussion on who should receive them and why.

government transfer, denoted as ξ, is introduced through a social policy, it results in four possible states.[6]:

$$
\begin{aligned}
W^1 &= \{w_i + \xi\} \quad \forall i = 1, 2 \\
W^2 &= \{w_1 + \xi, \quad w_2\} \\
W^3 &= \{w_1, \quad w_2 + \xi\} \\
W^4 &= \{w_1, \quad w_2\}
\end{aligned}
$$

Here, we can categorize the transfers as follows:

- W^1 is a universal transfer that benefits both individuals, regardless of their initial wealth.
- W^2 represents a targeted strategy where only the person with lower wealth receives the transfer.
- W^3 is a strategy where only the person with higher wealth receives the transfer.
- W^4 represents a scenario where no policy is in place.

Based on a modified version of the utility equation proposed by Fehr and Schmidt (1999) in which they model aversion to inequality, one can assume that the order of the first best allocation preferences[7] of an inequality averse person is: $W^2 > W^1 > W^4 > W^3$

However, fairness ideals also influence how resource allocation is distributed (Cappelen et al.; 2007). If a person strongly opposes false negatives, their preferences may result in the following structure: $W^2 \sim W^1$, indicating that the person is indifferent between a universal program and a targeted program.

3.1.3. Conceptual Model

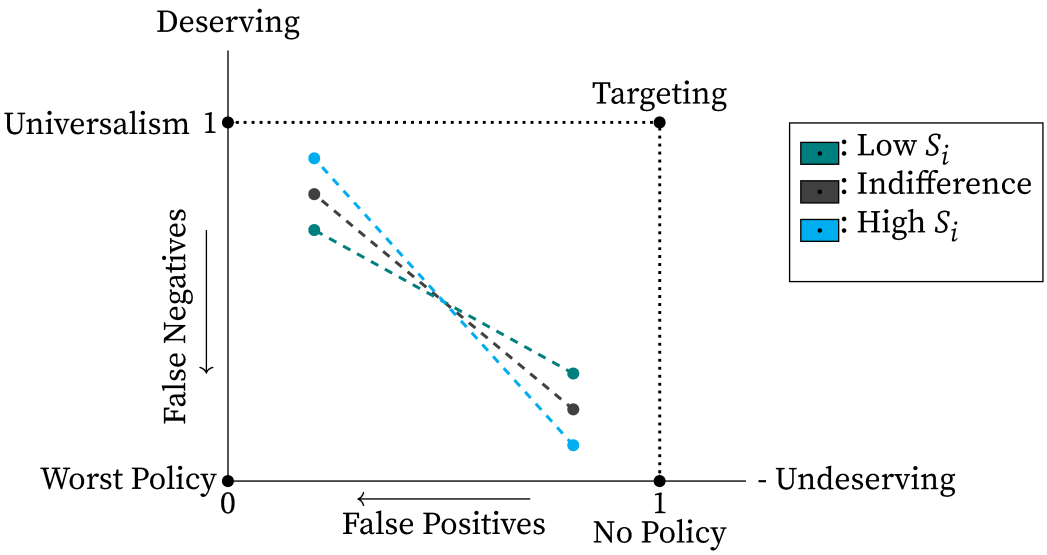
In Figure 3, we observe a graphical representation of this discussion, where S_i denotes the sensitivity to universality, reflecting the openness to universal social programs.

The definition of S_i can be seen at appendix B for a more profound reasoning behind the intuition of the model.

[6] These assignments can either increase inequality (i.e. W^3), decrease it (i.e. W^1 and W^2), or maintain the status quo (i.e. W^4).

[7] These preferences are hypothetical and come from a third-party spectator. On this result please refer to Appendix A.

FIGURE 3. Fairness Box



In this figure, the horizontal axis represents the proportion of undeserving people who do not receive the transfer, while the vertical axis represents the proportion of deserving people who receive the policy. Note that the reason for using the horizontal axis in this way is to represent the intuition that it is not good for undeserving people to receive the transfer.

We can observe that the figure is bounded by four corner points. The first point (0,0) represents the worst type of policy, where all undeserving individuals receive the transfer while none of those who deserve it do. In contrast, the point (1,1) represents "targeting", where all deserving individuals receive the transfer and none of the undeserving do. The point (1,0) represents a situation with no policy implemented. Finally, the point (0,1) represents universalism, where everyone receives the policy.

Notice that while approaching 0 on the horizontal axis increases the number of false positives, while approaching 0 on the vertical axis increases the number of false negatives.

In this basic figure, we can illustrate three types of preferences for reducing false positives and negatives. Someone with low sensitivity to universalism, denoted as S_i, will be more averse to false negatives relative to their aversion to false positives; An indifferent person will have equal aversions; And finally, a highly sensitive person will have more aversion to false positives relative to their aversion to false negatives.

From here, we can derive the following two general lemmas:

LEMMA 1. *If a person is infinitely averse to false positives* $\Rightarrow$ *High* S_i $\Rightarrow$ *indifference between Universalism and Worst Policy.*

LEMMA 2. *If a person is infinitely averse to false negatives* $\Rightarrow$ *Low* S_i $\Rightarrow$ *indifference between Universalism and Best Policy.*

PROOF. To demonstrate this lemmas we use the formal equation for $S_i = \frac{\sigma_{fp}}{\sigma_{fn}}$ then if $\sigma_{fp} \to \infty$ then $S_i \to \infty$

This same proof goes for lemma 2 □

3.2. Theoretical Framework

Following Cappelen, Cappelen, and Tungodden (2023), I will use a version of the utility function they propose to model the utility of a person choosing the payments ξ_i for the potential beneficiary i where $i = A, B$ and each potential beneficiary has an initial wealth w_i.

First, we model a fair payment function with respect to the deserving condition of each potential beneficiary $J(\xi_i, m_i, n_i)$ where m_i is the fair payment when the person deserves the benefit ξ and n_i is the fair payment when the person does not deserve the benefit. For now, to simplify the model, I present the fair payments as x_i where $x = m, n$.

$$
\begin{aligned}
J(\xi_A, \xi_B, x_i) = &- \alpha|\xi_A - x_A| - \beta|\xi_B - x_B| - \gamma|w_A + \xi_A - w_B - \xi_B| \\
&- \lambda_{fpa}\xi_A - \lambda_{fpb}\xi_B - \lambda_{fna}(m_A - \xi_A) - \lambda_{fnb}(m_B - \xi_B)
\end{aligned} \tag{1}
$$

In equation 1 the parameter α weighs the severity of deviating from the fair payment for beneficiary A, whether they deserve it or not. Similarly, β is the weight of deviating from the fair payment for beneficiary B. These deviations are measured by the absolute value of the difference between the chosen payment ξ_i and the fair payment that the individual considers x_i. On the other hand, γ weighs the importance of post-payment inequality (i.e., once payments have been made to potential beneficiaries). Additionally, I include the parameters λ, which represent the costs of making errors. λ_{fpi} is the cost of making a false positive, which multiplies the actual payment, while λ_{fni} is the cost of making a false negative, which multiplies the fair payment $m_i - \xi_i$.

Then, this fair payment equation must be multiplied by the joint probability of A and B being deserving $P(M_i)$ or undeserving $P(N_i)$ to obtain the total utility shown in the equation 2

$$U(\xi_i) = P(M_A)P(N_B)J(\xi_i, m_A, n_B) + P(N_A)P(M_B)J(\xi_i, n_A, m_B) \tag{2}$$

4. Method and Materials

Following the literature we have seen so far, I used incentivized experimental economics (Campos-Vazquez; 2017, Angner; 2021, Dhami; 2016, Wilkinson and Klaes; 2022) to investigate the effects of inequality and uncertainty on resource allocation of a deserving transfer. This method was chosen because social policy makers have to take into account the preferences of the electorate. However, it is important to remember that these preferences are mutable and dynamic, so further research may be required to better understand how my results relate to real world applications. In the following sections, I will explain the experimental design and the actions taken to maintain randomization.

4.1. Experimental Design and Main Hypothesis

We used an impartial spectator experimental design based on the literature (Konow; 2009, 2012, Tungodden; 2004). Participants were tasked with making a decision on the allocation of a budget[8] to a monetary transfer. This transfer required participants to determine the amount of money to allocate between two individuals as well as the amount to withhold in this way. For the purpose of this thesis lets call this two individuals potential beneficiary A and potential beneficiary B while labeling the amount withheld as N. As a result, I analyzed three key variables: the allocation to A, the allocation to B, and the amount that was not allocated (N).

The representation of fairness, whether fair or unfair, was done as follows: For the fair inequality experimental arm participants were informed that individuals A and B had previously collaborated on a first task that required effort, and they were compensated accordingly with the payments given as follows: $10 if High effort, $5 if medium effort and $0 if low effort. While for the unfair inequality experimental arm A and B were compensated for their effort via luck (a random allocation).

After this first task, A and B were given the option to participate in a second task. One of the individuals chose to participate, while the other did not. However, both individuals had the opportunity to claim payment for the second task. This scenario

[8]The budget for my experiment was $5 although small it is similar to other economic experiments.

aimed to determine which of the two potential beneficiaries was genuinely deserving of the payment, while the other was falsely claiming it. This illustrates a realistic situation where a public servant would have to decide whom to grant the payment to, as it is not certain who among them is truly deserving.

We created pairs of A's and B's to establish different inequality levels. The high inequality level was represented by one person receiving $10 and the other receiving $0. The medium inequality level was represented by one person receiving $5 and the other receiving $0. Lastly, the equality level was represented by both individuals receiving $5.

And to create uncertainty in these pairs, we knew who the true deserving party was (either individual A or B) according to our criteria. However, a veil of probability was placed so that the participant does not know who the deserving party is, although they do know that one is deserving and the other is not. The probability determines who is the deserving individual, so if A has a probability of 1 of deserving it, then B would have a probability of 0. We chose three probability groups: 0|1, 0.25|0.75, and 0.5|0.5. In this way, even though we are not creating a specific scenario about social programs, we are studying in an abstract way the distribution of payments when there is no perfect certainty about the deserving and undeserving potential beneficiary.

In Table 1, the structure of each group is presented. The structure of how the questions were asked can be seen at the Appendix D. For example, experimental group 1 corresponds to a scenario of high inequality where in stage two, the probability of who did the second task is given by probabilities of 1 for A (deserved) and 0 for B (undeserved) and the amounts for the first task were assigned according to effort (in this case A put more effort). Meanwhile, group 10 corresponds to a scenario of high inequality where in stage two, the probability of who performed the second task is given by probabilities of 1 for A and 0 for B, and the payments for the first task were assigned randomly without considering the effort.

