

# The Impact of Language on Economic Behavior

Keith Chen

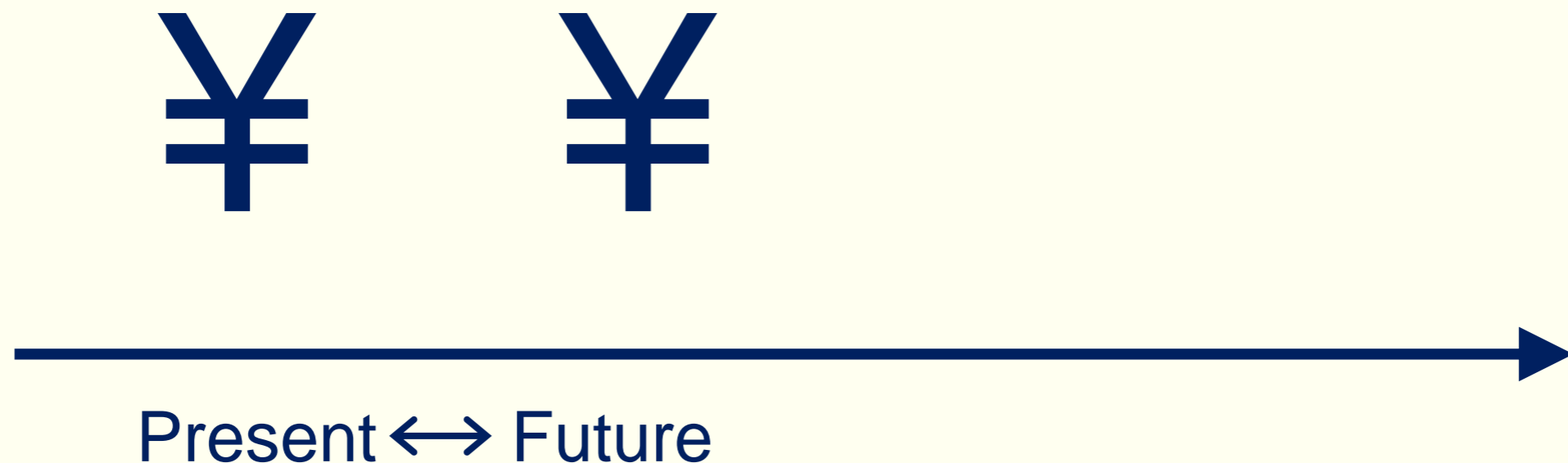


Yale SCHOOL OF MANAGEMENT

## **Futured Languages: Future is different than the present**



## **Futureless Languages: Future is similar to the present**



# Data: Language and FTR

---

Dahl 2000 / Thieroff 2000: *Tense and Aspect in the Languages of Europe*

- Leads to a binary classification, between “futureless” (or weak-FTR) languages (Chinese, Finnish, German, Japanese) and futured / strong-FTR languages (English, Greek, Italian, Russian).

