Demographic and socio-economic characterization of the community of El Astillero, Nicaragua

Research Project 2019
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Abstract

This work was born with the purpose of addressing a lack of local demographic information. The conservationist organization Casa Congo is working in El Astillero, Nicaragua, since 2017 and yet has assessed the necessity of a better understanding of its beneficiaries, as well as of the entire neighbouring population, to enhance its impact by the mean of more specific programs. For a foreign organization, weak information implies limited relationships with the local community and, ultimately, reduces the chances of helping people. Through a survey-based research project, quantitative and qualitative data regarding the population's habits, lifestyle and economic dynamics were collected. A first-hand database has been developed which will serve as a structural source of information and allow for over-time monitoring. Along with that, this research paper is drafted to report the analysis' results along with some recommendations synthetized from the respondents' answers, and serve as a first piece of microeconomic literature for the area.

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Introduction

El Astillero is a small fishing village sited along a majestic bay overlooking the Pacific Ocean in south-eastern Nicaragua. With a tropical climate, it is blessed with sun and wind for most of the year, while temperatures range around 30°C almost always. Rain comes heavy during summer months, which is likely to damage most of the houses built with wood and roofed by light iron sheets. The waters of the bay are home to lots of fish and heaven for surfers. The beaches of the area are amongst the few places on Earth where mass reproduction of sea turtles happens. Moreover, just 1km away from the village is the Chacocente Wild Refuge, America's largest tropical dry rainforest and home of a wild natural life. The capital Managua is 3 ½ hours away while Rivas, the main center nearby, 1 hour. All-weather roads are found few kilometers from the village center, which still is connected commercially with other town, included Managua. The local economy is sustained on fishery, although cultivation and livestock are also important. Tourism, internal as well as foreign, and related activities are far from being full exploited due to lack of investment, political unrest and unease of access, though could likely represent the main drivers of economic growth. Facilities such as hostels and restaurants are very low in number. Overall, El Astillero is a relatively poor sea village with important chances of development, especially regarding its touristic and natural attractions. There is, in any case, a significant lack of data regarding the population and the economy. What this research project aims to report is, in first place, the true level of poverty of the community.

Casa Congo is operating in El Astillero since late 2017 implementing multi-sectorial programs directed to the promotion of sustainable development, the protection of the local ecosystem and improve the rural infrastructure, through the involvement of international students, volunteers and ecotourists. Moreover, Casa Congo is building a school to share knowledge with the local community and international students over conservation practices that can preserve the natural environment whilst regenerating the economy. With more data, Casa Congo could do a lot more.

This research project seeks to assess education levels among the youth and literacy among the adults; labour, healthcare and mobility dynamics; structural durability of the houses, diet, households overall well-being. Every aspect should then be inspected from the side of gender parity, often jeopardized in rural communities. The justification for such a work is, in conclusion, precisely the lack of data in the area of interest, for Casa Congo and potentially other entities.

Project summary

The research program sought to collect and analyze data and to publicate the results, in order to share a robust profiling of the rural community of El Astillero.

Overall objective:

To provide Casa Congo with a broad base information about El Astillero's community, directly addressing the lack of data in the area and ultimately promoting a more effective implementation of the Organization's activities.

Specific objectives

- To build a sound characterization and a clear present picture of the demographic and socio-economic specifics of El Astillero's population;
- To increase the awareness of Casa Congo, as well as the local community's one, towards social matters such as rural underdevelopment, social integration and poverty, for a consolidated response to the need of most vulnerable people;
- To establish a more robust relationship between Casa Congo and the local community, through cooperation for the finalization of the questionnaire and the organization of the interviewing sessions;
- To promote the birth of a course of microeconomic literature in the area of interest, primarily directed to sustainable rural development.

An in-depth survey is going to be submitted to El Astillero's community, with the objective of gathering multi sectorial data that range from demography, economic and financial conditions, consumption, to education level, access to energy, mobility, sanitation and health coverages. These data will inform Casa Congo's sustainable development strategies and investment priorities. An increased understanding of the population's current state is primarily critical to shape the future of Casa Congo's school and to set KPIs (key performance indicators) for the development of the community.

Research project

Technical premise

The population of El Astillero – as stated from the latest census contained in 'Mosafc's 2018 Characterization', issued by the *Alcaldia de Tola* – amounts to 2108 individuals. Individually, 328 inhabitants of El Astillero were surveyed; thus achieving a sample of 15.56% of the population, a good level for studying a homogeneous population. Such a sample allows for a 95% confidence level, with a confidence interval of 5%. This means that, for instance, if 47% of the sample respondents chose a certain answer, we can be 95% confident that, if we asked the same question to the entire population, among 42% and 52% would have chosen the same answer. In other words, such kind of a confidence interval represents a range of values that we can be 95% sure contains the true mean of the population relative to a certain variable.

Research methodology

The method employed for the research project is that of a "primary data" approach, *i.e.* pure data drawn from first-hand sources such as questionnaires and interviews (the term primary data refers to the data originated by the researcher for the first time, while secondary data refers to the already existing data, collected by agencies and organizations earlier). The questionnaire was divided in two sections, one directed to the individuals and another one to the households. Hence a typical survey session was made by two consecutive moments. In the first place, during collective interviewing sessions, the individual part was submitted first, which focused on demography, finance, employment, education, health care, mobility and personality of individuals. Afterwards, addressing one respondent per house (commonly the member who is most responsible – or owns the more complete information – of the household's condition), the second section was submitted, which focused on the household's composition, consumption, access to water and energy, as well as on the families' diet, access to farmland and plastic use. Such a variety of data allowed to combine quantitative and qualitative analysis providing a more elaborated understanding of the conditions of the community, through the creation of sectorial indicators.

Interviews were conducted collectively - with no more than 20 people at a time to avoid confusion - as well as one-to-one. Given the high target of respondents, a team of collaborators, composed among the workers of Casa Congo, the volunteers and members of the community, has been trained

on how to conduct and supervise the interviews, in order to advance at a faster pace. Considering both parts, the questionnaire was made by 40 questions, contemplating both closed and open-ended queries to reach a higher quality in the responses and not to impose limits to original answers. Those were simple and straight in order to provide an as much as possible clear and unbiased information. Respondents were randomly selected trying to spread evenly over neighborhoods, with no more than 4/5 individuals per house. The age of respondents ranges from 14 to 78 years old, so to include each age group and to inspect different lifestyles.

Findings

This section presents, both numerically and graphically, the findings obtained from the individual and the household data, gained and analyzed throughout March-October 2019 with the use of simple statistics. Results are organized over macro-areas to facilitate the comprehension of the different metrics depicting the life of El Astilelro's community

Individual survey

The individual questionnaire, with 26 questions, is part of A1 in the [Annex](#) chapter of this paper.

Demographics

Gender

The population sample is composed by 117 males (35.7%) and 211 females (64.3%), hence women represents the high majority of the sample. This is mostly caused by two issues: on the one hand women are easier to be found at home during the day and so it was easier to interview them with respect to men that were mostly out to the sea; on the other hand, women are in general more willing to speak with researchers and interviewers demonstrating overall greater desire of improving the community's situation and interest in the project. Besides, they spend more time at home in order to run the family, even though men are more aware of the general financial situation since it is their major competency in El Astillero – and commonly in all rural settings. Clearly, much importance is given to the gender component in every sectorial indicator, because it is firmly considered – and part of Casa Congo's philosophy – as a pivotal factor in the understanding of rural social environment.

Age

Overall average in-sample age is 36.4 years old. Relatively, men are on average older than women as the former's mean age is 38 years while the latter's is 35.5 years. The following table reports the detail of the age distribution with respect to gender.
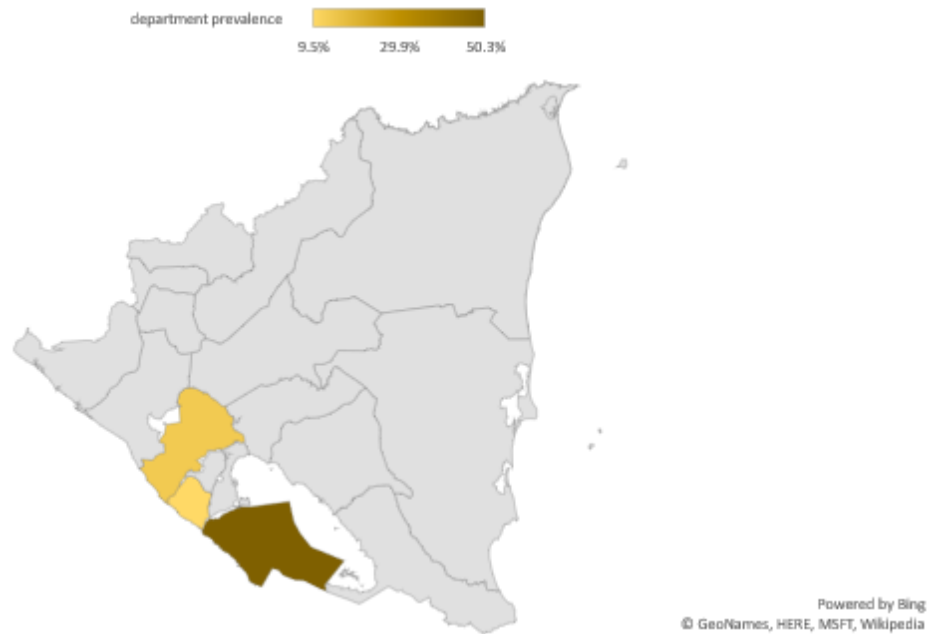
Age	Average age	Median age	Standard deviation
Males	38	37	14.55

Females	35.5	33	13.27
Entire sample	36.4	34	13.80

Origins

In total, 165 individuals (50.3%) answered to be originally from El Astillero, while 163 (49.7%) from another town, thus the two groups almost equals themselves and almost a half of the population is immigrated from outside. From the gender point of view, 52.14% of men result original of El Astillero while 50.71% of women immigrated. As for the age of migrants, it was found to be 39.8 years old on average. Among them, selecting a casual group of 20 individuals (12.27% of all immigrants) for whom data about the residence period in El Astillero were available for, average age rises to 45.85 years and they have migrated more than 5 years ago. This suggests migration relates more to the past somehow. Of whom came to live in El Astillero from outside, almost a half (46.63%) can be recollected into four major original domestic locations (Las Cañas in Managua department, Managua, Carazo department, Santa Teresa in Carazo department, in order of mention), while just 4 individuals (1.22% of tot population) came from abroad. The following table and graph report the detail of the migratory dynamic.

	Immigrants		Las Cañas		Managua		Carazo department		Santa Teresa	
	% on sample	% on gender	% on sample	% on immigrants	% on sample	% on immigrants	% on sample	% on immigrants	% on sample	% on immigrants
Males	17	47.9	1.8	10.7	3.05	17.9	2.44	14.3	0.91	5.36
Females	32.6	50.7	5.2	15.9	3.66	11.2	3.96	12.15	2.13	6.54
Entire sample	49.7		7	14	6.7	13.5	6.4	12.88	3.05	6.13

department prevalence

9.5% 29.9% 50.3%

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<u>Education</u>

It is useful to make a premise about the education system of Nicaragua, which is public and free for all. It is organized on grades along several school systems: preschool, primary and secondary, then there is the preparatory school for university and university. Primary school goes on for 6 years hence starting from grade 1 and ending in grade 6; secondary school lasts 5 years, ending at grade 11 with the "*bachiller*" diploma. The university, depending on the topic, can last 4 to 5 years. In order to standardize data in this section of the analysis, the continuous scale of grades is conventionally considered ranging from *grade 0* (equivalent to no education at all or preschool level) to *grade 16* (or 15, depending on the subject; equivalent to full university education).

Coming to the analysis, the overall average grade reached resulted equal to 6.98, being higher for males – at 7.1 – than for females – at 6.92. A distinction based on origin can also be performed, and native people result higher educated with an average grade of 7.39. Thus, commonly native people complete the primary school. Interestingly, native females show a slightly higher education level, averaging to grade 7.41, with respect to men, who on average reach grade 7.36. Immigrated people, on the other hand, only reach on average grade 6.57, thus also completing the primary school, but with males resulting more educated – at grade 6.8 – than women – at 6.44. In conclusion, native people result better educated than immigrants on average, revealing a degree of social discomfort

driving internal migration. This is as well a sign of the goodness of Astillero's school system. The following table shows the detail of the education level distribution.

Average grade reached	Entire sample	Natives	Immigrants
Males	7.102	7.36	6.82
Females	6.924	7.413	6.448
Entire sample	6.987	7.393	6.576

More specifically, it is possible to inspect the figures relative to the different segments of education. Generally, 65.2% of the sample population has completed the primary education reaching an average grade of 9.31, while just 22.9% has also completed the secondary cycle reaching an average grade of 12.44 – with a seven-points difference between men and women: 27.4% for males against 20.4% for females. Hence, there is a significant tendency of leaving school at secondary and university level. Only 4.9% of respondents have completed university and 2.7% has attended adult literacy programs, with a vast majority of men.

Moving towards the bottom of the education distribution, at the lowest literacy level, it is calculated that 34.8% of respondents have not completed primary education, and 6.1% of them have never attended school, with a vast majority of females. This is surely due to the family burden as well as to the house-working mandates. The following table reports the detailed education distribution, with a focus on the gender component.

	Primary school not completed			Primary school completed			Secondary school completed			University completed		Adult literacy program		Not educated	
	No.	% on sample	Average grade	No.	% on sample	Average grade	No.	% on sample	Average grade	No.	% on sample	No.	% on sample	No.	% on sample
Males	40	34.2%	2.57	77	65.8%	9.45	32	27.4%	11.9	3	2.6%	2	1.7%	6	5.1%
Females	74	35.1%	2.648	137	64.9%	9.23	43	20.4%	12.83	13	6.2%	7	3.3%	14	6.6%
Entire sample	114	34.8%	2.62	214	65.2%	9.31	75	22.9%	12.44	16	4.9%	9	2.7%	20	6.1%

The average age at which school is abandoned resulted being 17.03 years old, with women averagely leaving it before men – at 16.78 years and 17.47 years respectively. Among the ones who are educated to any extent[1], the main reasons for abandoning were found to be money/poverty related, at 32.42%; followed by the need to work to sustain the family, at 19.53%; the lack of willingness or interest in continuing the studies, at 13.28%; distance related issues such as lack of

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[1] _i.e._ 256 observations leaving aside 'not answered, currently enrolled and completed university'

nearby facilities, weak or absent transportation and infrastructure, at 10.55%; but also early marriage or pregnancy, familiar issues or war/army related.

Age of abandoning	Average	Median	St. Dev.
Males	17.47	17	6.90
Females	16.78	16	5.93
Entire sample	17.03	16	6.30

Interestingly, regressing the number of children (OFFSPRING) onto the education level (EDU, proxied by the grade reached), a very significant negative correlation can be appreciated. In other words an higher number of sons corresponds to a lower education level. Relatively to women, for instance, the variation in the number of sons explains 25% of the variation in the grade reached. With regard to men, the same is true at 18.01%. Both quite high figures. The following table and graph show the regressions in details.

