Online Appendix

Brother Votes for Brother: The Effects of Pentecostal Political Influence in Brazil

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A Language Distance

A language family is a group of languages which descend from a common ancestral language. Language families can be divided into smaller phylogenetic units, conventionally referred to as branches since the history of a language family is often represented as a tree diagram. Figure A-a presents one example of a linguistic tree as defined by Ethnologue. According to Desmet, Weber, and Ortuño-Ortín (2009), the distance separating languages is defined by the number of branches or nodes separating them in the linguistic trees. One of the challenges when measuring the distance is that the number of branches/nodes varies among linguistic families and subfamilies. In order to solve for this issue, following Desmet, Weber, and Ortuño-Ortín (2009) and Desmet, Ortuño-Ortín, and Wacziarg (2012), all the classification strings are extended to the same length. Figure A-b provides an example of this procedure. In Figure A, language a11, b1 and C share the first node in the genealogical classification (i.e., O), but language a11 has a total of 4 nodes, language b1 a total of 3 nodes and language C a total of 2 nodes. In this example, it is considered that all three languages (a11, b1 and C) would share 1 out of 4 nodes, which means that they are all equally related.

According to Desmet, Weber, and Ortuño-Ortín (2009), the distance between language i and language j can be calculated with the following Equation:

$$Distance_{ij} = 1 - \left(\frac{L}{M}\right)^{\delta} \tag{1}$$

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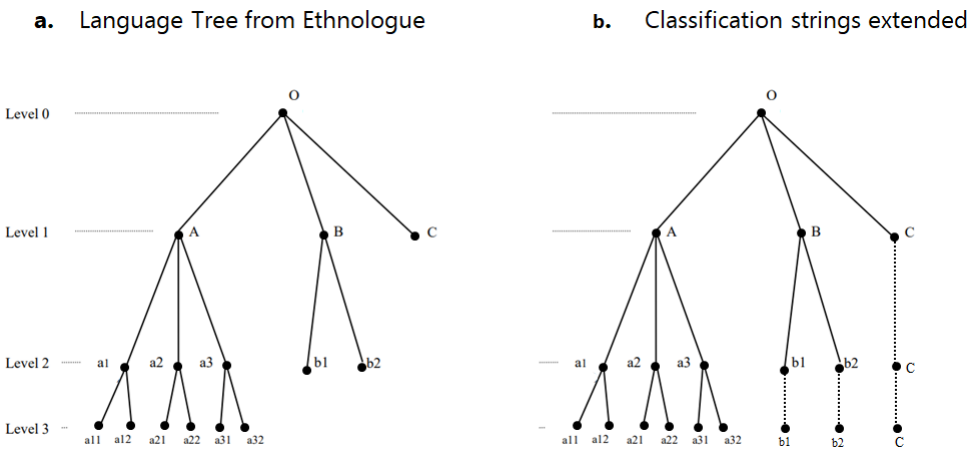
Figure A: Languages Genealogical classification Path



Source: Based on Desmet, Ortuño-Ortín, and Wacziarg (2012).