TABLE 1. Experimental Arms

Fair Arm | Unfair Arm	Degree of uncertainty		
	0 / 1	0.25 / 0.75	0.5 / 0.5
High Ineq	Group 1 | 10	Group 2 | 11	Group 3 | 12
Low Ineq	Group 4 | 13	Group 5 | 14	Group 6 | 15
Equality	Group 7 | 16	Group 8 | 17	Group 9 | 18

By comparing each group horizontally, we can observe the uncertainty effect, while

the inequality effect can be observed vertically. Additionally, comparing each arm allows us to observe the fairness inequality effect.

This change between groups would impact how much money the participants allocated. We can formulate my two main hypothesis as follows:

Hypothesis 1. *The level of inequality reduces people's sensitivity to universality (via a mechanism that makes them less averse to false positives), regardless of the origin of the inequality. However, people are more sensitive to inequality when it is perceived as unfair.*

Hypothesis 2. *People are more inclined towards targeted policies when there is less uncertainty (more certainty) about who the deserving recipients are, due to a mechanism that favors the targeting.*

4.2. Procedure

We implemented the experiment at FCA UNAM, involving students from various academic levels whose professors agreed to lend their class time for the experiment. Each student was required to sign an informed consent letter in order to continue their participation. Although their decisions were not incentivized, they were aware that their choices would have real-life consequences, as the potential beneficiaries were real people who would be affected by the decisions made. This resulted in a total sample size of 330 students.

For the scenarios the experiment used a within comparisons in a 3x3 factorial design with 2 experimental arms in which participants will be subjected to 5 out of a total of 18 different experimental groups/treatments[9] which resulted in a total of 1650 observations. These groups were divided into three dimensions:

a. Experimental Arm: Fair or Unfair Inequality
b. Inequality Level: High (transfer resistant), Low (transfer eliminates it), Equality
c. Uncertainty Level.

The randomization was carried out at the individual level in each of these dimensions, but also on the five groups to which our participant would be subjected, as well as the order in which they would respond these five groups. We ensured balanced groups by implementing a fivefold randomization process. As shown in Table 2, we do not

[9] From now on, I will use the term "group" because technically, using the word "treatment" without a control group is incorrect.

observe differences across the groups that would endanger the causal interpretation of our results.

TABLE 2. Participants Characteristics

	Mean	Sd
Fairness arm	0.502	0.500
Probability 0/1	0.341	0.474
Probability .25/.75	0.311	0.463
Probability .5/.5	0.349	0.477
High Inequality	0.324	0.468
Low Inequality	0.331	0.471
Equality	0.345	0.475
Age	19.443	1.512
Years to finish	2.567	0.852
Female	0.549	0.498
Work	0.248	0.432
Perceive wealth	46.596	16.814
Fairness	0.514	0.500
Uncertainty	0.659	0.474
Proportionality	0.167	0.373
False negative aversion	0.568	0.496
False positive aversion	0.243	0.429
Inequality aversion	0.227	0.419
Treatment group	9.557	5.195
Observations	1635	

Notes: The table presents summary statistics for the distribution of spectators to each treatment and their background variables. The "Fairness arm," "Probability i," and "Inequality level" are all dummy variables representing the treatment. "Age" represents the average age in years, "Years to finish" represents the average years to finish the participants degree, "Female" represents the share of female individuals, and "Work" represents the share of individuals who are employed. "Perceived wealth" is the average wealth perceived, with 100 indicating richness and 0 indicating poverty. "Fairness," "Uncertainty," "Proportionality," "False aversion," and "Inequality aversion" are all qualitative variables representing the shares of participants who alluded to these respective characteristics. "Treatment group" represents the average treatment, with an expected value of 9.

4.3. Measurement

To answer our research questions we conducted two types of regressions, the first being a simple regression of type:

$$Y_j = \beta_0 + \beta_1 X + \beta_2 C \tag{3}$$

where:

- Y_j is the amount assigned to person j. Here, j can take on the values A, B, or N;

- β_0 represents the intercept of the regression equation;
- X is the vector of variables that depend on the Experimental Group (Inequality Level, Uncertainty Degree, Type of Inequality);
- C is the vector of control variables that we add for precision;

The second measurement strategy was a logit-regression represented as:

$$P(U = 1|X) = \frac{1}{1 + e^{-(\beta_0 + \beta_1 X + \beta_2 C)}} \tag{4}$$

where:

- U is a dummy that indicates whether the assignment was universal, meaning that the participant assigned the same amount to both A and B;
- The vectors X and C are the same as the regression aforementioned.

4.4. Exclusion Criteria and Data Management

Three participants were excluded from the final sample. One was excluded due to a failure to provide a positive response to the letter of consent, while the other two were excluded for not responding to one or more of the assigned groups; Following standardized ethical guidelines in experimental economics, we interpret failing to answer all cases as retracting the informed consent.

For 5 participants I normalized the amount assigned for data management when some participants exceeded their budget. This involved adjusting the total amount they assigned to align with their budget constraints. For instance, if the budget was 5 and a participant assigned to potential beneficiary A 10 and potential beneficiary B was assigned 0, the amounts were normalized to 5 and 0, respectively. As a robustness measure the results were calculated including and excluding this participants and our main results are not affected.

4.5. Internal and External Validity

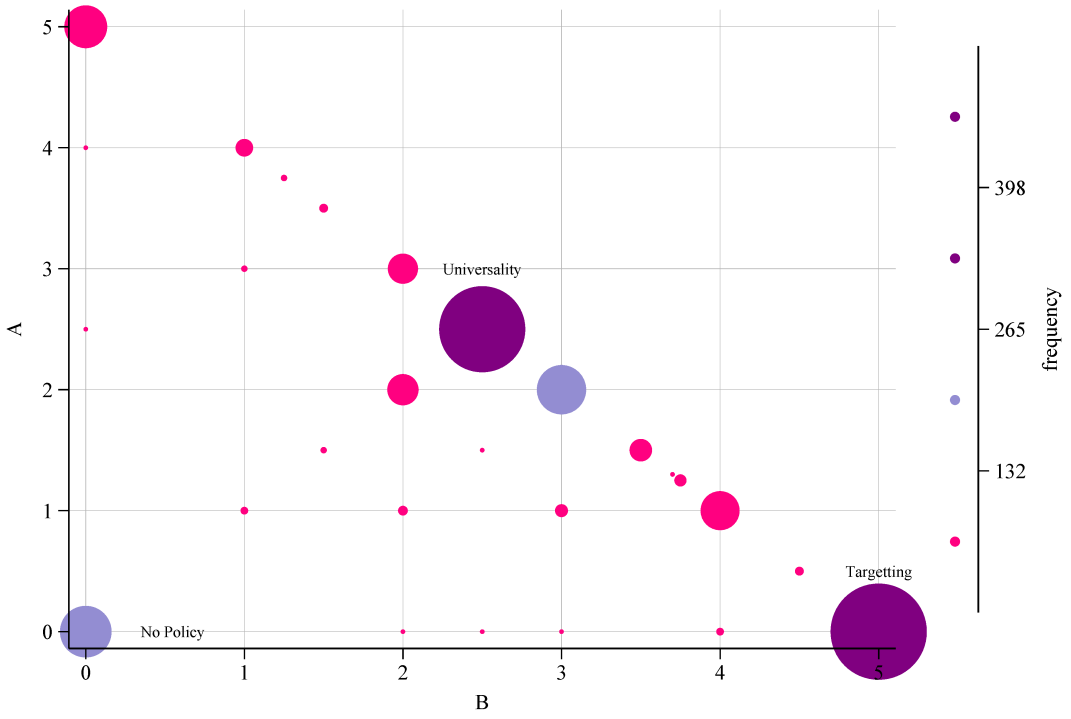
The experiment has high internal validity because randomization was carried out in dimensions that could affect it providing strong validity regarding the causality of our results. On the other hand, to discuss external validity, further research is needed.

5. Results

5.1. Allocation Analysis

First, let's analyze the causal relationship of interest between the variables AB. In Figure 4, we can observe how participants allocated amounts to the potential beneficiaries. There are three main clusters of allocation: Advocates for either Universalization (2.5, 2.5); No Policy (0, 0); or Targeting (5, 0).

FIGURE 4. Distribution of assignations for AB



Notes: The figure illustrates the allocation relationship between two potential beneficiaries, A and B with each dot's size and color corresponding to its frequency of occurrence. Purple is a higher frequency.

In Table 3, we can observe the statistical analysis, which reveals that individuals do show redistributive preferences. Using treatment group 16 (Unfair Equality and 0/1 probabilities) as the base, I ran a linear regression with standard errors clustered by participant. For all specifications, we analyze the monetary transfer that participants make to each potential beneficiary. In specification (1), we observe that participants care about the fairness of the origin of inequality. In the cases where the inequality is fair (i.e. driven by differences in effort), the participant with less money (participant A) receives less than in the case where the inequality is due to luck. Similarly, if their probability of

being the deserving recipient is 0.25 (or 0.5), the assigned amount increases by 0.532 (or 1.133) pesos. These results are statistically significant. On the other hand, although we did not find statistical significance in the level of inequality; it is interesting to note that as the inequality increases from low to high, the coefficient also increases this indicates that the experiment participants give little weight to inequality in relation to the notion of deservingness. For specification (2), we added controls finding similar results.

Having identified these results, it is not surprising to observe that the coefficients for potential beneficiary B, as seen in specification (3), go in the opposite direction. Remember that for each potential beneficiary, inequality and probabilities benefit B.

