

## The Power Language Index

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## Hello

Hello and good day

Hodi
こんにちは

Hola สวัสดี Zdravo Mola 안녕하세요

Hello
Здравствуйте

Bonjour

Hej
Buna

## There are $\sim 6,000$ active languages in the world

 But two thousand of them have fewer than a thousand speakersEarliest signs of human language date back 60-100 thousand years. Oldest written forms of languages traced to the Near East circa $26^{\text {th }}$ century BC.


Now 7 billion people speak thousands of languages across the globe. But just 15 languages account for half of the languages spoken in the world.

## Not all languages are equal

Mandarin Chinese counts nearly 1 billion native speakers


If the world "hello" were written in their scripts in proportion to the number of native speakers for 30 prominent languages

## Thought experiment: Most useful language

If an alien were to land on the Earth, which language would serve it best?
Assume that the alien has similar ambitions to humans, with a desire to travel, earn a livelihood, communicate with others, consume media, acquire/share knowledge, and perhaps even engage in high-level diplomacy.


## Create index to compare efficacy of languages

 Opportunities: geography, economy, communication, K\&M, diplomacy

## Geography (travel)

Language enables travel



Number of countries in which language is spoken*


Geographic area of the countries in which language is spoken


Overnight international tourists in countries associated with language


## Economy

Language enables economic participation


## Communication

Language enables communication


Native speakers


L2 speakers*


Language family*



## Knowledge and media

Language enables the consumption of knowledge \& media



Internet content


Feature films*


Elite universities


Academic journals*


## Diplomacy

Language enables diplomacy


Just 9 languages are used in high-level international diplomacy!

## Results: English is the global language

Mandarin Chinese growing in power but remains a distant second

| Rank | Language | Score | Native | Geography | Economy | Comm. | K\&M | Diplomacy |
| :---: | :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | English | 0.902 | 446.0 | 1 | 1 | 1 | 1 | 1 |
| 2 | Mandarin | 0.403 | 960.0 | 6 | 2 | 2 | 3 | 6 |
| 3 | French | 0.335 | 80.0 | 2 | 6 | 5 | 5 | 1 |
| 4 | Spanish | 0.331 | 470.0 | 3 | 5 | 3 | 7 | 3 |
| 5 | Arabic | 0.274 | 295.0 | 4 | 8 | 6 | 19 | 4 |
| 6 | Russian | 0.242 | 150.0 | 5 | 13 | 10 | 8 | 5 |
| 7 | German | 0.190 | 92.5 | 8 | 3 | 7 | 4 | 8 |
| 8 | Japanese | 0.127 | 125.0 | 27 | 4 | 22 | 6 | 7 |
| 9 | Portuguese | 0.119 | 215.0 | 7 | 19 | 13 | 12 | 9 |
| 10 | Hindi | 0.104 | 310.0 | 13 | 16 | 8 | 2 | 10 |

NB: This table does not group the Chinese languages as one and also makes distinct Hindi and Urdu (if Hindi and Urdu were grouped as one language it would surpass Japanese in the ranking)


- Mapping variables to languages not always straightforward as most indicators are captured at nation-state level
- Many countries have several languages associated with them, and official status of a language within a country is not equivalent to knowledge of a language within it
- The difference between a language and a dialect is not always clear (e.g. Chinese languages/dialects, Hindi and Urdu, etc.)


## Growth of English

British empire and apex Americana made English dominant


What do you call someone who speaks 3+ languages? A polyglot.
What do you call someone who speaks 2 languages? A bilingual?
What do you call someone who speaks just one language? An American (or Brit).

## CASE STUDY: SINGAPORE

- English was chosen as an official and the de facto working language of Singapore

- Yet none of the population are native English speakers
- English was chosen because it would not favour any of the ethnic communities, plus it is acknowledged as globally important (and there is a history of British legacy)
- Positive herding/network effect (and less negative recent history)


