A Proposal of Measure of Emancipation
And an International Comparison

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1. Introduction

The leaving home demographic event is the date when a person leaves his or her parents house to create a new home or to join another one (Galeson 1985). The fundamental characteristic of this event is the change of residence, independent of the economic reliance between the parts. The event is neutral to the reason of change of residence: education, marriage, migration, among others.

Comparing with other demographic events such as marriage or fertility, the leaving home event has had a reduced attention in the field. Most of the work has been done inside of the life cycle of the family studies and with topics related to family behavior. Although, there was a change in the last decade when economic crisis awakened the interest of the dynamic of composition of households tied to an increasing interest on social mobility (Vinuesa, 2007). In this sense, I found at least three reasons to amplify the research on this topic:

1. Demography is a field with interest on the empirical regularities of family size and fertility. In a world experimenting different stages of demographic transition, it is important to assess each possible determinant of family behavior. The age of leaving home plays an important role here.
2. Thanks to new sources of information and the arrival of "big data" analysis, the studies of migration have developed tools to analyze smaller levels of disaggregation. Nowadays, it is important to understand traditional – international migration but also it is necessary to understand the internal migration within and between developed and developing countries. To understand the drivers of migration in a more globalized world it is relevant to be aware of the dynamic of the modern families. The leaving home date also plays a fundamental role here.
3. The forces of market, the globalization and the technologies of information generate a huge amount of information related to comparisons between countries. Each day is easier to find rankings of countries according their level of happiness, competitiveness, security, corruption and so on. The danger, however, is that such a numeric simplification of reality unknown fundamental

differences between cultures, hierarchies of values and social backgrounds. Understanding the dynamic of the family could be an input to help to comprehend those differences and maybe to interpret quantitative comparisons across countries.

The objective of this paper is to try to fill out the absence of information about Age of Leaving Home at an international level. To achieve this aim, the idea is to propose a measure of the age of the people leaving home, using population censuses data and to execute comparison across countries. The further intention is to evaluate the relation of this variable with other demographic phenomena.

This is an initial version of paper, where I will describe two proposals of metrics and applying to 24 countries (including the United States and Ecuador.) In the second section, I evaluate the association of this metric with the level of competitiveness, fertility and density. The hypotheses are: 1. there is a positive correlation between higher ages of emancipated groups and higher levels of competitiveness, as a measure of construction of social capital. 2. There is a negative correlation between higher ages of emancipated group and fertility and 3. There is a positive correlation between higher ages of emancipated group and population density.

In future versions of this paper I will include differences across time and differences within countries. It will be particularly interesting to assess the speed of change metric proposed comparing with the process of industrialization in developing and developed countries. Also it will be fundamental to evaluate the veering role of women and how is related with the age of leaving home, according to specific levels of fertility.

At this point, it is important a note of denomination. The leaving home event is also known as "emancipation", especially in Spanish and Latin-American demography. This is because is socially understandable (Latin American culture) that when the person leaves his parents home, he or she is *emancipating* from the physical dependency of his or her parents (Vinuesa, 2007). In this paper I will use both denominations interchangeably.

2. A brief literature review

[Pending to complete & edit]

There are three books that were the main reference. The first is "The Changing Transitions to Adulthood in Developing Countries", from the National Research Council. It presents 11 papers with a specific emphasis in the comparison between developed and developing countries and the evolution in the process of modernization of the formers. The second book is "The Road to Independence: Leaving Home in Western and Eastern Societies, 16th-20th Centuries" with Frans van Poppel, Michel Oris and James Lee as editors. On this comprehensive and well-documented work, I

highlight the section of Motivations and Behavior for leaving home, focused on Europe. Lastly, the "Leaving Home before Marriage" from Goldscheider F. and Goldscheider C. gave me an important source of references about the conceptual background of Familism and Generational Relationships.

It is important to note that in all the cases enlisted and reviewed, they calculate the emancipation using specific sources such as surveys or registration of the date of leaving home. There is no one trying to approximate a measure using a international source, like a population census.

3. Methodology

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This section includes three parts. In the first one, I describe the ideal measure of emancipation and the way how has been traditionally measured. In the second part I explain my two proposals, including the specific differences with previous calculations. Lastly, I apply the calculation proposed to the United States and Ecuador.

Emancipation -in a narrow way- is the age when the person leaves his or her parents home *permanently*, for first time. Permanently means that his or her habitual residence has formally changed since that moment. The change of residence could be to a new one formed by the person or moving to a pre-establish residence. The formality implies a physical independence with the original household.

There is a segment of people who return to his or her residence of origin, but from the sociological point of view of this paper, what matters is the first time of emancipation, even if the persons returned for any reason. From the operational point of view, this generates four problems: 1. how much time should be considered to be classified as a new residence? 2. How do we account for the people who exits and enters several times from the original household? 3. What *official* registration is useful to catch the date of leaving home? 4. Knowing that this demographic event does not leave a formal registration (comparing with marriage or fertility among others), what footprint can we follow?

The easy solution for this problem would be to create a survey including questions related to this topic. In our case, where the objective is to compare across countries and time, that is a difficult enterprise. That is the reason why I propose an approximation described in the next subsection. Before that, I would like to describe what questions would be ideal to measured our metric.

At what exact age did you change your residence, leaving your parents house / or house of origin for first time?

After that decision, did you ever come back to their house?

If yes: For how long were you out of your parent's house or house of origin?

What was the main reason to leave your parents house or house of origin for first time?

Returning to our real and original goal, I describe now the proposal to approximate this measure.

The objective of this paper is to present an approximation of emancipation with the aim to make comparisons in an international scale, across time and also trying to find relationships with economic and demographic variables. In this sense, I consider that the best alternative is to use the Integrated Public Use Microdata Series (IPUMS, 2014). This repository has the suitable input for our construction: standardization of questionnaires, micro data sets including variables for the composition of the family.

The limitation of this source is predictable: there is no one census around the world that includes a specific question about the exact age when the person has left the residence of origin. The diagnostic is even worst when we try to find the variables to accomplish our narrow definition developed in the previous section. As usual, it is time to make reasonable assumptions to create our proposal.

I consider the emancipation as an instantaneous distribution of age captured at the moment of the census. Under this definition I will lose a proportion of information from the persons who have changed their residence more than one time inside of the census period (usually 10 years). Hence, the emancipation will be assumed as an accumulative event captured at the moment of the census, considering intra-census changes as non relevant variations in the proportions analyzed. In a further work, I will use England and Ecuadorian surveys to analyze how big could be the impact of this assumption. The rest of the assumptions are related with the specific proposals, described in the next subsection.

Proposal 1

The first proposal is to use the category that defines the role of the person inside of the household to create groups of emancipated and non emancipated people. In every census we have a variable where is classified the person according to his or her relationship with the head of the household. Again, IPUMS plays a strategic role in this sense. After the classification, it is possible to calculate proportions for each group and finally compute central tendency measures for the age, such as mean and median.

It is necessary to note that on this proposal, the final result is not a measure of exact age of leaving home. Instead, it will be a measure of the age distribution of the group of the household classified as emancipated or non-emancipated. The difference is that

we will observe the age composition of the emancipated group versus the non emancipated and the level of these metrics will guide us to understand how young or how older are the families in each group.

To apply this exercise, I use the variable "RELATED" that specifies the relationship of the individual to the head of household (in some countries called the "householder" or "reference person"). This variable has the advantage to have an enormous comparability and availability across censuses, which fits with the main objective of this paper.

The delicate part of this method is to classify the person inside of the household in to the categories of emancipation. To include an evaluation of sensitivity I created two alternatives of emancipation ("Soft Emancipated" and "Strong Emancipated") and one alternative of non emancipation ("Non Emancipated"). I proceed with the definitions of the groups and each component.

Strong Emancipated.- In this category I include the persons that according to his or her role, we can infer that he or she is already belonging to a different home than his or her home of origin. The best example is the head of the family. Later I will briefly discuss the limitations for each case.

