

Global Labour University Conference
“Inequality within and among Nations: Causes, Effects, and
Responses”

Are poverty reduction programs able to decline inequality?
Lessons from two programs in Costa Rica

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May, 2014

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Abstract

Increasing income inequality became a major problem in Costa Rica during the past 15 years. After decades of relative stable and low-income distribution, the country observed a deterioration of related indicators. The Gini coefficient, for instance, that stayed below 0.40 for most part of the XX century, is now over 0.52. Policy responses, thus, are urgent. However, perhaps in the case of Costa Rica, no more social programs are required. On the contrary, given the number of social initiatives (about 42) and the high proportion of the budget that goes to social spending (close to 80% of the government expenditures), it seems that the response may be, at least partially, in the currently existing programs. This research analyzes the effects (actual or potential) of two programs: the minimum wage (MW) and the non-contributory pension (NCP). The results of the paper show, in the case of the MW, that there is substantial room for improving inequality through a better compliance of the payment of the minimum minimorum wage. About one-third of the salaried workers receive less than this salary, especially rural workers, immigrants, people with disability and domestic service. Measures at the institutional level in the form of legal reforms and increased number of supervisors may help the program to reduce inequality. The other program, the NCP, actually has a moderate impact on inequality, estimated in terms of the differences in the Gini coefficient with and without the pension. The results suggest that improvements in targeting and a review of the process to get a pension may have some positive effects in the allocation of the subsidy to lower income groups. Although most of the pensions are actually allocated to quintile I and II persons, there is still some 25% of the subsidies that goes to the hands of upper income groups. In addition, the higher pensions (those ones to people with cerebral palsy) seem to be assigned to wealthier families.

Introduction

Costa Rica has a long tradition in the design and implementation of social programs to reduce poverty. Since the 1970s, the country embarked in a series of legal, institutional and financial transformations to directly target any type of deprivation. In part because of this and in part because of the historical bias in favor of education and health, Costa Rica achieved substantial progress in the fight against poverty and overall wellbeing conditions. Between 1980 and 1994, poverty incidence decreased from 50% of the population to roughly 20%. The Gini coefficient persistently remained low and below 0.40. Life expectancy continuously increased and is now close to 79 years while infant mortality decreased to less than 9 deaths per 1,000 live births. Literacy is, according to the most recent 2011 Census, close to universal coverage (97% of the population).

In the last years, however, several things have changed. In particular, income inequality (whatever the indicator used to measure it) grows steadily and in terms of one decade the Gini coefficient moved from 0.42 in 2000 to 0.52 in 2013. After many years, inequality is part of the agenda of discussion and political debates, although in practice it seems that still is not at the top of the priorities.

This situation, thus, places a big challenge for local authorities. Poverty remains at the core of the political speech but there are increasing pressures from other social sectors to pay attention to the increasing inequality. These pressures usually come in the form of a progressive tax reform and the establishment of pro-equity programs. However, the long list of social initiatives in the country (over 40 different programs) may post the question whether the same programs that fight poverty may also work to reduce inequality.

Two of those key initiatives are the non-contributory pension (NCP) and the minimum wage (MW). The initial spirit of the two programs was to reduce deprivation and assure the elderly, the person with disability and the wage earner a decent living standard. However, both programs have internal mechanisms (actual and potential) to positively redistribute income across groups. On one hand, a high compliance of the MW may improve the salaries of those groups that belong to the lowest quintiles of income distribution. On the other hand, the NCP pension represents a subsidy that moves funds from taxpayers to, in an ideal situation, the lowest income groups. Depending on the tax structure of the country, this may imply moving income from the top to the bottom quintiles.

In this regards, the main objective of this paper is to analyze whether social initiatives initially aimed at reducing poverty, may have strong effects in the reduction of inequality. Specific objectives include:

1. To analyze the main stylized facts of income inequality in Costa Rica
2. To review the key aspects and the most recent performance of each one of the programs assessed in this document
3. To estimate the effects that the NCP and the MW have or may have in income inequality.
4. To identify institutional factors that may affect the potential of the program to improve inequality

5. To define a set of recommendation for policy action

The paper is structured in the following way. Chapter one briefly reviews the links between social protection and inequality from a theoretical perspective. Then in Chapter two the document analyzes the main stylized facts of inequality evolution in Costa Rica. Chapter three describes the legal and institutional frameworks of the NCP and the MW in Costa Rica, at the time it prepares a brief performance of the two initiatives. Then, chapter four estimates the effects of the NCP and the MW on inequality. The document closes with a list of conclusions and policy options for future efforts conducted to improve the implementation of the two programs.

1. Social protection programs and inequality links

This chapter briefly describes the theoretical links between social programs and inequality, with some references to the empirical evidence as contributed by different authors. The first section explores that relationship while the second section concentrates on minimum wage and income distribution.

1.1. Basic considerations about social programs and inequality

The increasing inequality observed in many developed and developing countries bring back to the policy agenda the link between social protection and income distribution. Although most of the social programs are initially defined to reduce poverty, it seems that adequately implemented initiatives may also have a significant effect on inequality. Wang, Caminada and Goudswaard (2012) estimate that welfare states reduce inequality by 35%. Goudswaard and Caminada (2010) concluded that taxes and social transfers are able to reduce average Gini by 15 points among a sample of OECD nations.

The final effect of a program on income distribution depends on several factors: design, size of the transfer, target population, targeting and coverage rates are among the most important. One element that seems to be relevant is the *type* of social initiative considered. Mahler and Jesuit (2006), for example, estimate that pensions present the higher redistribution effects while unemployment programs show the lowest effects. The OECD (2008) also considers that in-kind programs do have effects on inequality, although they are reduced. Not all social security programs, however, have a positive (either small or big) effect on redistribution. Contributory pensions, for example, usually have negative effects on inequality mainly because they simulate the conditions observed in the labor market in terms of earnings disparities. Social assistance, disability and family benefits have positive though small reductions on income distribution, according to Wang, Caminada and Goudswaard (2012).

In short, the most common channels through which social security programs may affect inequality (Steuerle, Carasso, and Cohen, 2004) are:

- From richer workers to poorer workers
- From shorter-lived groups (such as men and the less educated) to longer-lived groups (such as women and the better educated)
- From singles to married couples (and from higher earners to lower earners within couples)
- From the healthy to the disabled through disability benefits; and
- From later generations to earlier generations, since earlier generations paid in at lower tax rates than later generations,

1.2. Minimum wage and income distribution

Most of the economic literature about minimum wage (MW) relates this concept with the potential effects on poverty and unemployment. Indeed, most of the world legislations regarding the establishment of MW aimed at protecting the worker from abusive labor practices that may push him into deprived material conditions. The relationship with inequality, however, has been less explored.

The effects of MW on employment are certainly controversial. Basic theoretical models establish a positive relationship between MW and unemployment so successive increments in the wage rate may induce to higher levels of the latter (Fields and Kanbur, 2005). Empirically, however, the results are mixed. Neumark and Wascher (2007) prepared an exhaustive review of the links between those two variables and found that the evidence favoring a positive relationship between MW and unemployment is much more convincing than that one trying to explain no effects. The authors refer, for instance, to the paper of Brown, Gilroy, and Kohen (1982) that concluded “*time-series studies typically find that a 10 percent increase in the minimum wage reduces teenage employment by one to three percent*”.

Past and recent researches try to challenge that evidence. The conclusions in Card and Krueger (1993) and Trejos and Gindling (2013) point to the existence of no harmful relationships between MW and unemployment. When the evidence shows a positive connection, it is said, then the impact is not significant. In Wellington (1991), for example, *a 10-percent increase in the minimum is estimated to lower teenage employment rates by 0.06 percentage points*. This result is considered negligible in terms of the potential gains for wage earners.

The impact of MW on poverty is also debatable. In Morley (1995), the MW contributes to a decline of poverty in Latin America. Fields and Kanbur (2005) found no single relationship between both variables. According to the authors, three potential outcomes (poverty decreases, poverty increases and poverty remains the same) may emerge depending on the conditions of four parameters: *the degree of poverty aversion, the elasticity of labor demand, the ratio of the minimum wage to the poverty line, and the extent of income-sharing*. If, for instance, the elasticity of labor demand is high, then poverty may increase due to growing unemployment.

