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POWER LANGUAGE INDEX

Which are the world's most influential languages?

There are over 6,000 languages spoken in the world today, but some 2,000 of them count fewer than a thousand speakers. Moreover, just 15 of them account for half of the languages spoken in the world.

- Which are the world's most influential languages?
- What are the proper metrics to measure the reach and power of languages?

WEF Agenda: These are the most powerful languages in the world[1]

There are over 6,000 languages spoken in the world today, but some 2,000 of them count fewer than 1,000 speakers. Moreover, just 15 account for half of the languages spoken in the world. In a globalised world with multilingual societies, knowledge of languages is paramount in facilitating communication and in allowing people to participate in society's cultural, economic and social activities. A pertinent question to ask then is: which are the most useful languages? If an alien were to land on Earth, which language would enable it to most fully engage with humans?

To understand the efficacy of language (and by extension culture), consider the doors ("opportunities") opened by it. Broadly speaking, there are five opportunities provided by language:

1. Geography: The ability to travel
2. Economy: The ability to participate in an economy
3. Communication: The ability to engage in dialogue
4. Knowledge and media: The ability to consume knowledge and media
5. Diplomacy: The ability to engage in international relations

So which languages are the most powerful?

Based on the opportunities above an index can be constructed to compare/rank languages on their efficacy in the various domains. The Power Language Index (PLI) uses 20 indicators to measure the influence on language (see Table 1). The index measures the usefulness of a language to a representative human being and is not meant to apply to any particular person with their own set of conditions, preferences and geography. Neither is the index a measure of the beauty/merit of a language or its associated culture(s).

Table 1: Structure of Power Language Index

COUNT	GEOGRAPHY (22.5%)	ECONOMY (22.5%)	COMMUNICATION (22.5%)	KNOWLEDGE & MEDIA (22.5%)	DIPLOMACY (10.0%)
1	Countries spoken*	GDP (PPP)	Native speakers	Internet content	IMF
2	Land area	GDP/capita (PPP)*	L2 speakers*	Feature films	UN
3	Tourists (inbound)*	Exports	Family size*	Top-500 universities	WB
4		FX market*	Tourists (outbound)	Academic journals	Index of 10 SNOs[2]
5		SDR composition*			

* Half weight within its opportunity; indicator weights are otherwise distributed evenly within each opportunity.
** Indicator variables that take on the value 1 if an official/working language of the institution and 0 otherwise.

A challenge in this exercise is that most often the data are linked with nation states, rather than the languages themselves. Moreover, multiple languages may be associated with a given country, and the different usages and statuses of languages may be complex. For example, a language may have official status in a country even if few people speak it. Other challenges include differentiating between a language and a dialect. Thus a coherent and robust way of mapping national indicators to the various languages associated with a country is required.

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[1] This is slightly modified version of a piece published in the WEF Agenda:
https://www.weforum.org/agenda/2016/12/these-are-the-most-powerful-languages-in-the-world
[2] Supranational organisations (e.g. BIE, FIFA, IOC, OECD, UPU, etc.).

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Table 2 lists the 10 most powerful languages according to the PLI. English is by far the most powerful language. It is the dominant language of three G7 nations (USA, UK and Canada), and British legacy has given it a global footprint. It *is* the world's *lingua franca*. Mandarin, which ranks second, is only half as potent. French comes in at third, thanks to its prestige standing in international diplomacy. Rounding out the top five are Spanish and Arabic.

The top six languages – even if the diplomacy opportunity is ignored – also happen to be the official languages of the United Nations. The remaining four in the top 10 include the two other BRIC languages (Portuguese and Hindi), and the tongues of two economic heavyweights (Germany and Japan).

Table 2: Power Language Index ranking (top 10)

RANK	SCORE	LANGUAGE	NATIVE (MM)	GEOGRAPHY	ECONOMY	COMMUNI-CATION	KNOWLEDGE & MEDIA	DIPLOMACY
1	0.889	English	446.0	1	1	1	1	1
2	0.411	Mandarin*	960.0	6	2	2	3	6
3	0.337	French	80.0	2	6	5	5	1
4	0.329	Spanish	470.0	3	5	3	7	3
5	0.273	Arabic	295.0	4	9	6	18	4
6	0.244	Russian	150.0	5	12	10	9	5
7	0.191	German	92.5	8	3	7	4	8
8	0.133	Japanese	125.0	27	4	22	6	7
9	0.119	Portuguese	215.0	7	19	13	12	9
10	0.117	Hindi*	310.0	13	16	8	2	10

* If all Chinese dialects/languages (Mandarin being the largest) are considered as one it would not change the rank ordering. However, if Urdu and Hindi – and all the Hindi dialects – are taken as one it would vault it past Portuguese and Japanese.