Soft Emancipated.- In this category I include the persons that according to his or her role we can infer with less comfort that they belong to a different home than his or her home of origin. An example for this case would be a "Parent", because there is a possibility that the person is a parent on his or her house of origin and he or she lost the recognition as a "Head" of the household or it could be the case that he or she has changed his or her emancipated home to a his son's or daughter's home. In each case is an emancipated person but with a nuance in the definition. Later I will discuss the classification of each case.

Non Emancipated. - In this category I include the persons that according to his or her role we can infer that they are still under a dependency of their parents or a superior similar family figure. The best example on this case is "Children". Now, I proceed to define and discuss the limitations for each component.

Descriptions for the components of each classification

Emancipated: Strong Classification

- Head of the family
  She or he will be categorized as a Strong Emancipated because he or she is in recognized as a household head, a signal of emancipation in the economic sense and in the power sense. Even in the case where he or she is living in his parent house we can assume that the familiar recognition as a "Head" is a signal of empowerment and social emancipation. A way to evaluate the

weakness of this assumption is to identify what percentage of them live with her or his parents. As we will see in further versions, the percentage is not significant.

- Spouse / Partner and Unmarried partner
  In these cases it applies the same argument than the previous classification. The limitation could be that she or he is married and still living in his or her parent house.
- Housemate / Roommate
  A housemate or roommate usually is a person who shares the residence for labor, educational or migratory reasons. I consider that is reasonable to assume that these cases are persons that already leave the house of origin.

- Roomer / boarder / lodger / foster child
  It applies the same argument than a Housemate or Roommate.
- Group quarters, non-inmates:
  It applies to people that for work, education, migratory or similar reasons is sharing a residence. I consider that it is enough support to classify them as emancipated.
- Institutional inmates
  Usually this category is used for persons under specific conditions of residence such as individuals deprived of their liberty. It is an argument to classify them as emancipated.
- Non-relative, n.e.c.
  In this case, independent of the economic or social situation, we do have certain that they do not belong to their home of origin. In my consideration is an argument to include them under this category.

Emancipated: Soft classification

- Parent
  As mentioned before, a Parent could be a person who is living in his or her household of origin or he or she has moved to his or her son's or daughter's house. In each of the cases we can consider him as a person that has lost the familiar recognition of "Head" of the family. In this sense, he or she is classified as emancipated in a soft way, where we have less certainty about his or her emancipation. In the execution of the calculation we will see later that its effect is not significant.
- Parent in law & Grand Parent
  It applies the same argument than the last case. Even though I can assume that he or she is in a different place than the house of origin, it could be the case that the rest of the family is has moved to his or her house of origin.
- Aunt / Uncle and Other relative

In these cases, there is even a smaller opportunity that they could be the residing at their house of origin. Still, they are classified as Emancipated soft to evaluate their influence in the final proportions.

Non Emancipated

- Child (biological and adopted), Stepchild, Child in law and Grandchild
  These definitions have enough information to infer that the person is under the guardianship of a head of the household. It is possible to evaluate the proportion of this category on the households without parents, but as we will see later, the quantity is not significant.

- Sibling and Sibling in law
  These categories represent a similar case than the Child, although they could have changed their original home, they are still under the guardianship of a head of the household. I tested including and excluding from this group and the results are similar.

Before to present initial calculations, it is necessary to specify the age ranges for the result. This is because when we are calculating events like emancipation, we need to avoid the influence of extreme ages that are not subjects of analysis. A person younger than 10 years old could change his or her residence of origin for reasons not associated with the concept researched here. It is the same argument for older ages: , it is improbable that a person older than 60 is changing his or her residence as a first emancipation (Goldscheider, 1993). Then we face an additional decision: what group of ages to choose? To avoid extensive discussions about sociological, economic and statistical reasons to maintain only one age group, I calculated several scenarios: 0 to 100, 10-90, 15-90, and 15 to 34, among others. After several exercises I found only important differences on the groups presented in the Table No. 1.

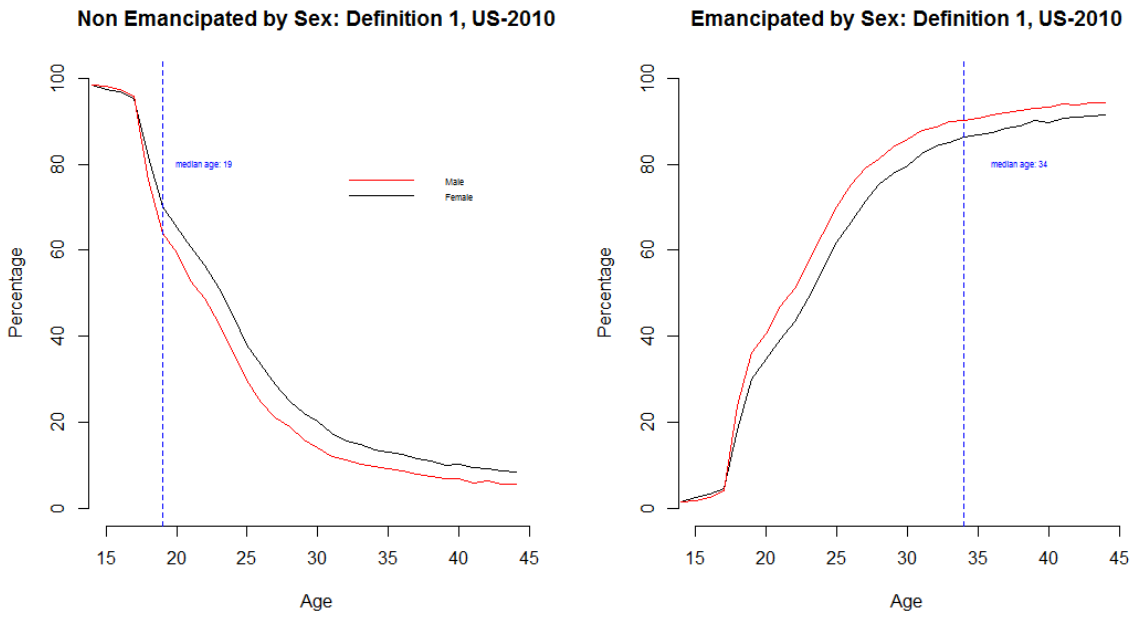
In the next table I how the results of mean and median for the two classifications: Emancipated and Non Emancipated, divided by the age of groups included in the classification. For example, the 15.23 is the mean age of the Non Emancipated group when the range of age included in the calculation is from 0 to 100 years old. For reasons of space and version of this paper I will keep from hereinafter the last classification (15 to 45 years old), mainly due to similarities with precious calculations.

Table N.1 Mean and Median for Classifications by the Proposal No. 1

	Classification Method (Strong + Soft)			
	Non emancipated		Emancipated	
Range of age applied in the calculation	Mean	Median	Mean	Median
0-100	15.23	13.00	51.30	51.00
15-100	24.83	20.00	51.43	51.00
0-45	13.23	12.00	32.92	34.00
15-45	21.41	19.00	33.13	34.00

After the inclusion of the "Soft Classification" in the group of Emancipated, there are differences less than 0,001%. This is the reason I will not include results for this sub classification. In the Graph No. 1 I present the proportions for each classification, segmented by sex. These are positive result due to the similarity of the distribution comparing with the result of previous authors (Goldscheider, 1993, Vinuesa 2007, Galeson 1985).

Graph No.1 Non Emancipated and Emancipated Proportions by Sex in the US, 2010
Proposal 1



Proposal 2

The second proposal consists in the use of the variable “PARRULE”. This IPUMS variable classifies the persons inside of the household according to his or her relation to the parents. The code number 1 is the one assigned for the person if his or her parent is not present in the household. Conceptually, it is a suitable description of a person who has leaved his or her house origin or at least without the guardianship of a head or parent. The process of calculation is straightforward: a person included in a household classified with the code of 1 will be classified as emancipated, and if she or he has another code will be classified as non-emancipated.