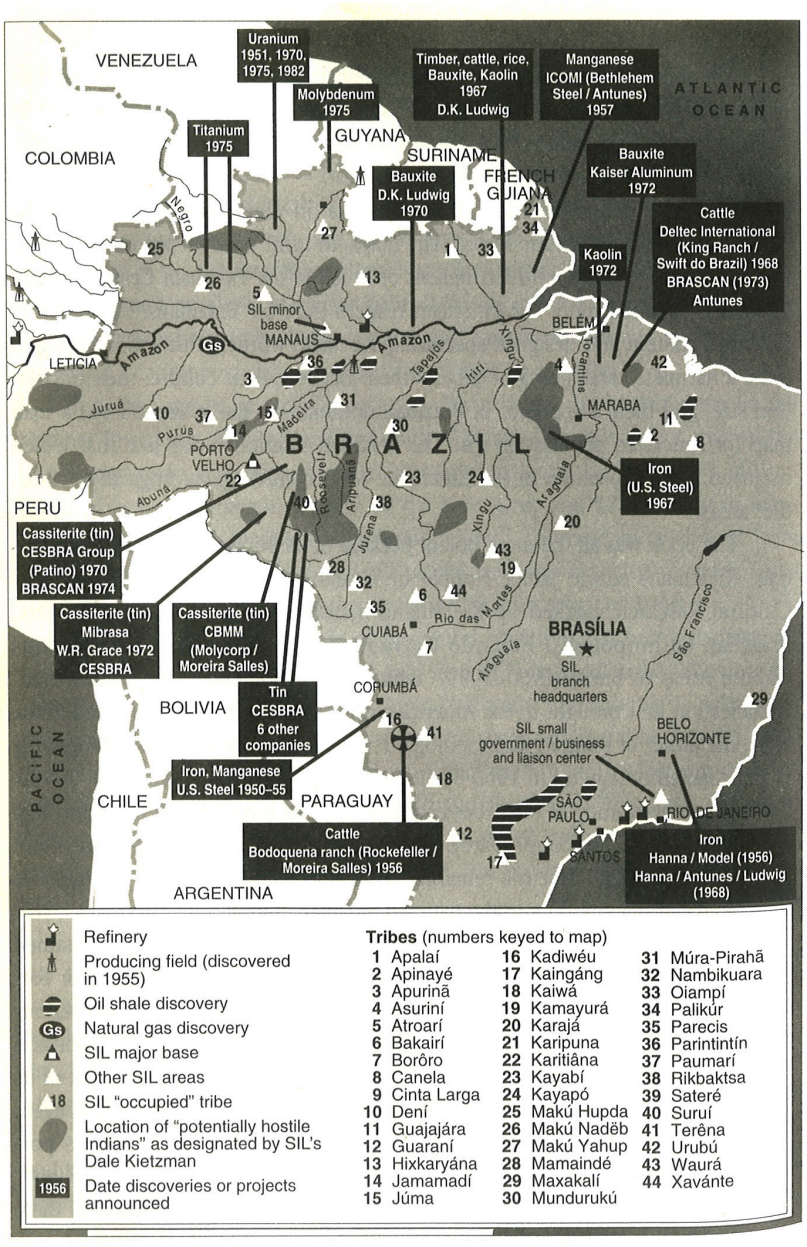
$Distance_{ij}$ depends on L which is the number of shared branches between language i and language j and on M which is the maximum number of branches between any two languages. In the example presented in Figure A, M is equal to 4.[1] Also, δ is a parameter that determines how fast the distance between the languages declines as the number of shared branches increases, which following Desmet, Weber, and Ortuño-Ortín (2009) is set equal to 0.05.

The data offered by Giuliano and Nunn (2018) cleanly categorizes languages into distinct linguistic families and subfamilies. I use this data to measure linguistic similarities between languages.

[1]For the case of the indigenous languages spoken in Brazil, M is equal to 5.

B Tables and Figures

Figure I
SIL "Occupied" Tribes and Major Base



Note: The figure presents a map indicating the location of the indigenous tribes reached by SIL by 1995, along with the location of the SIL base in Brazil. Source: Colby and Dennett (1996).

Figure II
SIL Activity

Source: Aldridge (2018) and Wycliffe

Figure III
Example of Joshua Project Data

Languages Submit update

Primary Language	Desano (2,300 speakers)
Language Code	des Ethnologue Listing
Language Written	Yes ScriptSource Listing
Total Languages	1