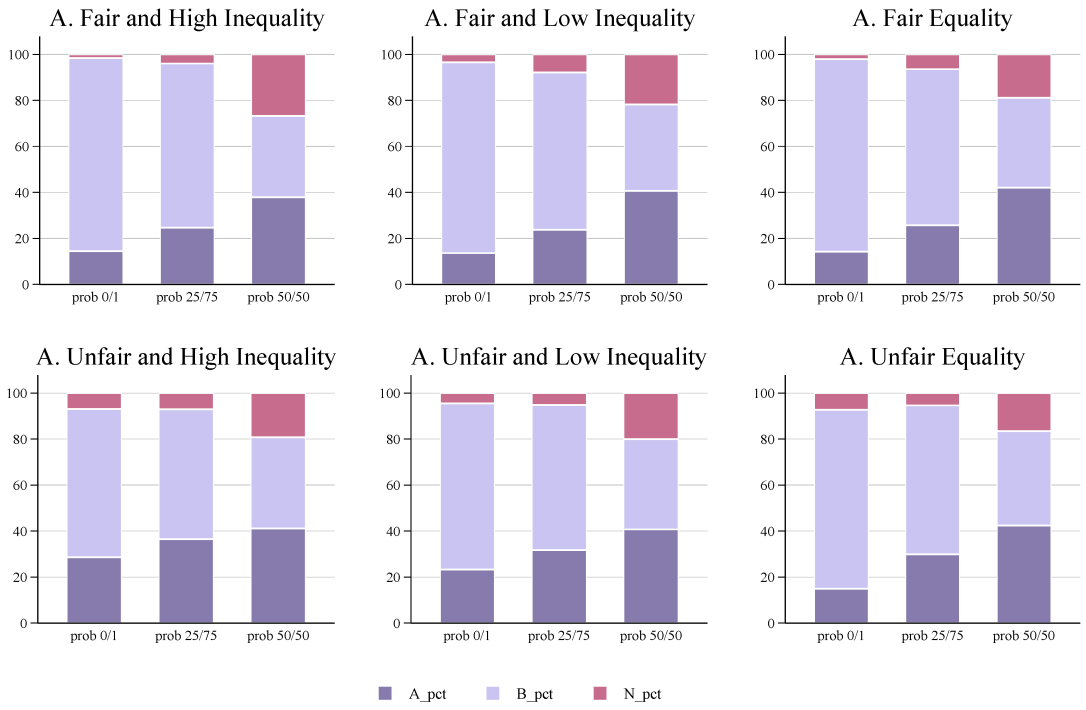
TABLE 3. Regression: Analysis of Treatment Effects for Variables ABN

	A		B		N	
	(1)	(2)	(3)	(4)	(5)	(6)
Fairness arm	-0.278***	-0.263**	0.271**	0.280**	0.007	-0.017
	(0.082)	(0.085)	(0.096)	(0.101)	(0.100)	(0.102)
Probability .25/.75	0.532***	0.524***	-0.616***	-0.614***	0.084	0.091
	(0.090)	(0.091)	(0.098)	(0.099)	(0.069)	(0.073)
Probability .5/.5	1.133***	1.159***	-1.943***	-1.958***	0.810***	0.800***
	(0.098)	(0.099)	(0.105)	(0.106)	(0.105)	(0.107)
High Inequality	0.115	0.121	-0.194*	-0.207*	0.079	0.086
	(0.081)	(0.084)	(0.083)	(0.084)	(0.075)	(0.076)
Low Inequality	0.041	0.051	-0.092	-0.101	0.051	0.050
	(0.081)	(0.082)	(0.085)	(0.086)	(0.071)	(0.074)
Age		0.018		-0.038		0.020
		(0.033)		(0.040)		(0.046)
Years to finish		0.093		-0.095		0.002
		(0.057)		(0.070)		(0.081)
Female		-0.024		0.160		-0.136
		(0.086)		(0.101)		(0.105)
Work		-0.127		-0.149		0.276*
		(0.097)		(0.123)		(0.128)
Perceive wealth		0.002		-0.003		0.000
		(0.003)		(0.003)		(0.004)
Constant	0.988***	0.282	3.841***	5.067***	0.171*	-0.350
	(0.088)	(0.734)	(0.111)	(0.925)	(0.086)	(1.019)
N	1,634	1,570	1,634	1,570	1,634	1,570
R^2	0.113	0.121	0.239	0.250	0.065	0.074

Notes: The table reports the OLS regression on ammounts allocated to potential beneficiaries A and B as well the amount withdrawn N. Fairness arm, Probability-i and j-Inequality are treatment indicators. Controls include Age, Years to finish grade, if participants gender is female, if participants work and perceived wealth status.
Standar errors clustered by participant in parentheses and * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

However, it is also important to mention that between the allocation between A and B not only the sign is opposite but the amount is not exactly the same this is explained because part of the change goes to N, as seen in specification (5), which is also interesting because even though there is no statistical significance except for the uncertainty degree 0.5/0.5, all coefficient values are positive as well as its constant. This means that people are willing to lose budget to not favor either of the potential beneficiaries, which could be interpreted as aversion to false positives. This becomes relevant when we observe that the more uncertainty there is among the beneficiaries, the more budget they are willing to lose with statistical significance. Furthermore, the amount they are willing to lose approaches the amount originally assigned to A.

FIGURE 5. Mean Percent of the Total Budget Distributed to A,B, and N



Notes: The figure illustrates the average percentual allocation from the budget to each experimental group. i_pct is the allocation to potential beneficiary i with $i = A, B$ and N_pct is the lose of budget.

When we observe Figure 5, the results are reaffirmed. This figure displays the percentage of the budget allocated to each potential beneficiary (A, B, and N) for each experimental group. As it can be seen from panel A in the Fair and High inequality lose of budget for the certainty scenario (prob 0/1) is almost null but also when there is high uncertainty (prob 50/50) is where most budget lose is made on average.

5.2. Universalism Analysis

For this section, the results presented in table 4 are aimed to analyze the question "What determines our universal allocation?" To do this, the equation 4 was used, where a dummy variable called Univ was determined for each allocation when it was 50% of the budget for A and B. For example, if the budget is $5, then Univ = 1 if A = B = 2.5.

The logit model without controls is shown in column (1). Here, it is observed that neither the type of inequality nor low uncertainty determine the probability of universalizing the transfer.

TABLE 4. Logit: Analysis of Treatment Effects for Variable Univ (Percentual)

	Univ	
	(1)	(2)
Fairness arm	-0.098	-0.099
	(0.181)	(0.186)
Probability .25/.75	0.296	0.310
	(0.203)	(0.212)
Probability .5/.5	2.942***	3.053***
	(0.215)	(0.221)
High Inequality	-0.872***	-0.888***
	(0.154)	(0.160)
Low Inequality	-0.853***	-0.848***
	(0.162)	(0.167)
Age		-0.046
		(0.073)
Years to finish		-0.057
		(0.122)
Work		0.331
		(0.239)
Perceive wealth		0.009
		(0.007)
Female		0.533**
		(0.194)
Constant	-1.966***	-1.820
	(0.213)	(1.644)
N	1,635	1,570
Pseudo R^2	0.269	0.287

Notes: The table presents the logit odd-ratios coefficients for the dummy variable Univ that takes the value 1 if there was a 50%-50% assignation for A-B.
Standard errors clustered by participant in parentheses and * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

An expected result is that the 50/50 probability strongly determines universalization,

as people should be making a quick calculation of efficiency and decide to allocate 50/50 of the budget. On the other hand, surprisingly (at least based on hypothesis 1), both high and low inequality decrease the odds of universalism. However, in hindsight, this seems a reasonable result since when people observe inequality, those with greater wealth become more salient. If we complement this result with the previous ones, we can conclude that people, under high levels of inequality, have more aversion to false positives than to false negatives. Similarly, in specification (2), controls are added to refine the estimation. It is interesting to observe how women have a greater propensity to universalize social programs.

5.3. Robustness

The requirement for participants to answer multiple questions may introduce a learning bias, meaning that as they answer more questions, they may gain a better understanding of their responses, potentially compromising the integrity of the study. To avoid this bias, I present Table 5.

In this table I ran the same specifications as Table 3, but only comparing the first response of each participant.This reduces our sample to only 327 observations and diminishes our statistical power. However, the results are consistent with what has been presented so far. It is also important to note that the presence of uncertainty does have a significant effect. On one hand, more is given to potential beneficiary A and less to potential beneficiary B. Another recurring and interesting result is how participants prefer (through their decision) to lose budget in favor of not making a mistake. Although this does not specifically reveal which error they want to avoid.

5.4. Mechanisms

In this subsection, I discuss potential mechanisms that may drive the redistribution choices on inequality acceptance and uncertainty effect.

If we consider the results obtained by Cappelen, Cappelen, and Tungodden (2023), it appears that people have a greater aversion to committing false negatives, which seems to be the case for my sample. However, we also observe that people are reluctant to give when there is uncertainty. This means that individuals do not want to commit false positives, although to a lesser extent than false negatives. In other words, people are sensitive to universality but not enough to be indifferent between universalism and targeting.

TABLE 5. Regression: Analysis of Treatment Effects for Variables A,B and N Between

	A		B		N	
	(1)	(2)	(3)	(4)	(5)	(6)
Fairness arm	-0.380*	-0.339*	0.131	0.135	0.249	0.204
	(0.159)	(0.169)	(0.166)	(0.176)	(0.163)	(0.171)
Probability .25/.75	0.351	0.431	-0.289	-0.346	-0.063	-0.086
	(0.213)	(0.223)	(0.240)	(0.250)	(0.159)	(0.171)
Probability .5/.5	1.049***	1.039***	-1.674***	-1.684***	0.625**	0.645**
	(0.202)	(0.205)	(0.210)	(0.213)	(0.195)	(0.201)
High Inequality	0.046	0.088	-0.413*	-0.477*	0.368	0.390
	(0.202)	(0.208)	(0.208)	(0.218)	(0.195)	(0.213)
Low Inequality	-0.209	-0.150	-0.172	-0.214	0.381*	0.364*
	(0.180)	(0.181)	(0.188)	(0.186)	(0.181)	(0.180)
Age		0.065		-0.013		-0.052
		(0.068)		(0.070)		(0.058)
Years to finish		0.249*		-0.134		-0.115
		(0.099)		(0.113)		(0.113)
Work		-0.216		-0.040		0.256
		(0.188)		(0.205)		(0.215)
Perceive wealth		-0.008		0.003		0.005
		(0.005)		(0.005)		(0.005)
Female		-0.123		0.290		-0.166
		(0.165)		(0.173)		(0.170)
Constant	1.454***	-0.024	3.606***	3.958*	-0.060	1.065
	(0.215)	(1.518)	(0.230)	(1.592)	(0.164)	(1.359)
N	327	314	327	314	327	314
R^2	0.116	0.142	0.220	0.239	0.068	0.084

Notes: The table reports the OLS coefficients for the variables A, B and N. The between means that I am comparing only the first answer from the participants, this way no participant has two answers comparing each other.
Standard errors clustered by participant in parentheses with * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