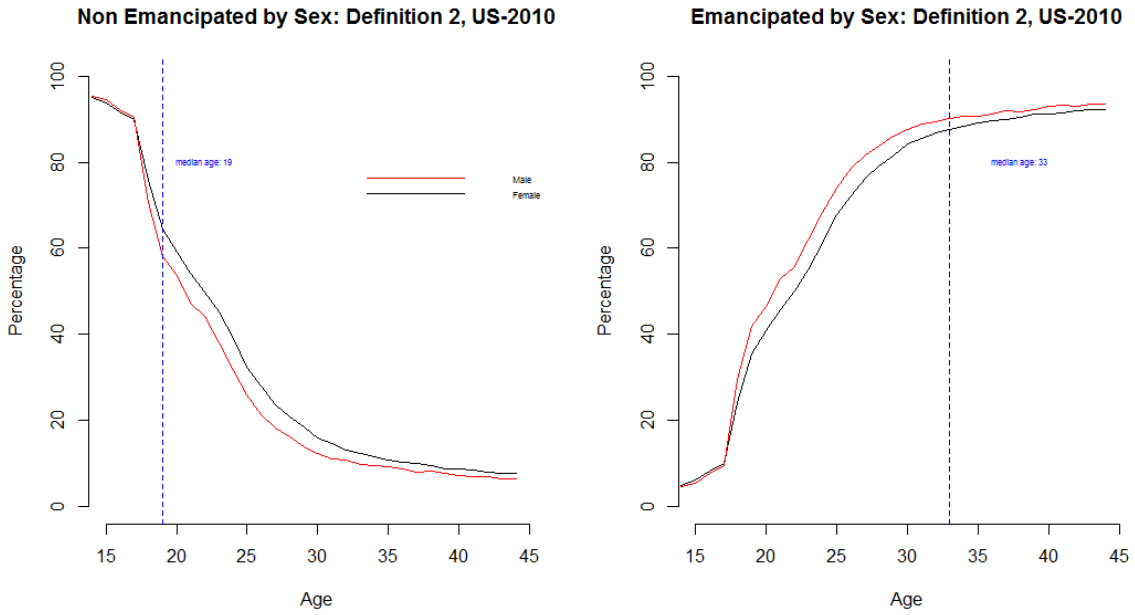
The results for this second proposal are presented in the Table No.2. I found no significant difference with the first proposal, which is positive for our aim.

Table No. 2 Mean and Median for Classifications by the Proposal No. 2

	PARRULE Method			
	Non emancipated		Emancipated	
Range of age applied in the calculation	Mean	Median	Mean	Median
0-100	14.71	12.00	50.64	51.00
15-100	24.35	20.00	51.03	51.00
0-45	12.95	12.00	32.08	33.00
15-45	21.29	19.00	32.68	33.00

In the same fashion, I present the graphs to evaluate the evolution of the proportions for each group. The results are similar to previous authors and similar to the proposal No. 1.

Graph No.2 Non Emancipated and Emancipated Proportions by Sex in the US, 2010 Proposal 2



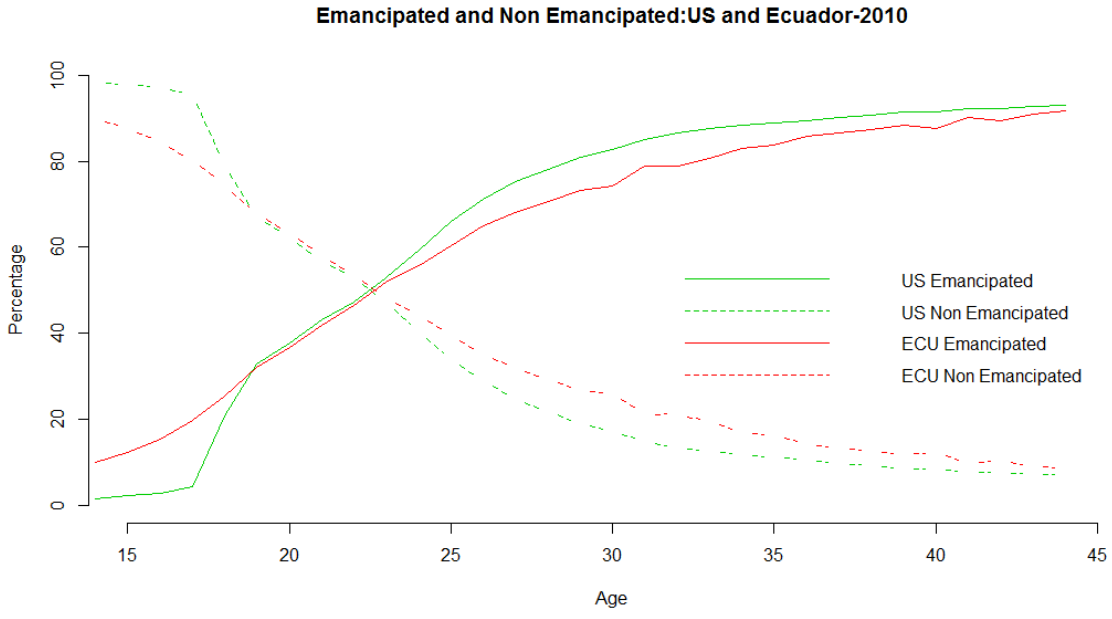
In the Table No. 3 I present the quantitative differences between the two proposals. As we can see there is no difference bigger than 1. I interpret this result is positive because is a signal that I am arriving to the same result taking different roads. I can evaluate and compare these results for any of both methods.

Table No. 3 Differences between Proposal 1 and 2 by groups

	Differences between two methods			
	Non emancipated		Emancipated	
Range of age applied in the calculation	Mean	Median	Mean	Median
0-100	0.52	1	0.65	0
15-100	0.47	0	0.39	0
0-45	0.28	0	0.84	1
15-45	0.15	0	0.45	1

To complete this section, I apply the calculation to compare between a developed and a developing country: United States and Ecuador. To facilitate the reading of the graph I only include here the general measure of emancipation and non emancipation without the sex. Henceforth, this is the start to do analysis about the findings in the last section of results.

Graph No. 3 Comparison of US and Ecuador, using method 1 and 2010 census.



4. Initial Results

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In the first part of this section I apply the measure of emancipation to 24 countries. I evaluate the differences and use a classification according to their level of development. In the second part I start to test the relation between emancipation with key demographic and economic variables. In the last part I describe initial findings.

To apply the measure of emancipation to different countries it was necessary to analyze each of the countries available on IPUMS and decide which ones will contribute conceptual and empirically. In the conceptual sense I am interested in the contraposition between developed and developing countries, mainly because it is a signal of historic construction of social capital. I included countries with diversity in their level of development and with geographical dispersion. In the empirical sense, I am interested to include countries that have the two key variables of the measures proposed and also the ones that present consistency in the codes across time. Here is where I found problems with some countries where they do not have their last census available at IPUMS or their variables are computed in a completely different way. Still, I consider that the countries that I included are enough to test the proposal.

It is important to note that the construction of the variable for each country was constructed manually. This is because any small difference in the codes could be extremely sensitive to the measure proposed. There are some countries where I found unique codes of classifications and other countries where they have different wording for the same classification. I took care for each of the 24 countries, testing the variables and the computing.

Originally, I had 24 countries for the exercise, but during this analysis I had to exclude Indonesia because of considerable signals of inconsistency in the values of the "Grandsons" and "Uncles". I could impute some values but the level of assumptions (unknowing the Indonesian culture) was substantial. For this version of the paper this country is excluded.

In the Table No. 4 I present the results for the mean and median for Emancipated and Non Emancipated groups for the 23 countries. In this first case they are arranged alphabetically. In all of the cases I used the last available population census, which in general is between 2001 and 2010. In further versions of this paper I will apply calculations through time. In the annex is possible to see the classification for the year of census for each country.