The links between MW and inequality are multiple. Dickens, Manning and Butcher (2012) confirm the existence of positive effects on inequality as MW is established. The impact, however, is different depending on the position of the worker in the income distribution with higher effects on those ones in the bottom part of the distribution. Bárány (2011), on her side, explains that *a permanent reduction in the minimum wage leads to an expansion of low-skilled employment, which increases the incentives to acquire skills, thus changing the composition and size of high-skilled employment. These permanent changes in the supply of labour alter the investment flow into R&D, thereby decreasing the skill-bias of technology*. El Hamidi and Terrell (2001), in a study about minimum wage in Costa Rica, concluded that a unit increase in the minimum wage relative to the average wage is associated with:

- a. A reduction in wage inequality in the covered sector of between 0.9 percent (using the Gini) and 1.7 percent (using the Theil mean logarithmic deviation) and there is no effect on earnings inequality among the self-employed (using all measures);
- b. An increase in the level of covered sector employment by 0.56 percent, but no effect on the number of self-employed over time;
- c. An increase in the average number of hours worked per week by 0.14 percent in the covered sector and 0.34 percent in the uncovered sector.

2. Inequality trends and conditions in Costa Rica

This chapter aims at describing the most important trends of inequality in Costa Rica, at least in the past two decades. Then, the analysis prepares a profile of income inequality to recognize which sectors experiences the major challenges due to their higher income dispersion. Finally, the chapter reviews part of the literature in the country to identify the major driving forces in the evolution of inequality.

2.1. General trends

Perhaps one of the most striking results of Costa Rica's recent socioeconomic performance is the substantial deterioration of income inequality. Regardless of the indicator used to measure it, all the trends point to the same conclusion, as it is shown in table 1. This situation, which accelerated during the last decade, is reflected in a 0.13-point increment of the Gini coefficient, the highest change in Latin America. Indeed, according to the State of the Nation Report (2013), between 2001 and 2011, 18 Latin American countries reverse their income inequality trend. Costa Rica, on the contrary, that ranked first in 2000 among a sample of 11 Latin American nations, progressively step down in the ranking.

Table 1. Indicators of income inequality in Costa Rica, 1990-2012 (income per capita)

Period	Theil Index	Gini coefficient	X decile/I decile
1990-1994	0.32	0.38	17.5
1995-1999	0.33	0.39	17.2
2000-2004	0.39	0.49	21.1
2005-2009	0.41	0.50	18.1
2010-2012	0.44	0.51	20.8

Source: State of the Nation online database

The Gini coefficient for the total gross household income was estimated at 0.50. Income from primary sources (mainly salaries) represent almost 84% of the total income and have a 0.54 Gini coefficient, as established in table 2. Of the other sources of funds, only monetary transfers ($G=0.78$) exert a positive influence on inequality decline. Indeed, with a 9.1% participation in the structure of total income, a 1% increment in transfers (especially social transfers from public programs) would represent a 4.8% decline in the Gini coefficient. The rest of the sources (rents and non-monetary transfers mainly) show the highest concentration coefficients but they only account for 5% of the total income.

Table 2. Gini coefficients by income type and source of funds, 2013

Source	Share of income	Gini of income source	% Change
Primary household income	84.2	0.54	2.8%
Secondary household income	1.7	0.97	0.4%
Rents	4.5	0.96	2.2%
Monetary transfers	9.1	0.78	-4.8%
Non-monetary transfers	0.5	0.97	-0.6%
Total	100.0	0.50	

Source: Author estimations

By specific individual and socioeconomic condition, urban residents, immigrants, people with disability, over 50 years old workers and the non-poor show higher Gini coefficients than their counterparts. In some cases, like immigrants, education differences seem to explain the higher income inequality. Gatica (2013) show that, overall, 22.4% of the immigrants has incomplete primary school. However, the group is widely heterogeneous in that regard. So while 36% of the US immigrants has a university degree, 26.5% of the Nicaraguans has incomplete primary school.

Table 3. Gini coefficients by individual and socioeconomic condition, 2013

Variable	Gini coefficient
Per capita total income	0.520
Sex	
Men	0.534
Women	0.524
Zone	
Urban	0.513
Rural	0.496
Migrant	
Costa Rican	0.523
Immigrant	0.587
Physical or mental condition	
Without disabilities	0.528
With disabilities	0.533
Worker group	
Young worker	0.506
Adult worker	0.501
Over 50 years old worker	0.543
Poverty condition	
Extreme poor	0.301
Non-extreme poor	0.140
Non-poor	0.458

2.2. Determinants of inequality in Costa Rica

Which factors explain this persistent increment in income inequality? There are several explanations. On the macro realm, not all the sectors were equally benefitted by the export-led pattern of growth that characterized the last 30 years. Indeed, several researches identify the existence of a dual economy (Fallas, 1999; Estado de la Nación, 2013) with two sectors. In the first group one can find groups such as exporters, Export Processing Zones, services and some technology-intensive industrial subsectors. Agriculture and traditional manufacturing appear as part of the second group, with lower productivity rates than the first one. As a result of this division, workers in the first group tend to earn more. This gap between groups expand over time and, even more important, there are important barriers (education requirements mainly) that prevent workers to move from the traditional sector to the dynamic one.

Education differences, as mentioned above, also explain income inequality growth. A study by Baldares (2002) indicates that the education level has been the key factor in explaining

salary differences in Costa Rica. Education plays a double role. First, it is the single determinant with the highest participation in the dynamics of inequality (as measured by the Theil Index). Second, its participation grew over the years. According to the author, while in 1990 differences in education attainment explained 26.7% of the wage inequality, by 2002 that percentage has been growing to 33.7%. Jimenez and Cespedes (2007) achieved similar conclusions and estimated that education may explain roughly 52% of inequality among wage earners. Based on the information in table 4, successive completion of higher levels of education represent, as expected, higher salaries. However, the key point to consider is the increasing gap between an education level and its previous level. For instance, completing primary education would represent a 13.3% higher salary than having incomplete primary level. The gap between complete secondary and incomplete secondary is 22.8% and 33.9% between complete secondary and complete primary. The “big jump” occurs when a persons completes a university bachelor degree because its wage would double in relation to complete high school.

Table 4. Median monthly gross wage by education attainment, 2013

Level of education	Median wage (in US\$)
No education	356
Incomplete primary education	383
Complete primary education	434
Incomplete secondary education	473
Complete secondary education	581
Complete University bachelor	1,203
Complete Licentiate	1,604
Complete Master	2,255
Complete PhD	3,508

Source: Estimations based on National Household Survey 2013

The same two studies pointed out to other micro factors explaining inequality. In Jimenez and Cespedes (2007), the sex, the institutional sector, the region of residence and the age of the worker partly contribute to inequality, although their participation never explains more than 10% of income differences. In Baldares (2002), the occupation category was the second most important contributor to inequality (18.1%) while region of residence, nationality and sex increased their participation since 1990 but still account for a lower share of the unequal distribution of income.

Geographical differences also play a role. Arias and Sánchez (2012) analyze the regional access to health, education, sanitation and labor market services and identify the existence of a regular pattern of distribution of resources and policy outcomes that tend to concentrate in the Great Metropolitan Area (GMA) while coastal areas and border cities receive just a fraction of the benefits. For example, about 8.5% of the population in the Huetar Atlántica and Huetar Norte population has university education; in the GMA this percentage is 23.5%.

3. Social protection policies in Costa Rica: non-contributory pensions and minimum wage

Chapter three comprises a description of the two programs under discussion. For each initiative, the document first presents the legal and organizational background in which they operate. Then, the analysis moves to the assess their most recent performance and the profile of the beneficiaries.

3.1. Non-contributory pensions

3.1.1. Legal background

The non-contributory pension scheme (NCP) was established under the Act of Social Development and Family Assistance No. 5662 of December 23rd, 1974. Subsequent amendments were introduced to the original text on October 2009 (Act 8783). Today, the Disability, Old Age and Death insurance department of the Social Security Institute of Costa Rica (CCSS, for its initials in Spanish) administers the NCP scheme.