Reg1: $$EDU_{male} = \beta 0 + \beta 1 OFFSPRING_{female}$$

Reg2: $$EDU_{female} = \beta 0 + \beta 1 OFFSPRING_{female}$$

	Reg1	Reg2
Gender	Males	Females
Dependent variable	EDU (grade reached)	EDU (grade reached)
Regressor coefficient	-0.738*	-0.892*
p-value	1.74E-06	9.13E-15
R squared	0.181	0.25
Confidence interval	95%	95%
Observations	117	211
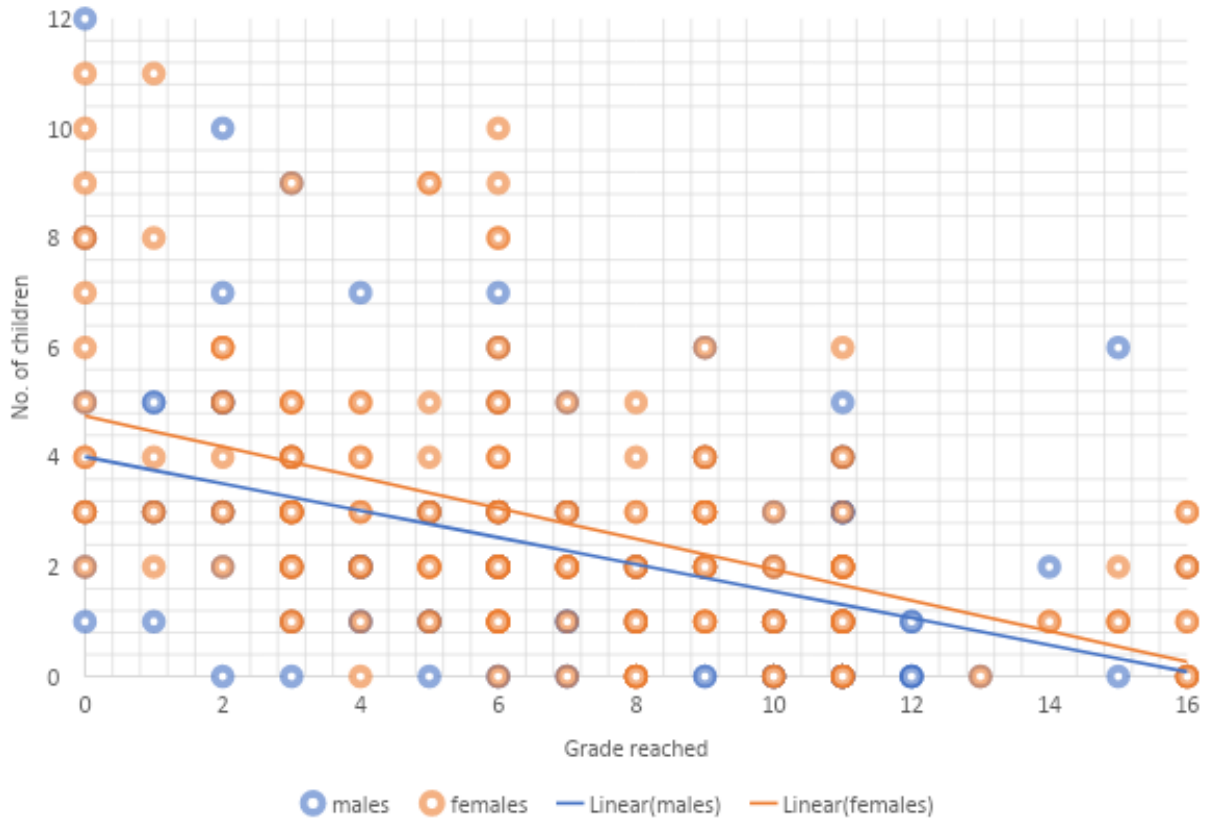
Offspring and children's school enrollment

The individuals who have been surveyed have 858 children in total; that is 2.62 sons per capita if everyone is considered, or 3.11 if only the parents are included. Averagely, women have more children than man implying that they happen to have more partners, marriages. Only 10.43% of women do not have any children. The age of the first pregnancy among women was found to be 18.30 years old, a number in line with or even slightly higher than other developing countries. Still, the distribution is quite dispersed, as a 3.04 standard deviation testifies; meaning that there are females who gave birth at a really young age: the minimum in-sample first pregnancy age is 13 years. In the specific, 44.5% of mothers were first pregnant before turning 18, at average age 15.97 years. The following graph reports the distribution of sons with respect to both age and gender of parents.
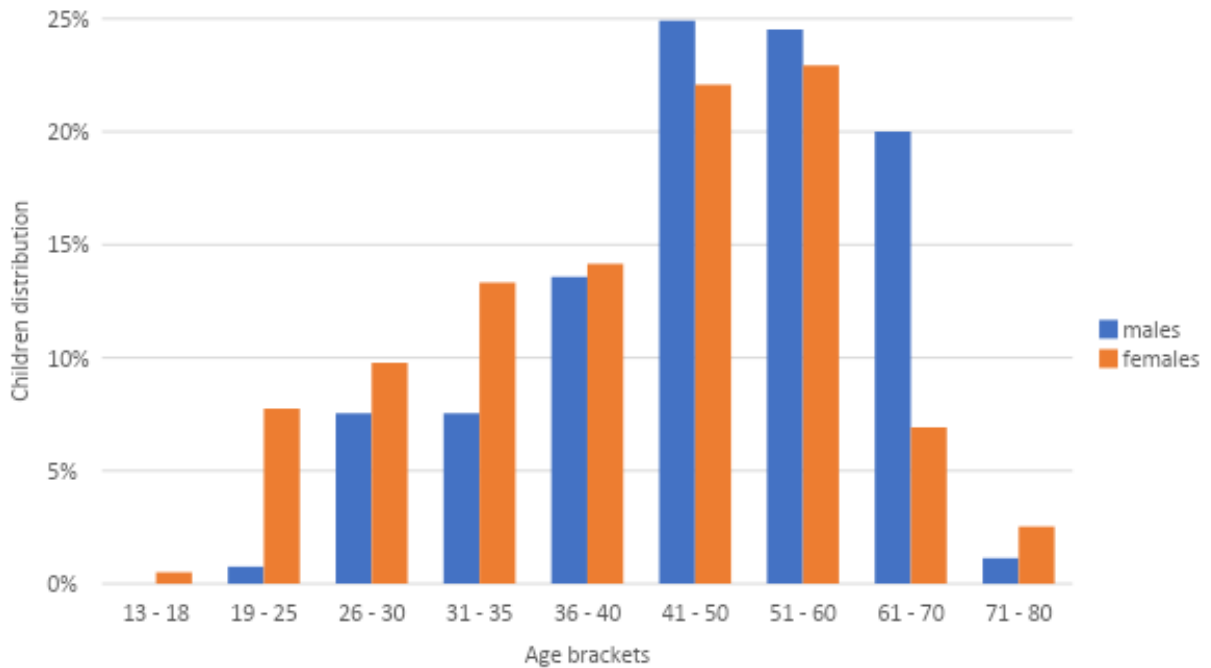
As it can be appreciated, at present the majority of parents is found between 41 and 60 years of age. For instance, men between 41 and 50 years of age have 25% of all the children; similarly, almost 10% of women's children belong to women aged 26-30. In other terms, photographing the current situation, women aged 51-60 have more children than any other age group and the same is true for men aged 41-50. Arguably, the most interesting insight is that in relation to the age group 19-25, almost all parents are females, whereas men of that age commonly do not have children.

Concerning the parents-reported enrollment in school, an estimated[2] 7% of children do not attend school. Among the ones who attended it, the relative majority (37.31%) left school during the secondary cycle – *i.e.* without completing it. Primary school follows (24.25%). This means that the absolute majority of kids does not conclude the studies with the *bachiller* diploma. 6.34% left at the completion of primary school, 16.79% left at the end of secondary school achieving the diploma, and 15.30% before completing university.

As the parents reported, 83.24% of kids go to school always (this is on optimum data, mirror of the goodness of the public education system of Nicaragua, where even in a small village like Astillero, a

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[2] Figures relative to not fully available data are estimated. That is because some questions were not answered by all respondents.

school can be found covering from preschool to secondary, and this would be hard even in rural areas of some developed countries); the other 16.76% jumps on average 2.62 days per month for reasons mainly related to health, lack of willingness or travel. These particular data are to be intended as an estimate due to a smaller available sample, yet can be read as the tendency of the whole population.

Economics and Labour

Employment

Things get complex from the gender parity point of view when coming to the employment matter. Men emerge employed at 87%, while 60% of women is unemployed. Almost 90% of unemployed people are females and some 70% of them never had any employment; among those who had, the vast majority (78%) was an housekeeper or a domestic cleaner, a very unstable job. Among unemployed men (13% of total male respondents), instead, almost half have already worked in the past; in fact, it is common for men to work seasonally or intermittently, especially in construction. Overall, 32% of unemployed have already worked in the past, with an average inactivity period of 5.28 years since the last occupation, and a very similar figure between males and females (although pretty variable: standard deviation > 7 years). The following graph shows the gender gap in the unemployment distribution segmented on an age basis, namely how the frequency of unemployed people is informed by the gender of individuals in each age group.
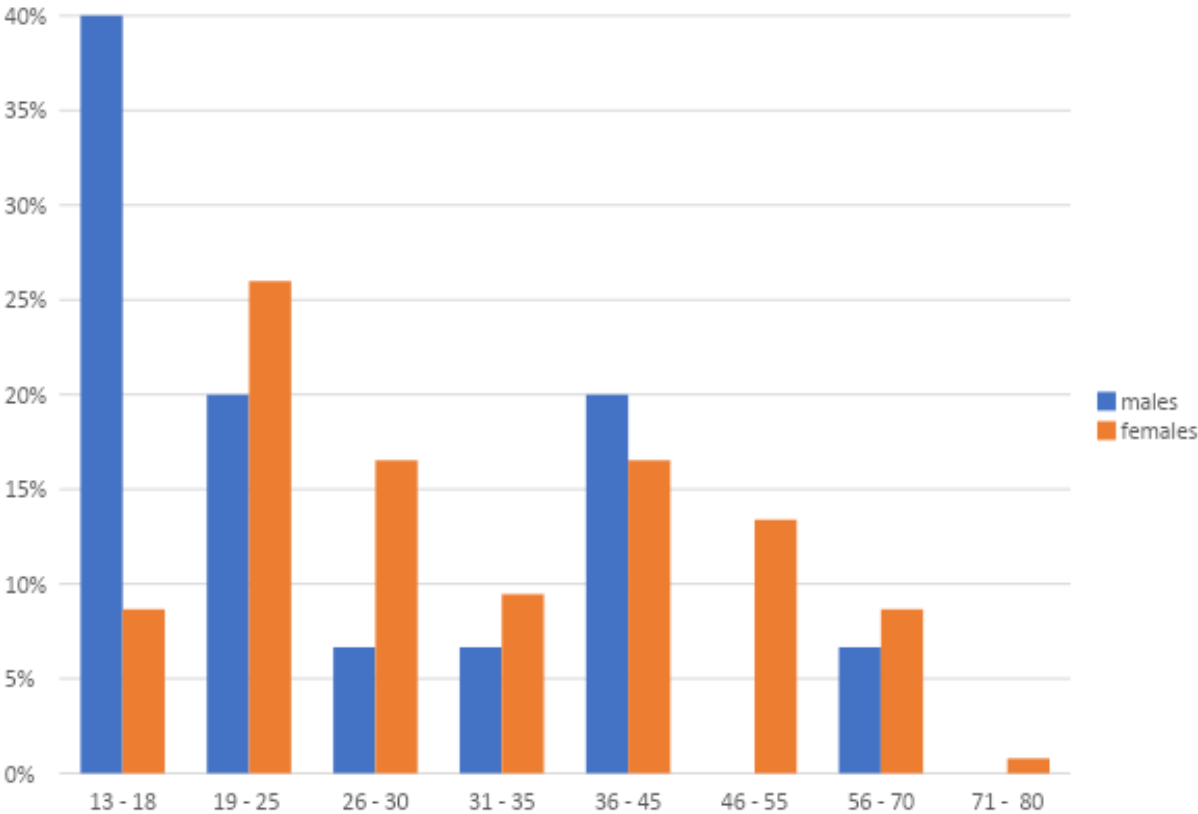
As shown by the previous graph, the vast relative majority of unemployed males (40%) is found in the age group 13-18. Regarding women, the unemployment distribution is slightly smoother with respect to age, but still the majority of unemployed females are relatively young. The relative majority of females unemployed (26%), in fact, lies in the age group 19-25. As for unemployment, women outperform (less unemployment) men only in 13-18 and 36-45 age groups. Moreover, there are no unemployed men at age 46-55, while in the same age group lies 13.4% of unemployed women.

Overall, 25% of unemployed people are between 18 and 25 years of age. This share is composed at 3% from men and at 22% from women. The gender contribution to total unemployment can be further appreciated in the following graph, which shows how the general unemployment level segmented on an age basis is informed by the gender of individuals.
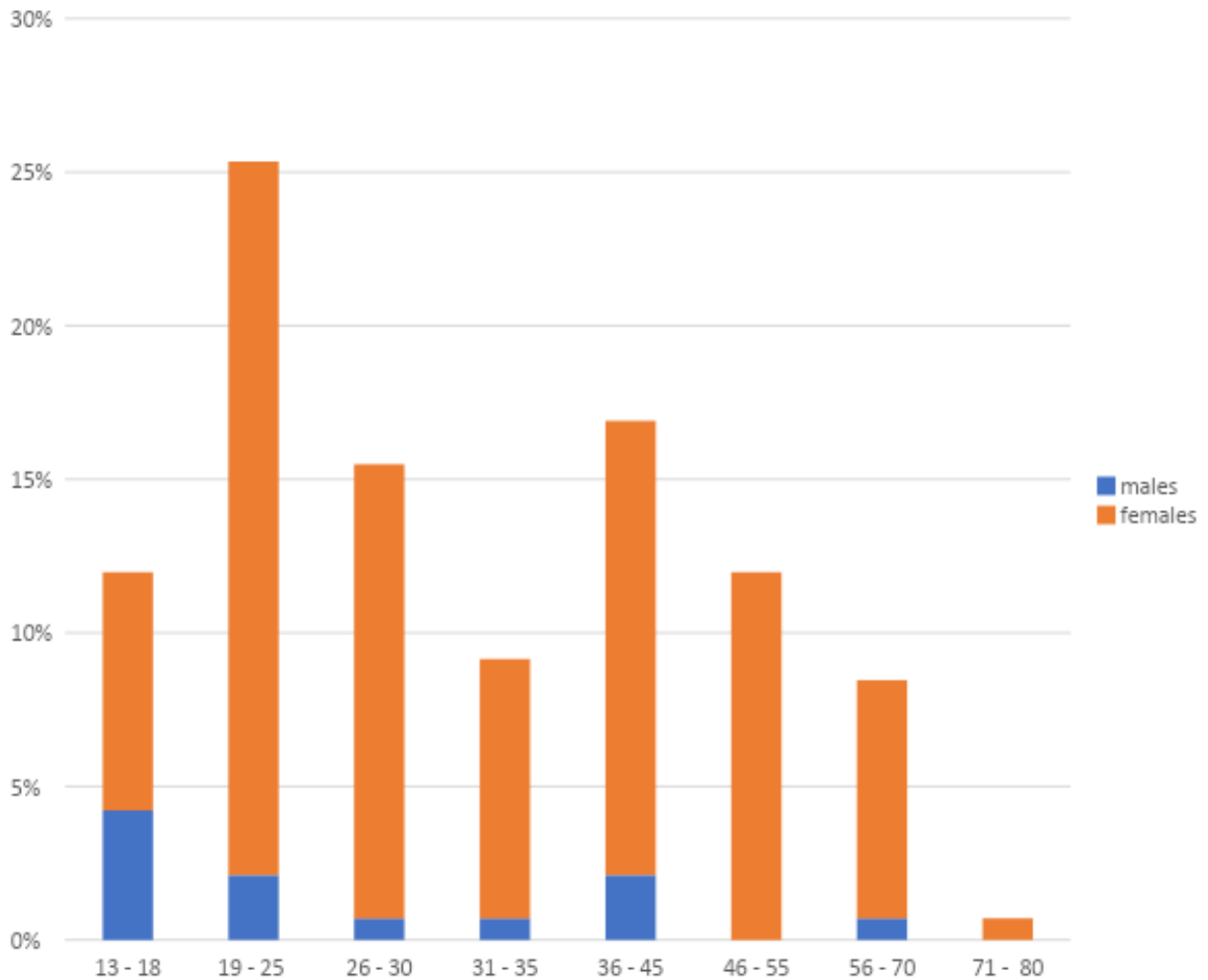
On the employment side, an overall 57% of population emerge being employed, with approximately a 50-50 partition between self-employed and salary workers. It is also estimated that around 8% of workers carry on a double job. Major occupational industries proved to be the fish one (including traditional fishing, artisanal fishing, net repair, fish market) with 36% of total people employed, followed by the food one at 20% (including minimarket, homemade food selling, farming and agriculture, cooking and waiters) and the social at 14% (Casa Congo directly employed, Tejedoras cooperative). If all respondents (employed and unemployed) are taken into account, the fish industry directly sustains 20% of the entire population in individuals terms. The following graph reports the gender gap in the employment distribution segmented on an age basis.
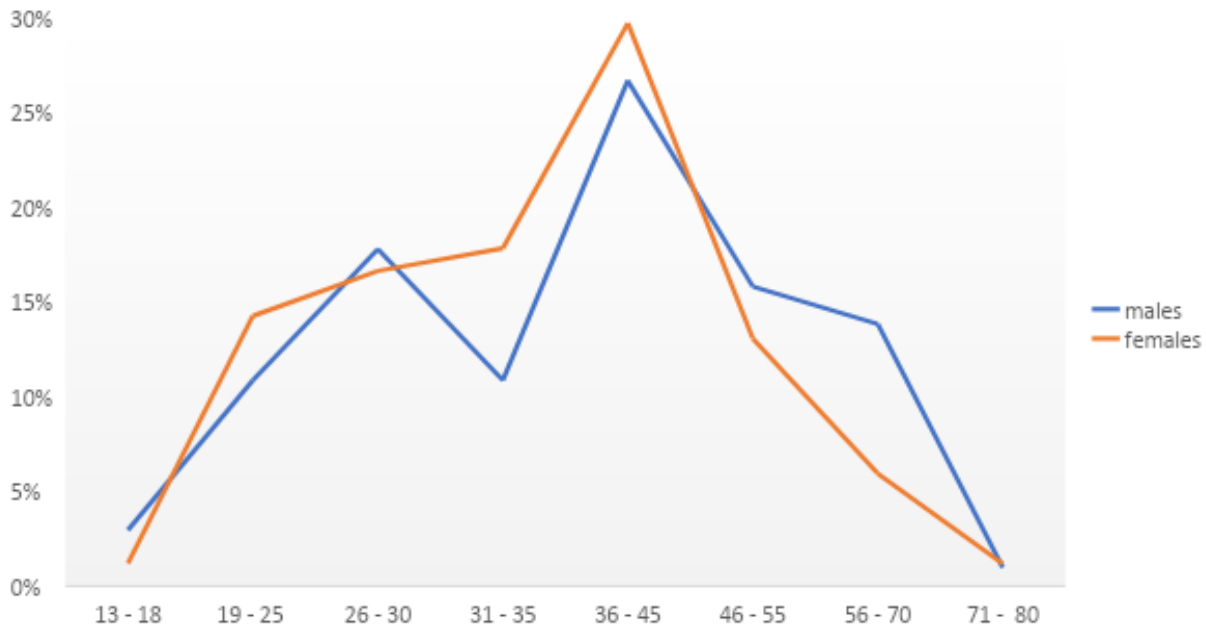
As reported, the relative majority of people is employed at an age comprised between 36 and 45 years. In general terms, it seems women tend to be more employed at young age in relation to men (19-45, exception made for the group 26-30), whereas men outperform them at an older age (46-70). It is as well possible to inspect the working days, which allow to better understand how the labour sector is set in El Astillero. Specifically, workers emerged being operative 5.65 days per week on average, with a standard deviation o 1.61 days. As for the gender component, the number of working days rises to 5.8 per week for men while it lowers to 5.46 days per week for women. In other words, women generally work slightly fewer days per week than men.