Table No.4 Mean and Median Ages of Emancipated and Non Emancipated by Country

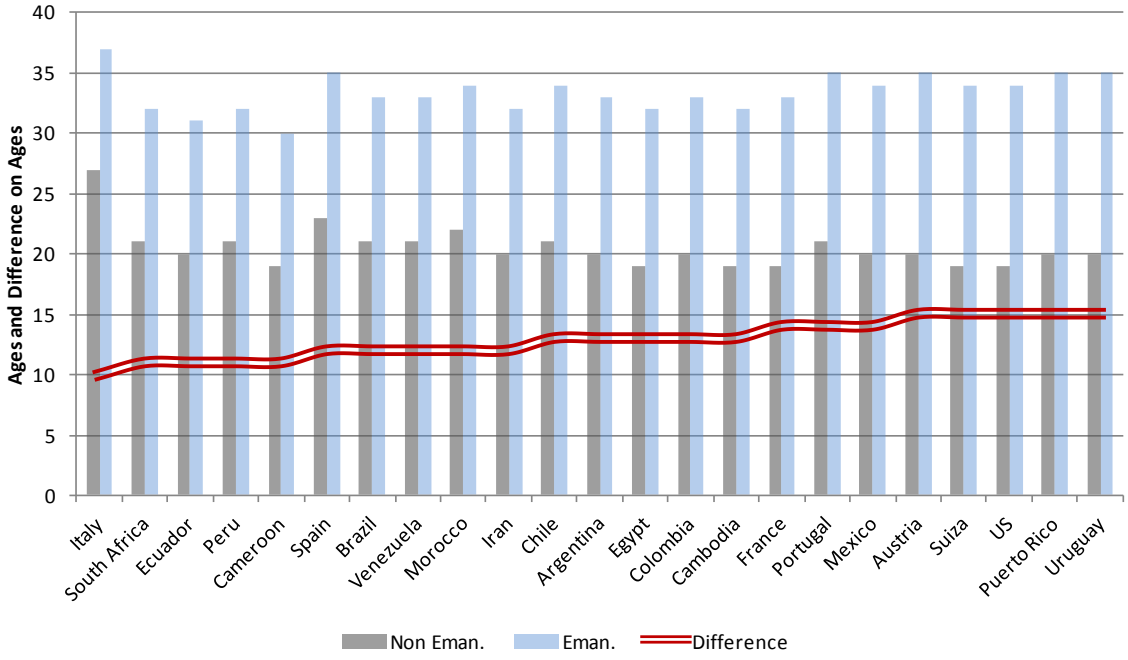
		Non emancipated		Emancipated		Level of
	Country	Median Age	Mean Age	Median Age	Mean Age	Development
1	Austria	20	22.26	35	34.27	H
2	Chile	21	23.21	34	32.96	H
3	France	19	20.12	33	32.79	H
4	Italy	27	28.01	37	34.54	H
5	Spain	23	23.88	35	34.5	H
6	Suiza	19	20.31	34	33.75	H
7	South Africa	21	22.63	32	31.48	H
8	US	19	21.41	34	33.13	H
9	Argentina	20	22.01	33	32.51	M
10	Brazil	21	22.43	33	32.33	M
11	Colombia	20	22.2	33	31.89	M
12	Ecuador	20	21.83	31	31.17	M
13	Egypt	19	20.41	32	32.03	M
14	Mexico	20	21.91	34	32.96	M
15	Peru	21	22.55	32	31.11	M
16	Portugal	21	22.88	35	34.03	M
17	Puerto Rico	20	22.59	35	37.77	M
18	Uruguay	20	21.92	35	33.84	M
19	Venezuela	21	22.59	33	32.31	M
20	Cameroon	19	20.94	30	29.49	L
21	Iran	20	20.63	32	31.81	L
22	Morocco	22	23.38	34	33.34	L
23	Cambodia	19	20.43	32	31.69	L

The advantage to take the mean is that we gain sensitivity to make quantitative analysis, while the median is a good measure to compare countries without the influence of extreme values. As we will see later, there are countries with considerable proportions at the beginning of the age distribution that could be affecting the mean, but at the same time this is a signal of formation of young independent families (For example marriage on teenagers, parental dissolutions, among others). For this reason I will use both metrics.

I present here two graphs comparing the differences between the 23 countries including the mean and median age for emancipated and non emancipated people. In the Graph No.4 I show the medians and in the Graph No. 5 I present the means.

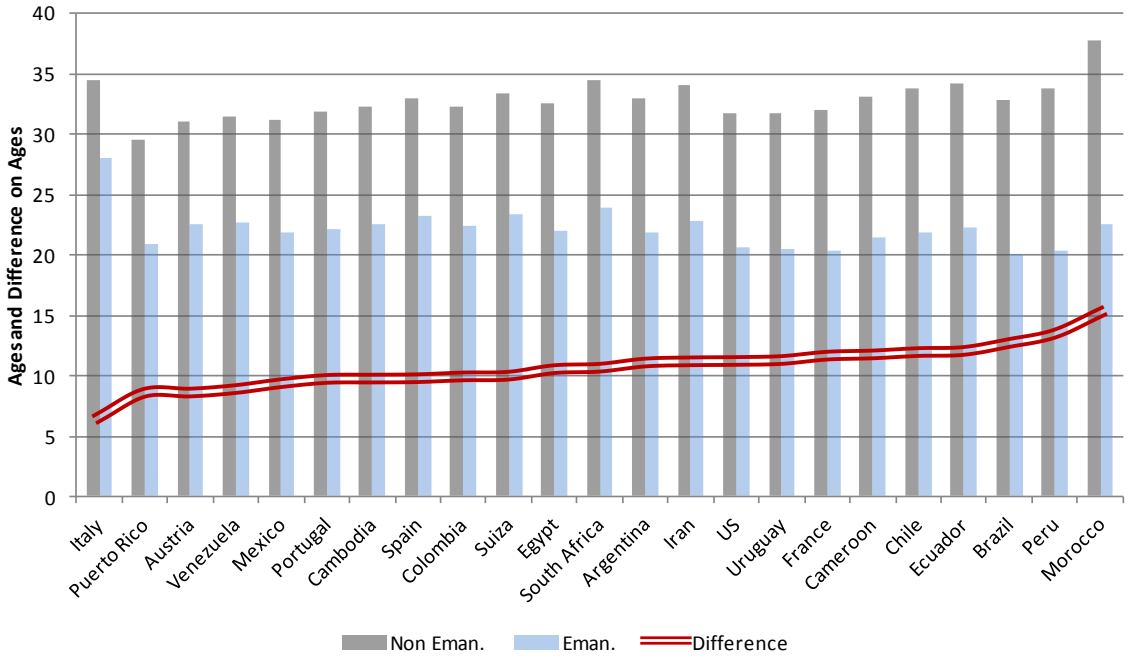
Graph No.4A: Median age of Emancipated and Non Emancipated groups

Ordered by the difference Emancipated and Non Emancipated



Graph No.4B: Mean age of Emancipated and Non Emancipated groups

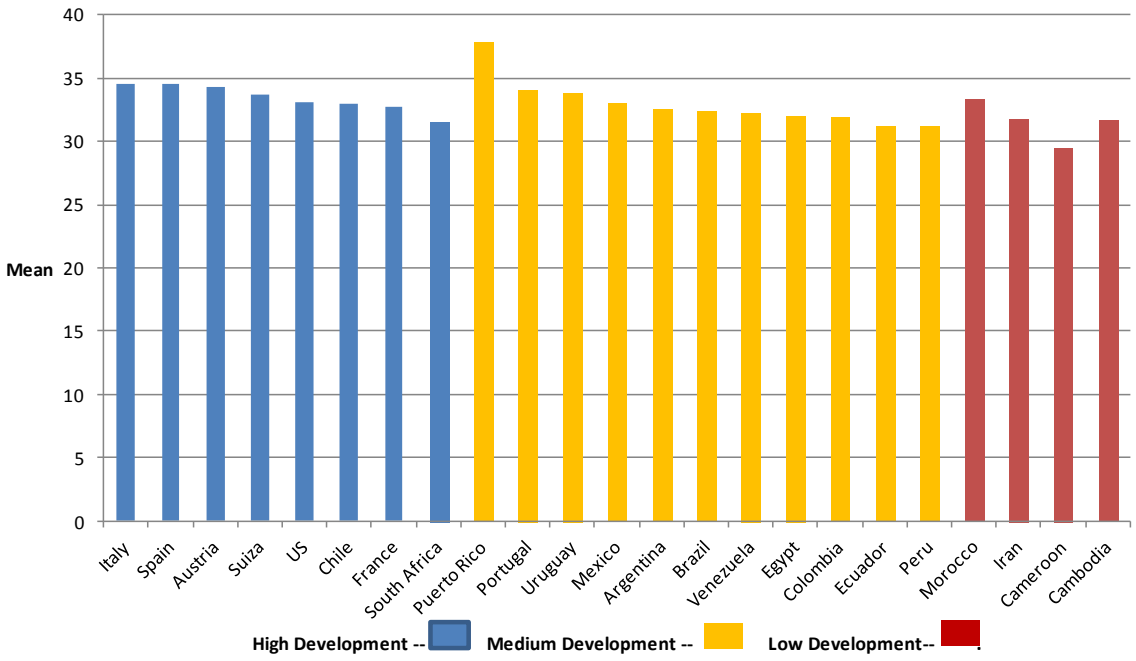
Ordered by the difference between Emancipated and Non Emancipated