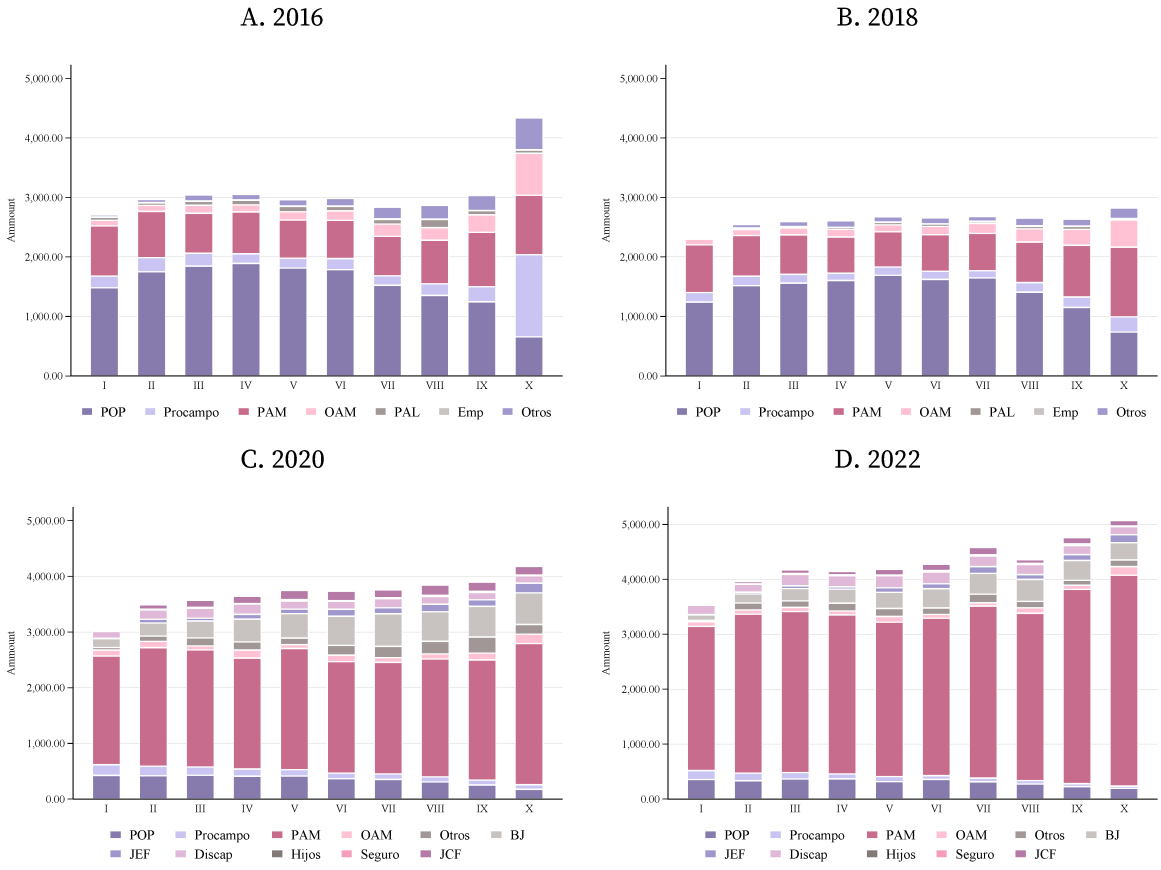
Furthermore, we observe that inequality does not have a significant effect on the redistribution among potential beneficiaries, but it does affect negatively the propensity to universalize the social program. This is contrary to what was expected, but it makes sense as inequality increases the aversion to committing false positives. Although the underlying mechanism is not clear, it is possible to make the hypothesis is that wealth becomes salient meaning that participants internalize inequality from the poorer potential beneficiary. Additionally, if we complement the results, this means that people do prefer to give to the less wealthy, even if they are not classified as potential beneficiaries. In terms of the utility function presented in Appendix A, it also makes sense as people prefer focus, and increasing inequality causes people to deepen this preference.

6. The Political Economy of Social Policy

The purpose of this last section before conclusions is to give a little bit more insights on the social policy of Mexico, how has it changed and how it has been analized.

Continuing with our analysis of the introduction, we can observe through Figure 6 and Figure 7 the evolution of the amounts allocated by social programs adjusted to 2018 prices. These programs are non-contributory transfers classified by Inegi as government benefits. We can observe in both figures a significant structural change starting in 2020, as from this moment, the Programa Adultos Mayores is the biggest contributor for both household and individual deciles.

FIGURE 6. Average Amount Received by Social Program Over Year (Household Decile)



Notes: Authors own construction using ENIGH data. All panels have been conditioned that the individuals analyzed are in fact receiving a social program. Each panel shows the year's average amount of money individuals received by each government program transfer by household income decile. All graphs have been adjusted for 2018 prices. The variables are explained as follows; POP: Prospera, Procampo, PAM: Programas Adultos Mayores; OAM: Otros Adultos Mayores; PAL: Programa Apoyo Alimentario; Emp: Apoyo al Desempleo Temporal; BJ: Becas Benito Juárez; JEF: Jóvenes Escribiendo el Futuro; Discap: Apoyo al bienestar de las personas discapacitadas; Hijos: Apoyo a hijos de Madres Solteras; Seguro: Seguro de vida a madres solteras; JCF: Jóvenes Construyendo el Futuro

FIGURE 7. Average Amount Received by Social Program over Year (Per capita Decile)

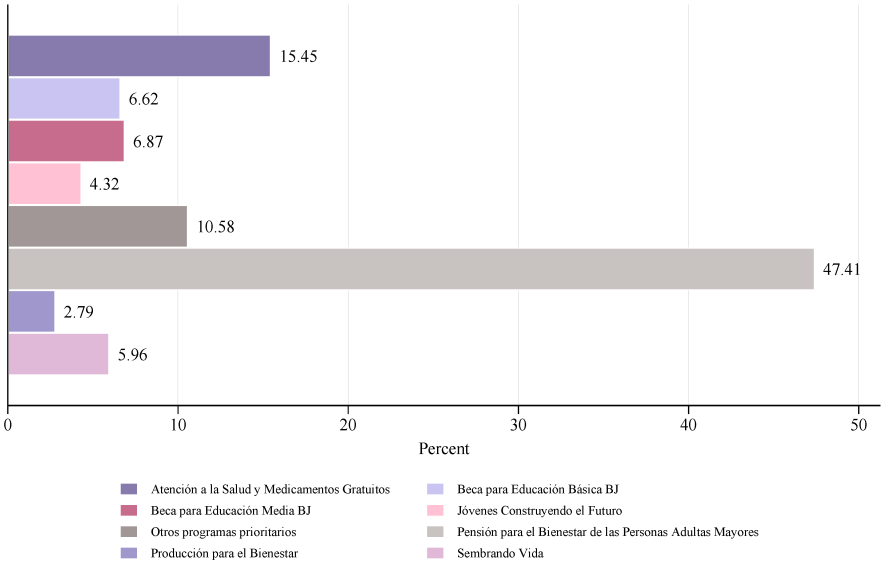
Notes: Authors own construction using ENIGH data. All panels have been conditioned that the individuals analyzed are in fact receiving a social program. Each panel shows the year's average amount of money individuals received by each government program transfer by per capita income decile. All graphs have been adjusted for 2018 prices.

Additionally, as seen in Figure 2, the wealthiest deciles began to receive more money, increasing from an average of $2,800 in 2018 to $5,000 in 2022, while the increase for the poorest decile was from $2,500 to just over $3,000. As discussed in Esquivel-Hernández (2023), this does not necessarily indicate something negative, as there was a general increase. However, it is understandable that there may be mixed reactions.

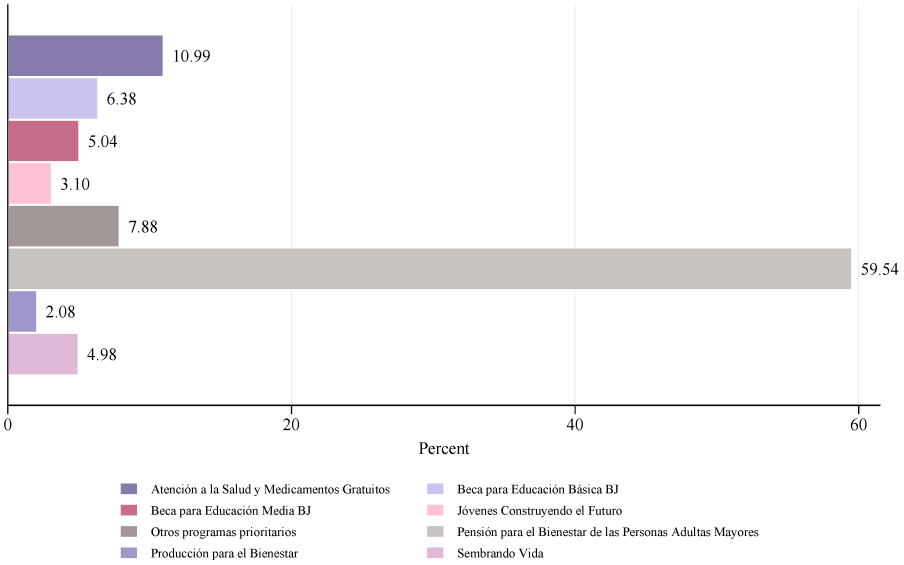
As Holland and Schneider (2017) points out, where they explore the expansion of social policy in the Latin American region. They comment that together with the increase in non-contributory transfers as an essential instrument of social spending, a new paradigm emerged were social policy has become synonymous with transfers. For instance, in Arza et al. (2024), the authors mention how the global COVID-19 pandemic has exposed the limitations of these paradigms, they advocate for a strengthened welfare state with more equitable and universal policies.