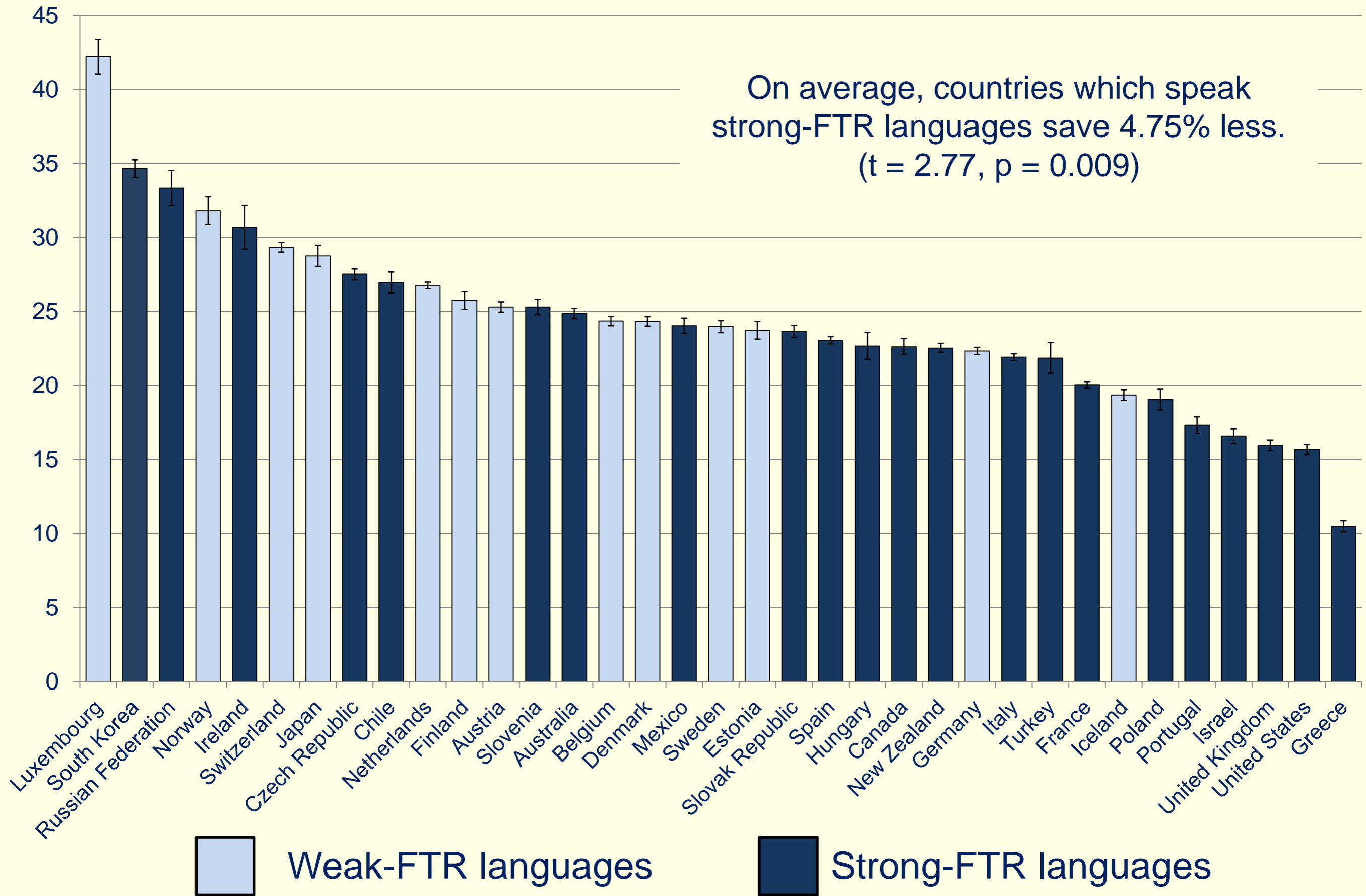
European Language Typology Project: the EUROTYP Data

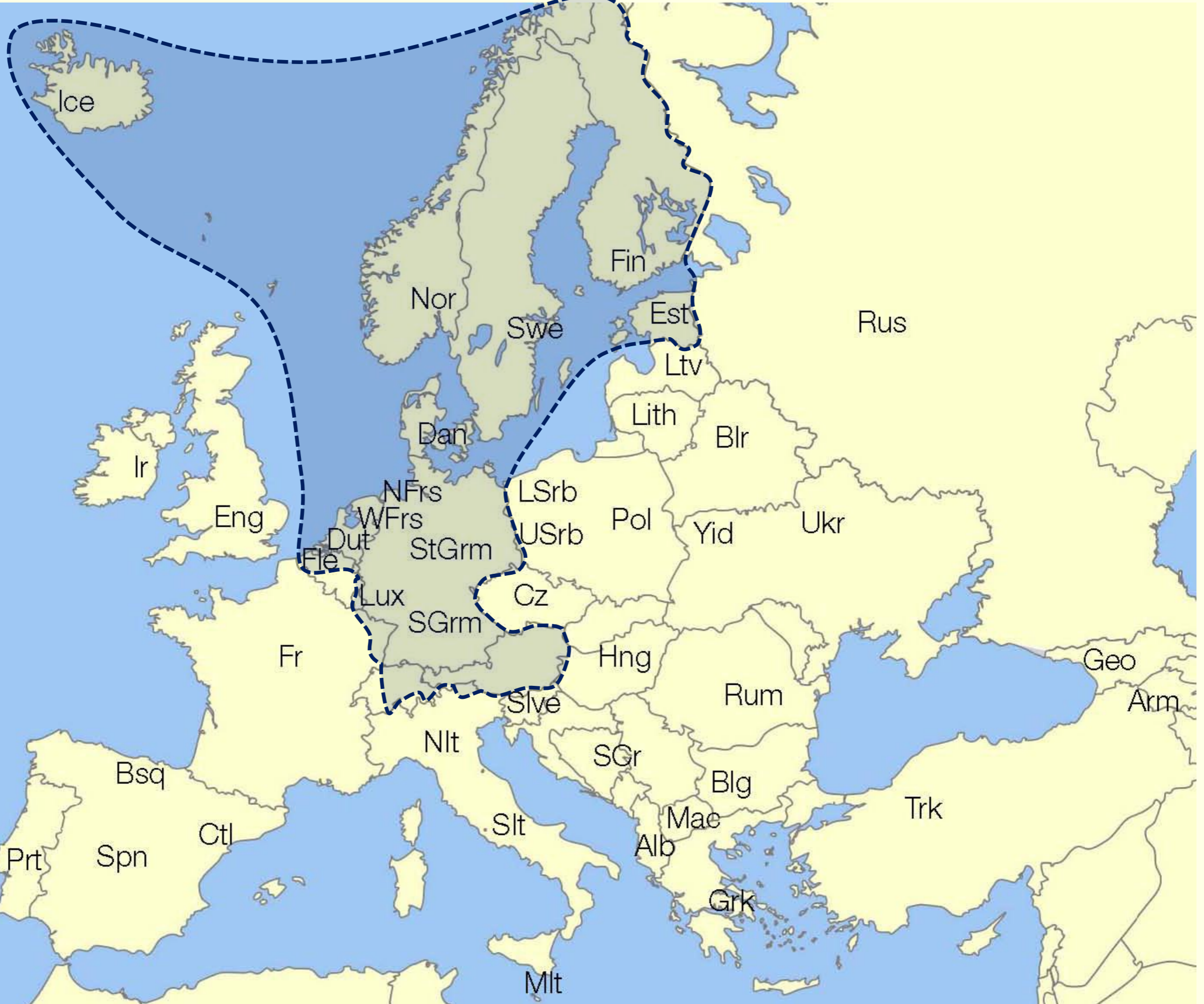
<b>Context:</b>	
The boy is expecting a sum of money.	
<b>Text to be Translated:</b>	<b>Translation:</b>
If the boy GET the money, he BUY a present for the girl.	If the boy GETS the money, he WILL BUY a present for the girl.