Salary and Income inequality

Based on the totality of the sample (*i.e.* including people with zero income), monthly income per capita in El Astillero amounts to 2,464.00 córdobas[3], or 29,573.00 C$ annually[4]. At this level, a

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[3] Since the beginning of 2019, USD/NIO exchange rate ranged between 32.5 and 34.0 (source: https://www.xe.com/currencyconverter/convert/?Amount=1&From=USD&To=NIO). For the sake of this research, in order to normalize income data expressing all figures in a unique currency, the exchange rate between the U.S. Dollar and the Nicaraguan Córdoba (C$) is assumed equal to 33.

[4] Well below the national figure of per capita GDP, which for the 2018 World Bank data was equal to $ 2,028.9 (approximately C$ 66,953.7). Moreover, Nicaragua appears as the poorest of Central America's economies. By the comparison with national data, it is possible to appreciate the extent of unemployment in El Astillero.

critical difference emerges among genders, with female average income being just 28.5% the male average one: 1,315.00 C$ and 4,618.00 C$ respectively over the month. In other words, women receive on average 71.5% less compared to men. That makes it for a non-negligible annual income gap of 39,626.00 C$. If total income is taken into account, namely working income plus income from rental, farmland and livestock, the per capita figures rise moderately to 2,656.00 C$ per month or 31,873.00 C$ per year, but still, practically the same gap persists. There are many unemployed and zero-income women, hence if just positive-income earners are taken into account (*i.e.* excluding people with zero total income) the annual gender gap lowers to 24,667.00 C$. Thus, in this case, a positive influence of rental, farmland and livestock income on females' wealth is highlighted. The situation changes reasonably when just workers are considered (*i.e.* who earns a wage from a dependent or independent job). In such a way, general per capita income rises to 4,518.00 C$ over the month with a reduced gender gap: women earn 18.4% less than men, which makes it for an annual gap of 9,464.00 C$. The following graph reports the gender pay gap for workers.
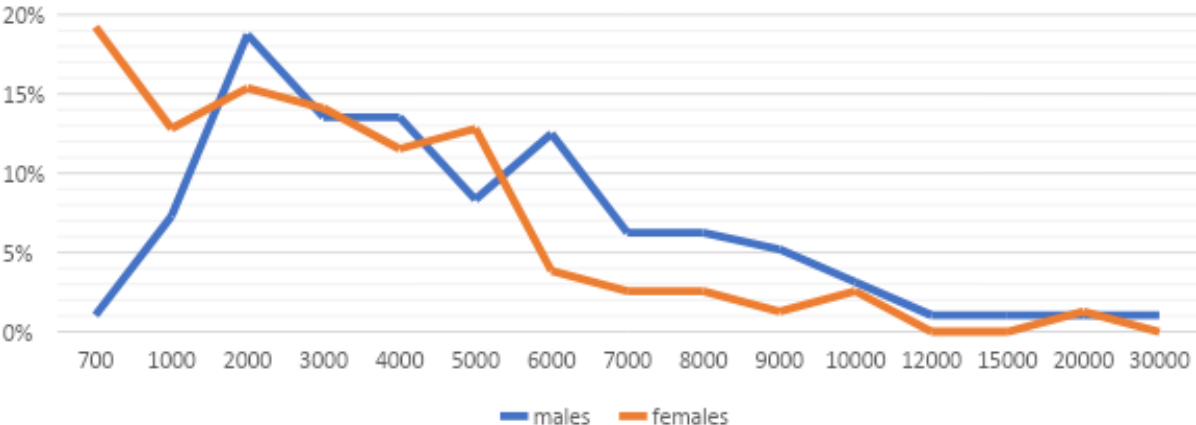
As it is shown, there are much more women earning 700-1000 C$ per month than men, while men basically outperform women from 6000 c$ on. Among 197 respondents with below-average income, 165 are females: 84%. Likewise, among 105 surveyed workers with below-average salary, 53 are females: 50.5%. This means that, once a job is obtained, the salary stays pretty similar; as also testified from a standard deviation smallest than the mean for the wage distribution (4051.00). The analysis can be taken to a deeper level inspecting the effects of age and education on income. Regressing the age and the literacy level (again proxied by the grade reached before leaving school) onto income, a significant relation is obtained in which the income appears positively correlated

both with age, whose variation explains 2.3% of income's variation, and the grade reached, whose variation explains 3.9% of income's variation. Two insights are clear: first, the income distribution is informed by manifold variables; second, the education level influences income more than the age does. The following table and graphs show the regressions' result in detail.

Reg 3: $$INCOME_{(gender)} = \beta 0 + \beta 1 AGE_{(gender)}$$

Reg 4: $$INCOME_{(gender)} = \beta 0 + \beta 1 EDU_{(gender)}$$

	Reg3	Reg4
Gender	Males	Females
Dependent variable	AGE	EDU (grade reached)
Regressor coefficient	47.4206*	200.7927*
p-value	0.0451	0.0086
R squared	0.0231	0.0394
Confidence interval	95%	95%
Observations	174	174
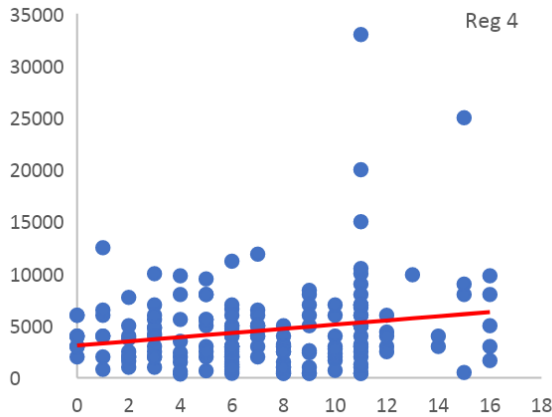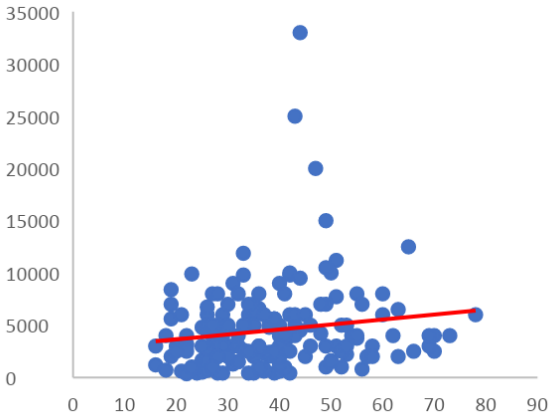
Other sources of income and financial habits

This subsection of the survey was originated with the scope of investigating other sources of income and financial aids, to allow for a more complete understanding of the financial environment in which El Astillero and its population are found. In order to explore the financial habits of El Astillero's inhabitants, the analysis ranges over banking, financial aids and incomes generated by the exploitation of livestock, farmland or rental properties.

Bank accounts

As could be expected, banking is not a widespread practice in El Astillero. There are no banks nor small branches. Also, it appears as a prevalently male prerogative. Investigating the matter to typify the sort of usage the population does of bank accounts, it resulted that they are mostly used to receive payments or bank loans and, by wage workers, to withdraw salaries. Evidently, every banking operation must be hold in a larger town equipped with the facilities[5]. Indeed, just 16 individuals out of 313 observations (5.11%) resulted in possession of at least one bank account (3 respondents own more than one). Among them, 10 respondents are males: 63%. Mentioned deposits average to 9,610.00 C$, though leaving aside the two most distant observations – 100.00 C$ and 49,500.00 C$ - it lowers to 5,812.50 C$. Moreover, the account holders group shows an above-average aggregate mean age as well as an above-average aggregate mean wage. In other words, the average bank account owner is holder and richer than his fellow citizens. In fact, only 3 holders are unemployed. Lastly, account owners perform 25 transactions per

year on average, though such figure is extremely variable.

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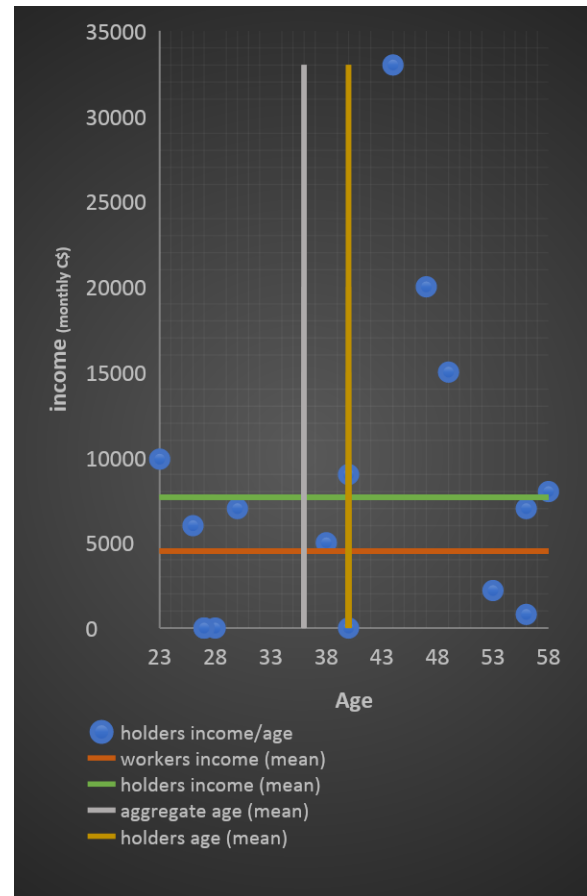
[5] It is, in fact, one of the main reason for outbound travelling, as outlined in the 'Mobility' section of this paper.

Financial aids

Here it is meant any kind of monetary aid, direct or indirect, that the most indigent inhabitants have received from third sources, such as the government or the NGOs. The survey allows inspecting both the magnitude of people receiving help and the main causes of its issuing. Overall, 19.6% of respondents (57 out of 291 available observations, or 17.4% on the entire sample) generally refer they have been granted aids. More specifically, 47.4% of them have received in-kind help following the devastation of their house or belongings provoked by natural phenomena, like storms or tsunamis. Usually, materials like zinc sheets or plastic films are provided in order to restore roofs and walls. This represents the main cause for governmental aid by far, while other examples of public aids are low-interest or poorly-guaranteed loans. A significant case regards fishermen in particular: 11.1% of all sampled fishermen were exempted from paying VAT on fuel for their boats. Furthermore, 2 respondents were sustained with food directly from Casa Congo and, in general, 7 persons were assisted from NGOs with food or materials.

Livestock

The people of El Astillero commonly own animals like pigs or chickens, and many dispose of them for their own consumption. However, for the sake of this specific part, only cattle for profit or much numerous is considered. As uncovered by the survey, 7.6% of respondents (25 out of 290 available observations, or 8.6% on the entire sample) own cattle of various type, yet 48% of them employ it to generate revenue of any sort (alive sale, butchery, milk sale etc.) and just 28% make a more or less regular and calculable profit out of it. This is also highly volatile, as livestock owners have very variable selling habits due to different family and economy situations. For instance, some owners use to sell an animal only if necessary from the household's finance point of view; while others have a fixed scheme and sell regularly.

Rental

Concerning rental, it is found that it regards mostly boats[6], rooms and lands. Overall, 5.5% (18 respondents) of the in-sample population have some profit from renting. Based on the available data, these people earn a monthly profit of 2,916.67 C$ on average. Therefore, this clearly is a significant opportunity to generate a positive impact on the household's income. The distribution of revenues from renting is described by a standard deviation of 788.43, which, considering the

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[6] A very valuable good in El Astillero' environment.

diversity of the rented goods and of prices, is quite low. This indicates that, rather than differentiate prices speculating on the offered good, people consider rental as a chance for entry as fixed and regular as possible.

Farmland

Farming has a strong importance in El Astillero economy yet it is interesting to inspect the level of access to farmland for its population. Overall, 24.7% of respondents (77 out of 312 available observations, or 23.5% on the entire sample) reportedly have access to farmland, and 51.95% of them (40 individuals) are women. A very good figure that proves the access to farmland is gender equal. Though just 9.09% of farmers (7 individuals) reveal to make a profit from it (with a 8,000.00 C$ annual profit on average) and they are all men. This means farming has a larger value for private consumption rather than for sale and income generation. More specifically on gender, 19.3% of all women have access to farmland, compared with 32.7% of men. The following graphs reports the access to farm land for the whole population with a focus on the gender issue.
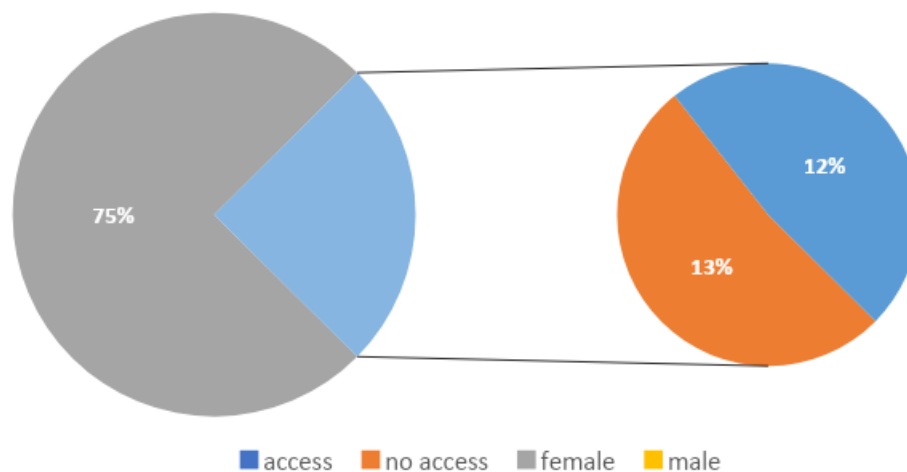
Nevertheless, having the opportunity to access a farmland – both privately or through a cooperative – does not necessarily imply that the land is exploited. In fact, only 80.5% of whom has access to farmland (62 respondents) can be considered farmers as they cultivate something, for their own

consumption as well as for sale. Still, this means 18.9% of the whole population rely on agriculture, which is a non-negligible figure.

The size of farmland averages to 7.48 *manzanas*[7], or approximately to 52,273.54 m^2. Precisely, 7.9 manzanas is the average size for males while 7.03 is the one for females. Although size is highly variable as a standard deviation of 10.22 testifies, it is not much dependent on gender which is a good result. Concerning the cultivations, it is found that more than 70% of active farmers grow corn and rice together. Corn alone is the most important cultivation being produced by more than 90% of farmers; followed by beans, that are produced by 55.8% of farmers; and rice, produced by 19.5% of them[8].

In general, 10% of those who has access to farmland does not cultivate it or only use it to store and feed the cattle. Based on 58 available observations, 87.9% of farmers are found to be using chemical pesticides or fertilizers, while 12.1% do not employ any or use organic ones. Coming to the source of seeds, it can be estimated that 19.3% of farmers acquire the seeds from the precedent harvesting cycle (100% sustainable); 71.9% clearly refer to buy them in markets or other farms. Overall, 38.6% of farmers acquire the seeds – bought or gifted – locally in El Astillero.

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[7] Although there appears to be a great deal of confusion about the size of the Nicaraguan manzana, it is now usually taken as approximately 7,000.00 square meters, being 1manzana=10000varas^2 and 1varas=0.836meters.

[8] Corn, rice and beans are the most important food, consumed everyday.