## But PLI is likely underestimating English

Consider the case of Aruba, where English does not have any status


## ENGLISH



## SPANISH

## Calculate the PLI for languages in Aruba

Assume person arrives in Aruba and wants to partake in its life

- To apply the PLI methodology to the languages in Aruba requires a few modifications:
- The perspective of the efficacy of languages is different as the challenge is to define their power relative to life in Aruba (so delete diplomacy)
- The usage of alternative indicators when data are not available or applicable
- Even as English has no official status, it is the dominant language in Aruba according to the PLI

| Rank | Language | Score | Native | Geography | Economy | Comm. | K\&M |
| :---: | :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | English | 0.591 | 7,205 | 1 | 2 | 2 | 1 |
| 2 | Papiamento | 0.459 | 70,430 | 3 | 3 | 1 | 3 |
| 3 | Dutch | 0.450 | 6,191 | 2 | 1 | 5 | 2 |
| 4 | Spanish | 0.242 | 13,903 | 4 | 4 | 3 | 4 |
| 5 | French | 0.129 | 1,218 | 5 | 5 | 4 | 7 |
| 6 | German | 0.073 | N/A | 6 | 9 | 6 | 9 |
| 7 | Portuguese | 0.070 | N/A | 7 | 6 | 8 | 6 |
| 8 | Chinese | 0.054 | 1,522 | 10 | 11 | 7 | 8 |

# PLI likely underestimating power of English 

Aruba example shows how English is dominant in a non-English country
"Bilingual" means the home language and English
"International" means offering services in English


The global elite is an English-speaking club Weak English proficiency limiting influence of o/w large countries


## Evolution over time

Although English is now dominant it was not always the case


## Steady state: One global language?

World is heading to one lingua franca with pockets of regional languages
No knowledge of English in the globalised age is equivalent to being illiterate. But will world converge to just one language?


One single language not the likely outcome - people are attached to their language. English is the global lingua franca; other powerful languages as regional tongues.

## Death of translators and polyglotism?

Will technology obviate the need for learning other languages?


## Language as a tool for success

Many benefits of learning a second (or third) language
Bilinguals in Canada earn (4 to 8 per cent) more than unilinguals (Christofides \& Swidinsky, 2010). True across countries - but (income) gains are usually small.


## Accumulated language bonuses

Forecasts, €


Studies have also shown that people's behaviours/personality and criticalness in thinking are influenced by language (Keysar et al., 2012).


# Although English is the most powerful language 

 True power comes from learning a second (or third) tongue



## Annex 1

Calculation of PLI score for French

|  | IND \# | INDICATOR | OPPORTUNITY | WEIGHT | FRENCH | MAX | SCORE |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1.1 | Countries spoken* | Geography | 5.63\% | 24.5 | 42.5 | 0.576 |
|  | 1.2 | Land area | Geography | 11.25\% | 13.6 | 37.1 | 0.367 |
|  | 1.3 | Tourists (inbound)* | Geography | 5.63\% | 125.0 | 202.9 | 0.616 |
|  | 2.1 | GDP (PPP) | Economy | 6.43\% | 4,949 | 31,160 | 0.159 |
|  | 2.2 | GDP/capita (PPP)* | Economy | 3.21\% | 12,877 | 66,427 | 0.194 |
|  | 2.3 | Exports | Economy | 6.43\% | 1,434 | 4,418 | 0.325 |
|  | 2.4 | FX market* | Economy | 3.21\% | 12.7 | 117.1 | 0.108 |
|  | 2.5 | SDR composition* | Economy | 3.21\% | 7.2 | 50.4 | 0.143 |
|  | 3.1 | Native speakers | Communication | 7.50\% | 80 | 960 | 0.083 |
|  | 3.2 | L2 speakers* | Communication | 3.75\% | 140 | 510 | 0.275 |
|  | 3.3 | Family size* | Communication | 3.75\% | 773 | 1,368 | 0.565 |
|  | 3.4 | Tourists (outbound) | Communication | 7.50\% | 68.9 | 250.3 | 0.275 |
|  | 4.1 | Internet content | Knowledge \& media | 7.50\% | 4.0 | 55.5 | 0.072 |
|  | 4.2 | Feature films* | Knowledge \& media | 3.75\% | 364 | 2,380 | 0.153 |
|  | 4.3 | Elite universities | Knowledge \& media | 7.50\% | 44 | 216.5 | 0.203 |
|  | 4.4 | Academic journals* | Knowledge \& media | 3.75\% | 76 | 5,452 | 0.014 |
|  | 5.1 | IMF | Diplomacy | 2.50\% | 1 | 1 | 1.000 |
|  | 5.2 | UN | Diplomacy | 2.50\% | 1 | 1 | 1.000 |
|  | 5.3 | WB | Diplomacy | 2.50\% | 1 | 1 | 1.000 |
|  | 5.4 | Index of 10 SNOs | Diplomacy | 2.50\% | 1.0 | 1.0 | 1.000 |
|  |  | Power Language Index |  | 100.0\% |  |  | 0.339 |
|  | E.g. | Indicator: Countries spoken | $x=24.5$ | $\alpha=5.63 \%$ | $\max =42.5$ | $s=24.5 / 42.5=0.576$ |  |
|  | As all indicators are cardinal measures of language use, the final score of the index is also cardinal $\in[0,1]$ |  |  |  |  |  |  |