FIGURE 8. Percentage of Budget for Social Programs by Program

A. 2022



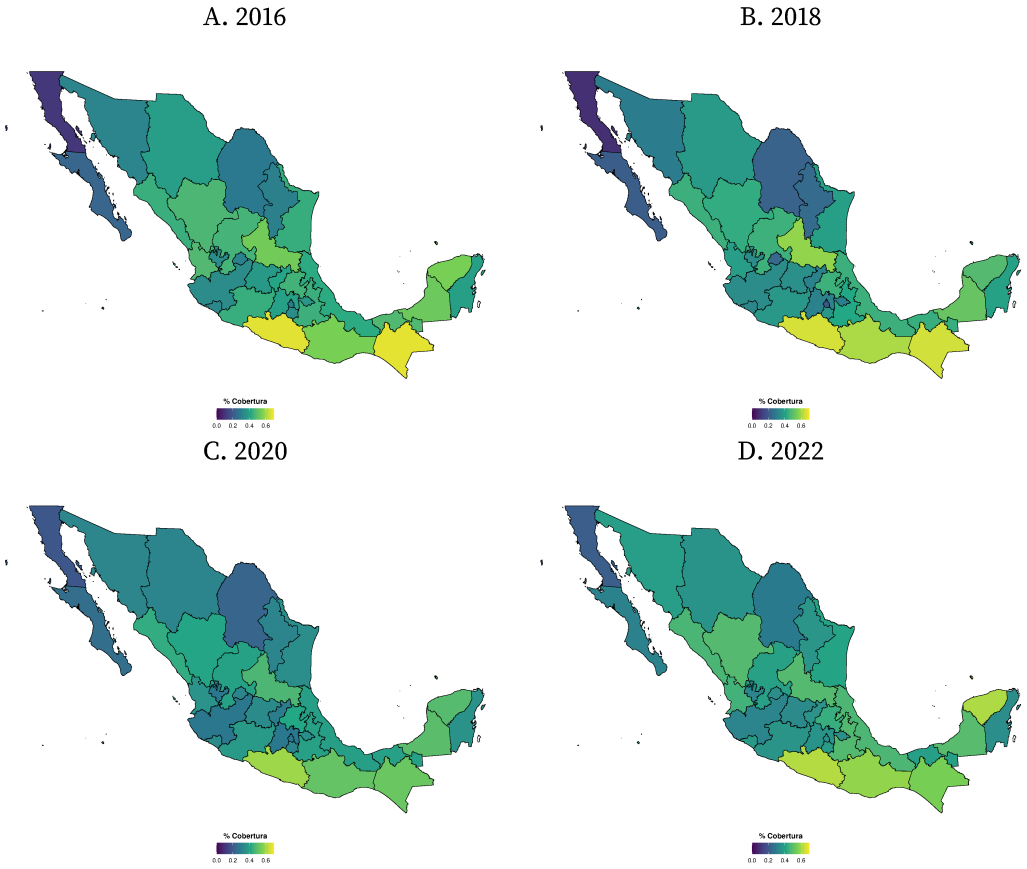
B. 2024



Notes: Authors own construction using PEF data. 8A displays the percentage of the budget allocated for priority social programs by social program for the year 2022. Panel 8B displays this information for the year 2024.

Meanwhile, in Figure 8, the percentage of the budget for social programs broken down by program is presented. Here we observe that PAM has been the most prioritized program, receiving up to nearly 60% of the budget for 2024. This is important as it reflects the federal government's priorities in terms of social policy. This is also important due to the demographic shift, as there is an investment in a program for a growing demographic population that will cause serious fiscal tensions.

FIGURE 9. Evolution of Coverage by Federal Entity



Notes: Authors own construction using ENIGH data. Each panel shows the year's average social programs coverage by federal entity. In all panels the color scale is the same.

The figure 9 provides an interesting contextual insight as it illustrates the evolution of social coverage across different states. It is evident that in 2016, 60% of the population in Guerrero and Chiapas received social assistance, but by 2022, this coverage had decreased. There could be various reasons for this change, such as a decrease in the number of people requiring assistance, a diversification of coverage to other states or my best guess is that the global crisis caused this decrease in coverage.

So, has Mexico increased its spending on social policy? Let's refer to Figure 10,

where in panel 10A we can see social spending as a percentage of GDP for several OECD countries in 2019[10]. We can observe that Mexico has the lowest spending, and it is also lower compared to the peak of 7.69% in 2015. It's worth mentioning the classification made by the OECD for social spending[11].

> Social expenditure comprises cash benefits, direct in-kind provision of goods and services, and tax breaks with social purposes. Benefits may be targeted at low-income households, the elderly, disabled, sick, unemployed, or young persons. To be considered "social", programmes have to involve either redistribution of resources across households or compulsory participation. Social benefits are classified as public when general government (that is central, state, and local governments, including social security funds) controls the relevant financial flows. All social benefits not provided by general government are considered private. Private transfers between households are not considered as "social" and not included here. Net total social expenditure includes both public and private expenditure. It also accounts for the effect of the tax system by direct and indirect taxation and by tax breaks for social purposes. This indicator is measured as a percentage of GDP or USD per capita.

In the panel 10B, we observe the evolution of government spending among the member countries of CEPAL. It is evident that Mexico continues to be a low spender, ranking only above Bahamas, Guatemala, and Honduras.

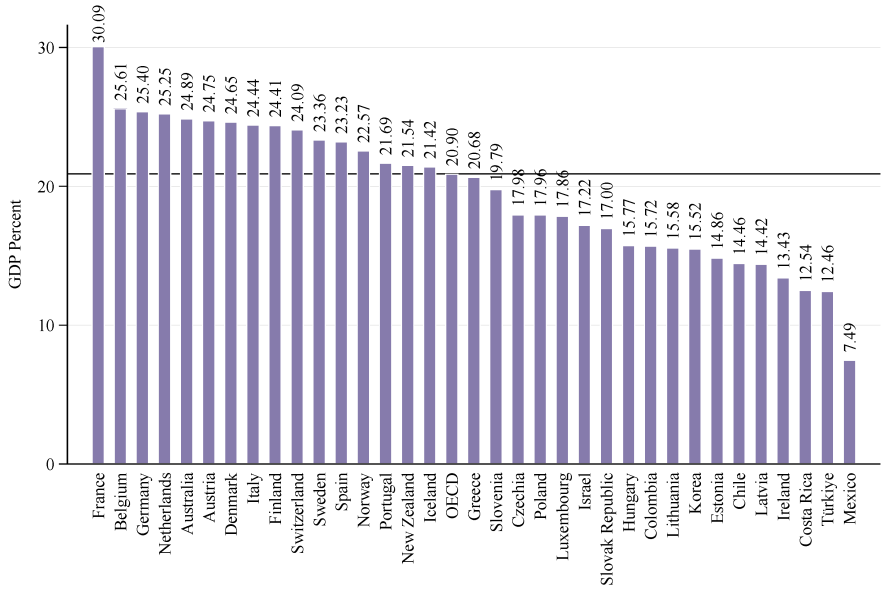
Additionally, an important factor preventing further analysis is the limitation of available years by both databases to analyze the social spending response during the Covid-19 crisis years, as one would expect it to have increased to protect the vulnerable population but the comparison between countries is not available.

As Martínez-Franzoni and Sánchez-Ancochea (2020) suggests, there is a need to reconsider a social pact in order to progress towards a more equal and cohesive society. However, this will depend on the willingness of the state to invest not only in programs that individualize the problem from the demand side, but also to invest in universal infrastructure from the supply side. *What's the point of having more money if I don't have a way to protect myself?*

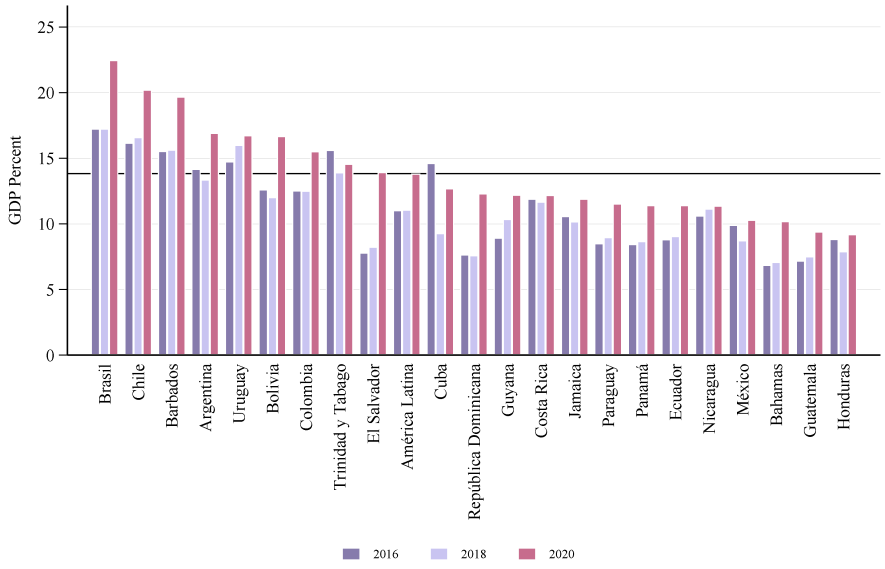
[10] Unfortunately, this is the latest year for which Mexico was updated as of May 2024.
[11] OECD (2024), Social spending (indicator). doi: 10.1787/7497563b-en (Accessed on 08 May 2024).

FIGURE 10. Social Policy Expenditure as Percentage of GDP by Country

A. OECD



B. CEPAL



Notes: Authors own construction using OECD & CEPAL data. 10A displays the 2019 social policy expenditure as percentage of GDP for OECD countries. Panel 10B displays this information for three years for CEPAL countries. In both panels the line represents the average (2020 for CEPAL).

6.1. Relation with my findings

So far, the purpose of adding this section is to ask the reader about their own conclusions regarding what is happening. Does this way of distributing resources seem fair? If not, why wouldn't it be? If yes, why would it be? It seems important to ask this because we are observing a social policy with a strong priority investment to a social program that is universal. Due to its universality, resources are distributed "equitably" among all income deciles, thus avoiding stigmatization towards the poor as well as stigmatization towards receiving a social program. However, we could also argue for efficiency; the lower income deciles could receive more if the focus were on them.

Additionally, given that Mexico is a country that invests little in social policy, we could on the other hand argue that this solution is correct given the low levels of investment and the lack of social programs, whether universal or targeted.

So, what does the reader think? What is the fair allocation of resources given the problems raised by this thesis? Who should we vote for when social programs are presented to us?

7. Conclusion

We have observed that people tend to prefer targeting, that means that if a person is categorized as deserving, people will be give them more budget resources. In addition, we observed that uncertainty causes, on the one hand, an expected distribution according to probabilities, and on the other hand, when uncertainty is equi-probable (i.e., when there are 50/50 probabilities), people choose to lose resources in favor of no one. This result is new and very interesting, and it is worth analyzing in future research the reasons for choosing to lose resources. Furthermore, we observed that when there is inequality, people are less likely to universalize and give a little of the resource to those who do not deserve it, even while focusing on those categorized as deserving. This could indicate that people become more averse to false positives than false negatives.