Healthcare

Concerning healthcare, which is public and free for all, typically hospitals are found in large centers and health posts in small ones. Regarding Astillero, a medical center and a pharmacy are present. As emerged from the survey, the typical inhabitant of El Astillero visits a doctor more than once per month. In fact, annual healthcare visits average to 13.1, although the distribution is extremely volatile, as testified by a standard deviation of 16. There are respondents who visit the hospital once per week or twice per month, and others who do once per year or less. Of course it depends on many factors, for instance the composition of the family or the chronicity of the medical situation. Women tend to visit the doctor more often, due to the caring mandate as they bring children to receive medical attention. Averagely, they visits the health center or the hospital, depending on the severity of the issue and the number of children, 15.43 times per year, compared to 8.95 times of men. Thus women – with kids – visits the doctor more than once per month on average, while men less than once per month.

Although the health system is guaranteed by the State, medical services are not all equivalent and some, as certain medical drugs which exceed the prescription or cannot be found at the health posts, needs to be paid. On average, the annual expense for medical services (*i.e.* including visits, check-ups, examinations, operations, drugs) resulted to be 2,317.26 C$. Specifically 2,490.63 C$ for females and 2,003.25 C$ for males. Such expenses correspond to an average share of 14.6% on total income for women, and just 3.4% for men, although possibly married people share the expenses to some degree. This is useful to highlight how women are in charge of the health of children more than men. The distribution of expense for medical services is quite volatile as well, showing a standard deviation of 4,346.70 C$. This reveals how changeable medical conditions and needs are among people in the community. In general, the population allocates to the medical expense 7.3% of total income. As a matter of fact, women visit health centers more often and sustain higher medical costs. The following graphs shows the complete dynamics of the visits frequency and of the annual medical expenditure, discerning on a gender basis.
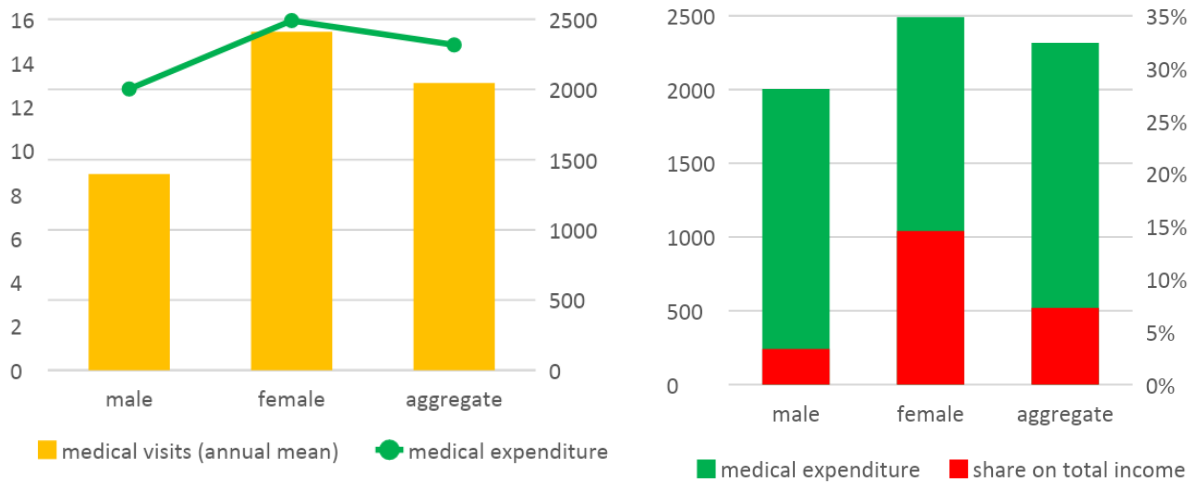
Overall, 86.3% of the entire population (283 out of 328 surveyed individuals) rely on the public system, while 9.1% on private sources. The "Centro de Salud" – El Astillero's health post – is visited by 83.2% of the sampled individuals. In general, 10.7% of respondents go outside town, relying on private clinics or public hospitals; 1.52% of respondents make clear reference to a private health insurance linked to a clinic outside El Astillero, although such a number might be higher since the questionnaire did not contemplate a direct question on the matter. Lastly, an estimated 5% of the population cure themselves at home or with natural remedies.

Deepening the analysis, it is possible to verify that a positive correlation occurs between total income and medical expense. Yet total income does not explain either medical expense or the visits frequency. Indeed, income is negatively correlated with the number of visits, which might mean that public health coverage is good enough. On the other hand, numerosity of children appears as positively correlated with the frequency of visits. Overall, the number of children, the age and the education level of the respondents are all positively correlated with medical expenditure. The fact that the respondent's age is slightly negatively correlated with the number of visits while the number of children is much more correlated, positively, demonstrates how the latter is an important factor in the health environment of El Astillero. Interestingly, the highest correlation of the whole series is found between the education level and the frequency of visits. This might be interpret as being less educated producing negative effects upon the family's heath. The following table reports the details of the correlation dynamics between the different variables.

Correlation table

|	Medical expenditure	Frequency of visits
AGE	0.041	-0.047
EDU (grade reached)	0.061	-0.131
OFFSPRING	0.049	0.099
TOT INCOME	0.043	-0.083

Furthermore, it resulted that 27.5% of the sample (on 298 available observations) does not undergo any payment for medical services; in other words they are able to solve their medical issues without any extra over the basic health service which is provided for free, or either they do not visit the doctor. The survey allows also inspecting the medical issues that happen in El Astillero with the highest frequency. Upon 295 respondents who visit a doctor at least once per year and answered the question regarding the main reasons for them to request medical services, 25% does so for reasons directly related to their children – like cough, pneumonia, temperature, respiratory diseases – or for family planning. The vast majority of this group – 89.19% – are women; another example of how the females in the community are in charge of taking the kids to see the doctor. Regarding women, in general 43.6% of them visit the doctor in relation to family planning, pregnancy, children's illnesses, consultancy or checkups. Overall, upon 300 respondents who visit the doctor for personal reasons, 5% does so due to renal issues and 66.6% of them are men; 9.3% for hypertension, mostly due to the extensive use of salt, alcohol consumption and the heat, with a majority of women; 12% for fever of whom 61% are men; 1.3% due to parasites and viruses mostly related to food of whom 75% are women; 2% for diabetes and all women; 3.7% for arthritis, articular pains, muscular pains or various pains of whom 45.5% are fishermen; 14% due to respiratory issues, like asthma, rheum or cough. Respondents have often mentioned more than one cause contemporary.

Mobility

In general, El Astillero's community appears well-integrated with the entire region and to some extent to the nation as well, as people often travel outside town and establish different sort of connections with other communities. Mobility represents a robust indicator of development, especially in rural areas, as it reveals to what extent people are able to elude and enrich their routine. In this section, the habits relative to mobility are inspected taking into account the destinations El Astillero's people visit the most frequently and the main reasons that drive them, the principal means of transportation they use and their cost.

Destinations and reason for travelling

On the totality of the sample, just 3.4% of inhabitants do not travel outside of El Astillero, women for the greater part: 3.8% of all women do not travel against 2.6% of all men. The vast majority of the population (96.6%) does so, and among them most people indicate Rivas – the capital city of the department in which El Astillero is found – as their principal destination: 64.8%; followed by Jinotepe – the capital city of Carazo department – at 12.7%, with the whole department reaching 17.3%; Managua at 9.6%; Nandaime – a town in Granada department – at 3.1%; and Tola – in Rivas department and center of the Municipality El Astillero refers to – at 1.5%. Thus almost 90% of the population travel towards the major three destinations: Rivas, Jinotepe and Managua. It has to be noted that often respondents indicate more than one destination. The following graphs show the detail of mobility with a focus on gender and the geographic location of the main destinations.

destination prevalence
3.1%   66.4%

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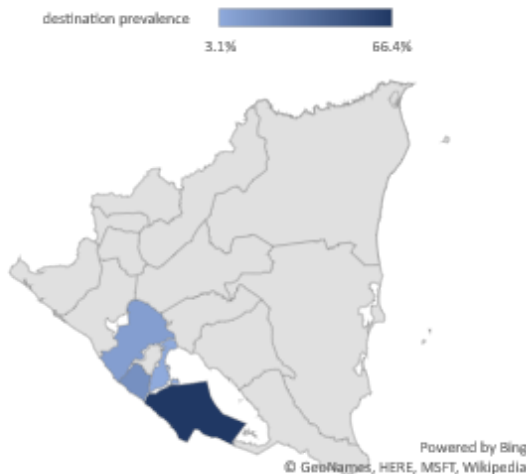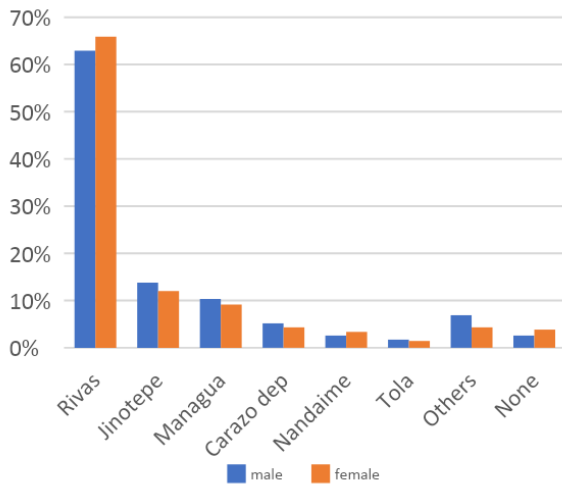
Among 306 available observations, the main reasons for travelling are found to be: market and trade (purchase of food, clothes or supply for the house) at 55.6%; visiting relatives at 20.3%; healthcare (visiting doctors, hospitals or purchasing medicines unavailable in El Astillero) at 9.2%; finance (bank activities like paying bills or withdrawing salary, remittances from abroad, pensions or loans) at 4.2%; business (purchase of supply or furniture for a commercial activity) at 3.9%; work (job directly related activities) at 3.6%; and study (attending school or university) at 2.6%. Often respondent refer to more than one reason at once. Interestingly, the three main reasons for travelling – namely trade, visiting relatives and healthcare – can be reconnected with the three main destinations. In fact, it is estimated that almost 80% of trade driven mobility is centralized in Rivas, whereas almost half of all relatives visiting is concentrated among Managua and Jinotepe alone,

while more than 80% of business driven mobility is clustered between Managua and Rivas, and more than 60% of work driven mobility concentrates in Rivas, where also almost all the healthcare mobility converges. The following graph shows the relative incidence of each reason as they were mentioned.
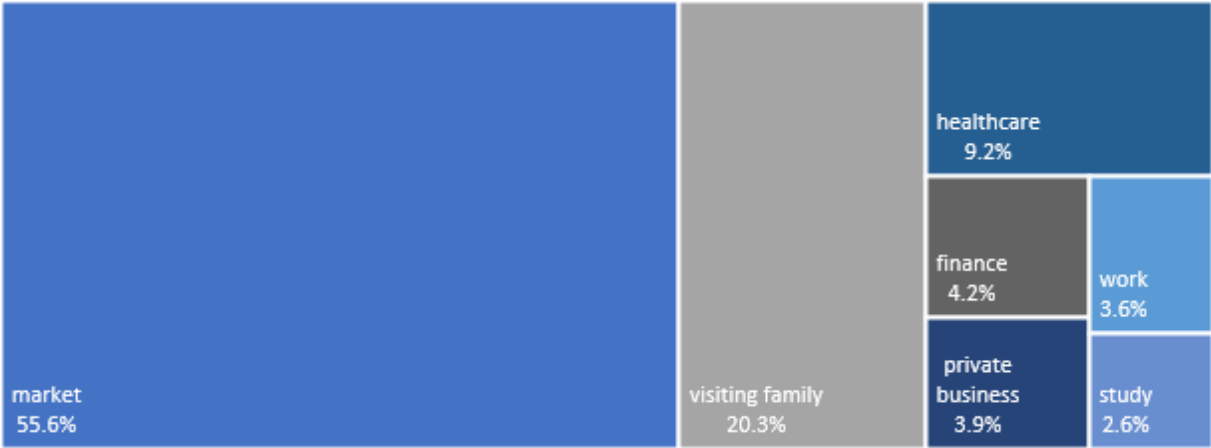
Concerning the gender component, vast differences are highlighted. Women tend to move more for healthcare, study, and marked related reasons. Men, instead, move more for work, finance and bureaucratic mandates, all happening at a higher frequency. For instance, only 2.6% of women move for work related reasons against 5.5% of men; 3.6% of them move for finance reasons against 5.5% of men; but 11.7% of women move for healthcare reasons against just 4.5% of men; 3.1% of women move for study against 1.8% of men, and 58.2% of women move for market reasons against 50.9% of men. The following graph reports such differences in the mobility habits.

Legend: ■ male ■ female
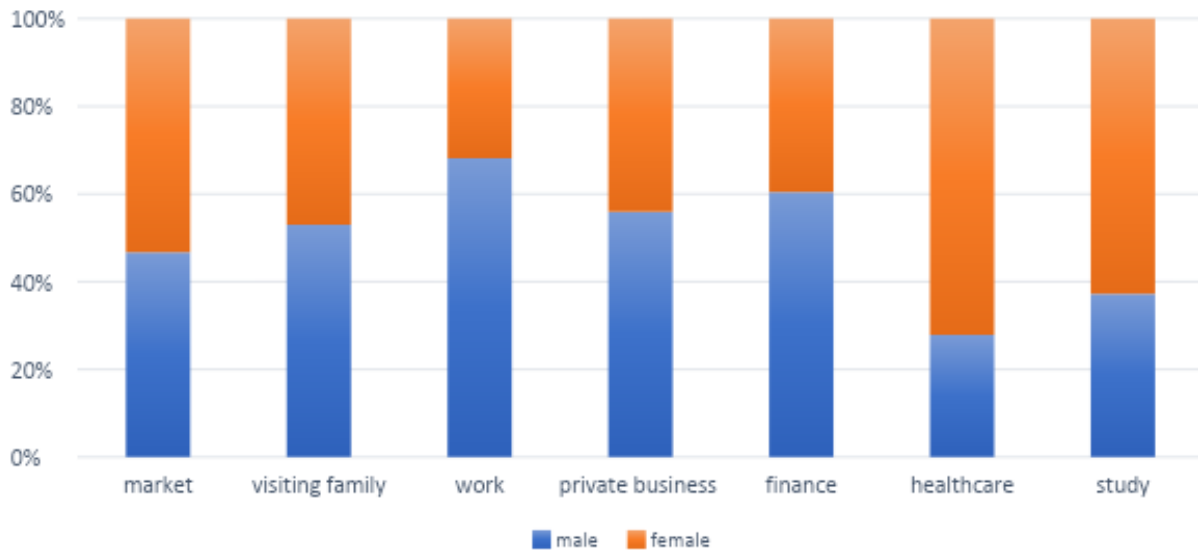
<u>Mean of transportation and mobility cost</u>

Regarding the mean of transportation, the bus resulted the most common with 84.4% of travelers (upon 302 available observations) using it solely. Though more than 90% of women travel only by bus, while for men the proportion is 72.7%. On average, bus travelers perform 2.25 monthly trips[9]; but discerning on gender basis, the figures are 1.90 monthly trips for females and 3.08 for men. Thus, it is clear that generally, travelers perform more than 1 trip per month but also that on average men's trips exceed the women's by more than 1 ½ times. This is partly due to the fact that – as already stated – women tend to move more for healthcare, study, and market-related reasons, which are easily performed by bus; whereas men move more for work, finance and bureaucratic mandates, which happen at a higher frequency. Anyway, considering the general average upon all travelers and disregarding the mean of transportation, monthly trips are 2.7 so every traveler perform more than 2 trips out of El Astillero per month.

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[9] To be intended as round trips. In case of two destinations mentioned, monthly trips were added up.

On the other hand, 15.2% of respondents move with a private vehicle – owned or borrowed at the cost of fuel[10] – that can be a car or a motorbike not necessarily driven by the respondent. Among them, 65.2% are men. Overall, 27.3% of male traveler use a private vehicle, while just 8.38% of female traveler does. Private vehicle travelers perform 5.34 trips per month on average, thus they move outisde El Astillero much more frequently than those who move by bus. Males perform 6.34 monthly trips – hence more than once per week – and females 3.34, revealing how much the private vehicles are related to men.

Concerning the economic cost of mobility, the average expense for moving outside El Astillero by bus resulted being 158.70 C$ while for moving by car or motorbike it rises to 315.50 C$. Thus, a single round trip with a private vehicle costs almost three times more than a bus ticket and this implies that it requires an higher income. In general men move more than women, due to the existence of family burden and men-specific mandates; travelers with private vehicle move more, independently of gender, and this means it is an household income issue. The following graph shows the comparison between moving by bus only and with a private vehicle.