## Annex 2

Calculation of the score of FX market for French


| CURRENCY | SHARE OF FX MKT | SHARE ATTRIBUTABLE TO FRENCH |
| :--- | :--- | :--- |
| CAD | $4.6 \%$ | $=0.5 \times 4.6 \%=2.3 \%$ |
| CHF | $5.2 \%$ | $=0.5 \times 5.2 \%=2.6 \%$ |
| EUR | $33.4 \%$ | See below |



## Annex 3

Calculation of the score of FX market for French


| Language | Countries spoken | Status (r/p land area) | Tourists (inbound) | GDP (of <br> Aruba) | GDP/cap <br> (visitors) | Exports | $\begin{aligned} & \text { Imports (r/p } \\ & \text { FX mkt) } \end{aligned}$ | Native speakers |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| English | 42.5 | 0.0 | 619,097 | 0 | 58,281 | 49.753 | 776.2 | 7,205 |
| Papiamento | 3.0 | 1.0 | 10,618 | 2,991 | 13,620 | 4.187 | 9.8 | 70,430 |
| Dutch | 1.0 | 1.0 | 56,037 | 2,991 | 32,593 | 22.413 | 184.9 | 6,191 |
| Spanish | 21.0 | 0.0 | 137,325 | 0 | 8,533 | 87.190 | 139.9 | 13,903 |
| French | 24.5 | 0.0 | 9,151 | 0 | 45,077 | 2.278 | 94.7 | 1,218 |
| Portuguese | 8.0 | 0.0 | 11,265 | 0 | 9,895 | N/A | 44.3 | N/A |
| German | 5.0 | 0.0 | 4,812 | 0 | 44,550 | 0.443 | 7.3 | N/A |
| Chinese | 3.0 | 0.0 | N/A | 0 | 8,643 | 1.478 | 16.8 | 1,522 |
| Russian | 5.0 | 0.0 | N/A | 0 | 10,608 | N/A | 14.2 | 0 |
| Italian | 2.5 | 0.0 | 6,703 | 0 | 31,984 | 0.037 | 4.9 | 0 |


| Language | L2 | Family size | PLI score (r/p OBT) | Internet content | $\begin{aligned} & \text { Radio (r/p } \\ & \text { films) } \end{aligned}$ | $\begin{aligned} & \text { School + Uni } \\ & \text { + Admin } \end{aligned}$ | Newspapers (r/p journal) | Diplomacy <br> (not in use) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| English | 91,336 | 13,396 | 0.889 | 55.5\% | 7.0 | 1.5 | 3 | 1.000 |
| Papiamento | 15,223 | 85,551 | 0.000 | 0.0\% | 5.0 | 0.5 | 4 | 0.000 |
| Dutch | 76,113 | 13,396 | 0.084 | 1.3\% | 1.5 | 3.0 | 1 | 0.000 |
| Spanish | 50,742 | 85,551 | 0.329 | 4.6\% | 2.5 | 0.5 | 0 | 0.950 |
| French | N/A | 85,551 | 0.337 | 4.0\% | 0.0 | 0.0 | 0 | 1.000 |
| Portuguese | N/A | 85,551 | 0.119 | 2.5\% | 0.0 | 0.0 | 0 | 0.025 |
| German | N/A | 13,396 | 0.191 | 5.8\% | 0.0 | 0.0 | 0 | 0.075 |
| Chinese | N/A | 0 | 0.411 | 2.8\% | 0.0 | 0.0 | 0 | 1.000 |
| Russian | N/A | 0 | 0.244 | 5.9\% | 0.0 | 0.0 | 0 | 0.825 |
| Italian | N/A | 0 | 0.108 | 1.9\% | 0.0 | 0.0 | 0 | 0.000 |