Resources Submit update

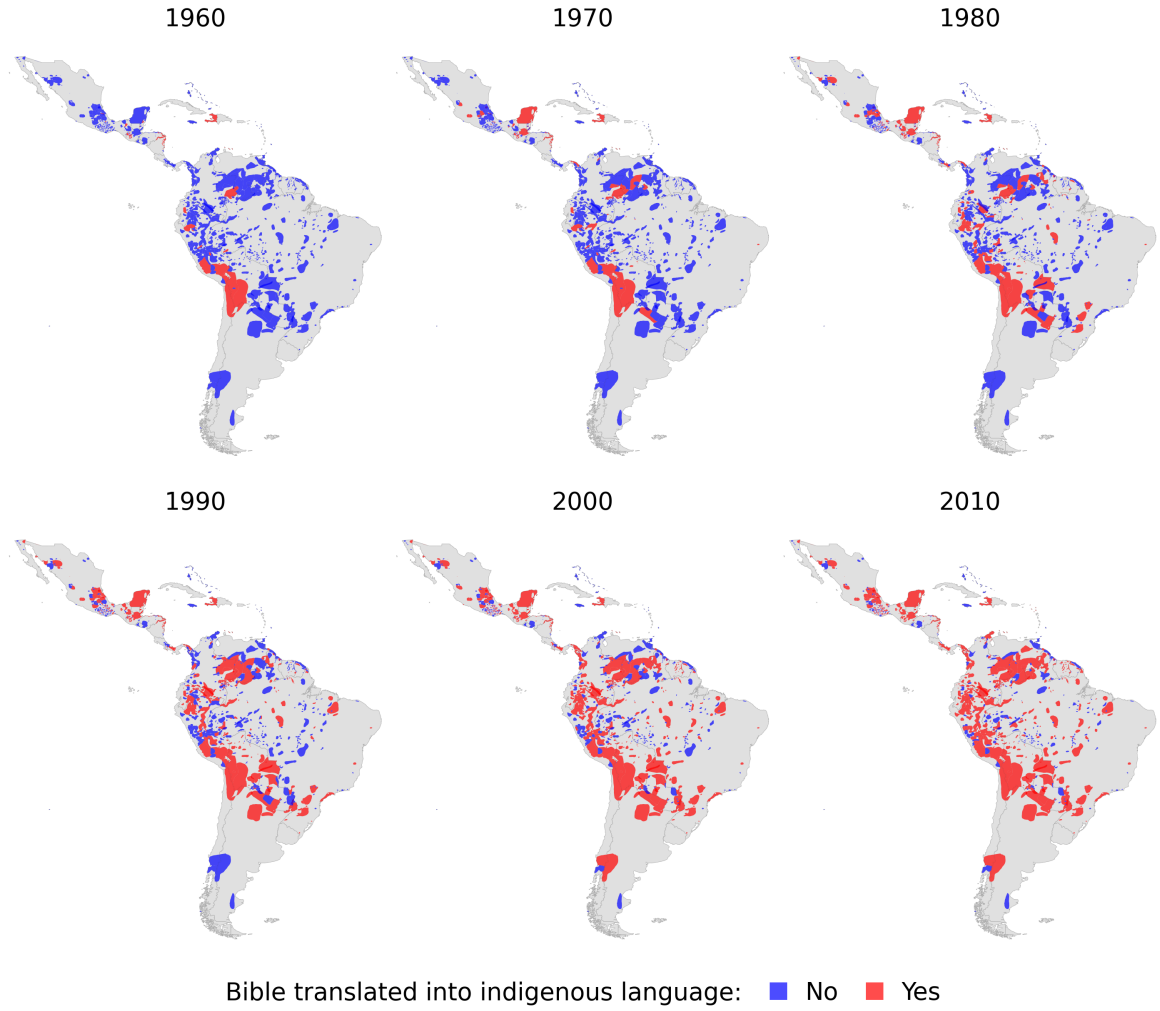
Primary Language: Desano

Bible Translation ▲	Status (Years)
Bible-Portions	Yes (1975-1981)
Bible-New Testament	Yes (1984-2011)
Bible-Complete	No
Bible-NT Audio	Online
Bible-NT Text	Online

Note: The figure presents an image of the data provided by Joshua Project for a particular indigenous language. Information on the year in which the first and last editions of the Bible were published, for both the Old Testament and the New Testament, is provided. In this example, the first edition of the New Testament was published in 1984. Note that for some languages, while a complete translation of the New Testament has not been published, portions of the Bible have been translated and published. Source: https://joshuaproject.net/.