These results are quite robust as they are in line with the findings in Cappelen, Cappelen, and Tungodden (2023) and Cappelen et al. (2022) where it was found that people seek to redistribute or allocate resources to the deserving person. The result I found regarding inequality is also interesting as it indicates that people do see it as something desirable to eliminate, even if it means giving a little more to those who do not deserve it, although the strength of this effect is not as strong as that of deservingness.

These results can be applied to both social policy and companies that offer bonuses to their employees, as the concept of justice within a company can create a hostile work environment. Therefore, we can attribute our results to social preferences, which ultimately can be shaped, and we can direct these preferences to align with what is truly just. This latter point is an important normative judgment that should be further investigated.

Finally, my personal opinion is that universal social programs do not necessarily have to be categorized as personal monetary transfers such as "Jóvenes Construyendo el Futuro" or "Pensión Adultos Mayores" These programs are important, but we must understand the perceptions of fairness regarding them. However, the characterization and influence are bi-directional, meaning that both universalism (or targeting) shape our thinking about them, as well as our social structure shapes the social policies we want. Why does a targeting-based state persist? This question should be complemented with: what shapes the aversion to false positives/negatives?

Monetary transfer programs are an essential part of a society that is transitioning to a welfare state, but they should not be the sine qua non tool for social assistance to exist. This is turning a blind eye to the issue, as they are not substitutes for the welfare state, but rather complements. If we had a dignified care system, there would be no need for a transfer to support the elderly or single mothers. It is worth noting that I am not saying that social programs should disappear; on the contrary, their existence provides stability to many families in Mexico. Likewise, protection mechanisms should not solely rely on the state but also be part of the community. These are my own value judgments, and I understand that finding a balance will be complicated. My thesis contributes to continuing the discussion, always with data, about the normative and theoretical pillars of what should, could, and we want it to be.

We must understand that the market inefficiencies that cause inequality or poverty are structural problems that are not adequately addressed when a person receives a social transfer. It may be that a poverty trap exists, in which case targeting may be more efficient. Thus, as with any social phenomenon, it is complex to analyze, and we tend to fall into the tightrope of judgment or economic tepidness (depending). But every paradigm or cliche exists for a reason.

One important point to address in the future is that, according to demographic projections, there will be an increasing number of elderly people, which means that the cost of the PAM program, a priority of the current administration, will start to increase

significantly. Without creating a transition mechanism, this could put strong pressure on the federal budget. Additionally, it is important to conduct a gender perspective analysis to understand the proportion of women receiving this pension. This analysis is relevant not only for gender equity but also because there is evidence that elderly women are the ones taking care of children at home (Talamas-Marcos; 2023), and if they receive a higher pension amount, it could lead to more investment in children.

As Monroy-Gómez-Franco and Vélez-Grajales (2023) also state, leveling the playing field for people is, in my opinion, what makes a country fairer: we must provide better quality and universal services such as education and health to people for the full development of their abilities.

Another conclusion is that in this study, it was found that people prefer targeting however, as Ochman (2016) states, preference for targeting is constructed from communication of the notion of deservingness, so under the current political environment of social programs, where they began to be considered as a right within the constitution, it may be that in the future, the Mexican population will have more aversion to false negatives than positives. Thus, the dynamics of this social preference would have changed.

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Appendix A. Conceptual framework Analysis

The Utility model proposed by Fehr and Schmidt (1999) is $U_i(W) = w_i - \alpha_i \max|w_j - w_i, 0| - \beta_i \max|w_i - w_j, 0| \quad i \neq j$ in this way in relation to section 3.1 we compare $w_1 < w_2$ with different final states W^k denoted as:

$$\begin{aligned} W^1 &= \{w_i + \xi\} \quad \forall i = 1, 2 \\ W^2 &= \{w_1 + \xi, \quad w_2\} \\ W^3 &= \{w_1, \quad w_2 + \xi\} \\ W^4 &= \{w_1, \quad w_2\} \end{aligned}$$

But, I propose that for an impartial spectator her utility model could be rewritten as:

(A1) $$U_l(W) = \theta(G(W))$$

Where $G = \frac{(y-x)}{y+x} \quad x < y$ (Gini Coefficient) with $\theta(\cdot)' < 0$ and being W^k the final states:

$$\begin{aligned} W^1 &= \{a + \xi, b + \xi\} \\ W^2 &= \{a + \xi, \quad b\} \\ W^3 &= \{a, \quad b + \xi\} \\ W^4 &= \{a, \quad b\} \end{aligned}$$

THEOREM A1. *$W \subset \mathbb{R}_{>0}$ Given $a < b \quad \exists \xi > 0$, such that with endowments W^k, then:* $G^2 < G^1 < G^4 < G^3$

PROOF. Rewriting G^k we have:

$$\begin{aligned} G^1 &= \frac{(b + \xi) - (a + \xi)}{(b + \xi) + (a + \xi)} = \frac{b - a}{b + a - 2\xi} \\ G^2 &= \frac{b - (a + \xi)}{b + a + \xi} \\ G^3 &= \frac{(b + \xi) - a}{b + a + \xi} \\ G^4 &= \frac{b - a}{b + a} \end{aligned}$$

Let's suppose that $G^4 < G^3 \Rightarrow \frac{b-a}{b+a} < \frac{b+\xi-a}{b+a+\xi}$
Then,

$$\begin{aligned}
&(b-a) < (b+a) \\
\Rightarrow\ &\xi(b-a) < \xi(b+a) \\
\Rightarrow\ &(b-a)(b+a) + \xi(b-a) < (b-a)(b+a) + \xi(b+a) \\
\Rightarrow\ &(b-a)(b+a+\xi) < (b+a)(b-a+\xi) \\
\Rightarrow\ &\frac{b-a}{b+a} < \frac{b+\xi-a}{b+a+\xi}
\end{aligned}$$

Now let's suppose that $G^1 < G^4 \Rightarrow \frac{b-a}{b+a-2\xi} < \frac{b-a}{b+a}$
Then,

$$\begin{aligned}
&b+a+2\xi > b+a \\
\Rightarrow\ &\frac{1}{b+a+2\xi} < \frac{1}{b+a} \\
\Rightarrow\ &\frac{b-a}{b+a+2\xi} < \frac{b-a}{b+a}
\end{aligned}$$

Now let's suppose that $G^2 < G^1 \Rightarrow \frac{b-(a+\xi)}{b+a+\xi} < \frac{b-a}{b+a-2\xi}$
Then,

$$\begin{aligned}
&\xi^2 > 0 \\
\Rightarrow\ &-2\xi^2 < 0 \\
\Rightarrow\ &b^2 - a^2 - 2\xi^2 < b^2 - a^2 \\
\Rightarrow\ &b^2 - a^2 - 2\xi^2 + \xi(b-a) < b^2 - a^2 + \xi(b-a) \\
\Rightarrow\ &(b-a-\xi)(b+a+2\xi) < (b-a)(b+a+\xi) \\
\Rightarrow\ &\frac{(b-a-\xi)}{b+a+\xi} < \frac{b-a}{b+a+2\xi}
\end{aligned}$$

With all this inequalities I have proven that $G^2 < G^1 < G^4 < G^3$

□

Now, as θ is a decreasing function in G, the inequality $\theta(G^2) > \theta(G^1) > \theta(G^4) > \theta(G^3)$

holds. With this then it is obvious that $U_l(W^2) > U_l(W^3)$

In simpler terms, the Gini coefficient of a society with only two people can be explained as follows: the level of inequality is lowest when there is targeted assistance for the less wealthy, followed by universal assistance, then no policy at all, and finally, the highest level of inequality occurs when assistance is incorrectly targeted. If we measure utility as a function of the gini coefficient then the utility provided holds.

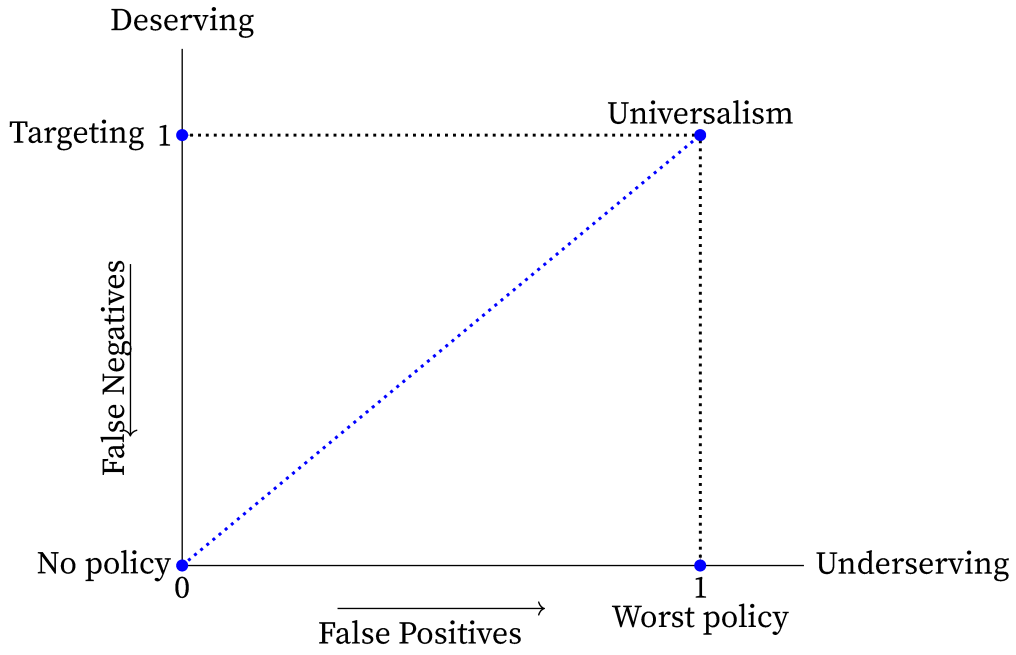
Appendix B. Fairness Box Analysis

Based on the information discussed in 3.1, I propose a preference model that depends on individuals' aversion to making false positives or false negatives. In simpler terms, it measures how willing individuals are to allocate resources to those who deserve them versus those who do not. The model is represented in Figure A1.