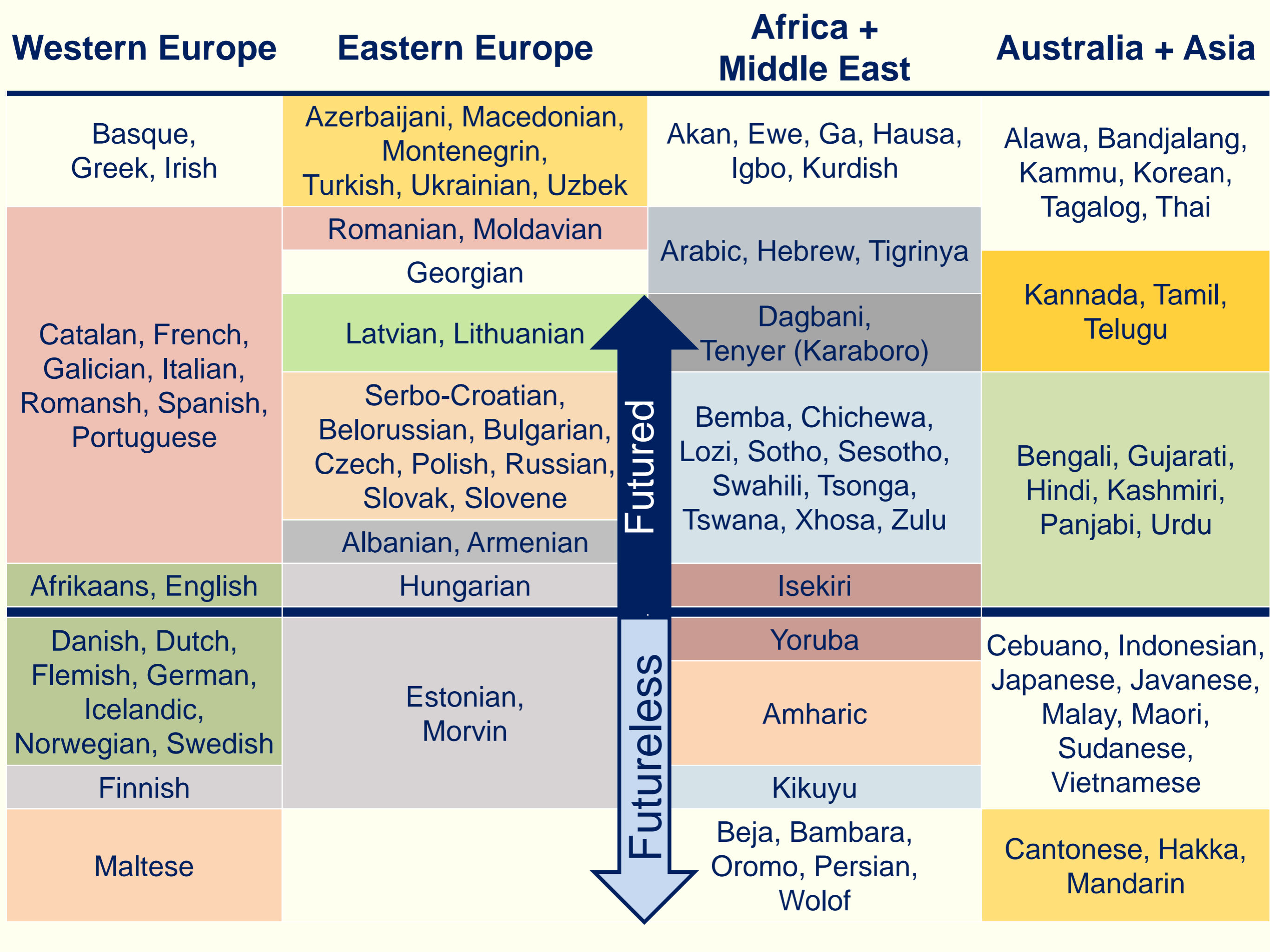
Extending this characterization to non-European languages:

- Dahl and Kós-Dienes (1984), Awobuluyi (1982), Bybee, Perkins & Pagliuca (1994), Carrell (1970), Newman (2000), Nurse (2008), Thompson (1965)
- Online Data scraped from weather forecasts.

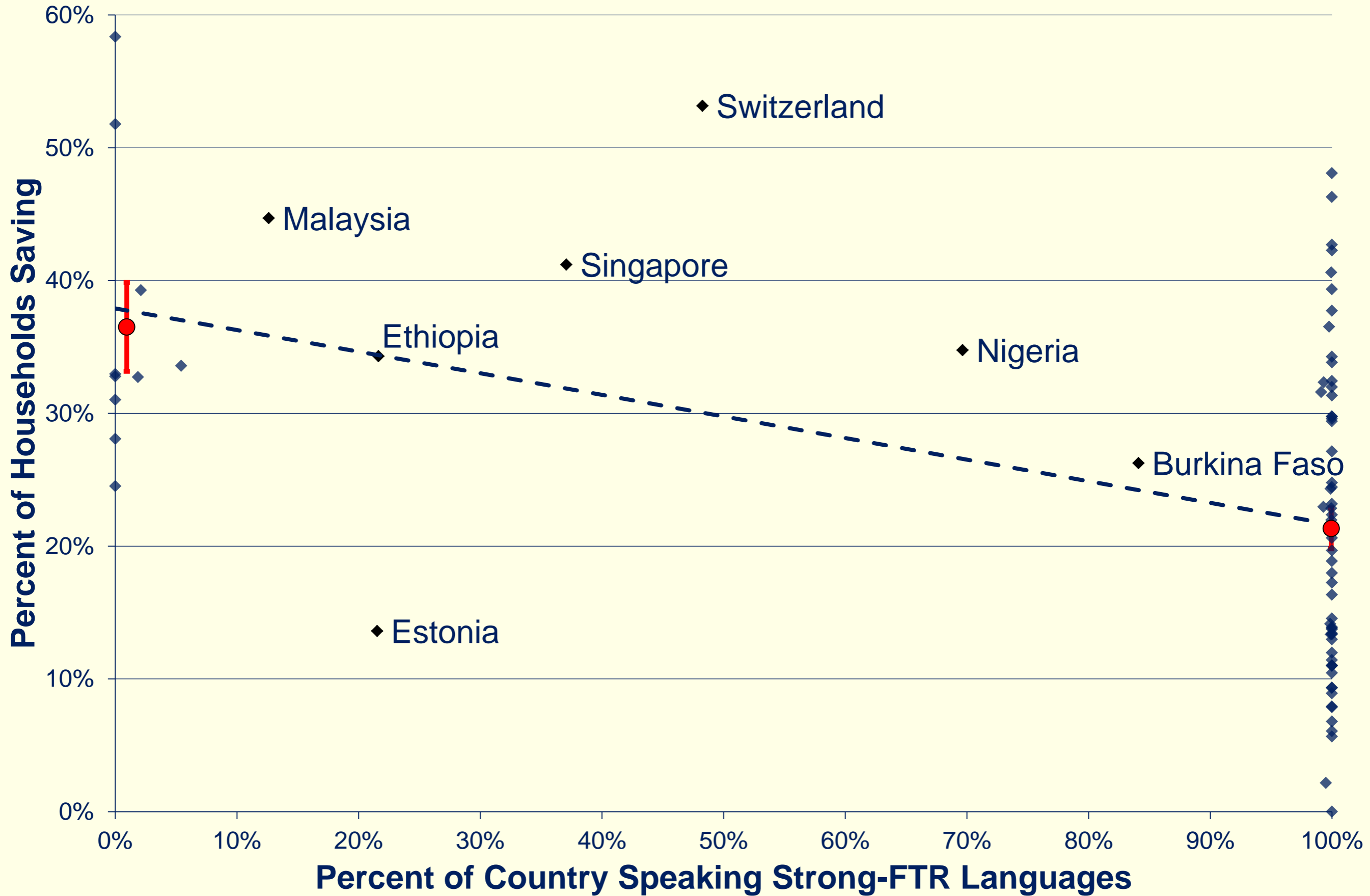
# Average Savings Rate (% GDP), OECD: 1985-2010