We start to see differences across countries and spots for geographic associations. Italy –consistent with its demographic profile authors- present higher levels of age of emancipation and the lower difference with non-emancipated. Its behavior it is strong: with the mean and median the ranking is headed by them. Besides this, in the rest of the countries –with no exception- there are changes of position between both measures. This is an additional signal that it is necessary to take in to account the mean and the median.

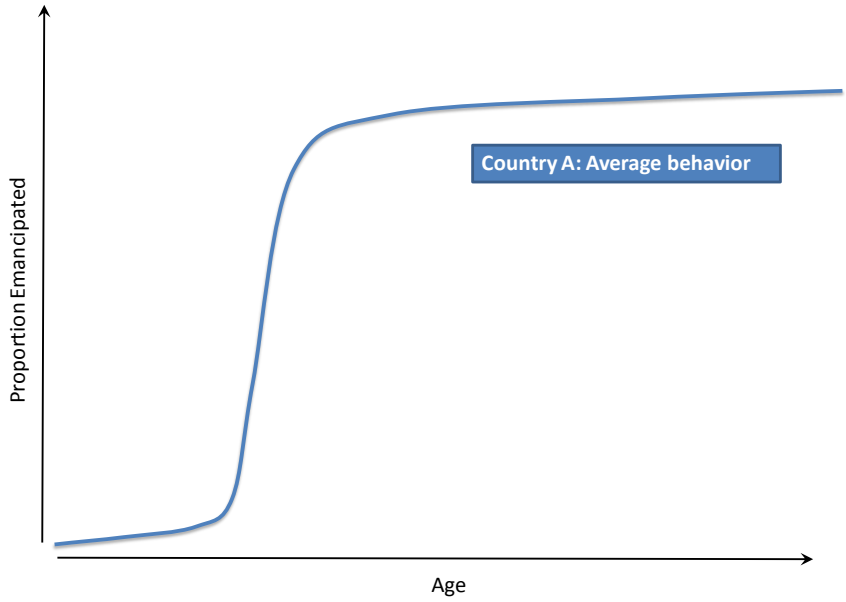
Now, the calculations are influenced by the age distributions of the countries. A country with aging population will present an older age of emancipation. To help to evaluate the differences across countries taking account this effect, I present in the Graph No.5 the ranking of the Mean Age for the Emancipated by the level of human development. This graph helps us to understand specific logics inside of development classifications that are an approximation of the demographic profile per country. In further versions of this paper I will construct an average measure of emancipation to standardize the countries and block the effect of age distribution.

Graph No.5 Mean Age of Emancipated Group by Level of Development



To understand the differences between countries, I develop in this section a framework of analysis of the schedule of Emancipation. Using the references described in the second section of this paper and the result of the calculations, I can establish a pattern of evolution of the median or mean age of the emancipated population. In the diagram No. 1 I present an "average" trend that I am expected to observe on each country.

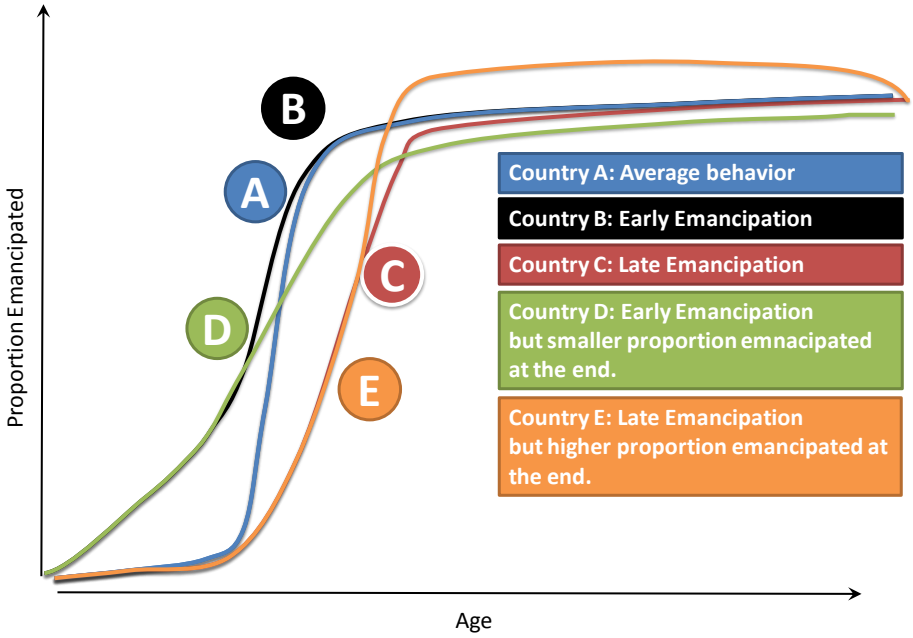
Diagram No.1 Classic Pattern for the Age of Emancipated Classification



I expect a very low level of emancipation at the beginning of the age distribution, until the end of the teenager years. Around 18 years old the distribution should change considerable and continue growing to complete levels close to 100%. I will call this expected behavior "average", because we will see differences between countries and it will be easier to create categories of analysis.

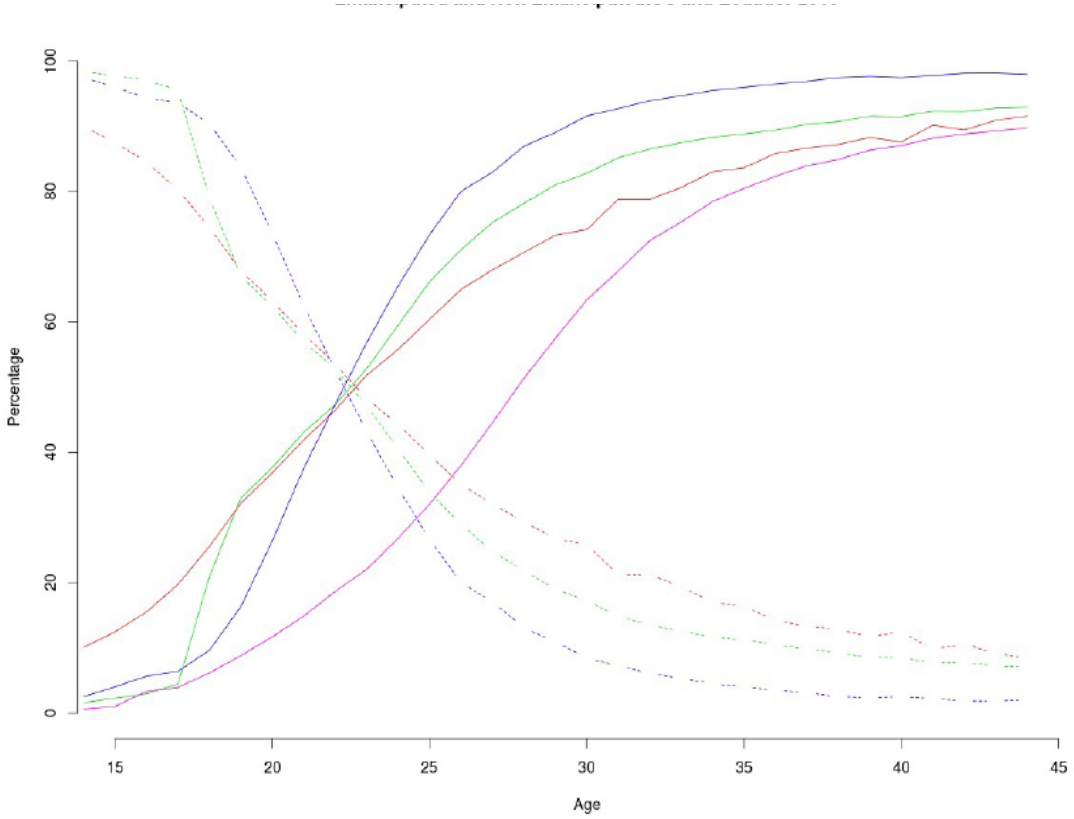
Additional to the average country (Group A) we will have: A group of countries with an bigger proportion of people with early emancipation (Group B), a third group of countries with higher levels of emancipation at higher ages (Group C), a fourth group of countries with higher levels of emancipation at earlier ages but with lower levels of emancipation at older ages (Group D) and finally, a group of countries with higher proportion of emancipated population at older ages and with higher proportion of people with higher level of emancipation (Group E). The diagram No. 2 shows the expected behavior under this classification.