The main objective of the NCP is to protect all Costa Ricans and legally established migrants living in poverty or extreme poverty conditions and who, concurrently, does not qualify to any of the contributory pension schemes in the country. Thus, the scheme is initially considered as a poverty reduction program.

3.1.2. Target population and other conditions related to beneficiaries

Five are the main groups of target of the NCP: elderly people (over 65 years old), disabled, widows, orphans and indigents. To qualify as a beneficiary, the proponent must fulfill certain conditions:

1. The household earnings (in per capita terms) should be below the official poverty line, as calculated by the National Institute of Statistics and Censuses. In a limited number of cases in which the person demonstrates that he or she incurs in regular medical expenditures, an Expanded Poverty Line may be used.
2. The applicant owns only one real estate asset. This real estate may not exceed 400 square meters in urban settings and 1,000 square meters in rural areas.
3. La applicant lacks any kind of permanent support, either in cash or in-kind.
4. The applicant lacks any kind of economic good. In this context, an economic good represents any potential asset that may generate a stream of revenues.
5. The applicant is not a wage earner.

Even if the applicant is granted the benefit, he or she may also be subject of pension suspension or cancellation. The transfer may be suspended if the person is sentenced to jail or if he/she is hospitalized for more than three months, except in the case where there are dependents and the pension is the only source of income. Eleven reasons may motivate the cancellation of the pension including the confirmation that the beneficiary is a wage earner,

receives other incomes or is part of another pension scheme in Costa Rica, the dependents below 21 years old are not studying, the disability conditions no longer exists or the beneficiary provides false information about his/her socioeconomic conditions. Automatic cancellation of the pension appears when the beneficiary dies or the orphans arrive to 21 years old.

3.1.3. Financial conditions

Besides the monthly pension, any beneficiary of the NCP is also entitled to receive the *aguinaldo* (an additional reimbursement in December) and health insurance coverage. To determine the ordinal amount of the pension, the current regulation defines two limits: in the upper bound, the transfer cannot exceed the value of the minimum contributory pension divided by 1.5. With this, the scheme just wants to eliminate the pervasive incentive that appears when the two pensions are very close, motivating in this way some people to leave the contributory scheme. The lower limit of the NCP cannot be below 50% of the contributory pension. In this way, the scheme aims at guaranteeing that the beneficiary can cover at least the Minimum Food Basket and some other goods and services.

In terms of financing sources, the legislation defines that at least 10.35% of the Family Assistance Fund should be allocated to the scheme, as created in Act 5662. A share of the collected sales tax goes to that Fund. In addition to this source, the NCP scheme also receives money from the special taxes applied on alcohol, beers and cigarettes, the net profits of the public lottery, special transfers from the Ministry of Finance and the fines charged as part of contraventions to the Labour Code. All the collected funds are allocated to the “Non-contributory regime fund”, administered by the CCSS, which has 4 main financial obligations: pensions, health insurance coverage, administrative costs and a 2%-contingency reserve.

3.1.4. Profile of the NCP beneficiary

Table 5 summarizes a brief profile of the NCP beneficiaries, according to a set of indicators. Individual and family conditions of the two most important groups of beneficiaries present three key features. The first one is that there is a positive bias in favor of elderly women and rural area citizens and a clear underrepresentation of immigrants and women with disability. This is expectable given that female headed households and rural settings experience a higher level of poverty than their counterparts. Second,

From a socioeconomic standpoint, the profile shows mixed results although the broad trend is that NCP beneficiaries have poorer conditions. For instance, housing tenure is better than the national average, a situation that may be explained on the grounds of the higher proportion of NCP recipients that had received a housing bonus¹. In principle, this is a positive sign, but NCP people live in residences with worse infrastructure conditions and a lower asset tenancy rates (TV sets, radios, telephone lines, etc).

¹ A subsidy established three decades ago to support house purchasing among Costa Rican family, not necessary poor households only. Currently, the bonus amounts to roughly US\$12,000.

Income and labor market participation show a significant lag between NCP members and the rest of the country. The median household income of elderly NCP is one-third the national figure while at beneficiaries with disabilities income is about half the Costa Rican benchmark. In other words, the pension represents 32.7% of the elderly NCP median income and 21.7% of the person with disabilities household income.

Table 5. Profile of NCP beneficiaries, 2013

Variable	Elderly	With disability	Average Costa Rican
Individual and family conditions			
% Living in rural areas	52.1	45.4	38.2
% Women	63.1	42.2	51.4
% Immigrant	2.2	0.4	7.9
Average household size	3.0	3.6	4.4
Average age	76.6	38.4	33.6
Socioeconomic indicators			
% Home owners	80.9	78.0	72.4
% House infrastructure as poor	19.1	20.0	9.6
Average number of cars	1.1	1.0	1.3
Average schooling (years)	2.5	3.2	7.6
Median household income (US\$)	445	670	1,1416
Access to social programs			
% health insurance	100.0	100.0	85.6
% ever received housing bonus	26.4	27.5	18.1
Labor market conditions			
% out of the labor market	91.7	97.2	40.2
% earning less than minimum wage	50.5	39.9	31.1
Of those working, % that are wage earners	36.8	100.0	75.5

Source: estimations prepared using National Household Survey 2013

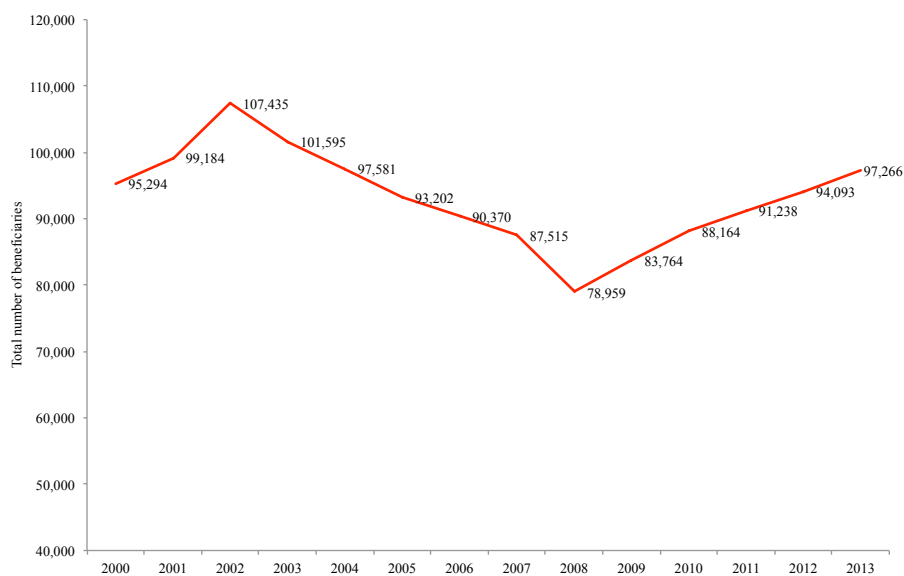
Just a few NCP beneficiaries work, being less than 3% among recipients with disabilities. Each group, however, presents a very different pattern of labor market participation. Elderlies are mostly oriented to work as informal workers although, individually speaking, the largest group is a salaried category (maids: 21.5%). Beneficiaries with disabilities work in two jobs only: farmers and maids. Evidence from the Household Survey suggests that both groups experience deteriorated working conditions in comparison with the rest of local workers. Minimum wage non-compliance is much higher in those two groups: half of the elderly beneficiaries earn less than the legal payment per hour.

3.1.5. Recent performance

According to the CCSS annual reports, in June 2013 the NCP scheme reported a total 97,266 beneficiaries, including direct pensioners and dependents. Since 2000, the program shows two clearly distinctive periods. During the first period (2002-2008), the number of beneficiaries fell 26.5% between the two years, an equivalent to 28,475 less recipients. This is the result of a strategic decision. During the first years of the 2000 decade, the total budget of the NCP program remained practically the same, losing 40% of its value in real terms during the first half of the decade. Transfers from the Asignaciones Familiares fund to the program stopped for several years and this situation forced the Board of the CCSS to decide whether to increase the number of beneficiaries or to keep the purchasing power of the pension at least in constant terms. The Board opted for the second.