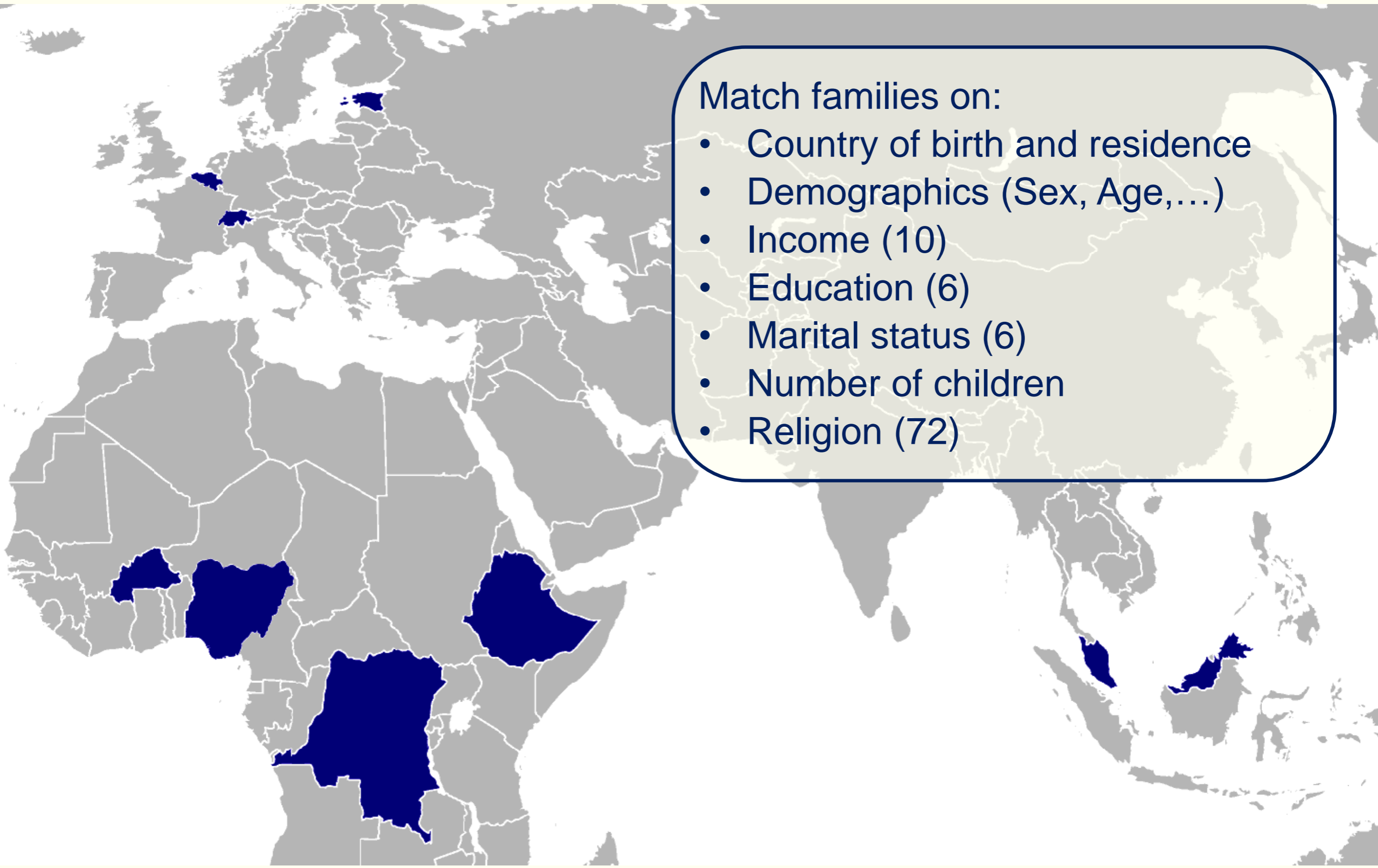






# Rates of Savings Across the World

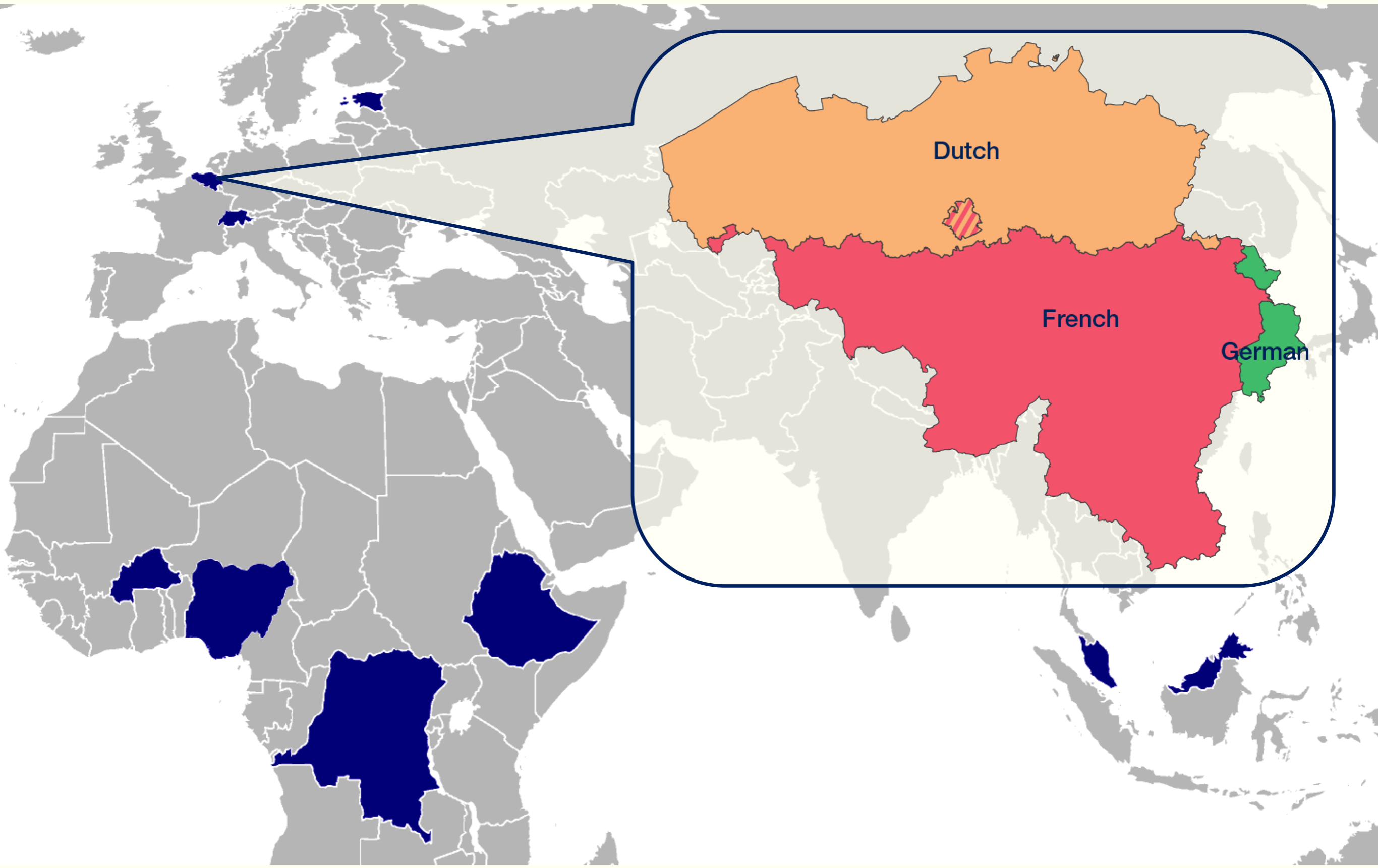


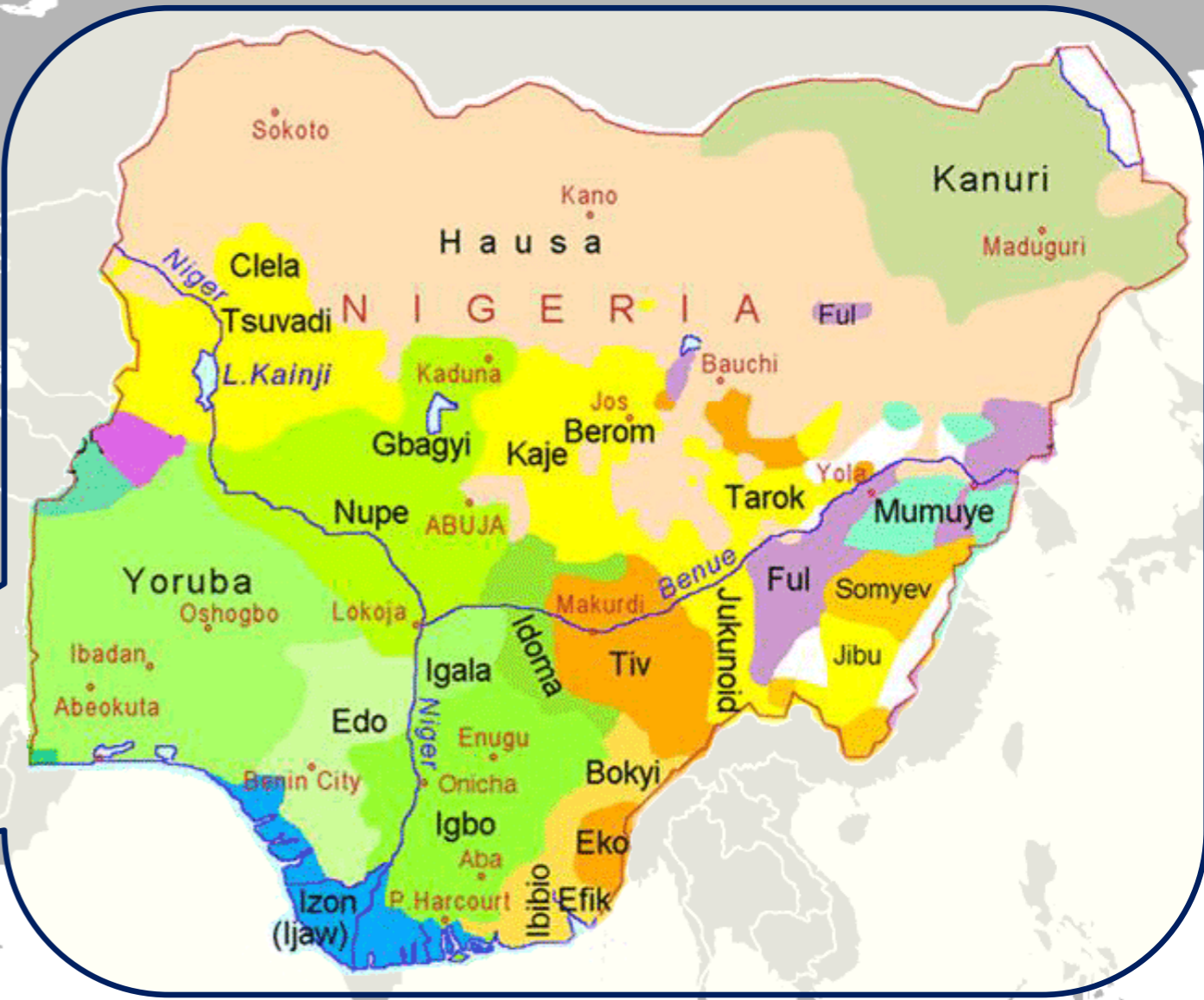


Match families on:

- Country of birth and residence
- Demographics (Sex, Age,...)
- Income (10)
- Education (6)
- Marital status (6)
- Number of children
- Religion (72)