Diagram No.2 Expected behavior for countries



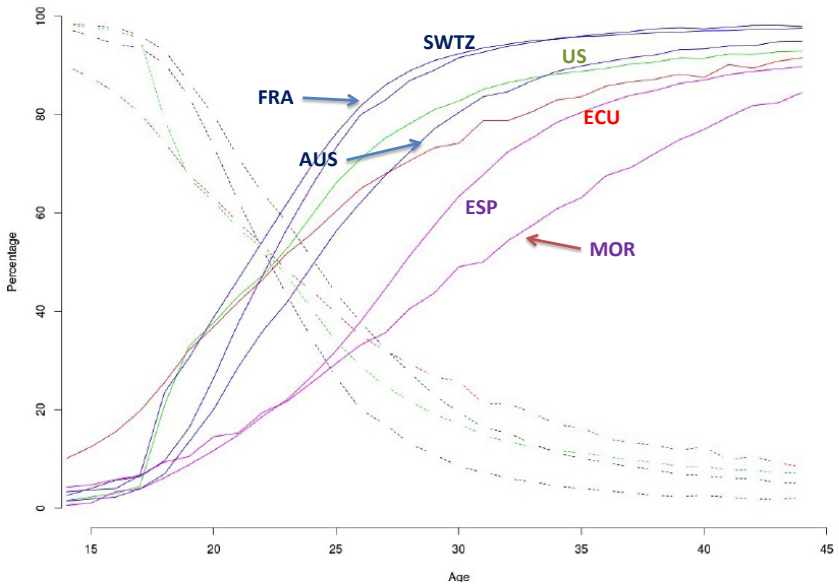
Now it is time to compare specific countries and their schedule of emancipation. In the Graph No. 6 I present four countries with different behavior. Clearly Spain belongs to the Group C, Switzerland to Group A, US to Group D. Starting from this graph and the following I also include the schedule for the Non Emancipated population.

Graph No. 6 Schedule of Emancipation and Non Emancipation for four countries



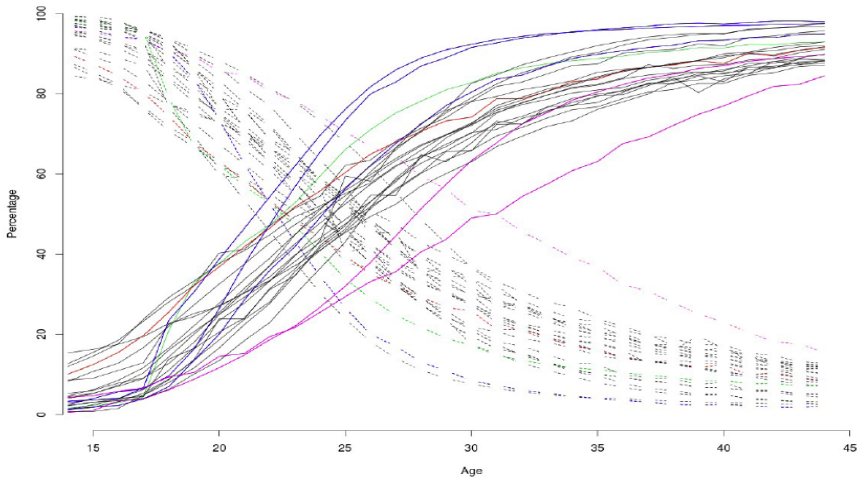
In the Graph No.7 I include three more countries, France with a behavior similar to Group E, Austria with an average behavior and Morocco with a very late schedule, nearly similar to Group C.

Graph No.7 Schedule of Emancipation and Non Emancipation for additional countries



The last Graph in this section is a representation of all the countries included. Here it is possible to see that the metric is working as a source of analysis: we have considerable differences that could or could not imply relation with other demographic phenomena.

Graph No. 8 Schedule of Emancipation and Non Emancipation for all countries



This is the input to evaluate how the Mean Age of Emancipated and Non Emancipated groups are related with other demographic, economic and social variables. For the objective of this paper, present analysis of correlation between three essential variables: level of competitiveness, fertility and population density.

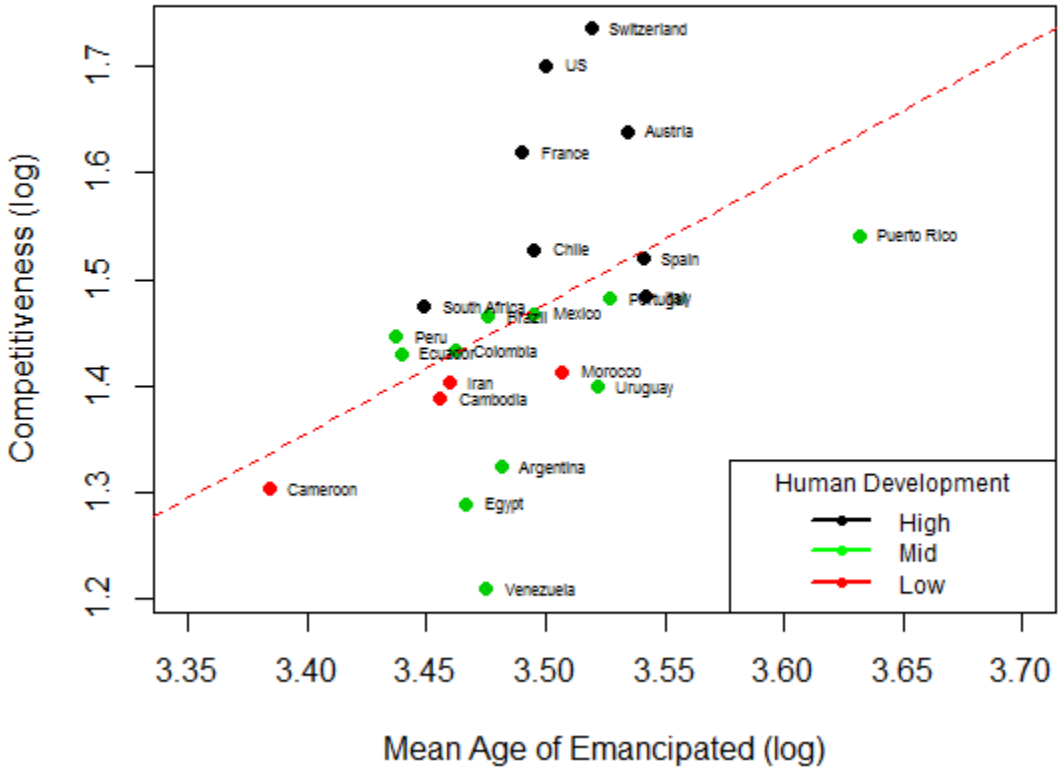
Competitiveness

In this case the hypothesis is that there is a positive correlation between higher levels of competitiveness with higher ages of Emancipation. The argument is that a person who spends more time with his family of origin will have more time to invest and to take advantage of the investment from his or her family of origin. (We have to remember that if we have a higher age in the Emancipated group, means that these persons created a home later, comparing with the people with younger ages on this group). A higher investment means higher subsequent effect on the productivity and competitiveness levels (Elder, 2009). In the Graph No. 9 I show the association of the variables that represent a correlation of the logarithm of the Mean Age of Emancipated and the log of the Global Competitiveness Index of the World Economic Forum. In the graph it is also possible to see the behavior of the countries according to their level of Human Development, based in the classification of the United Nations.