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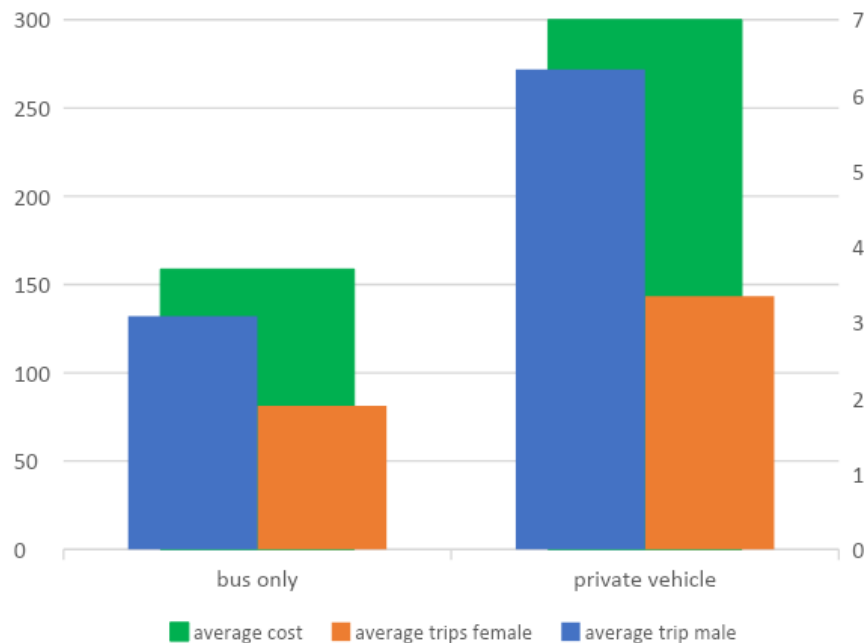
[10] The cost of 1 gallon (1gal=3.785lt) of gasoline is consider 150.00 C$ as corresponding to the period of time the research was conducted.

3

Foreign propensity

There is not only internal mobility, of course, but also an external one. Inspecting how widespread the use of passport is in El Astillero, it was found that only 17.4% of the population holds one. Precisely, 20.5% of men hold a passport while female holders are 15.6%. Anyway, it is possible for residents to travel through some countries in Central America without a passport[11]. Overall, 73.4% of sampled individuals (upon 305 available observations) have relatives abroad. Among them, 38.4% are men while 61.6% are women; 50.4% are natives while 49.6% are immigrants. Specifically, 70.4% of total women refer to have relatives abroad against 78.9% of total men. Moreover, 68.5% of whom is originally from El Astillero has relatives abroad (37% of total observations are natives with relatives abroad), similarly to 68.1% of immigrants. Thus the share on total population of both the natives with relatives abroad and the immigrants with relatives abroad is similarly set at around 37%. The four principal migrating destinations were found to be Costa Rica, mentioned by 82.1% of respondents who have relatives abroad and 60.3% of total population; followed by the United States, mentioned by 12.9% of respondents who have relatives abroad and 9.5% of total population; Panamà, mentioned by 7.1% of respondents who have relatives abroad and 5.2% of total population; and Spain, mentioned by 4.5% of respondents with relatives abroad and 3.3% of total population.

Mobile phone

The diffusion of mobile phones is another robust indicator of rural development, as it shows to what extent people in the community are able to connect with friend, family or colleagues outside of town and, nowadays, to the internet. The mobile, unlike other durable goods, is most of the times personal and thus the relative inquiry has been inserted in the individual section of the survey. The survey revealed that 69.5% of the population own a mobile phone, with a slight unbalance between women and men: 68.4% and 71.6% respectively. Moreover, discerning on age basis, 65.4% of under-30 individuals own a mobile, and the same is true also for 75% of those between 30 and 50 years old, and for 51% of over-50 individuals. More than 57% of below-age respondents own a mobile phone and almost 43% of above-average, so a degree of generational dimension. In conclusion, mobile phone is by this time a common use item, in fact it is owned also by 65.5% of

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[11] Namely El Salvador, Guatemala, Honduras and Nicaragua as for the CA-4 Presidential Agreement held in the framework of OCAM (Central American Commission of Migration Directors).

unemployed. Although in-town cable or wi-fi connections are almost absent, potentially about 70% of the population can access internet services through mobile data.

Personality

This section seeks to deepen the analysis around the personalities in the community, assessing the perception of safety in town, the use of leisure time, the desired work opportunities and the investment ideas. Respondents were also asked to evaluate the impact of Casa Congo and propose improvements.

Safety perception

El Astillero's community answered quite well to the safety inquiry. As it was explained to the respondents, here it was intended to inspect how the community feels about the neighborhoods and the village in general in relation with crime or more in general with the tranquillity of life, especially relative to their families. The perception of safety is good, with an average score of 4.05 out of 5[12] and a standard deviation of 0.81. However, males reported an average higher safety feeling compared to female population, with an average score of 4.22 and 3.96 respectively. So, on average men's feeling lies above "safe" level while women's stopped right before, passing "more or less safe" level. Overall, just 2.2% of votes went below score 3.

Leisure activities

The main leisure activity is found to be 'family time and housework' (spending time with relatives or children, taking care of the house), mentioned by 18.5% of respondents and averagely preferred by women and unemployed people. It is followed by 'rest and relax' (mostly intended as resting after work), mentioned by 17% of respondents and second-preferred choice of both males and females, averagely preferred by least educated people (the observed individuals have the lowest education level, so that it suggests a linkage between lower education and harder work) and by the oldest people (i.e. the group with the highest average age) and second-preferred choice of people with large offspring. Successive is 'sport' (both watching and practicing it, mostly baseball, surf and

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[12] On a scale that goes from 0 – very unsafe, to 5 – very safe.

running), mentioned by 12.3% of respondents and preferred by men, by the group with the second smallest offspring and by the one with the second-highest educat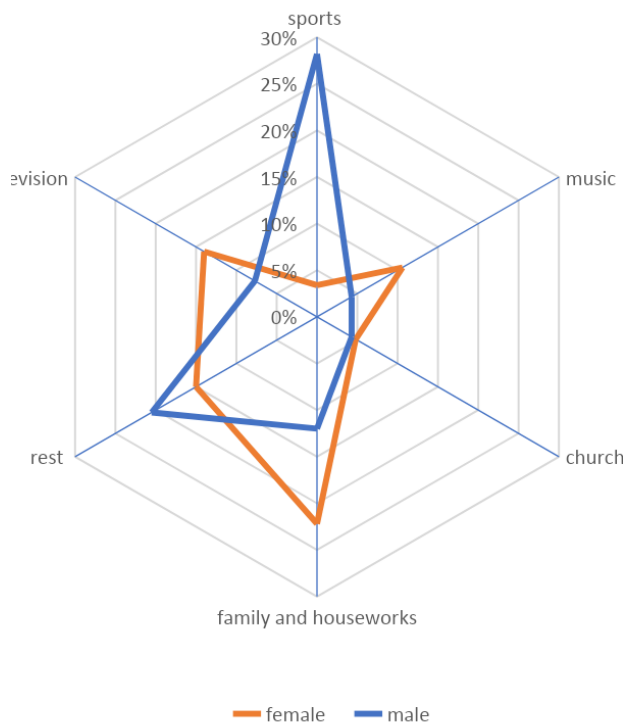ion level. Coming after are 'watching television', mentioned by 11.7% of respondents; 'music' (both playing and listening to it), mentioned by 8.3% of respondents and preferred by highly educated people (i.e. the group with the highest average education level) and people with the smallest offspring; 'visiting church, reading the Bible and generally church-related programs', mentioned by 4.6% of respondents and preferred by people with the largest offspring and the group with the second-highest age. Residual activities include fishing, going out, reading, and bricolage. The following table and graphs report the details of the leisure activities dynamics.

Leisure activities by groups	sports	music	church	family time housework	rest	television
general prevalence	12.3%	8.3%	4.6%	18.5%	17.0%	11.7%
female prevalence	3.4%	10.6 %	4.8%	22.2%	15.0%	14.0%
male prevalence	28.2%	4.3%	4.3%	12.0%	20.5%	7.7%
average age (36.4 sample mean)	31.87	28.78	43.53	35.62	44.04	35.8
average grade (6.9 sample mean)	8.75	9.63	6.87	7.02	4.78	7.1
unemployed prevalence	7.2%	10.1 %	5.0%	22.3%	11.5%	12.9%
sons per capita (2.6 sample mean)	1.625	1.44	3.8	2.58	3.61	2.84

average age

average grade
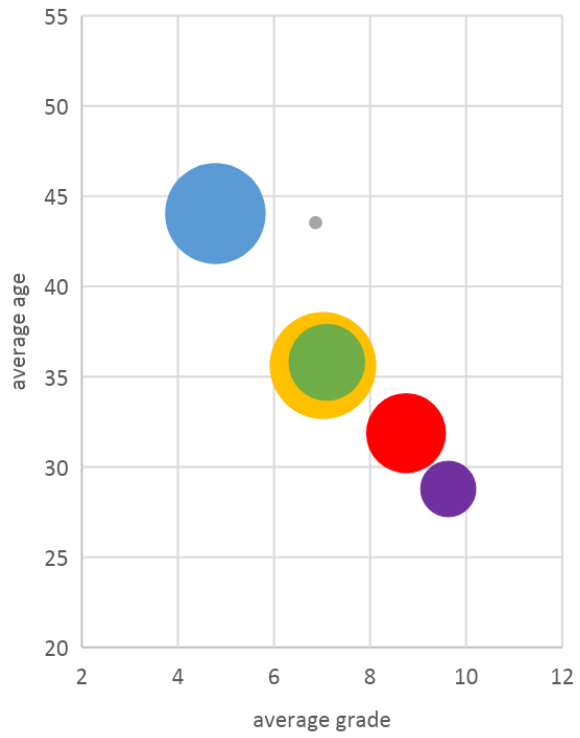
● sport ● music ● church ● family ● rest ● television

The chart displays a radar/spider chart comparing female (orange) and male (blue) activities across: sports, music, church, family and houseworks, rest, and television. The percentage scale ranges from 0% to 30%.

Job opportunities desired

The desired work opportunities (on 314 observations it is measured from tourism to bakery because they have answered) must be intended as sectors where investment and development would be welcomed by the population and from which it is believed economic growth would be induced. Reportedly, the main sector is *tourism* – both internal and external, which includes tours, hotels and restaurants (when explicitly linked with tourism) – as it was mentioned by 32.2% of respondents. It is also the absolute preferred choice of both men and women as well as of unemployed people. It is followed by *constructions* – intended mainly as contractor-jobs for the realization of gas stations[13], roads, hospitals and schools – mentioned by 18.5% of respondents and preferred by least-educated individuals; *cleaning* – in town, houses, offices – which was mentioned by 4.8% of respondents (all women, 7.5% of the whole female group); *bakery*, mentioned by 2.5% of respondents and preferred by the oldest group and the one with the largest offspring; *workshops* – intended as technical schools in which a profession can be learnt and members can be inserted in the labor system (especially mentioned topics were mechanics, automobile, constructions and

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[13] Still absent today.

textile) – mentioned by 2.2% of respondents and preferred by the highest-educated individuals, the youngest and those with the smallest offspring. Furthermore, 4.1% of respondents – the least educated group – answered "whatever sector" (and especially: "all but the sea") meaning that every sector capable of inducing jobs creation would be useful for the community and welcomed, though emphasizing a degree of a insufficient effort in the development of a thought on the matter. To them, a 5.8% is added – the second-lowest educated group – that did not provide any answer or idea. The following table and graph show the details of the desired-opportunities dynamics.

Work opportunities by group	tourism	constructions	cleaning	workshop (technical school)	bakery	whatever	no idea/n.a.
general prevalence	32.2%	18.5%	4.8%	2.2%	2.5%	4.1%	5.8%
female prevalence	29.9%	15.9%	7.5%	2.0%	3.0%	3.5%	5.7%
male prevalence	36.3%	23.0%	0.0%	2.7%	1.8%	5.3%	6%
average age	35.05	35	32.26	29	46.12	39.54	38.9
average grade	8.13	6.2	7	11.7	6.5	3.85	5.47
unemployed prev.	32.1%	19.4%	6.7%	0.7%	3.0%	4.5%	6.3%
children per capita	2.32	2.1	2.46	1.3	5.25	3.1	3.53
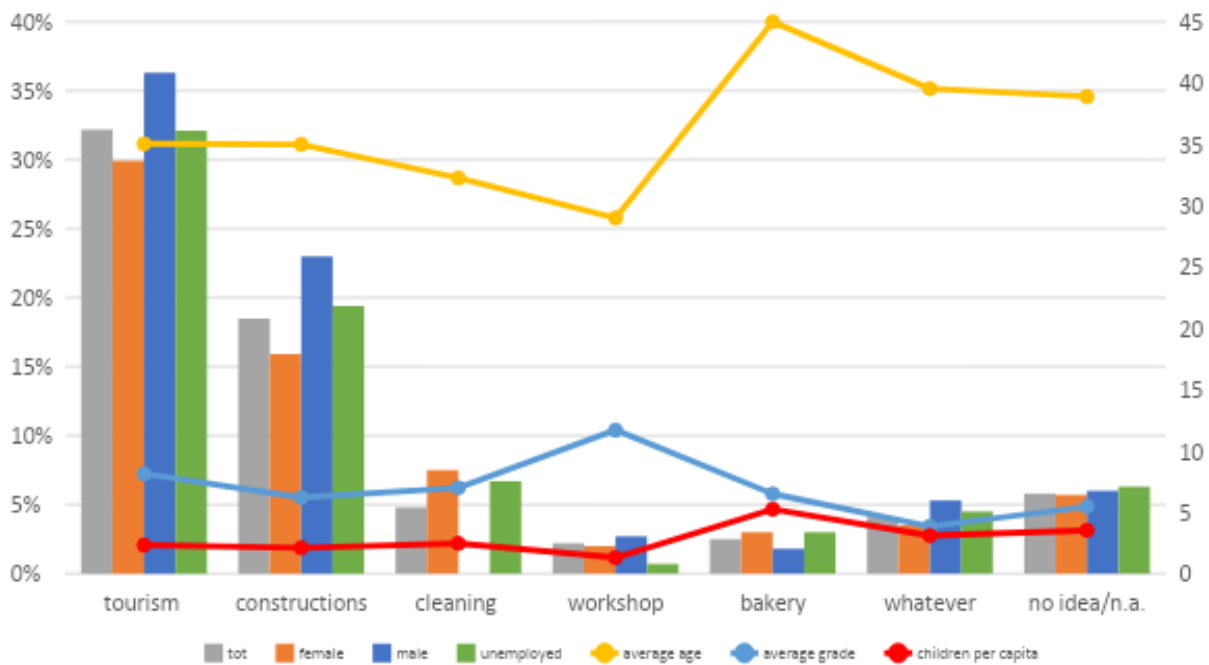
<u>How to spend 1,000.00$</u>

As a premise, it is assumed that who did not provide any answers have no particular idea and could not make the effort to develop one. Moreover, the relatively small percentages of mention are due to the fact that respondents' ideas are highly varied. It was asked to the people of El Astillero how would they spend 1,000.00$ (approximately 33,000.00C$) in order to assist their community; an hypothetical amount set with the purpose of referring to something concrete and that everybody could imagine (and some could also afford).

Main ideas on how to spend the money are found to be: the 'purchase of food and medicines' to distribute to the elders, the poor, the kids and to the Health Center, mentioned by 9.1% of respondents; the 'creation of a park or a playground for children', a green space for them to play safely, mentioned by 6.1% of respondents; the 'establishment of a school or workshop' where young and adults can learn a job and get inserted in the labor market, mentioned by 4.9% of respondents; the 'purchase of material' for the school – like chairs, tables and stationary – or for work – like construction and fishing material, mentioned by 4% of respondents; to provide 'microcredit', intended as lending money to the most in need with an interest and expecting the repayment of the sums, mentioned by 3.7% of respondents; to open a 'bakery shop', mentioned by 3% of respondents; to 'invest in a new business' (very generically), that can be able of creating jobs for the poor, the young and the women most of all, mentioned by 2.7% of respondents; the establishment of 'a cooperative group' – mostly for fishing, raising chickens, baking, and women-only – mentioned by 1.5% of respondents. Overall, 7.6% of respondents had no idea to express or did not provide any answer.

It is of particular interest to inspect if and how many people link the use of these money to the job opportunity desired, because it exposes coherence to some extent. Only 9.5% of the sample has imagined to use the 1,000.00$ to start the business or invest in the opportunity desired; few people thought of employing the money directly in their desired activity. Lastly, residual interesting and originals proposals, that might inspire solutions, are: to 'provide an ambulance' to transport El Astillero's patients to the other-town hospitals; to create 'a school for those young people who do not attend one'; to invest in 'trash management' and 'deploy bins'; create 'familiar vegetable gardens'; invest in 'public potable water management'; create 'a rehabilitation center for alcohol and drugs dependents'; build 'fences to impede the pigs from entering and damaging the graveyard';

construct 'a gas station'; improve 'the public light grid' and 'the roads'; build 'a library' and 'a supermarket'. In general, when thinking to critical issues, the local community puts in place a high regard for kids, women and elders, as they are considered the most vulnerable groups. The following table and graph show the details of the fictious investment choices.