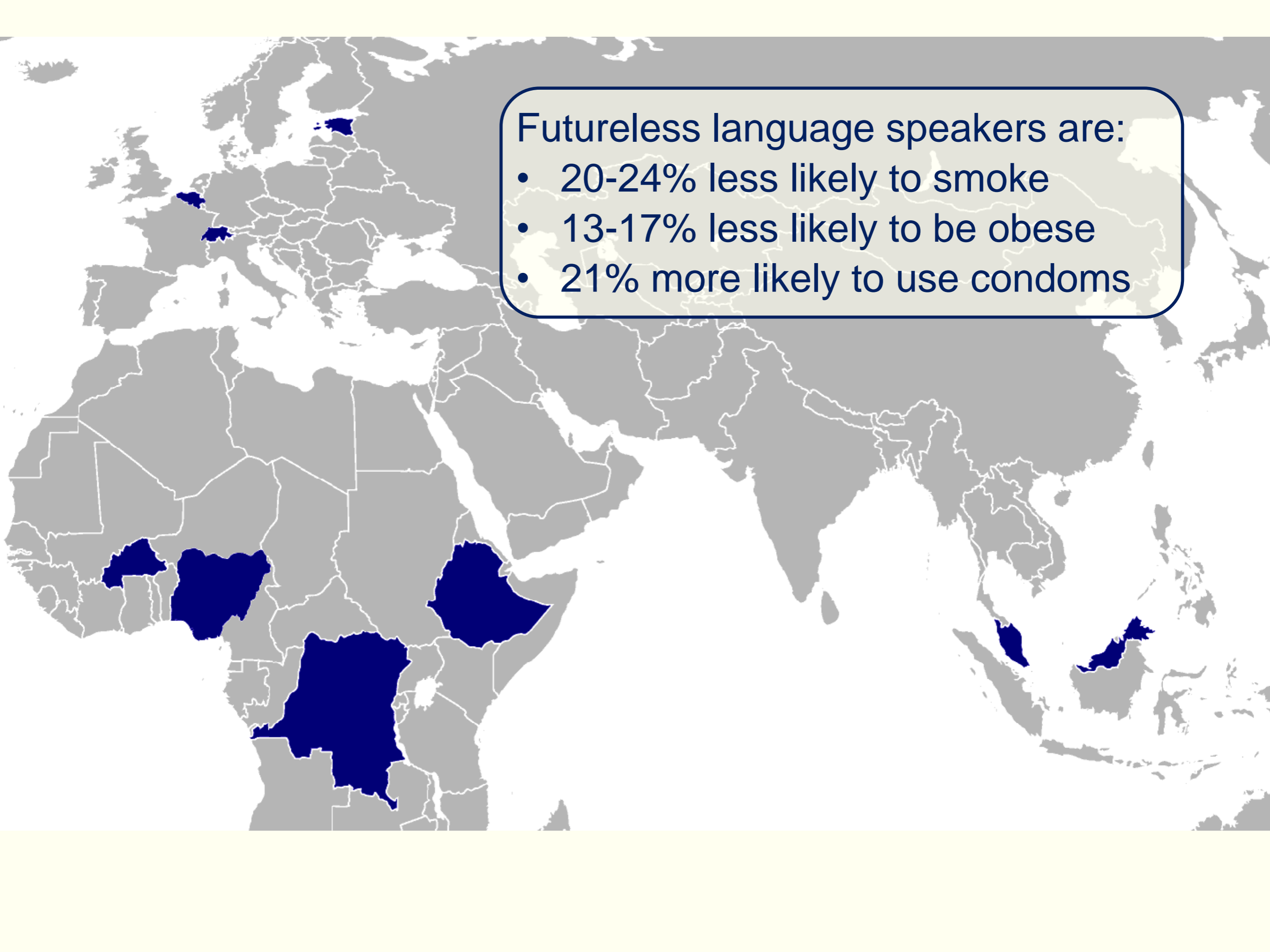




A world map with a light gray background and white outlines for countries. Several countries are highlighted in a dark blue color: Iceland, Norway, Sweden, Finland, Denmark, Germany, France, Spain, Portugal, Greece, Italy, Turkey, Egypt, Ethiopia, Nigeria, Ghana, Kenya, Tanzania, Indonesia, and Malaysia. A text box is overlaid on the right side of the map.

Futureless language speakers are:

- 30% more likely to save in any year
- retire with 25% more in savings



## Futureless language speakers are:

- 20-24% less likely to smoke
- 13-17% less likely to be obese
- 21% more likely to use condoms

# Effects of Language on Choice

---

$$C < \int_0^{\infty} e^{-\delta t} R dF(t)$$

Simple Savings Problem:

- Pay cost  $C$  now in exchange for future reward  $R > C$ .
- DM is uncertain about when  $R$  will occur, holds beliefs with distribution  $F(t)$ .

*Mechanism One: Attention Leads to Greater Precision*

- Suppose  $F_W(t)$  is a mean-preserving spread of  $F_S(t)$ ,
- Since discounting is a convex function of time, timing uncertainty makes saving **more** attractive.
- So weak-FTR speakers will save more than their strong-FTR counterparts.

*Mechanism Two: Differential Treatment Biases Beliefs*

- If  $\forall t, F_W(t) \geq F_S(t)$ , or if  $\delta_W < \delta_S$ ,
- then weak-FTR speakers will save more than their strong-FTR counterparts.

*Evidence on Language and Attention*

- *Color:* Brown & Lenneberg (1954), Winawer et al. (2007), Franklin et al. (2008)