In the second period (2008-2013) the number of pensioners recovered with an overall 23.2% increase in relation to the end of phase 1 (18,307 new members). It is with the emerging of the international financial crisis that the government in turn defined that the NCP scheme would become one of the key pillars of the *Escudo Plan*, the public initiative to mitigate the negative effects of the downturn. The new policy favored both poor and extreme poor and not just the latter as it used to be. In 2009, the CCSS achieved the initial goal of increasing the number of new beneficiaries by 4,800. Then, the Chinchilla Administration set up a new goal of granting 10,000 new pensions between 2010 and 2014. By June 2013, 13,500 NCP were already processed and awarded. In addition, the Constitutional Court eliminated the statute that limited the number of pensions per family to only one. With this, elderly beneficiaries and their partners (wife or husband) are now entitled to receive a NCP.

Graph 1. Total number of NCP beneficiaries, 2000-2013

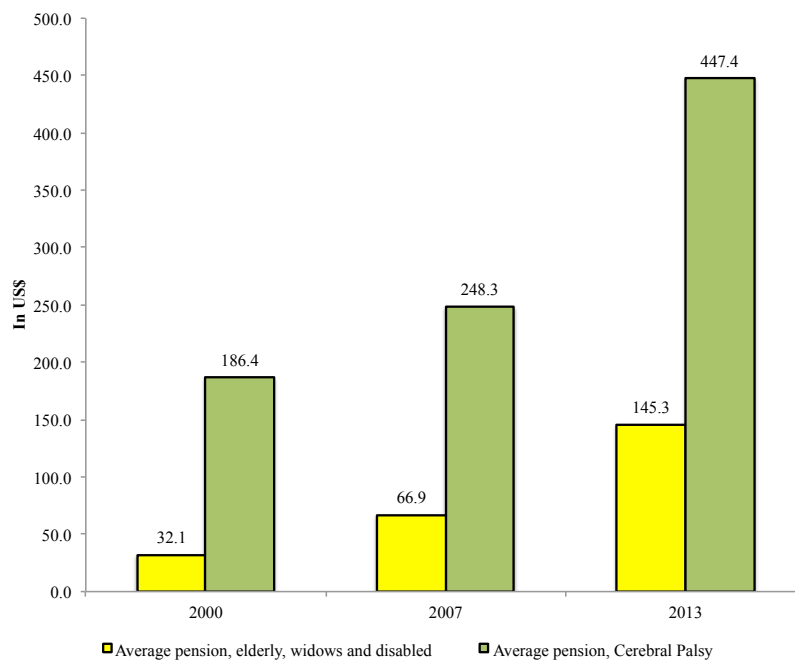


Source: estimations based on CCSS records

The NCP mainly targets elderly people although many other groups may benefit from the subsidy, too. Between 2000-2013 period, roughly 60% of the beneficiaries were people over 65 although it was after 2007 that head of households started receiving priority over other elderly persons. In that way, while the number of people over 65 remained practically the same between 2007 and 2013 (40,234 and 40,448 beneficiaries, respectively), the number of elderly headed households multiplied by three in the same period. People with disabilities, the second largest group, account for about 30% of the recipients. Overall, the program reaches almost one in six elderly persons in Costa Rica (17.8%) and one in seven persons with disabilities (14.4%).

One of the most distinctive features of the Costa Rican NCP is the high value of the transfer. Available data show that there are two distinguishable amounts. For elderly, people with disability and widows, the average pension amounted US\$145.3 per month in 2013. For persons with cerebral palsy, the transfer reached US\$447.4 per month, being the difference explained by the significant health expenditures in which the family incurs to take care of the member. Between 2000 and 2006, the pension decreased 3.6% in real terms and this motivated a review of the nominal transfer. In 2007, the Board of the CCSS approved a 100% increment and since there has been annual increments, most of them well above the inflation rate. The purchasing power of the NCP recovered so in 2013 the real value of the transfer was 2.35 times higher than in 2000.

Graph 2. Average nominal pension, by category 2000, 2007 and 2013 (in US\$)



Source: Estimations based on CCSS records

The importance of the pension as a potential tool for poverty reduction is better conceived when it is compared with the poverty and extreme poverty lines. As it is observed in the

table below, the *per capita average pension* amounts US\$45.4² and this figure is enough to cover about 25% the cost of the basic basket of goods and services (US\$184) and half the cost of the basic food basket (US\$85). For persons with cerebral palsy, the pension exceeds the food basket line, although in this case a simple comparison may be misleading due to the type of special healthcare costs discussed earlier that are not included in the basic basket.

Table 6. Average NCP as percentage of monetary poverty and extreme poverty lines, 2013 (by beneficiary)

Type of pension	Per capita average pension (US\$)	% poverty line	% cost basic food basket
Elderly, widows and disabled	45.4	24.63	53.44
Persons with Cerebral Palsy	139.8	75.84	164.53

Source: Estimations based on CCSS records and 2013 Costa Rican household survey

3.1.6. Benefit incidence

Based on the information of the Household Survey 2013, 35% of the beneficiaries who received the NCP were extremely poor households before getting the transfer while 60.9% fell below the poverty line³. In other words, roughly 39% of the benefits were addressed to families that were not in deprivation conditions.

The distribution by income quintile shows a different situation. Roughly 60% of the beneficiaries belonged to the first quintile before getting the NCP, as visualized in Table 7. Despite this, there is still some room for improvement: one in four recipients are part of quintiles III or above. No significant changes exist across categories of beneficiaries. Coverage rates are also particularly high for quintile I members (Q-I). In total, 46.3% of the Q-I elderly and 35.9% of the people with disabilities receive a NCP. For both groups there is a 2.5 times more coverage than the rates of quintile II people.

Table 7. Distribution of NCP by income quintile and type of beneficiary, 2013

Quintile	General	Elderly	With disabilities
I	57.9	58.5	59.0
II	18.0	17.8	15.9
III	12.8	12.4	13.7
IV	8.7	8.2	7.6
V	2.8	3.1	3.8
Total	100.0	100.0	100.0

Source: Estimations based on 2013 Household Survey

² The average household size of the beneficiary group is 3.5 persons.

³ To estimate this, the analysis deducts the amount of the NCP from the total monthly gross income of the household. The resulting income was then converted in per capita terms, using the size of the household variable. Finally, the latter was coded in such a way that three categories were created: extremely poor, non-extremely poor and non-poor using the “Basic Food Basket” and “Basic Basket” poverty lines.

3.2. Minimum wage

3.2.1. Legal background

The legislation about minimum wages (MW) is among the oldest in Costa Rica. Although formally speaking the first regulation appeared in 1933, in 1843 the Carrillo's General Code defined some preliminary conditions about salaries in the country (Gindling and Trejos, 2010).

The rationale, objectives and scope of the MW are defined in two key pieces of legislation: Article 57 of the Political Constitution of Costa Rica and Articles 177, 178 and 179 of the Labor Code. In relation to the former, the text establishes that

Article 57: Every worker is entitled to a minimum wage, fixed periodically, for a normal day, which will provide welfare and dignified existence. The salary will always be equal for equal work under identical conditions of efficiency.

The three articles of the Labor Code define several principles in which the MW may operate. First, MW should be enough to cover all the basic needs of the household, including “material, moral and cultural” needs. Second, MW may be region-specific, if the economic conditions require such differentiation. In other words, there may several MW for the same position, depending on the geographic location of the worker. Third, any change in the MW automatically modifies all labor contracts where a lower salary was negotiated, even if those contracts were signed before the amendment.

Finally, as a signatory of the ILO Convention 26 on the Mechanisms to define minimum wages, Costa Rica ratified the establishment of a MW schedule to protect workers against excessively low salaries. Indeed, the tripartite composition of the National Wages Council is a reflect of the influence of the ILO approach to the institutional MW framework.

3.2.2. Target population

Minimum wages cover all salaried workers (including domestic service) of the country except the public servants because they have their own base salaries, incentives and mechanisms of negotiation. Informal workers, self-employed and employers are excluded. For the past years, it means that between 55% and 57% of the Costa Rican workers are covered by the MW legislation.