Why language matters

Language is an essential component of competitiveness and the results above explain (in part) why London and New York are the world's two premier cities.[3] Likewise, Hong Kong and Singapore, with their English infrastructure, rather than monolingual Tokyo, are Asia's financial capitals. Indeed, it is no coincidence that eight of the top-10 global financial centres are English-speaking/proficient cities.[4]

The strength of English has both positive and negative effects. Its status helps facilitate international communication in a globalised world. But conversely, "Englishisation" – the creep of English into other languages and its displacement of rivals – threatens the survival of lesser languages and the integrity of others. France, for instance, has taken steps to block the encroachment of English into French.

The figure below shows the relationship between language (PLI score) and competiveness, as measured by the WEF's Global Competitiveness Index.[5] Four of the 10 most competitive economies have English as an official language. The remaining six have high shares of English speakers and/or a high proficiency in English,[6] with the exception of Japan.

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[3] Loughborough University: Globalisation and World Cities (2012).
[4] Z/Yen Group: Global Financial Centres Index 20 (Sep 2016).
[5] World Economic Forum: Global Competitiveness Report 2016-17.
[6] EF English Proficiency Index 2016.

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Figure 1: Correlation between competitiveness and PLI

Country PLI score* vs WEF-GCR score

$R^2 = 0.2566$
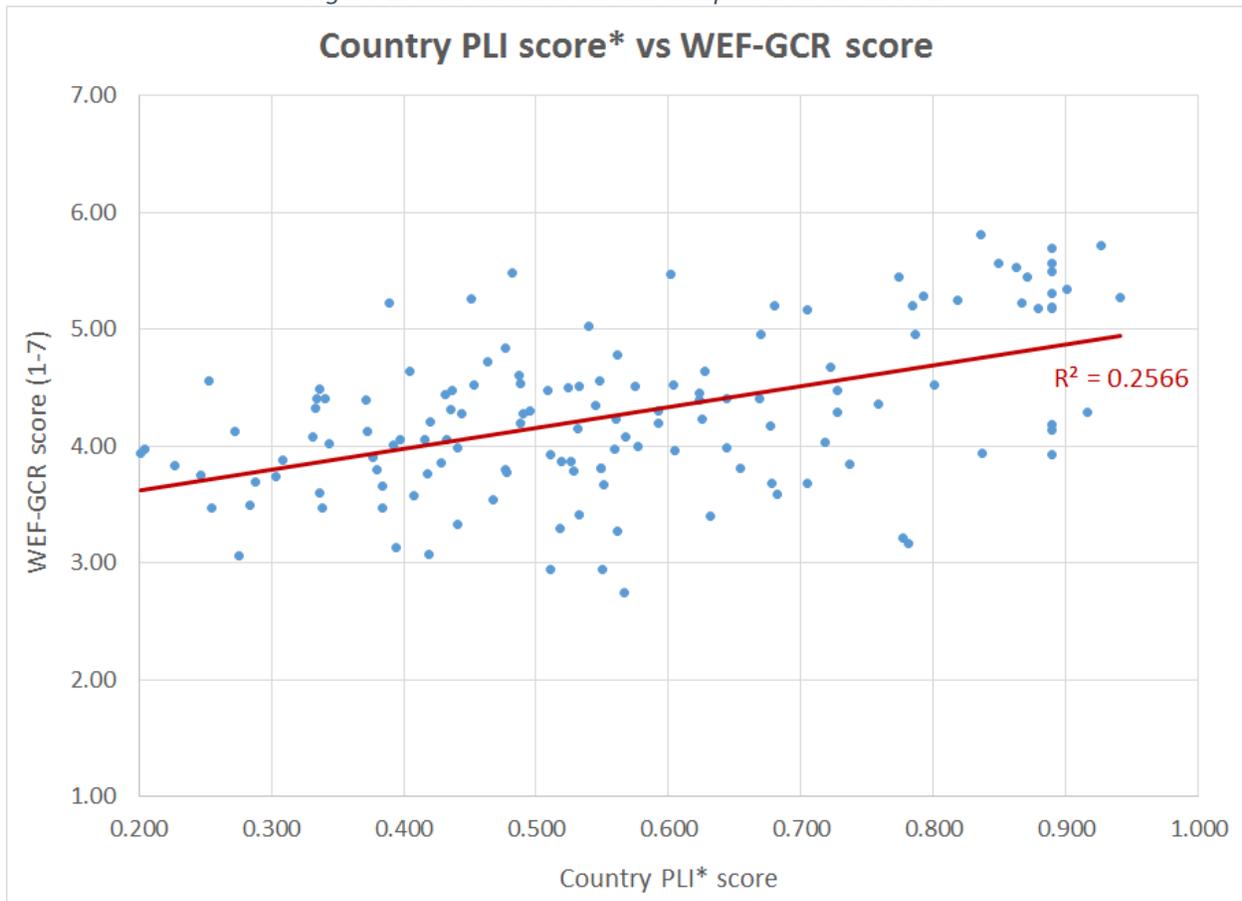
Source: Author's calculations based on the Global Competitiveness Report 2016
* Country PLI scores are calculated as weighted averages of the PLI scores according to the share of the population who speak its prevailing tongues. The country score is also adjusted by the share of the population who speak English and their proficiency in it.