The correlation between Emancipation and Competitiveness is weak (0.47), the output of the linear regression gives a coefficient of 1.21 and an R square of 0.21, using the

Competitiveness as an independent variable. Although the P value is less than 0.05 (0.0245) I argue that this is not enough support to conclude that there is a positive relation between these variables. In further versions of this paper I will consider different metrics of Competitiveness.

Graph No.9 Competitiveness vs. Mean Age of Emancipated by Level of Development

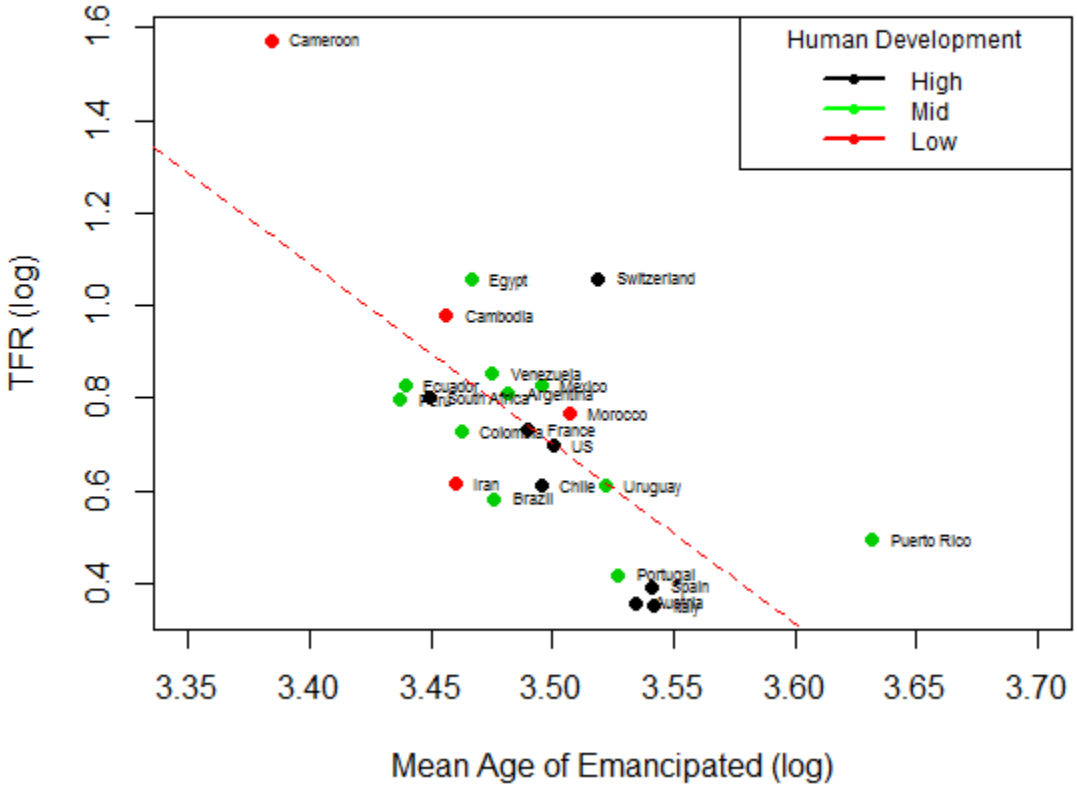


Fertility

In this case the hypothesis is that there is a negative correlation between higher levels of fertility with higher ages of the Emancipated group. The argument is that a person who created a home later, in relative terms, will have lower levels of fertility. In the Graph No. 10 is shown the association of the variables that represent a correlation of the logarithm of the Mean Age of Emancipated and the log of the Total Fertility Rate for each country. Again, it is also possible to see the behavior of the countries according to their level of Human Development, based in the classification of the United Nations.

The correlation between Emancipated Ages and TFR is -0.70 and the output of the linear regression gives a coefficient of -3.89, using the TFR as an independent variable. The p value is small enough to be comfortable concluding that there is support to conclude that there is a negative relation between these variables.

Graph No.10 Competitiveness vs. Mean Age of Emancipated by Level of Development



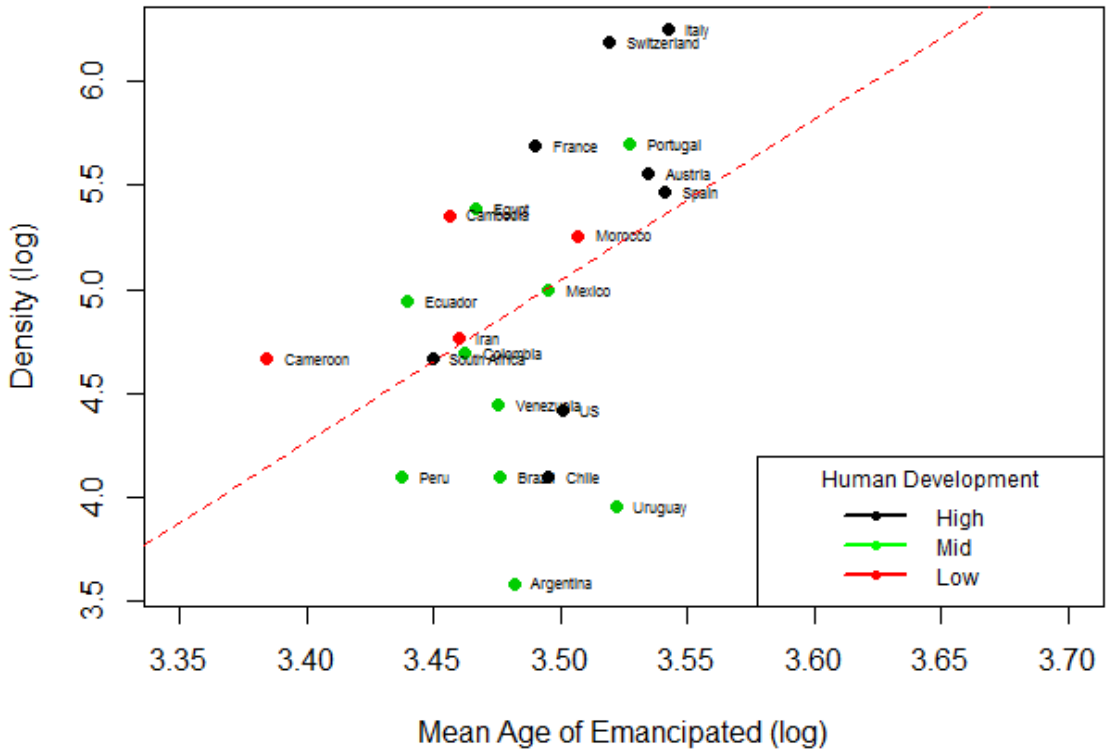
Population Density

In this case the hypothesis is that there is a positive correlation between higher levels of density with higher ages of the Emancipated group. The argument is that a country with higher population density will have higher costs of residence and higher relative costs to create a new home, stimulating to stay more time at the house of origin and generating older ages in the emancipated group. In the Graph No. 10 is shown the association of the variables that represent a correlation of the logarithm of the Mean Age of Emancipated and the log of the Population Density for each country. Again, it is also possible to see the behavior of the countries according to their level of Human Development, based in the classification of the United Nations.

The correlation between Emancipated Ages and Population Density is weak (0.23) and the output of the linear regression gives a coefficient of 3.4, using the Population Density as an independent variable. The p value is higher that 0.05 concluding that there is no relation between these variables.