3.2.3. Institutional conditions

The National Wages Council, launched in 1949, is the entity in charge of negotiating and setting new MW. The definition of the minimum level and the periodical adjustments that may compensate for increasing living costs follows an ad-hoc procedure. Historically, the periodicity of the adjustment depends on the macroeconomic conditions and the decision of the government in turn. Between 1952 and 1972, changes in the MW were done each two

years. Then, between 1972 and 1980, adjustments were annually and since then MW are modified twice a year, once in January and once in July.

As stated above, the MW was conceived as a single salary below which no worker could be paid. However, in practice, the structure is much more complex. Currently, there are 3 labor categories, 23 occupational groups and 247 line-items with MW (table 8). The minimum minimumum is the lowest salary (US\$2.2 per hour) and corresponds to the “non-qualified worker”. On the contrary, the highest MW corresponds to the journalist (US\$6.9 per hour or US\$1,437.6 per month). This long list of salaries results from the interpretation that both differences in the regional cost of living and in productivity require also different minimum reimbursements. It is important to recognize, however, that the current structure is much simpler than in the mid-1980s when 520 different salaries existed.

Table 8. Division of MW by categories and occupational groups

Broad Category	Occupational group
Blue collar	Non-qualified Semi-qualified Qualified Specialized
White collar	Non-qualified Semi-qualified Qualified Specialized High school technician University technician Diploma graduates Bachelor Licentiate
Specific occupations	Superior specialization Maids Journalists Coffee harvester Stevedore Cab drivers Beer seller Newspaper seller Stevedore assistant 1 Dragger

Source: Trejos and Gindling (2013)

3.2.4. Minimum wage evolution and basic profile of workers under MW payment

Graph 3 summarizes the evolution of the minimum minimumum real wage between 1995 and 2013. Three periods can be recognized. During the first period (January 1995 to July 2001) the real MW increased 10.8% or about 1.6% per year. During this phase the MW policy approach follows an active but prudent approach, that is, wages should increase but those increments should not be disproportionate.

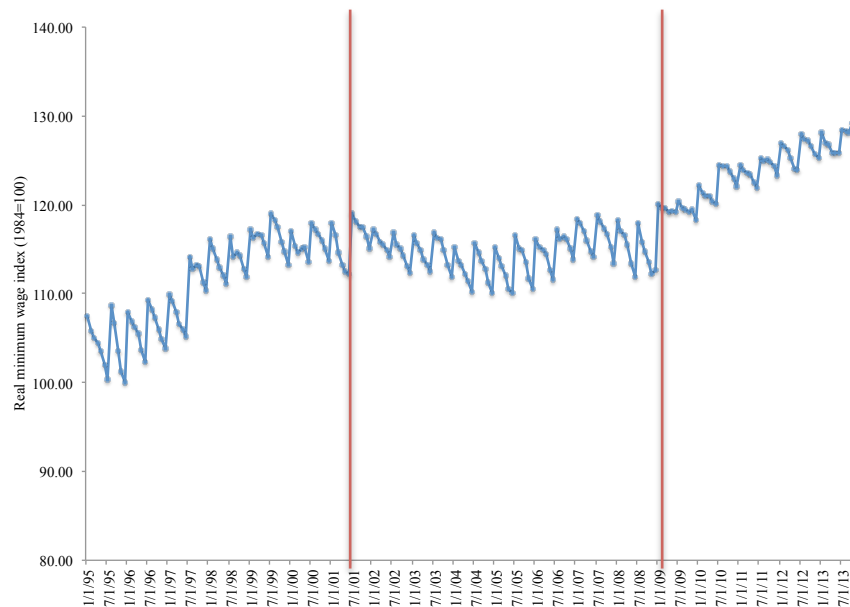
Then, during the second period (July 2001 to December 2008), the MW declined, in real terms, 5.8%. In this case, the approach shifts substantially in relation to the previous period.

As it is stated by Trejos (2013), the MW played a passive role and became “inflation-driven”, that is, MW increments were conditional of the anti-inflationary policy that prevailed during most part of the decade.

Finally, during the third period (December 2008-December 2013), the evident loss of purchasing power and the increasing inequality in Costa Rica helped the MW to get back to the policy agenda. In addition, the financial crisis severely hit the Costa Rican poverty rate in 2008 so the MW became a tool to control further poverty growth. In total, the real MW increased 14.3% (2.9% per year) during the course of those five years.

In summary, between 1995 and 2013 the real minimum wage grew 19.4%. Although the third phase substantially recovered the MW after the stagnation in the second phase, it seems that the final result could be higher than the net increment. For instance, if the MW had kept the trend of the first phase over the course of the full period, the net increase in the real wage would have been 33.8%.

Graph 3. Evolution of the real NCP, 1995-2013 (1984=100)



Source: Estimations based on National Household Survey 2013

Recent performance of the Costa Rican MW can be assessed from three perspectives: **compliance, sufficiency and macroeconomic connection**. The first criterion is useful to determine the effective level of protection; the second estimates the adequacy of the minimum minimum salary to cover basic needs and the third one explores the level of relationship between MW and GDP per capita as a way to explore if growth relates to higher wages. The latter two issues will be discussed in this section; compliance will be the subject of the following section.

To analyze sufficiency, the minimum minimum wage was compared with the median average by branch of activity (see Graph 4). When the value of the relationship is above 1, then the minimum minimum wage is higher than the median salary of the branch. The

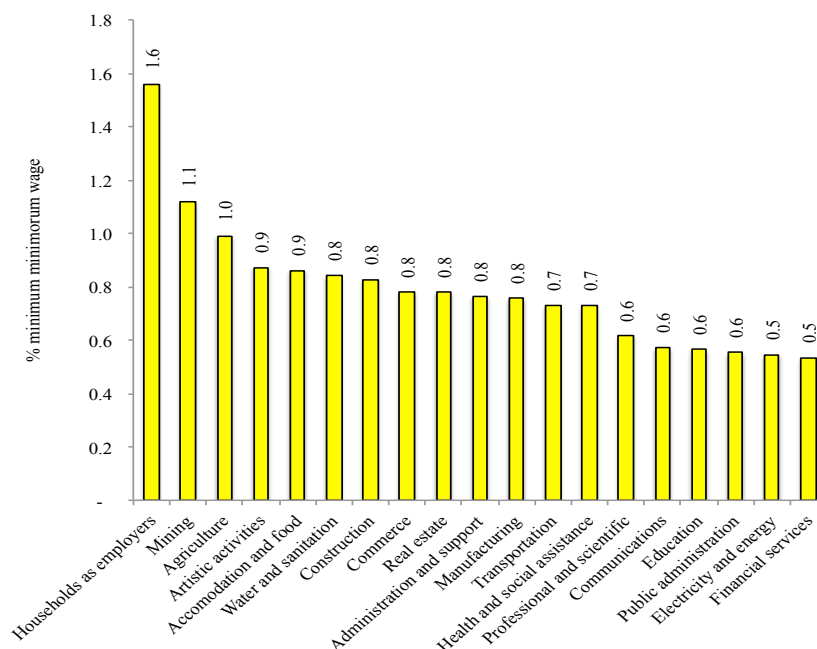
lower the proportion, the farther the median wage from the minimum. The comparison is done in the understanding that the minimum wage may serve as a signal for the employers on which salaries should be paid. Thus, if the signal is low, then the wage will be insufficient to cover the costs of the food basket and/or the general basket of goods and services. This can be especially true for those low-skilled categories.

Three groups emerge from the graph below. The first three (households as employers, agriculture and mining) pay salaries below the MW. Thus, for these workers, there is a high probability that the remuneration will not be enough to cover their needs so either more persons within the family decide to work or the household diversifies its sources of income, including funds from social programs. The evidence shows that, for instance, a farmer or a miner (with average household sizes of 4.3 members) would earn just sufficient to cover the basic food basket while domestic workers get enough to cover one-third of the cost of the basket.

A second group refers to those workers with median salaries between 10% and 25% above the minimum minimumum. Hotels, construction, real estate, commerce and industry are among the sectors in those circumstances. Given their proximate wage to the minimum minimumum, a large share of workers receives much less than the minimum. In the case of accommodation, for instance, 25% of the employees earn less than half of the minimum minimumum.