Fictitious investment by group	micro credit	no idea	coop.	bakery	new school or workshop	purchase material for schools or work	park or playground for kids	new business	purchase food and medicine
general prev.	3.7%	7.6%	1.5%	3.0%	4.9%	4.0%	6.1%	2.7%	9.1%
female prev.	3.8%	8.1%	1.4%	3.3%	4.7%	1.9%	7.6%	3.3%	10%
male prev.	3.4%	6.8%	1.7%	2.6%	5.1%	7.7%	3.4%	1.7%	7.7%
average age	43.6	29.8	33.2	48.8	34.2	36.77	36.2	30.8	30.16
average grade	6.5	7.16	7	6.2	6.8	6.08	8.45	5.44	7
unemployed prev.	3.5%	11.3%	0.7%	2.8%	2.1%	2.8%	4.9%	4.2%	12.0%
children per capita	2.16	1.48	2.2	4.3	2.06	1.61	2.9	2.22	2.06

Perception of Casa Congo and suggestions

It was ask to the community of El Astillero to express their feeling about Casa Congo; specifically a vote from 0 to 10 relative to its impact and to the effectiveness of the programs it put in place as for their personal perception, and, in any, their suggestions in order for Casa Congo to improve its activity. Overall, Casa Congo appears well-perceived from the population and serenely integrated in the village. As a matter of fact, it got a general average score of 8.7 out of 10 with a standard deviation of 1.77. In particular, females' vote averaged to 9 while males' one averaged to 8.13. Lastly, just 10.7% of votes are insufficient, with 65.6% of them coming from men.

Concerning the suggestions to Casa Congo, it is assumed that no answer is equivalent to having no critics to report. Most frequent suggestions are found to be: 'creating more jobs' , mentioned by 12.8% of the entire sample; 'more communication and better relationships with the community', mentioned by another 12.2% of respondents; 'improving programs for kids', mostly with more classes, mentioned by 9.5% of respondents; 'better programs', generally, mentioned by 6.7% of

respondents; and 'focusing on tourism', mostly attracting more tourists especially foreigners, mentioned by 2.1% of respondents. Interesting residual suggestions are 'visiting the church' and 'visiting the school', which highlight the necessity, according to some respondents, for the Organization to be present in the life of the community beyond its actual projects. What could be understood, is that El Astillero's people – in addition to highly estimate its environmental and educative projects – really see a significant opportunity of development coming from Casa Congo; they want the Organization to be even deeper integrated into their community, they want to work with its staff and visitors. In general, there is almost no trace of rejection, but a sentiment of satisfaction for the settlement of Casa Congo.

Household survey

The household questionnaire, with 14 questions, is part of A1 in the [Annex](#) chapter of this paper.

Baseline profile

In relation to the individuals in the sample, data from 198 households are available. This households sample consists of 314 surveyed respondents and its data are relative to 987 total El Astillero's inhabitants. Thus, concerning households, this makes it for a 46.8% sample of the total population. Based on the available observations, it is calculated that the average number of inhabitants per house in the village is 5.03, with 4.6% of the houses hosting more than 10 individuals.

Businesses and income

One fundamental measure able to allow for a basic microeconomic profiling of the village's environment is the income of the household, that is, the sum of the individual incomes of each member living in the household that concurs in creating an aggregate amount of resources which is dedicated to the investments and the expenses necessary for the ordinary and extraordinary administration of the house. Respondents were asked to provide an estimate of the aggregate wealth that comes in the family in a period of their choice, depending on the frequency of each entry. Subsequently, the distribution was normalized to obtain a monthly (and annual) descriptive statistics expressed in córdobas. From the survey, the average overall household income resulted to be C$ 6,595.00 per month, thus C$ 1,311.00 per capita. Translated annually, it makes it for an average household income of C$ 79,140.00 and a per capita income of C$ 15,732.00[14].

A non-negligible 11.7% of households are sustained mainly by men's income-generating activities (IGAs), whereas 6.1% of households have an overall income exclusively generated by men's IGAs. As resulted from the analysis, it is also possible to indicate that 59.36% of households financially rely on the fish industry above all; a very high figure. Apart from fishing-related activities, 9.63% of local households rely mostly on private commerce (small shops); 6.95% on the security-guard job alone, 4.81% on constructions; 3.21% on tourism; 2.14% on agriculture and breeding and 2.14% on the food industry in general (restaurants, bars, *tortillerias*, homemade food).

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[14] Again, well below the national figure of per capita GDP of approximately C$ 66,953.7. Once more, it is possible to appreciate the extent of unemployment in El Astillero.

House

<u>Type</u>

Typical houses of El Astillero are the so called "minifaldas", with the inferior part of the perimeter made of bricks and the upper part of wood, with a zinc roof[15] (type C). Many houses have mud floor, while some people have ceramics floor. But there are also houses with walls made of plastic or zinc and mud floor, or entirely made of wood. The best ones are entirely made of bricks or concrete, thus with no use of wood in the walls, but still, the high majority are zinc roofed. Houses in El Astillero can be divided in 4 groups, depending on their structure: plastic or zinc, wood, bricks and wood (minifalda), concrete or bricks. Analyzing the sample, it resulted that 8.2% of the houses are of type A (50% plastic, 50% zinc), 24% are of type B, 47.4% are of type C, and 20.4% are of type D. The following shows the house type prevalence as it was surveyed.

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[15] In the construction world in particular, zinc is most commonly used for roofing, this is because of its ability to keep away corrosion.

Type A – plastic, zinc

Type B – wood

Type C – bricks and wood

Type D – concrete or bricks
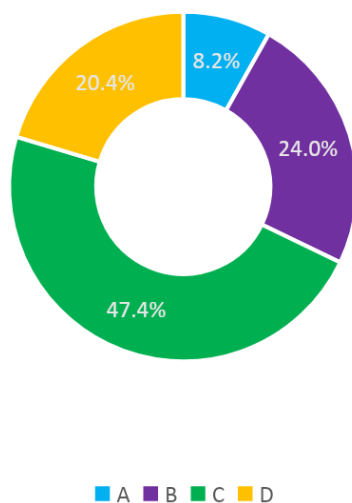
Ownership

Among 183 available observations, 90.7% of the houses result owned by the respondents. Instead 4.9% of the houses are borrowed, for free from relatives or friends, with 66.7% of the relative respondents being unemployed. The residual 2.7% of the houses are part of labour allowance: for instance, the house is provided for police workers or for people who guard the property. Lastly, only 1.6% of the houses are rented. Overall, 9.3% of all the houses – regarding 24.8% of the individual

respondents – are not owned. Relatively to the people living in these houses, they have an average income equal to 6,322.60 C$ per month, thus slightly below average.

Courtyard and Animals

The village is composed mostly of single housings, there are no buildings and thus almost every structure has his courtyard. Precisely, 91.8% of houses dispose of a courtyard, which implies additional domestic outdoor space. The majority of people use it to host animals, let kids play, rest; other important uses are repairing fishing nets, planting trees, laundry and cooking. Moreover, this causes 83.2% of dwellings to have animals living inside. Generally, they are dogs, cats, pigs and chickens. Of course there is an effect on health, because in such a tropical environment they can easily transmit diseases, especially to kids. For instance, as indicated by the local doctor, when the rain leaves puddles in the ground, pigs enter those to cool off and create a particularly dirty environment that is also transmitted to mosquitoes. Therefore, especially for children, this becomes the ideal environment to take dengue fever.

Damage

El Astillero is located in an area which is lashed seasonally by powerful storms and strong winds. Hence houses, especially the shabby ones, are likely to suffer damages. As revealed by the survey, 63.7% of houses have been damaged at least once due to natural phenomena. In this particular group, considering the original proportion of house types (A - 8.2%, B - 24%, C - 47.4%, D - 20.4%), B type houses are much more prevalent. Furthermore, 36.3% of houses have been hit twice or more. Again, relatively to the original proportion of house types, this group includes a higher share of B type and a much lower one for D type. Unfortunately, 9.8% of houses suffer damages every year, especially during the winter, and, confirming the precariousness of some types of houses, for this group the relative prevalence is stronger for type A, weaker for type B and much weaker for type D. Finally, 35.2% of houses resulted never hit by natural phenomena, with relatively fewer type B, more type C and virtually unvaried type D. When El Astillero's inhabitants refer to the damages to their houses, usually they mention the joint action of rain and wind as the most dangerous element, with uncovered roofs and inundations inside the house. Indeed, the percentage of mention is 47.6%

for storm (rain and wind). Other main causes are rain alone at 35%, wind alone at 11.7%, and hurricane or tsunami at 5.8%.

Improvements and investment

This particular question was intended to refer to the principal structural improvement the respondents wish for their houses, by necessity or desire. Clearly answers were much varied. Regarding the main answer, among 203 observations available, 21.7% of the interviewees mentioned the completion, repair or installation (because absent) of walls or roof (a direct consequence of poor structures suffering from natural causes). Subsequently, 18.7% of household's respondents mentioned the enlargement of the house by adding more floors or more rooms (a direct consequence of the fact that many people live under the same roof); 13.3% of them mentioned the completion or installation of ceramic floor; 10.8% mentioned the repair or installation of the kitchen; 8.9% mentioned the installation of a toilet. Finally, just 2.5% of respondents (5 houses) refer not to desire any improvement for their house.

It is important to clarify that, relatively to their disposable income for house improvements, respondents showed both the chance they have to allocate some resources for infrastructural investments and the willingness to do so, as a choice. The proportion of household's respondents which invest any resources in structural improvements – because they can and they want to – is 58.6%. Regarding those, the average income disposal for house improvements resulted to be 20,597.00 C$ over the year. However, the distribution is highly variable, with a standard deviation of 44,944.75; just 23.5% of households have an above-average income and 39.2% of them invest less than 10,000.00 C$ per year. In any case, 94% of households are grouped below 50,000.00 C$ per year. Others are likely to have sustained big works in their house *una tantum*. This metric should be treated as an estimate since sometimes families have not invested for one year or they did just last year and not the one before, so rather than a generic annual expense, it should be considered as the last annual expenditure carried out.

Consumption

This section is intended to present the findings relative to some of the population's consumption habits. Surely, consumption has manifold declinations; the survey allows for an in-depth assessment over the most important dynamics in the community's everyday life, ranging from water and food to electricity, durables good and plastic.

<u>Water consumption</u>

Concerning the source of drinking water, 196 households observations are available which correspond to 971 individuals. In case of more than one source mentioned, only the best option is considered, since the capability to access it is what is of interest to this research. Firstly, and most importantly, the vast majority of the houses have access to tap water. However, the proportion of people buying their drinking water is non-negligible. The overall household income is very incisive for the case of water consumption: who buys water to drink has a very high relative income, a better kind of house, and consumes more water as well. Among the households who reported tap and well – the two most common sources of water – as their main source, the average household incomes are almost equivalent; yet consumption is higher in the case of well, highlighting a certain degree of liberty in the use of water through this kind of source. Without surprise, homes lacking any water system turn out to be the poorest and consume much less water. These people have to rely on relatives or neighbors who allow them to fetch water from their facilities. The following table reports the entire water consumption dynamics in detail.

Principal drinking source	Households	Total corresponding individuals		House type prevalence [16]	Average monthly household income	Average monthly water consumption [17] (liters)
tap	67.9%	680	70.0%	8.3% A, 15.8% D	C$ 6,023	18,692
well	16.8%	171	17.6%	48.5% A+B, 52% C+D	C$ 6,015	22,620
bought	12.8%	102	10.5%	0 A, 88% C+D	C$ 10,944	37,048
neighbors/gifted	2.6%	18	1.9%	60% A	C$ 2,320	5,000

[16] To be compared with the generic house prevalence data shown in the 'type of house' section of this paper.
[17] Calculated on 186 available observations.

Concerning the consumption of water, respondents reported it in liters, gallons, cubic meters or even in córdobas, as for the water bill. All observations were translated to liters proved that:

- in El Astillero, a bill of C$ 100 corresponds to a consumption of 10 cubic meters of water;
- 1 cubic meter equals 1,000 liters;
- the volume of 1 '*balde*' is assumed approximately equivalent to 12.3 liters, and that of 1 '*bottellon*' to 10 liters.

It can be estimated that each 10 cubic meters of water consumed, up to 2 are used for drinking; although – depending on the family's composition and on whether livestock is owned or trees are planted etc. –some people's share of drinking water is far lower, down to 3% or less (this does not necessarily mean these people drink less, rather they might consume much more water for other purposes). The overall monthly water consumption averages to 21,205 liters per household. In total, 3,945,000 liters are consumed every month in El Astillero, and it is estimated that the individual monthly consumption, for all uses, averages to 4,250 liters[18]. As the analysis confirms, who can afford buying drinking water can sustain a higher consumption, both in liters and in money. 'Tap' and 'gifted/neighbors' consumers, instead, show below-average consumptions. According to the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP), in 2017 29.8% of Nicaragua's rural population accessed unimproved water services (*i.e.* drinking water from an unprotected dug well or spring), 29.6% accessed basic services (*i.e.* drinking water from improved sources, those that have the potential to deliver safe water by nature of their design and construction, provided collection time is not more than 30 minutes for a roundtrip including queuing), 29.5% accessed safely managed services (*i.e.* drinking water from an improved water source which available when needed and free from contamination), 7.6% accessed surface water (*i.e.* drinking water directly from a river, lake, etc.), and 3.5% accessed limited services (*i.e.* drinking water from an improved source for which collection time exceeds 30 minutes for a roundtrip including queuing). Overall, El Astillero appears better off in relation to these data, as just 1.9% of inhabitants cannot access basic services but can rely on neighbors, nobody actually drinks surface water or accesses limited services. However, an estimated third of the sampled individuals complained about the quality of the water services (using both well and tap) referring to

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[18] Data relative to 922 individuals.

a sometimes contaminated water due to the scarce quality of the sewer system or to an occasionally absent or intermittent flow.

Deepening the analysis, it is possible to inspect the relationship between income and water consumption. Regressing the household income (HOUSINC) on the water consumption (WATCON), a significant positive relation is obtained, with the variation in the household's income capable of explaining 4.1% of the variation in the consumption of water (proxied by the monthly liters used by the household).

Reg 5: $$WATCON = \beta 0 + \beta 1 HOUSINC$$

	Reg5
Dependent variable	WATCON
Regressor coefficient	1.1936
p-value	0.0075
R squared	4.1%
Confidence interval	95%
Observations	172
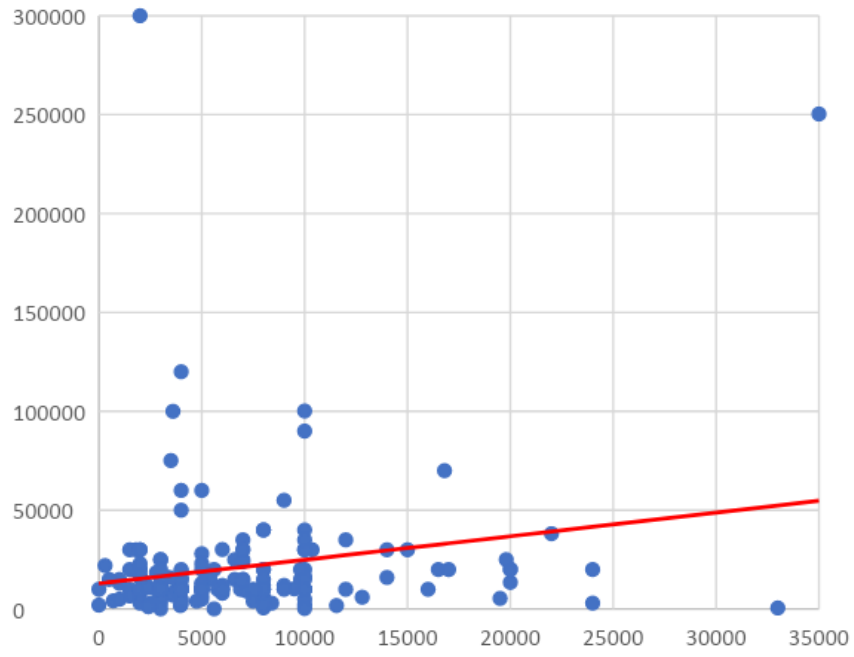
Toilet facility

Regarding the toilet facility, 197 households observations are available corresponding to 980 individuals. Households in El Astillero may own a pit, a wc, or do not have any facility at all. The vast majority of the houses, however, is equipped with a dry pit outside. Only less than 2 out of 10 houses are equipped with a wc, and they are obviously almost entirely of type D. Significant is the number of people who do not own any toilet facility of their own and must use others'. These people are relatively poorer and live in substandard houses. Owing a wc requires a relatively very high household income. Type A houses are much likely than others to own no facility at all. Overall, 7.6% of individuals need to share their toilet facility, sometimes even among 10 to 20 people. The following table shows the detail of the toilet facility's dynamics.