Language proficiency can also (partially) explain the composition of the global elite. Namely, the movers and shakers of the world tend to have an English-speaking bias. That is, countries with low English proficiency count fewer members of the global elite than expected relative to population, GDP or number of billionaires.[7] Thus global policy debates, which invariably are done in English, may neglect the concerns of English-weak nations.

Sorry, Google translate will only get you so far

Globalisation made English a worldwide phenomenon. But could technology (i.e. real-time translation devices) obviate the need to learn languages and equalize the linguistic field? Translation technologies will indeed be a breakthrough, much the way that GPS maps have obviated road atlases.

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[7] Wai, Jonathan (2014). "Investigating the world's rich and powerful: Education cognitive ability, and sex differences." *Intelligence* 46 (2014) 54-72.

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However, language is much more than just a collection of words. It is intertwined with culture and is an emotional aspect of human character.

Moreover, studies have shown that multilinguals solve problems more critically.[8] Likewise, personality has been shown to change according to the language in which a person functions.[9] In short, translation devices will never fully replace the human voice and the benefits of learning languages. Just as Google has not made all humans researchers, neither will translation devices, *per se*, make us more empathetic or knowledgeable of other cultures.

Although English is now the dominant language, might Mandarin (or another language) one day challenge its supremacy? This leads to another interesting question: which languages will be the most powerful in 2050? Table 3 is a forecast of the PLI based on the expected values of the 20 indicators that will prevail in 2050.[10]

Table 3: Power Language Index ranking (2050)

RANK	SCORE	LANGUAGE	NATIVE (MM)	GEOGRAPHY	ECONOMY	COMMUNI-CATION	KNOWLEDGE & MEDIA	DIPLOMACY
1	0.877	English	541.6	1	1	2	1	1
2	0.515	Mandarin	940.5	6	2	1	2	6
3	0.345	Spanish	589.0	3	5	3	6	3
4	0.325	French	88.4	2	8	6	5	1
5	0.295	Arabic	494.1	4	7	4	18	4
6	0.242	Russian	134.1	5	10	10	8	5
7	0.155	German	88.6	10	3	9	4	7
8	0.149	Portuguese	273.4	7	9	8	12	9
9	0.138	Hindi	489.1	11	4	7	3	10
10	0.110	Japanese	106.1	30	6	17	7	8

Is it perhaps time to dig out those old Rosetta Stone tapes and get to learning another language?

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[8] Keysar, Boaz, Sayuri L. Hayakawa & Sun Gyu An (2012): "The foreign language effect: thinking in a foreign language reduces decision biases." *Psychological Science* 2012 23: 661.

[9] Danziger, Shai & Robert Ward (2010): "Language changes implicit associations between ethnic groups and evaluation in bilinguals." *Psychological Science* June 2010 21(6): 799-800.

[10] GDP growth based on PwC (2015): "The world in 2050: Will the shift in global economic power continue?" February 2015. Population growth based on UNPD medium fertility projections. Variables correlated with GDP or population grown according to driver rate(s).