Figure IV

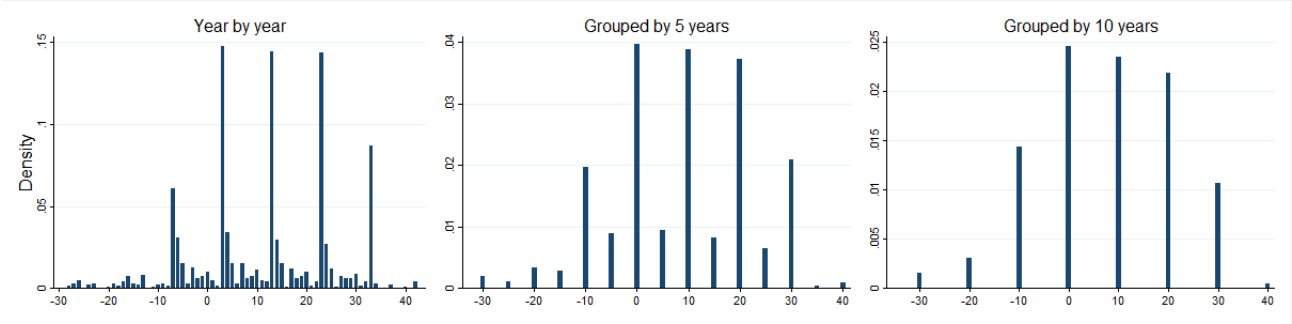
Indigenous Language Location & Bible Translation in Latin America



Note: This figure presents a set of maps showing the geographic location of indigenous languages in Latin America based on Ethnologue data. Red polygons denote languages with a New Testament translation, while blue polygons indicate those without one. Source: Own elaboration using data from Joshua Project & Ethnologue.

Figure V

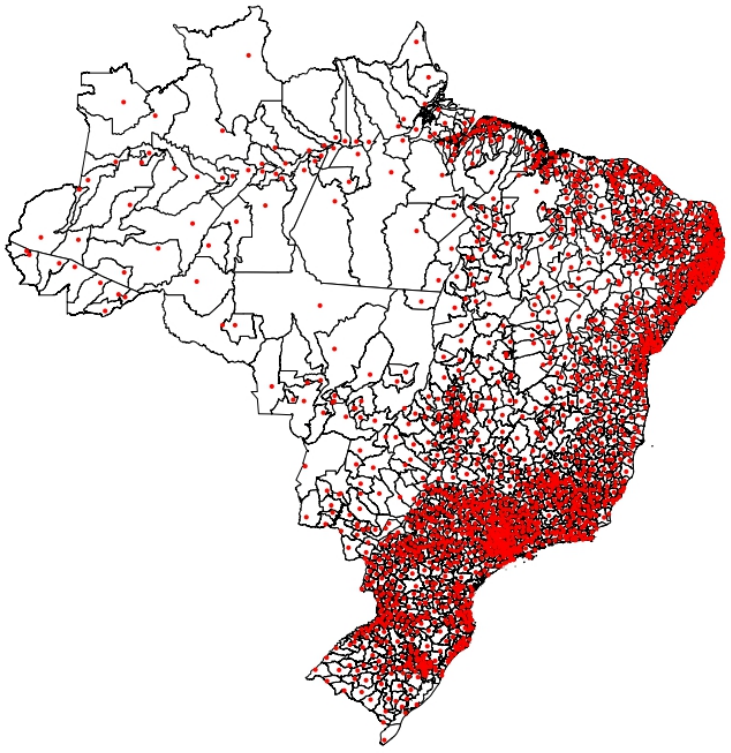
Histogram - Years Since 1st Bible Translation in Municipalities



The figure presents a set of histograms showing the years since the first translation, displayed in three formats: (1) year by year, (2) grouped into 5-year intervals, and (3) grouped into 10-year intervals. Source: Own elaboration using data from Joshua Project & Ethnologue.

Figure VI

Population-Weighted Centroids



Note: The figure presents a map of the population-weighted centroids in each municipality of Brazil. This has been calculated using the population count at a 100 meter grid provided by Worldpop. These centroids are then used to compute the Euclidean distance between the population-weighted centroids of municipality m and municipality o, as referenced in Equation 6 of the paper.

References

Aldridge, Boone. *For the Gospel's Sake: The Rise of the Wycliffe Bible Translators and the Summer Institute of Linguistics*. Wm. B. Eerdmans Publishing Co. (2018).

Colby, Gerard and Charlotte Dennett. *They Will Be Done: The Conquest of the Amazon: Nelson Rockefeller and Evangelism in the Age of Oil*. Harper Collins (1996).

Desmet, Klaus, Ignacio Ortuño-Ortín, and Romain Wacziarg, "The Political Economy of Linguistic Cleavages". *Journal of Development Economics* 97 (2) (2012), 322–338.

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