Finally, the third group comprises all those workers with median salaries that are at least 25% higher than the minimum minimumum. Transportation, education and the financial sector are among those branches.

Graph 4. Minimum minimumum wage as percentage of median wage, by branch of activity (2013)



Source: Estimations based on National Household Survey 2013

The second issue, macroeconomic connection, refers to the level of correlation between real MW and GDP per capita increments. It is expected that, in the way the economy is more productive (i.e. the GDP per capita grows), part of this progress is translated into higher wages. This may not be necessary the case. The relationship depends on the role of the MW in the economy. For instance, if the MW is regarded as a counter-cyclical tool, then during periods of economic downturn the wage should increase and, consequently, the relationship with the GDP per capita may be negative.

3.2.5. Determinants of MW

Minimum wage non-compliance became one of the most important topics of discussion in recent years. Different pieces of evidence (Programa Estado de la Nación, 2009; Trejos, 2009; Gindling and Terrel, 2007) point to the fact that a significant share of private workers still earns below the per hour minimum minimum wage. Depending on the methodology, this proportion may go from 25% to 33% of the workers. However, Gindling and Terrel (1995) estimated that between 26% and 42% of the workers earned less than their *category-specific minimum wage* between 1976 and 1991.

Based on the information of the 2013 National Household Survey, this paper estimated the level of non-compliance of the MW among private workers with the most recent available information. To proceed with the calculation, the reported monthly gross salary of the person was divided by the total number of effective hours in order to get the payment per hour⁴. This result was then contrasted with the hourly minimum minimum wage (US\$2.2) to determine whether the worker was or was not underpaid. The calculation excludes public sector employees so the assessment considers 1,221,873 workers.

The results show that **32.3%** of the private sector wage earners is not receiving at least the minimum minimum wage rate. To respond which characteristics are more likely to experience non-compliance, the research estimated a logit model. Annex 1 presents the technical details of the model while table 9 shows the main results.

According to the selected results in table 9, a higher probability of MW non-compliance is favored in the following conditions: a) the worker is a woman; b) the worker is a young employee, that is, he/she is between 15 and 24 years old; c) the person is an immigrant; d) the person is poor. In effect, female workers are 1.33 times more likely to receive remunerations below the MW in comparison to male workers. Besides cultural factors that promote gender discrimination in the Costa Rican labor market (Jiménez and Morales, 2012), women tend to locate in activities with high rates of non-compliance like domestic service.

Labor market-related results show that overemployed workers (those working above 12 hours a day) are more likely to receive a salary below the hourly MW. Contrary to other

⁴ The Household Survey collects two categories of number of working hours: the total number of regular hours and the total number of effective hours. Regular hours refer to the time for which the employee was hired (for instance, 40 hours per week). Overtime is included only if it is a frequent activity. Effective hours refer to the actual number of hours that the person worked, including overtime.

groups where a low remuneration is the source of non-compliance, for this group the excessive number of hours is the key factor that ultimately affects remunerations. The average monthly gross salary of overemployed workers is US\$900, much higher than the minimum minimumorum (US\$438). However, 65% of the group classifies as “not receiving the MW”. This situation seems to be confirmed by the lower probability observed among underemployed workers (those ones working less than 40 hours a week). This group, with an odds ratio of 0.60, has much fewer possibilities of being affected by MW non-compliance.

For the purposes of analysis in this section, table 9 reports the odds ratios of three productive sectors: domestic employees, communication and financial services. The former shows the higher odds ratios while the latter two presented the lowest results. For instance, a domestic service worker has double the probability of a farmer to receive remunerations below the MW. This is particularly critical if one considers that agricultural workers already perceive a low wage. On the other hand, financial services employees have a very low probability of experiencing MW non-compliance (OR=0.05).

Table 9. Odds ratios for the determinants of minimum wage non-compliance (=1 wage below MW)

Variables	Odds ratio	t-value
Woman	1.33	3.63
Rural	1.50	5.68
Workers aged 15-24	1.66	6.27
Workers aged 50 and over 50	1.18	1.98
Migrant	1.39	3.06
Underemployed (less 40 hrs)	0.60	-6.08
Overemployed (more than 72 hrs)	4.88	8.74
Internet at home (=1 is no internet)	1.69	7.42
Domestic employees	2.11	6.03
Communication	0.17	-5.05
Financial sector	0.05	-4.92

Source: Author's estimations

4. The effects of the MW and the NCP on inequality in Costa Rica

This chapter applies a “with/without approach” to the estimation of the effects of NCP and MW to income inequality in Costa Rica. By adjusting income according to assumed new rules (i.e. pensions are deducted from current income and MW is fully paid to every wage earner), the document advances in the estimation of how the Gini coefficient changes in every case. Then, based on the results and a series of interviews, the analysis defines some institutional explanations to the observed outcomes.

4.1. Methodological considerations

The paper follows a “with/without” approach to estimate the effects of both interventions on income inequality. Each effect was individually treated so, even if there was a common idea about how to measure those effects, each intervention requires different methodological paths. For the MW, the key question refers to what would happen with income inequality if there were not MW non-compliance. The simulation, thus, assumes that all those workers currently underpaid, receive at least US\$2.1 per working hour. For the NCP, the treatment was the opposite so income inequality was simulated under the idea that families are not receiving the NCP anymore.

4.2. Results

4.2.1. Simulations for the NCP

The net effect of the elimination of the NCP is an increment of 0.8% in the Gini coefficient of the gross income per capita. In other words, if there were no pensions, then income inequality would increase by that percentage. In the case of the two most important groups of beneficiaries (elderly people and people with disability), then the Gini increments would be 3.2% and 3.8% respectively.

Table 10. Changes in the Gini coefficient with and without NCP

Beneficiary group	Gini with NCP	Gini without NCP	Difference	t-value
All the beneficiaries	0.527	0.531	0.76%	-63.6
Elderly	0.561	0.579	3.2%	-33.0
With disability	0.532	0.552	3.8%	-29.3

Source: Author estimations

Overall, the net effect of the NCP seems to be small, especially in the income distribution at the national level. Several factors may influence this result. Table 7 above showed that, even though the higher proportion of pensions are allocated to quintile I and II families, still one in four pensions were assigned to the rest of the quintiles and one in ten to the top two

quintiles. Second, the higher the income group, the higher the pension received by the family. This is an interesting but disturbing finding. While the average NCP of quintiles I and II is US\$149 per month, for the IV and V quintile this figure amounts to US\$175 per month. One potential explanation is that families with higher incomes are also receiving pensions with higher amounts (i.e. those ones addressed to persons with cerebral palsy members). As a result, the positive bias in the distribution of the benefit is partly offset by the higher average pension received by wealthier families.

4.2.2. Simulations for the MW

Under the assumption that there is no MW non-compliance, the Gini coefficient of the hourly wage **is expected to decline 0.06 points**, from 0.45 to 0.38, being the difference between the two situations statistically significant at 5%.

Table 11. Changes in the Gini coefficient of the hourly wage

Situation	Gini coefficient	Standard error
Hourly wage, current	0.450	0.008
Hourly wage, no MW non-compliance	0.389	0.009
t-value for differences in Gini coefficients	508.7	

Source: Author calculations

A point of interest is to know which groups benefit more from a full MW compliance. Table 13 shows the results for individual conditions and characteristics. Full compliance would be of significant improvement for residents of the rural area, immigrants and people with disability. The effects on the rural area are clearly understandable given the high rate of salaried farmers that received payments below the MW. Indeed, in the table below, workers of the agricultural sector would be among the top beneficiaries of an MW compliance policy.

A similar explanation applies to immigrants where there is a close relationship between labor market placement and inequality conditions. Roughly 58% of the salaried migrants work in agriculture, domestic service, commerce or construction. All those branches are among the economic sectors where a MW policy would have substantial redistributive effects (Table 13). For instance, full compliance in the agriculture sector would reduce the sector-specific Gini coefficient by 47% and similar effects would be experience among domestic service workers.