Let's define $S_i = \frac{\sigma_{fp}}{\sigma_{fn}}$ Where: σ_{fp}: False positives aversion, σ_{fn}: False negatives aversion, and $\sigma_i \in (-\infty, \infty) \quad \forall i = fp, fn$

In example: If $\sigma_{fp} > \sigma_{fn}$ The individual exhibits a high level of sensitivity towards the universalism of social programs.

FIGURE A1. Preliminar model: Fairness box



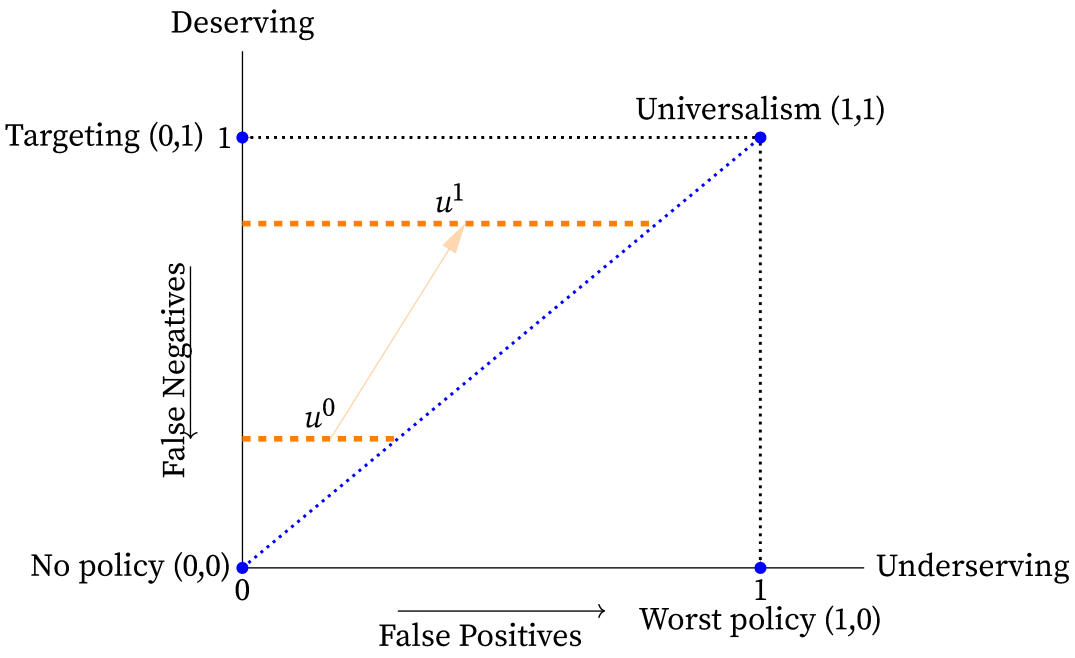
By integrating our aversions σ_{fp} and σ_{fn} into our model we would have different

indifference curves.In this preliminar model we are comparing a normal good vs a non-good, this is a strange way to graph since it doesn't fulfill the non-satiation principle of utility functions.

Based on the information presented in Figure A1, the preferred policy scenario is determined by the level of aversion to false positives or false negatives. To explore this preference, I present two examples of S_i that integrate different levels of aversion to each type of false.

In figure A2, preferences are established where the person is infinitely averse to false negatives. This results in horizontal curves that reach the diagonal. Thus, at its maximum point, this type of preference represents a person who is indifferent between Targeting and Universalism. *It doesn't matter if you give to those who are undeserving as long as you give to those who are deserving.*

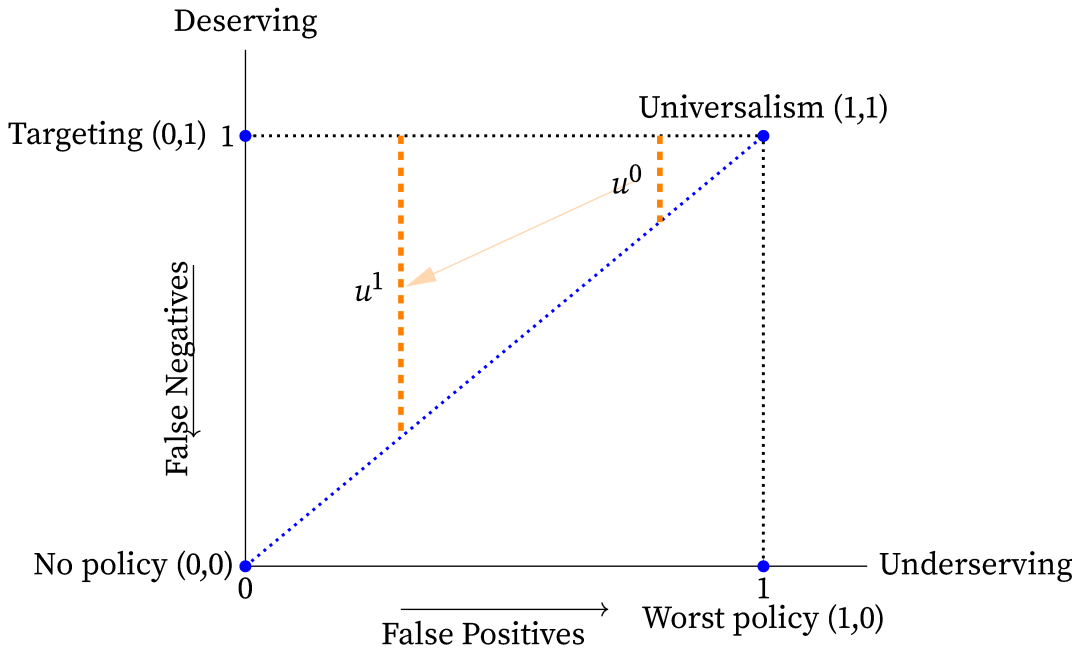
FIGURE A2. **Example 1:** High σ_{fn}



In example 2 represented by figure A3, preferences are established based on a infinitely high aversion to false positives. This results in vertical curves leaning towards the left. At its maximum utility point, this type of preference represents an individual who is indifferent between the Targeting and No policy, as they do not want to commit false positives. In other words, giving to someone who is undeserving causes disutility.

I prefer not giving to anyone or only giving to those who deserve it.

FIGURE A3. **Example 2:** High σ_{fp}



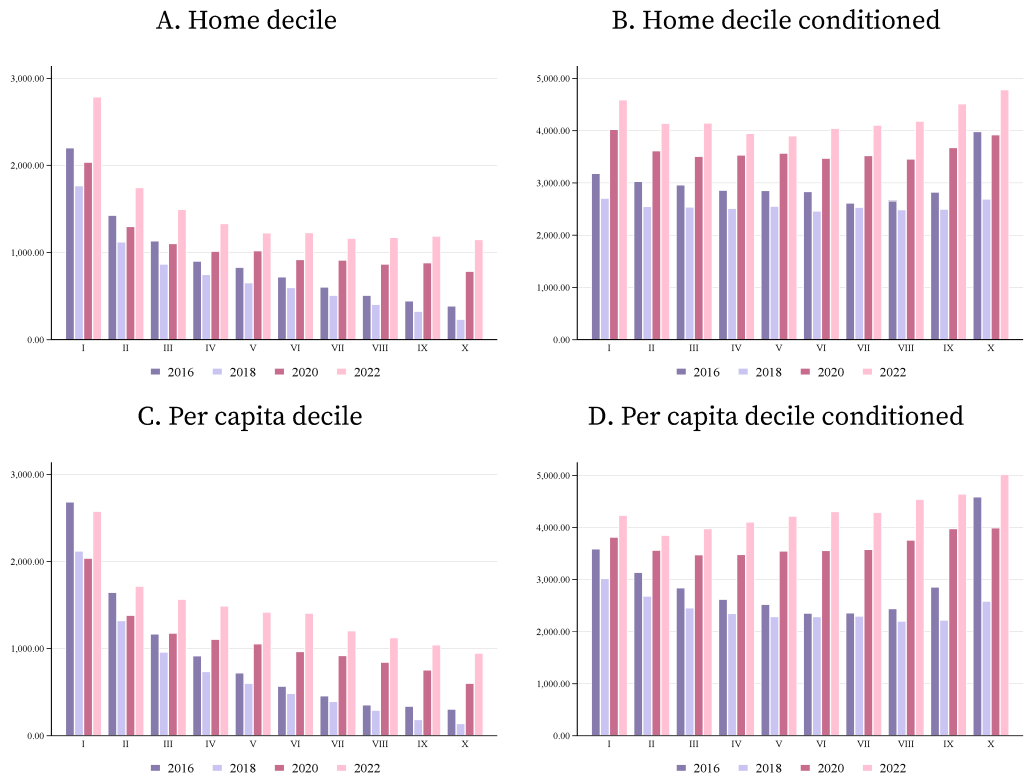
In our final model, we made some changes to the axes to present a perhaps more elaborate but more intuitive version. In this version, the x-axis represents the probability of not falsely accusing those who do not deserve it (avoiding false positives), while the y-axis remains as the probability of correctly identifying those who do deserve it (avoiding false negatives). This representation is shown in Figure 3 with the purpose of depicting utility curves that meet the criterion of non-satiation.

Appendix C. Distribution of income from social programs

During sections 1 and 6, we were able to observe the income decile evolution adjusted to 2018 prices. It seems important to also observe the ex-ante income adjusted deciles (ex-ante to receiving a social program). This is because, upon further analysis of the 2016 results, I realized that the X Decile appeared to be wealthy solely due to the reception of social programs. By comparing with the ex-ante income analysis, we can uncover new and interesting results. To do this, I will replicate figure 2 and add information for unconditioned distribution with these new deciles.

I present figure A4 to observe this information.

FIGURE A4. Average Income via Social Programs by Ex-Ante Income Decile



Notes: Authors own construction using ENIGH data. Panel A4A shows the average ammount of money received by ex-ante income decile from social programs. Panel A4B shows the same as before but each decile has been conditioned that each household does in fact receive a social program. Panel A4C and A4D shows the respective information as before but for per capita ex-ante income deciles. All Panels income is adjusted for 2018 prices.

As it can be seen in both panels A4A and A4C If we do the distribution of income by social program transfers it seems obvious the progressiveness of social policy but if we condition that people are in fact receiving a type of social policy transfer it seems that social policy has become regressive in recent years.

Another important feature is that the phenomenom of 2016 appers to hold meaning that further analysis, out of the scope of this thesis, is necessary.