Graph No.11 Population Density vs. Mean Age of Emancipated

by Level of Development



5. Conclusions and further work

[Pending to complete & edit]

The objective of this paper was to evaluate -at an international level- a proposed metric of age of the people who has left their home of origin. To achieve this aim, I created a proposal of measure of the age of emancipated groups using population censuses data. I finished with 23 countries that helped me to evaluate the correlation with fertility, competitiveness and population density. The conclusions of this version of paper are divided in two sections: methodological and empirical.

Methodological Conclusions

From the methodological point of view I consider that the result of the metric is consistent with the approximation of the phenomena. If we cannot catch the exact moment of leaving home, the results of the central tendency measures of the age of emancipated and non emancipated populations seem to have enough power to execute further analysis.

Although, it is necessary to test the measure in two ways: first, inside of each country is important to evaluate the difference by groups such as sex, Socio Economic Levels and others. I am particularly interested in the evolution of this metric for woman across time, because it could be a signal of the openness that they have in a society and it will be important to measure the impact of that liberty over other variables, such as competitiveness. Second, the evaluation across time. The proposed measure allows us to apply it to each population census available, which will be a fundamental result to analyze historic changes.

Additionally, it is necessary to include more countries in the analysis. Although I executed the exercise with 23 of them, it is still important to include more "Less Developed" countries and countries with important size of population. Some of them are: China, Russia, and India. It will be necessary also to include more countries with previous diagnostic of early late demographic transition. In all of the cases these countries were excluded in this version because they did not have a recent version of their census accessible on IPUMS.

Finally, a necessary improvement is the control of the age distributions. With the creation of an average country and creating standardized schedules it will be possible to diagnostic the mean ages for each group in a more precise way.

Empirical Conclusions

I recall the graph where I compared US with Ecuador, remembering that the mean age of the emancipated group was 31.17 years old for Ecuador and 33.13 years old for the US. Using the relations that I applied in the last section, I found a higher level of Competitiveness and Density and a lower level of fertility in the US, comparing to Ecuador. Now, it is important to note what is provoking that difference. In the recalled graph we can see what the "problem" with Ecuador is: the country has a considerable proportion of population "creating" new homes at very early ages and at the same time lower levels of emancipation at older ages. This is a fundamental diagnostic because it helps to understand how the capital "not invested" on younger ages could be a driver for negative outcomes in their life. In the same way, there is an important proportion of population who never reaches the Emancipation, even at older ages and even comparing with a country with lower levels of ending emancipation. A profile analysis of this group will be a key diagnostic in further work.

Analyzing the results from the evaluation of the hypothesis, it is possible to conclude that there is a relation between the measures proposed and the level of fertility but there is no relation with the level of competitiveness and population density. It will be necessary to explore if there is a positive correlation with other metrics similar to the index of competitiveness. In the analysis of correlation with population density it could be necessary to disaggregate the information to a smaller scale than countries and retest to evaluate if the behavior is the same at an urban level.

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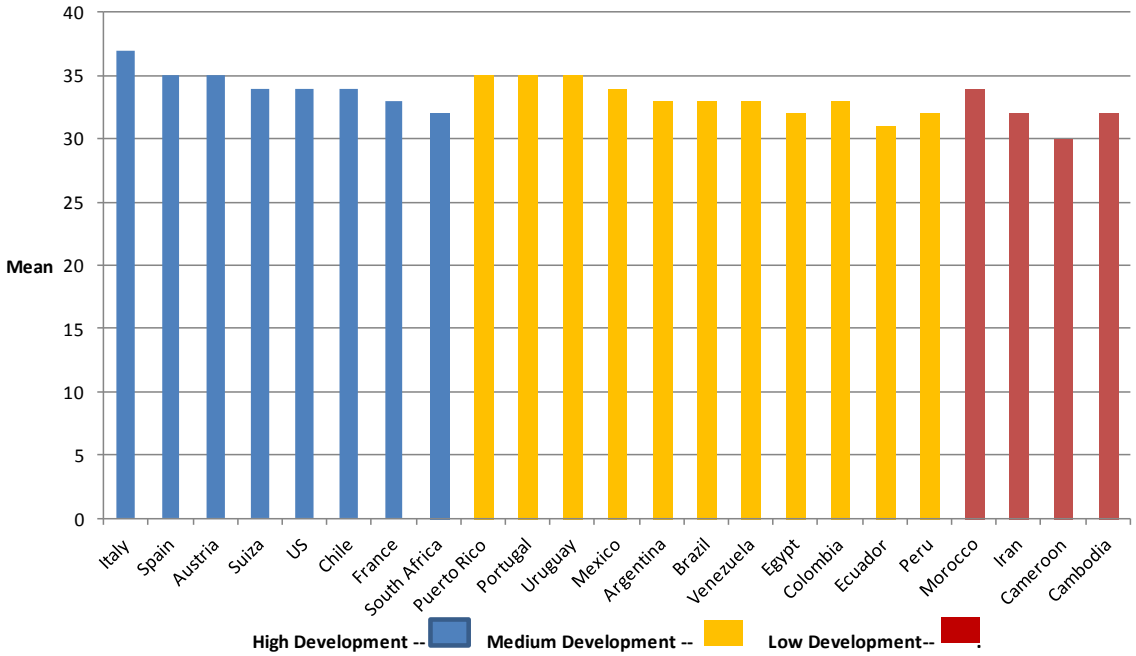
7. Annexes

A. Year of the census from IPUMS

1	Italy	2001
2	Spain	2001
3	Austria	2001
4	Suiza	2000
5	US	2010
6	Chile	2002
7	France	2006
8	South Africa	2007
9	Puerto Rico	2005
10	Portugal	2001
11	Uruguay	2006
12	Mexico	2010
13	Argentina	2010
14	Brazil	2010
15	Venezuela	2001
16	Egypt	2006
17	Colombia	2005
18	Ecuador	2010
19	Peru	2007
20	Morocco	2006
21	Iran	2006
22	Cameroon	2005
23	Cambodia	2008

B. MEDIAN AGE OF EMANCIPATION BY COUNTRY AND BY LEVEL OF DEVELOPMENT



C. Output for linear regressions

[Pending to complete & edit]

Competitiveness

```
Call:
lm(formula = log(analeman$GCI) ~ log(analeman$MeanE))

Residuals:
      Min        1Q    Median        3Q       Max
-0.237170 -0.057100 -0.006312  0.052337  0.236072

Coefficients:
                   Estimate Std. Error t value Pr(>|t|)
(Intercept)         -2.7771     1.7505  -1.586   0.1276
log(analeman$MeanE)   1.2152     0.5014   2.424   0.0245 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.1154 on 21 degrees of freedom
Multiple R-squared:  0.2186,     Adjusted R-squared:  0.1814
F-statistic: 5.874 on 1 and 21 DF,  p-value: 0.02448
```

Fertility

```
Call:
lm(formula = log(analeman$TFR) ~ log(analeman$MeanE))

Residuals:
     Min       1Q   Median       3Q      Max
-0.24279 -0.14850 -0.00749  0.09800  0.43027

Coefficients:
                   Estimate Std. Error t value Pr(>|t|)
(Intercept)          14.3265     3.0454   4.704 0.000121 ***
log(analeman$MeanE)  -3.8929     0.8723  -4.463 0.000215 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.2008 on 21 degrees of freedom
Multiple R-squared:  0.4868,     Adjusted R-squared:  0.4623
F-statistic: 19.92 on 1 and 21 DF,  p-value: 0.0002149
```

Density

```
Call:
lm(formula = log(analeman$Density) ~ log(analeman$MeanE))

Residuals:
     Min       1Q   Median       3Q      Max
-1.28237 -0.56627  0.08425  0.53997  1.19418

Coefficients:
                   Estimate Std. Error t value Pr(>|t|)
(Intercept)          -7.057     10.913  -0.647    0.525
log(analeman$MeanE)   3.425      3.126   1.096    0.286

Residual standard error: 0.7196 on 21 degrees of freedom
Multiple R-squared:  0.05407,    Adjusted R-squared:  0.009025
F-statistic:   1.2 on 1 and 21 DF,  p-value: 0.2857
```