The former descriptions are relevant in order to understand which sectors benefits the most from MW compliance. However, for policy purposes, a geographic identification of the workers below MW is critical. In this regards, two variables were analyzed. The first one refers to the region of Costa Rica where income distribution may receive the greatest impact in case the MW is fully paid. The second one comprises the economic activities that may yield the highest effects.

According to the information in Table 13, two key conditions should be considered in a MW policy. The first one is that the greatest effects appear in coastal and border regions. With the exception of the Central Pacific region, any other region outside the GMA would see its Gini coefficient (hourly wage) to decline between 21% and 24%. This analysis has to be complemented with the identification of the economic sectors that most likely will reduce their level of inequality. Two options emerge. The first one is to select those sectors with the highest decline in their Gini. In this case, domestic service, accommodation and agriculture would be the target groups (Gini declines between 23% and 49%) but they represent only 25% of the total wage earners. On the contrary, if the policy targets sectors with massive levels of workers, then commerce, agriculture and industry would be the selected ones covering close to 40% of the employees.

Certainly the ideal policy should pay attention to the conditions of all the workers; however, in practice, as we will see, some institutional limitations may motivate a “restricted policy” that may achieve the greatest effects.

Table 12. Gini coefficients of hourly wages

Variable	Gini with non-compliance	Gini with compliance	% Change
Sex			
Men	0.435	0.374	-14.0%
Women	0.469	0.407	-13.2%
Zone			
Urban	0.446	0.402	-9.9%
Rural	0.418	0.311	-25.6%
Nationality			
Costa Rican	0.444	0.388	-12.6%
Immigrant	0.468	0.366	-21.8%
Physical and mental condition			
No disability	0.450	0.391	-13.1%
Disability	0.429	0.301	-29.8%
Economic activity			
Agriculture	0.315	0.167	-46.9%
Mining	0.513	0.405	-21.0%
Construction	0.429	0.332	-22.6%
Accommodation	0.329	0.252	-23.4%
Domestic service	0.443	0.229	-48.2%
Commerce	0.386	0.329	-14.9%
Manufacturing industry	0.369	0.330	-10.5%
Region			
Central	0.446	0.397	-10.9%
Chorotega	0.436	0.342	-21.7%
Pacifico Central	0.449	0.366	-18.5%
Brunca	0.453	0.347	-23.5%
Huetar Atlántica	0.432	0.338	-21.8%
Huetar Norte	0.449	0.334	-25.6%

Source: Author calculations

4.3. Institutional bottlenecks that affect MW and NCP effectiveness to reduce inequality

Both the NCP and the MW have, though differentiated, a potential to reduce inequality. However, in the case of the NCP, their current effects in the Gini coefficient are certainly low, especially at the national level. Regarding the MW, the high rate of non-compliance inhibits the possibility of achieving better results in income inequality.

In order to explore the institutional causes of those results, the research conducted a series of interviews and literature reviews about legal, administrative and institutional factors affecting the performance of each initiative. These barriers are described in the following paragraphs.

In the case of the NCP, the following factors are constraining improvements in pension allocation:

1. **Criteria to define beneficiaries.** The NCP was initially designed to support the material conditions of poor individuals. Poor people refer here to any person with a per capita income below the poverty line. However, in practice, it is possible to find some loopholes. First, it is easy for persons just above the poverty line to lie about the perceived level of income, especially if the main source of income does not come from a formal activity. Second, there are diverse ways to assess a “poverty condition” during the visits of the social workers. That is, there is not a consolidated methodology or approach to evaluate the living conditions of the applicant to what is “deprivation” for one person may not be for another.
2. **Problems in the identification of specific beneficiaries.** The system still has problems to accurately identify people with cerebral palsy due to poor medical diagnostics. As a result, the pension is first granted and then withdrew once the case is re-assessed. This represents higher administrative and transaction costs for the institution.
3. **Problems with the information system.** For many years, the information system was not useful for the purposes of NCP award. For example, there was in total 1,336 records with the same “file number”, something that the IT system would had to identify and avoid this type of mistakes. The Comptroller, in fact, found that some files dated back to 2005 and were stored in the basement.
4. **Idle money.** A report of the Comptroller General of the Republic in April 2011 showed that the scheme managed financial surpluses for many years. Just during the 2010, this surplus exceeded US\$12.6 million equivalent to 7,600 pensions not awarded. Between 2006 and 2010, the approximate surplus amounted to US\$57 million. There are some explanations to this situation. The first one is that the CCSS limits the number of awarded pensions to the goal established by the Government of Costa Rica. For 2010-2014 the goal was set in 10,000 new pensions, or 208 benefits per month. Even though the target was already exceeded, there is an implicit limitation to expand the program according to needs. The second explanation refers to the bureaucratic processes. The mechanics of NCP award is still dependable of staff decisions and this drives the process to multiple

mistakes, delays, cancellations or benefit refusals to people that otherwise would be a beneficiary.

5. **Reduced staff.** Only a small fraction of CCSS staff (51 employees) work in the Pension Department and not all of them deal with NCP analysis. As a result, during 2011 the program accumulated 6,900 files without defining the status of the applicant. In other words, for each 8 beneficiaries, there was 1 applicant without a formal decision.

In the case of the MW, key institutional barriers include:

- **Legal aspects.** The existing regulation urges key changes in at least three aspects. First, the legislation inhibits the possibility to publicly show the list of firms that does not comply with the MW. Second, information in hands of the CCSS cannot be exchanged with the Ministry of Labor and this can be a critical input because the former entity registers salary reports from most formal workers (i.e. employees affiliated to the social security) so the Ministry can double-check that data with their own records. Third, the Ministry is not entitled to charge fines for defaulting the labor legislation. Overall, this issue is even more complex and the idea that authors like Gindling and Trejos (2010) support is that non-compliance of the MW legislation should be penalized in the same way as any fault against the social security legislation. Finally, the country urgently needs the approval and implementation of Labor Courts.
- **Policy perseverance.** The government of President Chinchilla (2010-2014) launched the National Campaign on Minimum Wages on 2010. According to Trejos, Gindling and Mossaad (2013), the campaign had a positive impact on the compliance of MW. The authors identified that a major challenge to sustain those results was to keep the same motivation for future years or even when new governments may emerge.
- **Low participation of private workers in unions.** Costa Rican private workers barely participate in unions. According to the 2013 Household Survey, only 0.5% of this group is affiliated to unions. As a result, the country is missing the possibility of having a non-public mechanism that can effectively supervise adequate salary levels.
- **Complexity of the MW structure.** Earlier this paper described the structure of the MW and concluded that, despite some improvements, there are still “too many” minimum wages. The long list of salaries makes difficult to understand the exact category where a determine worker falls. In other words, the current structure is visualized as an obstacle to MW payment.
- **Limited number of supervisors.** In the past two years, the total number of inspections averaged 18,000 visits to formal establishments. This figure represents 14% of the total number of employers, with low variation since 1998 (except in 2007 when the coverage rate fell to 9.7%). Of the total inspections, about 40% were specifically conducted to examine MW compliance. Despite considerable improvements in the last years, the number of inspectors is, at most, sufficient to keep a moderate-to-low number of firms under supervision.

Conclusions

Costa Rica has a long tradition in the design and implementation of social programs aimed at reducing poverty. Current poverty levels in the country are among the lowest in Latin America. Similar situation was observed with inequality. Up to the end of the XX century, the Gini coefficient remained below 0.40, being this one of the lowest results in the region. However, in the past 15 years, the country observed a continuous increment in income distribution, no matter which indicator was used to measure it. The Gini coefficient is now over 0.50 and the income ratio grew to achieve a historical 20-time difference between the income of the highest and the lowest deciles.

In the search for policy responses to the increasing income inequality, the country should pay attention to the existing poverty reduction programs. The network of poverty programs in the country exceeds 40 initiatives and, if some more disaggregation is used, one may count over 80. Instead of creating more programs, the country may evaluate the impact of some of them that, for their nature, may increase the available income in the hands of the poorest. The NCP and the MW are among two of those key initiatives that need to be considered.