Type of toilet facility	Households	Total corresponding individuals		House type prevalence	Average monthly household income
pit	73.6%	732	74.7%	78% B+C, ↓D	C$ 5,851
☐of which shared	8.1%	68	6.9%	81.3% A+C, ↑AC	C$ 3,248
wc	19.8%	179	18.3%	92.3% C+D, ↑D, ↓ABC	C$ 10,163
☐of which shared	0.5%	7	0.7%	100% D	C$ 7,000
neighbors/none	6.6%	69	7.0%	92.3% A+B+C, ↓D, ↑A	C$ 3,890

Taps

From the survey, 324 total taps resulted in place among 196 households. This means there are 1.65 taps per house on average. Averagely, 1 tap every 3 people – or 0.33 taps per capita – can be found in El Astillero[19]. This figures are significantly low if compared with standards of richer countries.

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[19] Data relative to 987 individuals.

<u>Diet</u>

Regarding their diet, people of El Astillero use to eat rice and beans on a daily basis; plátano, pig, chicken and fish are also important elements; while not much vegetables are consumed. The fruit is present and especially pleasant yet its consumption could be increased.

Among 198 observations, corresponding to 983 total inhabitants, the number of meals per day resulted to be 2.8 for the average household's components. The data from the survey allow to inspect daily meals and compare them with the household income. Basically, the poorer the household is, the less frequently its components eat. The following table reports the data regarding individuals and income aggregated for above- and below-average daily meals (set to 2.5 for simplicity) groups.

Daily meals	Households	Individuals	Average monthly household income
≥ 2.5	154	763	C$ 7,002.00
< 2.5	44	220	C$ 5,105.00

Inspecting the diet in detail, inspecting the consumption of vegetables and fruits, of junk food and drinks. It has to be noted that fruit is much more consumed than vegetables, which most of the times are reduced to common-use onions and tomatoes; that junk food[20] accounts much more for kids, who consume it on the way to or in the school every day, than for elders; and that junk drinks[21] are much more the kinds of fruit juices than coke, but such juices are highly sweetened. With the data from the survey, it is also possible to assess the main kitchen location and type of fuel, as reported by the following table.

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[20] Intended as industrial packed snacks.
[21] Intended as industrial packed, fizzy and sweetened beverages.

Frequency of vegetables and fruit (193 observations)				
weekly average	2.82 times		standard deviation	2.17

Frequency of junk food (192 observations)				
weekly average	2.55 times		standard deviation	2.78

Frequency of junk drinks (192 observations)				
weekly average	3.53 times		standard deviation	2.88

Kitchen location (193 observations)				
inside	64.2%		average monthly income	C$ 7,422.00
outside only	35.8%		average monthly income	C$ 5,314.00
none (shared)	1.0%			

Kitchen type (138 observations)				
gas	57%		average monthly income	C$ 7,335.00
fire only	43%		average monthly income	C$ 4,590.00

Summarizing, on average El Astillero population does not reach 3 meals per day and who earn less eat less. Families consume a higher quantity of junk drinks (also due to the warm climate) than of vegetable and fruit, whose consumptions are quite low (due to higher price and scarce availability in the area); junk food consumption is limited to kids. The majority of people still own a kitchen inside the house, with obvious repercussions on health. The ones using fire only are fewer but still of an important magnitude. Of course the combination inside-kitchen and fire is worse for the health. Importantly, to eat with above average frequency you have to have an above average income.

It is also interesting to inspect food consumption in relation to healthcare. Unfortunately, this shows that the families who eat less unfortunately are also less caring about health care, as shown by less visits and less expenditures. The following table reports the result for this particular analysis with respect to two groups, again identified on a daily-meals basis.

Daily meals	Households	Individuals	Average monthly household income	Average annual medical expense[22]	Average annual doctor visits
≥ 2.5	154	763	C$ 7,002.00	C$ 1,815.00	12.45
< 2.5	44	220	C$ 5,105.00	C$ 1,260.00	11.51

[22] Even though medical expense is an individual question, it was answered by taking into account the entire family, in such a way it gives a picture of the household's expense. As for the technical methodology, the single largest amounts are not considered, since it would distort an otherwise less dispersive distribution.

In order to deepen the study, it is possible to analyze some regressions that inspect the relationship between income and various elements of the diet. In particular:

Reg 6: $DAYMEAL = \beta0 + \beta1 HOUSINC$

Reg 7: $VEGFRU = \beta0 + \beta1 HOUSINC$

Reg 8: $JUNFOO = \beta0 + \beta1 HOUSINC$

Reg 9: $JUNDRI = \beta0 + \beta1 HOUSINC$

Regressing the household's income (HOUSINC) on the number of daily meals (DAYMEAL), a significant positive relationship is obtained, with the variation in the household income capable of explaining 5% of the variation in the number of daily meals. Regressing the household income on the frequency of vegetables and fruit (VEGFRU), a significant positive relation is as well obtained, with the variation in the income capable of explaining 4% of the variation in the frequency of vegetables and fruit consumption. Also, regressing the household income on the frequency of junk food (JUNFOO), a significant positive relationship is obtained, with the variation in the income capable of explaining 3.6% of the variation in the frequency of junk food consumption. Lastly, regressing the household income on the frequency of junk drinks (JUNDRI), a non-significant relationship is instead obtained, and it is possible to speculate that is due to warm climate, so that everybody, despite the income class, allocate some resources to cold drinks. It has to be noted that the reason for the coefficients of the regressors being so low-figures is that the set of dependent variables ranges from 0 to 3 in the case of DAYMEAL and from 0 to 7 for the others. The following table and graphs report the detail of such regressions.

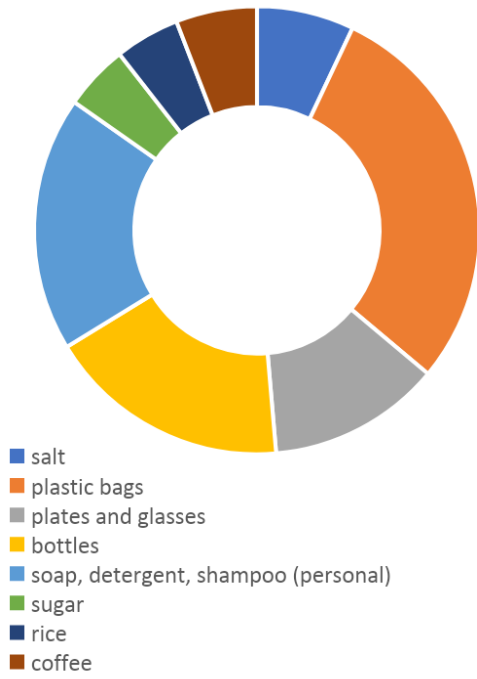|	Reg6	Reg7	Reg8	Reg9
Dependent variable	DAYMEAL	VEGFRU	JUNFOO	JUNDRI
Regressor coefficient	0.000021*	0.000075*	0.000094*	-0.00000045
p-value	0.0029	0.0084	0.012	0.9904
R squared	5%	4%	3.6%	0.00008%
Confidence interval	95%	95%	95%	95%

reg6

reg7

reg8
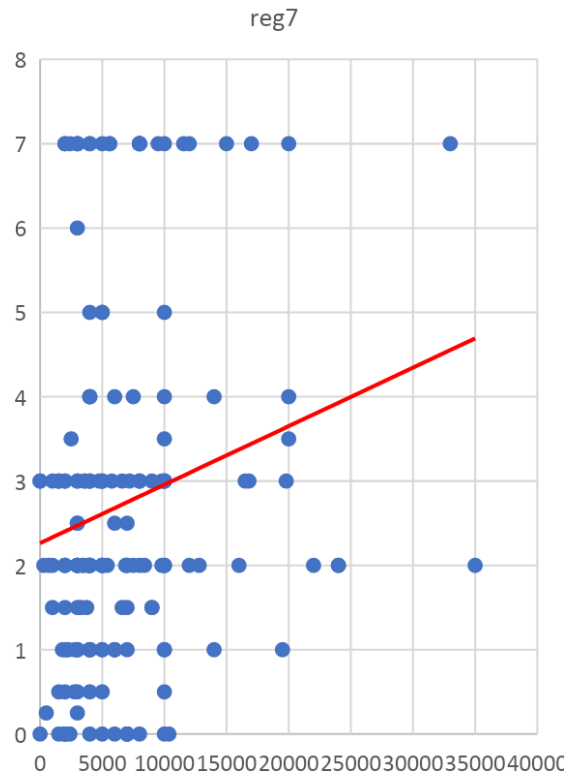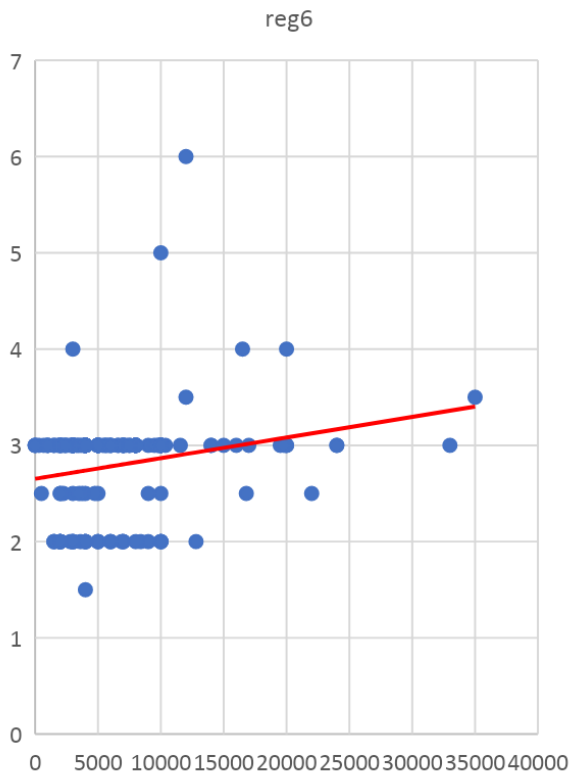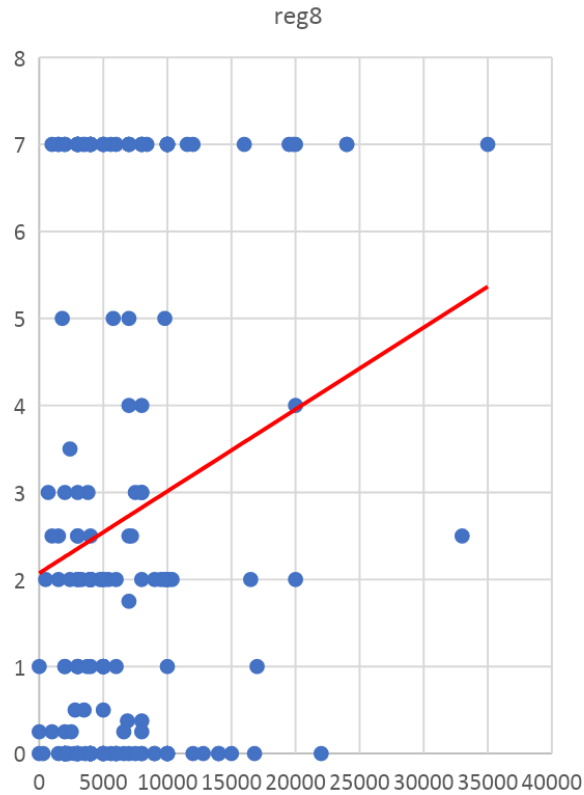
Plastic

The survey allows assessing the plastic consumption for the community of El Astillero, to some extents. It is not an easy task, of course, but the purpose of this section is to present the most frequently mentioned plastic items, so to provide a basic framework which might drive an intervention to reduce plastic consumption. The absolute most purchased plastic item is found to be, with no surprise, the plastic bag. This item comes for free included in most sales; it is mostly used to carry food and beverages in town between the store and the house, and it is the most purchased both in general and on a daily basis. In fact, 39.6% of respondents mentioned plastic bags as one of the most commonly used items, and, reportedly, the average household handles 10 plastic bags per day. Another plastic item which is very present is soap for personal use (detergent, shampoo), which is purchased in small packages or big ones depending on the numerosity of the family, but generally a little more than a couple of times per week. The plastic bottle is the third most mentioned item, as for almost one-quarter of the sampled households, and it is purchased

almost for a half on a daily basis with the average household handling more than two bottles per day.

Surprisingly, although coffee and sugar are at the bottom of the main items list, both have very large shares in the daily consumption of plastic, due to the small packages. Specifically, more than 70% of all mentioned coffee packs and 50% of all the mentioned sugar packs are purchased on a daily basis. The average household, for instance, handles 1.44 plastic packs of coffee every day. Also rice packs are an important item in the overall daily plastic consumption (more than 30% of total rice packs). Of course, some larger families or families who plan, purchase frequently consumed items in bigger packages, especially soap and rice; so, even though they still consume certain items daily, this practice helps reducing plastic's footprint in the community. Some other mentioned plastic items, instead, namely plates, glasses and salt packs, are purchased over a long run and never daily. The following table and graphs show the detail of plastic consumption, as it resulted from the available data.

households observed	187			
Item	General prevalence	Daily prevalence	Average household consumption	Frequency
plastic bags	39.6%	83.8%	10.02	daily
soap (personal)	25.1%	14.9%	2.40	weekly
bottles	24.1%	48.9%	2.32	daily
plates and glasses	17.1%	/	11.10	monthly
salt	9.6%	/	2.40	weekly
coffee	8.0%	73.3%	1.44	daily
sugar	6.4%	50.0%	4.52	weekly
rice	6.4%	33.3%	16.13	monthly

plastic consumption

- ■ salt
- ■ plastic bags
- ■ plates and glasses
- ■ bottles
- ■ soap, detergent, shampoo (personal)
- ■ sugar
- ■ rice
- ■ coffee

daily bought items

- plastic bags
- bottles
- soap, detergent, shampoo (personal)
- sugar
- rice
- coffee

Electricity

Access to electricity is another important driver of rural development, and affects directly and deeply the lives of the individuals. This research project seeks to oversee the presence of electrical goods and the incidence of electricity in general. In particular, available data allow to assess the owning of items and the relative necessary income. As expected, the most widespread element, in the case of El Astillero's households, is a basic one: light bulbs. That is not obvious. Specifically, 99% of surveyed households were found to be connected to the illumination grid. It is also possible to assess that every household dispose of 3.84 light bulbs on average, that is 0.76 light bulbs for each inhabitant. In other words, 1 light bulb is found every 1.4 individuals. These are not high figures if compared with those of richer countries, yet they confirm that almost everybody in El Astillero has access to artificial light in his house. The second most diffused electrical item is a less obvious one, but extremely critical in such a tropical environment: the fridge (essential to store food). Overall, 62.4% of households own a fridge, which means one fridge is found every 8.2 individuals. Other mentioned electrical items are the microwave, the working tools, the hoven and the washing machine. The main insight is that moving toward less diffused items, the income required to own them rises, which is a basic manifestation of energy poverty. The following table reports the most frequently mentioned electric items, their per house and per capita availability, and the relative income level required.

| households observed		194					
Item	General prevalence	Average household disposal[23]	Average individual disposal[24]	Average household income	One on every... people[25]		Unequipped households
light bulbs	99.0%	3.84	0.76	C$ 6,600	1.4	2	1.0%
fridge	62.4%	virtual 1	0.19	C$ 7,523	8.2	73	37.6%
microwave	13.9%	virtual 1	0.23	C$ 10,379	36.6	167	86.1%
working tools	10.3%	2.53	0.18	C$ 9,435	49.4	174	89.7%
hoven	4.1%	virtual 1	0.27	C$ 10,344	123.4	186	95.9%

[23] In the case of fridge, microwave and hoven, who owns more than one also runs a bar or a minimarket. The availability refers to the houses which are equipped with the item.

[24] Average individual disposal is calculated: for light bulbs on 5.03 average individual per house or (equivalent) on 960 people from the equipped houses; for fridge on 637 people from the equipped houses; for microwave on 120 people from the equipped houses; for electric working tools on 113 people from the equipped houses; for hoven on 30 people from the equipped houses; for washing machine on 13 people from the equipped houses. Clearly, availability refers to individuals who live in houses equipped with the item.