Appendix D. Examples

Figure A5 illustrates the instructions that each participant had to read when assigned to the Fair Inequality Arm of the experiment. Conversely, figure A6 is an example of one of the questions a participant had to answer.

FIGURE A5. Example of instructions for the Fair Inequality Arm

Eres responsable de distribuir un beneficio económico limitado entre dos personas.

Estas personas participaron en un primer estudio. En este primer estudio, realizaron tareas simples en un tiempo limitado que requerían habilidades matemáticas (Ej. Resolver 2+8-7) y fueron compensadas según su desempeño. Si su desempeño fue bueno recibieron $10, si fue regular recibieron $5 y si fue malo recibieron $0.

Después, se les ofreció la oportunidad de participar en una segunda actividad, unas personas decidieron sí participar mientras que otras decidieron no hacerlo.

Ahora piensa que hay dos personas que dicen haber participado en esta segunda actividad, sin embargo, sólo una de las dos personas la hizo.

Tu tarea es decidir cómo otorgar el pago de $5 por realizar la segunda actividad dependiendo las situaciones que se te presentarán a continuación. Puedes decidir darle todo a uno, repartirlo entre ambos, o decidir no dar una parte del dinero (Ojo: Lo que no demos a ninguno de los dos no se lo daremos a nadie más)

Estas personas son reales, aunque los nombres inventados. Esto significa que el estudio comentado con anterioridad sí se realizó. Por lo tanto, tus decisiones pueden afectar cuánto dinero real recibirán esas personas.

FIGURE A6. Example of questions asked to a participant

Situación 1: En esta situación llegan Ernesto y Antonio

De ellos se sabe lo siguiente:

A. Uno recibió $5 y fue quien decidió sí participar en la segunda actividad.
B. El otro recibió $0 y fue quien decidió no participar en la segunda actividad.

Sin embargo, no se sabe quién es quién, pero tenemos la siguiente información:

- Ernesto tiene 0% de probabilidad de ser A (por lo tanto, 100% de probabilidad de ser B)
- Antonio tiene 100% de probabilidad de ser A (por lo tanto, 0% de probabilidad de ser B)

El presupuesto es de $5 ¿Cómo decides que dividamos el pago?

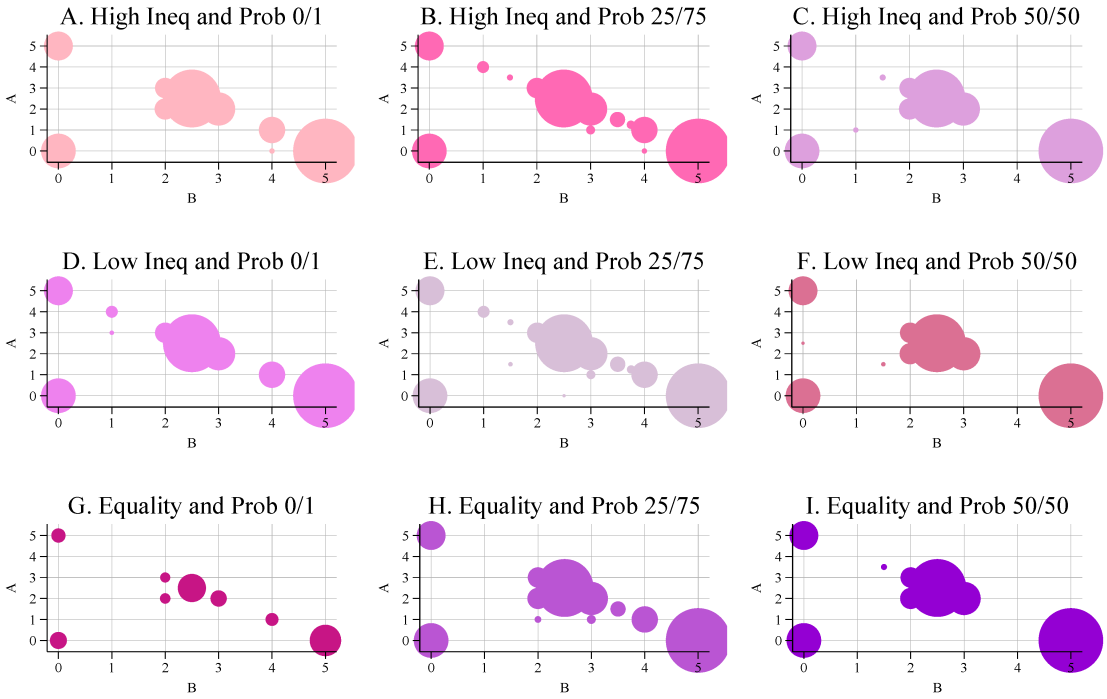
Ernesto :	_____
Antonio :	_____
Ninguno:	_____
Total:	$5

Recuerda que implementaremos una de las decisiones que respondas

Appendix E. Distribution for AB by Experimental Group

The distributions made to each potential beneficiary A and B per experimental group are shown in the next figures. In figure A7 displays the 9 experimental groups in the fair experimental arm, while Figure A8 shows the groups for the unfair experimental arm.

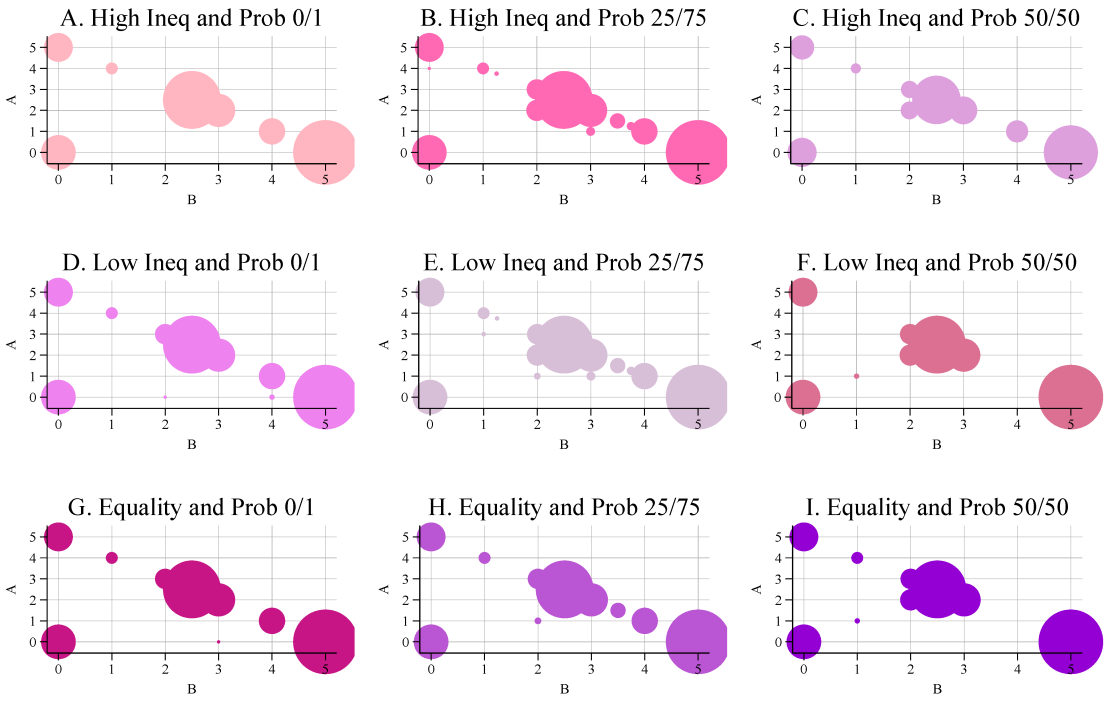
FIGURE A7. Fair Experimental Arm Groups



In the figure, we can observe that in most cases, the focus is on focalization. However, there are moments where the concentration around universalism increases as we move from left to right (from certainty to uncertainty). Additionally, we also see how people begin to lose budget (whenever there is a point below the diagonal line). Thus, we can observe an interesting phenomenon where there is a low frequency of distributive events in panel G.

Furthermore, upon observing Figure A8, it is evident that the distributions are less concentrated and have a greater diversity of data points. This is significant because it implies that people perceive unfair inequality as something that needs to be corrected at some point. In other words, even if an individual is deemed deserving, budget allocation should be directed towards narrowing the wealth gap.

FIGURE A8. Unfair Experimental Arm Groups

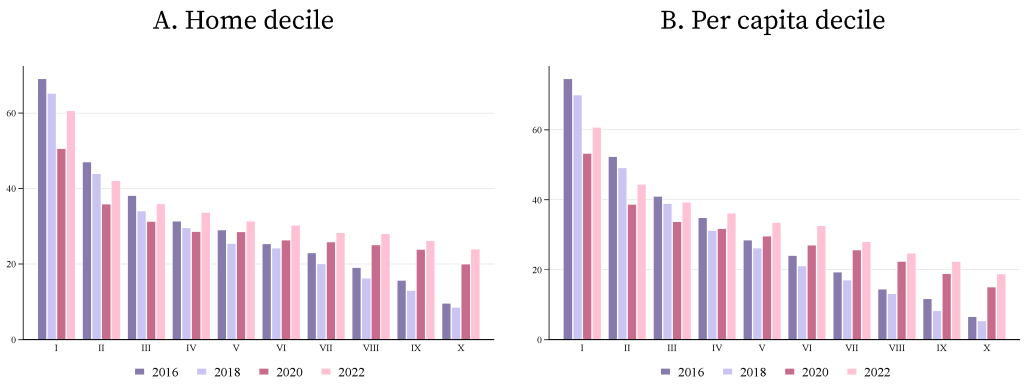


Appendix F. Coverage by exante income decile

In the figure A9, I also include the coverage of the programs by decile to provide additional robustness to the results. Using the ex-post decile to report wealth may seem biased, as the composition of the deciles changes once a government transfer is received (which is a positive outcome as people move up deciles).

In the figure, we observe the same phenomenon where the transfers continue to be progressive: The poor deciles are being covered up to 60% while the rich deciles only reach 20%. However, we notice that there has been a decrease for the poor deciles while an increase for the rich deciles. As mentioned in the text, this may be due to the lack of planning for the transition from POP to PAM, but further investigation will need to be conducted.

FIGURE A9. Average Income via Social Programs by Ex-Ante Income Decile



Notes: Authors own construction using ENIGH data. Panel A9A displays the social policy coverage by household exante income decile. Panel A9B shows this for percapita exante income decile.

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