This paper presents several facts. First, the core of the redistributive problem (income distribution, not wealth distribution) relies on salaries. About 85% of the income of the persons comes in the form of salaries. Second, social transfers have substantial effects on income inequality so a 1% increment here may reduce the Gini coefficient by 4.8%. This, of course, depends on the targeting ability of the program. Third, some Costa Rican citizens are more likely to be part of groups with higher income distribution problems. Residents of the rural area, immigrants, people with disability, workers over 50 years old and workers of the agricultural sector and domestic service are more prone to experience higher Gini coefficients than their counterparts.

The recent performance of the NCP confirms the initial idea that the program has a significant impact on the poverty levels of its beneficiaries. One in five elderly people receive a NCP and one in three elderly persons in poverty or extreme poverty conditions is currently a beneficiary of the program. The amount the pension transfers is equally representative. In a typical household (3.2 members), the benefit is enough to cover 25% of the basic basket of goods and services and almost half the cost of the food basket. Despite these two positive outcomes, there is a clear challenge in terms of targeting with one in four pensions going to upper income groups.

The performance of the MW initiative presents a series of challenges for future policy action. The second half of the 2000 decade observed constant improvements in the real minimum minimum wage. Still, 32% of the workers are receiving less than the hourly MW as established by the Ministry of Labor (US\$2.1 per hour). In addition, some groups have a higher probability of receiving less than the legal norm. Among them, the logit model prepared for this paper identified that women (odds ratio = 1.33), rural residents (1.50), young workers (1.66), overemployed persons (4.88), domestic service (2.11), and poor persons (1.69) are among those vulnerable categories.

In one way or another, both programs have the potential to positively affect the level of income inequality. In relation to the NCP, the results showed that income inequality was moderately reduced when the NCP was deducted from the family income. At the individual group level (elderly and people with disability), the decline in the Gini coefficient was much higher than for total income. Although in principle the low effects seem to be an indication that inequality should not be tackled with this program, in reality some institutional adjustments may spur the final effect on inequality. For instance, as it was mentioned earlier, there is still a high proportion of pensions that is allocated to upper income groups. Besides, those households in the IV and V quintiles are receiving a higher pension, probably because they are benefiting more from the pension for people with cerebral palsy (a pension that is almost 4 times higher than the regular benefit for elderly and people with disability).

In the case of the MW, full compliance may have a significant effect on the Gini coefficient of the wage per hour. The exercise reported that, if all the salaried workers receive the legal remuneration, the Gini coefficient would decline from 0.45 to 0.39. The maintenance of an aggressive MW policy at the Ministry of Labor, as the Campaign implemented in 2010 and beyond, seems to be critical to achieve better results in terms of MW compliance. In particular, four regions and four economic branches may benefit more than others. Regions with possible higher benefits include the Huetar Norte region (northern border), the Brunca region (southern border), the Atlantic region (Caribbean coastal zone) and the Chorotega region (Pacific coastal zone). In terms of branches of economic activity, agriculture, domestic service, accommodation and construction rank at the top of sectors with the greatest Gini declines.

Improvement of the effects of both NCP and MW on inequality seems to depend on a series of transformations at the institutional level. Legal amendments to the current legislation are one critical step. For the correct detection and supervision of those firms that do not comply with the MW regulations, for example, the Ministry of Labor needs more tools in the form of fines, information exchange with other institutions and the establishment of Labor Courts to penalize non-compliers. However, there is also a big need to incorporate reforms in the way institutions are organized. At the CCSS (the Social Security Institute, in charge of managing the non-contributory pensions), the administrative processes related to pension grant seem to be out-of-date and there is a high chance to award the benefit to the incorrect people (i.e. to non-poor). It is not a problem of lack of money. The evidence is clear that the NCP usually experiences financial surpluses while there is a long queue waiting for response. A strong reorganization of the processes, the allocation of more personnel and the improvement of the IT system are among the measures to transform this program.

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Annexes

Annex 1. Determinants of MW non-compliance

Basic design

To estimate the determinants of MW non-compliance, the paper estimated a logit model where the dependent variable is coded 1 if the worker receives a payment below the minimum minimum hourly wage. The dependent variables were specified as follows:

- Zona: urban residents are 0 and rural ones are 1.
- Sexo: it takes the value of 0 for men and 1 for women.
- Agegroups have three categories: 0 for young workers (15-24 years old), 1 for adults aged 25 to 50 and 2 for workers over-50 years old.
- Ramaempri is the branch of economic activity, from 1 to 22 depending on the sector to which the worker belongs
- Migrante is 0 for Costa Ricans and 1 for immigrants
- Workinghours take the codes of 0 for underemployed (<less than 40 working hours per day), 1 for regularly employed (40 to 72 working hours) and 2 for overemployed.
- Internet is a proxy to the living conditions of the family (poverty) and takes the value of 1 if there is no internet connection in the house.

Information for the estimation of the model comes from the 2013 Household Survey.

Results

```
. svy: logistic NOMW i.zona i.a4 i.agegroups i.ramaempri i.migrante i.working
i.internet if ramaempri<21
(running logistic on estimation sample)
```

Survey: Logistic regression

Number of strata	=	12	Number of obs	=	8957
Number of PSUs	=	1112	Population size	=	1190952
			Design df	=	1100
			F(27, 1074)	=	23.70
			Prob > F	=	0.0000

	NOMW	Odds Ratio	Linearized Std. Err.	t	P> t	[95% Conf. Interval]
2.zona		1.501163	.1074373	5.68	0.000	1.30449 1.727488
sexo		1.333336	.1056635	3.63	0.000	1.141326 1.557648
agegroups						
1		1.660367	.1343364	6.27	0.000	1.41664 1.946026
2		1.183893	.1010157	1.98	0.048	1.001391 1.399656

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ramaempri						
2	1.485346	.8638303	0.68	0.496	.4745153	4.649485
3	.3638739	.04079	-9.02	0.000	.2920294	.4533934
4	.4044882	.369626	-0.99	0.322	.0673304	2.429968
5	.837749	.3746241	-0.40	0.692	.3483813	2.014527
6	.5223186	.0706156	-4.80	0.000	.400617	.6809914
7	.5234105	.0534423	-6.34	0.000	.4283864	.6395126
8	.6243674	.1011664	-2.91	0.004	.4543263	.8580498
9	.5628322	.0751419	-4.31	0.000	.4331243	.7313837
10	.1754433	.0604081	-5.05	0.000	.0892753	.3447804
11	.0545118	.0322334	-4.92	0.000	.0170849	.1739277
12	.4092155	.1735699	-2.11	0.035	.1780389	.9405659
13	.3715553	.0896209	-4.10	0.000	.231464	.5964356
14	.4864452	.0749251	-4.68	0.000	.3595693	.6580899
15	2.055931	2.386436	0.62	0.535	.2108055	20.05096
16	.2431843	.0686696	-5.01	0.000	.1397369	.4232137
17	.4107272	.131132	-2.79	0.005	.2195295	.7684474
18	.842013	.2259219	-0.64	0.522	.4973704	1.425469
19	.7010678	.1742166	-1.43	0.153	.4305286	1.141611
20	2.110936	.2615041	6.03	0.000	1.655433	2.691774
1.migrante	1.394527	.1514197	3.06	0.002	1.126939	1.725653
workinghours						
1	.5970771	.0506343	-6.08	0.000	.5055522	.7051717
2	4.882045	.8861806	8.74	0.000	3.419187	6.970768
1.internet	1.686971	.1188809	7.42	0.000	1.469121	1.937126

Model specification

. linktest

(running logit on estimation sample)

Survey: Logistic regression

Number of strata	=	12	Number of obs	=	8957
Number of PSUs	=	1112	Population size	=	1190952
			Design df	=	1100
			F(2, 1099)	=	295.43
			Prob > F	=	0.0000

NOMW	Coef.	Linearized Std. Err.	t	P> t	[95% Conf. Interval]	
_hat	1.046496	.0563717	18.56	0.000	.9358879	1.157104
_hatsq	.0384976	.0340753	1.13	0.259	-.0283624	.1053575
_cons	-.0102808	.0422895	-0.24	0.808	-.0932579	.0726964

. estat gof

Logistic model for NOMW, goodness-of-fit test

F(9,1092)	=	0.27
Prob > F	=	0.9835