[25] One on every...people is calculated: for light bulbs on 987 total people and 180 observations; for all other items on 987 total individuals.

washing machine	1.5%	1	0.23	C$ 10,627	329.0	191	98.5%

The following graph, instead, focuses on showing what could be considered as the price dynamics of items, their affordability, in relation to their diffusion in the community, taken as the number of heads counted to find one unit of them.
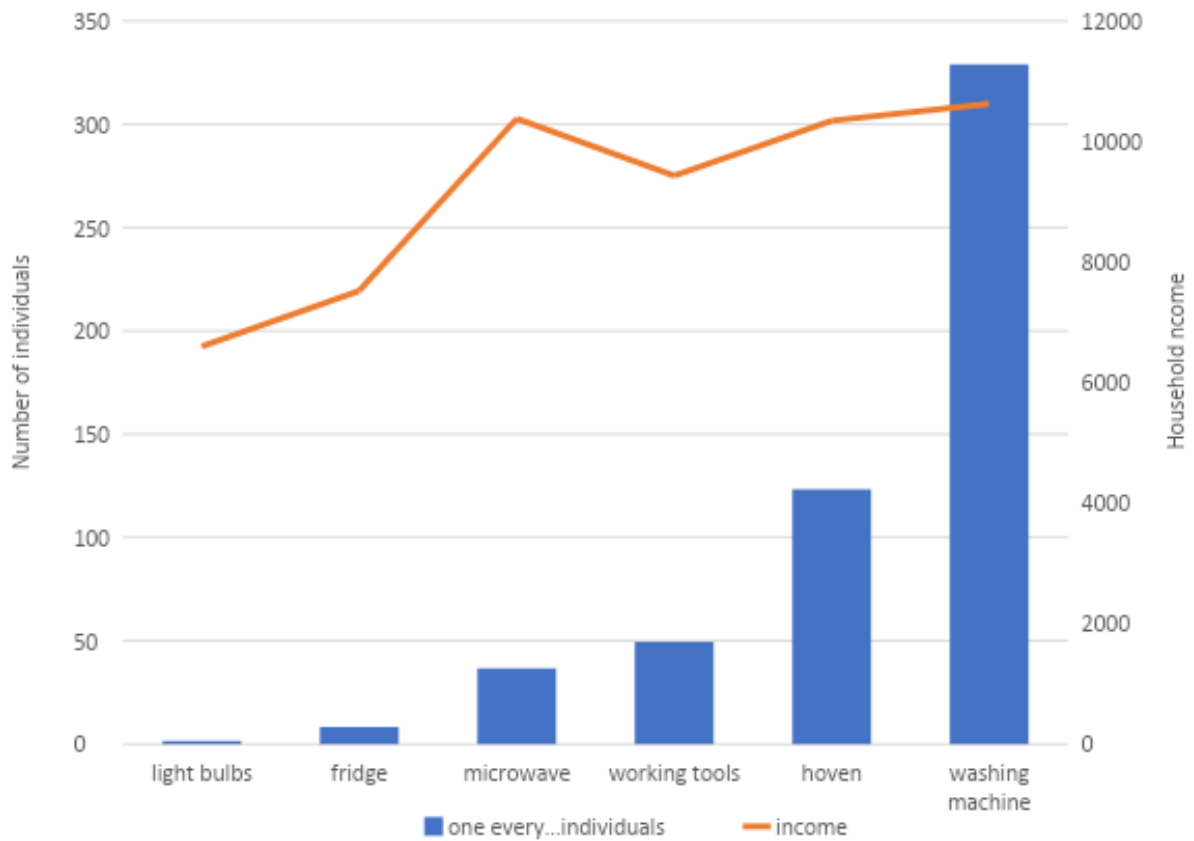
Durables

As in the case of electrical items, the same sort of analysis is carried out for durable goods, which are those that are not consumed quickly, or more specifically, that produce utility over time rather than being completely consumed in a single-use. It is interesting to assess to what extent durable goods are diffused, as a sign of the economic well-being of the population, since these are non-primary assets. It has to be noted that the television and the radio, which of course are electrical items, were inserted among durables on purpose; that is because, especially in a rural environment, these are not considered a necessity, for instance concerning food or work. The most widespread element, in the case of El Astillero's households, is the television. Specifically, 77.3% of surveyed households were found to own at least one, it is calculated that one television is found every 5.77 individuals. The second most diffused item is the radio, at 46.9%. Of high interest is the situation relative to cars and motorbikes, the private means of transportation. Overall, the latter is much more diffused than the former, due to the lower price and the warm climate. Lastly, boats, which are a very valuable investment in the area of El Astillero for obvious reasons, are owned by 11.3% of households – so they are more present than cars, which says a lot about the local microeconomy – with a degree of concentration, as those households own 1.32 boats on average and thus there is somebody who owns three or even four. Boats and cars are the items with the highest relative households income requirement, exceeding C$ 10,000 per month. The following table reports the most frequently mentioned durables, their diffusion in the town, and the relative income level required.

households observed					194		
Item	General prevalence	Average household disposal[26]	Average individual disposal[27]	Average household income	One every... people[28]		Unequipped households
Television	77.3%	1.15	0.23	C$ 6,887.00	5.77	44	22.7%
Radio	46.9%	virtual 1	0.19	C$ 7,736.00	10.85	103	53.1%
Motorbike	36.1%	1.26	0.23	C$ 9,134.00	11.22	124	63.9%
Boat	11.3%	1.32	0.23	C$ 10,400.00	33.99	172	88.7%

[26] In the case of the radio, who owns more than one also runs a bar. The availability refers to the houses which are equipped with the item.

[27] Average individual disposal is calculated: for television on 744 people from equipped houses; for radio on 457 people from equipped houses; for motorbike on 385 people from equipped houses; for boat on 125 people from equipped houses; for car on 54 people from equipped houses. Clearly, availability refers to individuals who live in houses equipped with the item.

[28] On every...people is calculated: for television on 987 total people and 148 observations; for all other items on 987 total individuals.

| Car | 6.7% | 1.31 | 0.32 | C$ 10,021.00 | 57.96 | 181 | 93.3% |

The following graph focuses on showing the affordability dynamics of durables, concerning their diffusion in the community, proxied by the number of heads counted to find one unit of them.
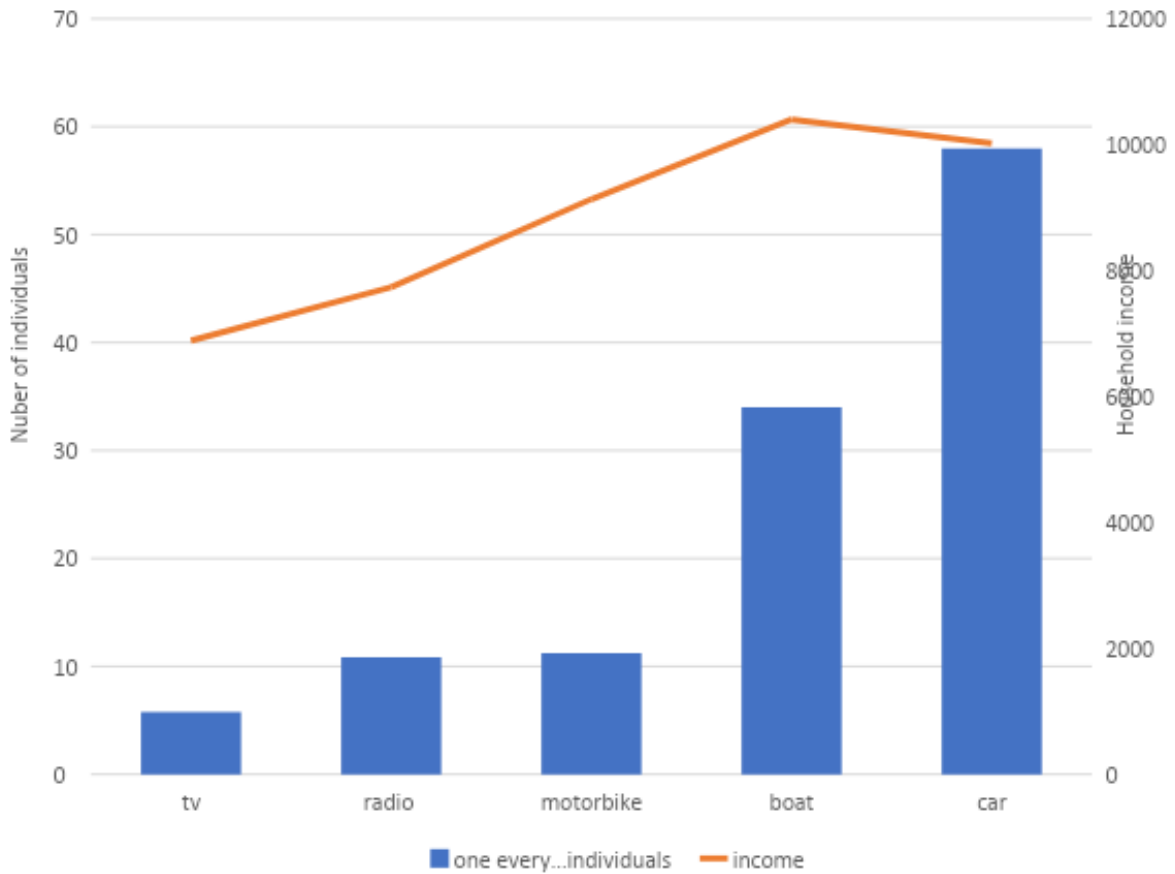
Recommendations

The attention should be primarily focused on the development chances and work opportunities as they were revealed by the people, exploiting the report and the database to singularly inspect criticisms and suggestions brought to Casa Congo by the respondents. A clear and direct path should be undertaken in order to avoid programs being misunderstood and to achieve enduring integration in the community. At present, it appears that job creation and tourism attraction are the most appreciated actions upheld by the Organization. Possibly, investment should be addressed to hospitality and relative facilities and to promotion with the aim of increasing tourists and volunteers arrivals; and a rotating program could be established for local workers to allow a larger number of people getting to know the Organization and sustain themselves and their families.

Youth and children programmes are highly appreciated by local families and should continue being core activities since their support is critical. Furthermore, English courses should be established and maintained with continuity as they are much requested by the community and might represent a strong driver of cultural development. Ultimately, the impact of Casa Congo is strongly felt and its positioning is robust yet could be optimized by intensifying the effort towards the establishment of more specialized and clearly oriented programs. Casa Congo should also continue the collaboration with schools all over the country, establishing durable relationships and allowing student groups to visit and cooperate, as well as promote other research projects from abroad entities.

Conclusion

In El Astillero, a widespread unemployment hampers the chances of well-being and development. Dependent employment, salary work, is not much diffused. There is a band of the population, corresponding to middle-high income groups, which have strong assets and can afford better homes, expensive goods and private means of transportation. Those will, hopefully, drag also other groups. The vast majority of the population, though, lives below the national standards yet has found equilibrium mostly thanks to public healthcare and public education system. Generally, hunger is not suffered even though the diet could be improved, especially with more vegetables. Energy poverty, at least as far as access to basic energy is concerned, is not very extensive. The gender parity is perhaps the most critical factor. Women and men appear far from being equal in various aspect of their lives, primarily for what concerns employment and salary.

Certainly, El Astillero's environment presents valid opportunities for growth and development, mostly related to fishing and tourism. The natural attractions of the area could be further valorized, perhaps working closely with the tourism institutions, and exploited to ensure a constant flow of incoming foreigners. Casa Congo could exploit, in this sense, its almost monopolistic presence as a hospitality facility in the surrounding area.

Acknowledgements

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Annex

A1. The questionnarie employed in El Astillero's research.

Encuesta de hogares para la comunidad de El Astillero.

Fecha de la entrevista _____

Ubicación de la entrevista _____

<u>Parte Individual</u>

1. **Nombre**

    _____

    _____

2. **Género**

    ☐ Hombre   ☐ Mujer

3. **Edad** _____

4. **¿De donde eres originario/a?**   ☐ El Astillero   ☐ Otra   ciudad

    _____

5. **Educación**
    - Ultimo grado aprovado _____
    - Edad en la que abandonaste la escuela _____
    - Razón   por   la   que   abandonaste

        _____

6. **En tu familia eres:**

    ☐ Madre   ☐ Padre   ☐ Hijo/a   ☐ Esposo/a   ☐

    Soltero/a

7. **¿Cuantos hijos tienes?** _____

8. **Edad del primer embarazo (solo para mujeres)** _____

9. **¿Cuantos de tus hijos van o fueron a la escuela? Si fueron, en que grado?**

    _____

10. **¿De los que van a la escuela, cuantas veces no van al mes y porqué?**
    ———————————————————————

11. **Trabajas?**

    ☐ Si

    - Tipo de trabajo _____
    - Salario mensual _____
    - Dias de trabajo por semana ___ /7

    ☐ No

    - ¿En   qué   trabajabas?
      ——————————————————————————————
    - Desempleado/a desde ——————————————————

12. **¿Tienes cuentas bancarias?**

    ☐ Si

    - ¿Cuantas cuentas? ——————————————
    - Ahorro aproximado ——————————————————
    - Numero de transacciones en un año ——————————————————

    ☐ No

13. **¿Tiene ganancia de un bien alquilado? (panga, casa, tierra, otros)**

    ☐ Si

    - ¿De qué bien? _____
    - ¿Cual   es   la   ganancia?   (explicar   mensual   o   anual)
      ——————————————————

    ☐ No

14. **¿Tiene acceso a tierras de cultivo fuera de la casa?**

    ☐ Si

    - Tamaño   del   suelo
      ———————————————————————————————————————
      ———
    - ¿Qué   cultivas?
      ———————————————————————————————————————
      —————

- ¿Si vende, cual es la ganancia anual? _____

- ¿Donde consigues las semillas para la siembra? _____

- Uso de químico _____

☐ No

15. ¿Has tenido o tienes ayuda financiera del gobierno u ONG? ☐ Si, porque _____ ☐ No

16. ¿Tienen ganado?

☐ Si

- ¿Qué tipo y qué cantidad? _____
- ¿Como lo usas? _____
- ¿Cual es la ganancia? (explicar mensual o anual) _____

☐ No

17. Atención medica (si eres madre, la de tus hijos tambien)

- Lugar de asistencia _____

- Cuantas visitas (explicar al mes o al año) _____

- Razónes principales _____

- Gastos medio por año (consulta y medicamentos) _____

18. ¿Tienes pasaporte? ☐ Si ☐ No

19. ¿Tienes parientes cercanos en el extraniero, y donde esta la mayoría? _____

20. Movilidad

- ¿Que ciudad visitas mas?
————————————————————————

- ¿Cuantas veces vas? (eplicar a la semana, al mes o al año)
————————————————

- Medios de transporte y costo de un viaje completo
————————————————

- Razón porqué viajas principalmente ahì
————————————————————————

21. ¿Tienes celular? ☐ Si ☐ No

22. ¿Qué te gusta hacer en tu tiempo libre?
——————————————————————————————

23. ¿Qué oportunidades de trabajo te gustaría ver en tu comunidad?
——
————————————————

24. ¿Si tuvieras $1000 para apoyar la comunidad de El Astillero, como lo usarías?
_____

25. ¿Cuán seguro te sientes en tu comunidad?

(muy inseguro-inseguro-más o menos-seguro-muy seguro)

1	2	3	4	5

26. Casa Congo

- ¿Qué tan importante es Casa Congo para ti en la comunidad?

1	2	3	4	5	6	7	8	9	10

- ¿Como piensas que podemos mejorar?
————————————————————————————————
————————————————

_____
_____

_____
_____

Parte de la Casa

27. ¿Cuantas personas viven en tu casa? _____

28. ¿Cual es la principal fuente de ingreso para la familia? _____

29. Ingreso total al mes en la familia _____

30. Tipo de Casa

☐ A (plastico)   ☐ A1 (zinc)   ☐ B (madera)   ☐ C (ladrillos y madera)

☐ D (toda de piedra cantera o ladrillos)

● Propia o alquilada _____

31. ¿Tiene Patio?

☐ Si

● ¿para qué lo usas? _____

☐ No

32. **Animales que viven en la casa** _____

33. ¿Si podría hacer una mejora en tu casa, cual sería?

_____
_____

34. ¿Cuanto inviertes en el mejoramiento de tu casa en un año?

_____
_____

35. ¿Cuantas veces tu casa o pertenencias ha sido afectada por causas naturales?
_____

36. Agua

- ¿De donde consigues el agua que tomas? _____

- ¿Cuanto consumes de agua? (explicar cantidad o precio por dia o mes) _____

- Tipo de servicio higienico: ☐ letrina ☐ inhodoro ☐ ninguno ☐ vecino

- Numeros de llaves en la casa _____

37. Comida

- Cuantos tiempos de comida por día _____

- Cuantas veces comes verduras y frutas a la semana _____

- Cuantas veces comes comida chatarra a la semana _____

- Cuantas veces consumes Coca Cola o otros refrescos azucarados a la semana ____

- Ubicación de la cocina en la casa: ☐ dentro ☐ fuera

- Tipo de cocina: ☐ leña ☐ gas ☐ electrica

38. Plástico

¿Qué articulo de plastico compras mas?	Cuanto al dia, semana o mes
1.	
2.	
3.	

39. Luz (marcas solo si los tienes y escribes cuanto)

☐ Bombillas ___   ☐ Refrigerador ___   ☐ Microonda ___

☐ Orno__

☐ Herramientas de trabajo electricos ___   ☐ Conexión a Internet   ☐

Otro _____

40. Productos duraderos (marcas solo si los tienes y escribes cuanto)

☐ Carro ___   ☐ Moto ___   ☐ Computadora ___

☐ Radio o equipo ___   ☐ Televisión ___   ☐ Panga ___