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The language that counts that most number of native speakers is Mandarin Chinese, the official language of China (and Taiwan), at close to 1 billion. Spanish is the second most common mother tongue at close to half a billion. English places third with over 400 million native speakers – but it counts over 500 million second language speakers, and is generally regarded as the global *lingua franca*. Rounding out the top five are Hindi and Arabic, both at around 300 million.

A pertinent question to ask is, Which language is the most influential and important? Is the number of speakers the decisive criterion? Obviously that should not be the case. Another important factor is the economic power behind each language. Mandarin Chinese is the official language of China, a country that has just overtaken the United States as the world's largest economy (PPP). Geography is also relevant. Spanish is spoken in most of Latin America; French is spoken in three continents; and Russia's land mass is almost twice as large as the next nation. And essentially language is a means of communication and way of consuming media. Herein an absolute majority of Internet content is in English, while India is the world leader in the number of feature films produced. Language is also at the heart of diplomacy. Here, English is the *de facto* working language of most international organisations; yet French has a standing on par with English, where it happens to be an official (although not the *de jure* working) language of just as many major supranational institutions.

METHODOLOGY

The Power Language Index (PLI) is a systematic way of evaluating the influence and reach of languages using 20 indicators to measure 5 basic opportunities afforded by language: geography, economy, communication, knowledge & media, and diplomacy. Within each of these is a set of variables that measure the effectiveness of language in capitalising on these opportunities (see table below).

COUNT	GEOGRAPHY (22.5%)	ECONOMY (22.5%)	COMMUNICATION (22.5%)	KNOWLEDGE & MEDIA (22.5%)	DIPLOMACY** (10.0%)
1	Countries spoken*	GDP (PPP)	Native speakers	Internet content	IMF
2	Land area	GDP/capita (PPP)*	L2 speakers*	Feature films*	UN
3	Tourists (in)*	Exports	Family size*	Top-500 universities	WB
4		FX market*	Tourists (out)	Academic journals*	Index of 10 SNOs
5		SDR composition*			

* *Half weight within its opportunity; indicator weights are otherwise distributed evenly within each opportunity.*
** *Indicator variables that take on value of 1 if an official/working language of the institution and 0 otherwise*

The index measures the usefulness of a language to a representative human being and is not meant to apply to any particular person with his/her own set of conditions, preferences and geography. Indeed, the thought experiment is to imagine an alien landing on the Earth and wanting best to interact with humans. Which language would afford this alien the best ability to interact with humans and succeed on this planet? (The matter of the varying difficulties of learning different languages is set aside.)

Matching data on the 20 variables to the 124 languages in the index is not straightforward, as most data are not tied directly to a language. Rather, the majority are linked with nation states, and often these entities have multiple languages associated with them. A language may have official status in a country but not be in effective use (e.g. Romansh in Switzerland). Furthermore, some languages count many

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second language speakers (e.g. French). Languages also might not be uniformly spread within a country (i.e. certain languages may be spoken only in specific geographic regions). The index attempts to correct for these (and other) nuances. Details on the methodology can be found here.

Another challenge is classifying languages and distinguishing (in a consistent format) between a dialect and a language. For example, Cantonese (and other variants of Chinese) is viewed by some as a dialect of Chinese. Likewise, Hindi and Urdu are the same languages in different scripts. As far as possible, languages herein are distinguished by linguistic (e.g. mutual intelligibility) rather than political factors.

RESULTS (TOP 10)

The table below is a list of the 10 most powerful languages (click here for full results) along with their respective standings in relation to geography, economy, communication, knowledge & media, and diplomacy. The index is scaled so that each indicator takes a score in the range from 0 to 1. The final index score is a weighted average of the underlying indicators, so itself takes on a range from 0 to 1 and is a cardinal measure. A score of 1 thus reflects a language that is supreme in every measured facet.

RANK	SCORE	LANGUAGE	NATIVE	GEOGRAPHY	ECONOMY	COMM.	K&M	DIPLOMACY
1	0.889	English	446.0	1	1	1	1	1
2	0.411	Mandarin*	960.0	6	2	2	3	6
3	0.337	French	80.0	2	6	5	5	1
4	0.329	Spanish	470.0	3	5	3	7	3
5	0.273	Arabic	295.0	4	9	6	18	4
6	0.244	Russian	150.0	5	12	10	9	5
7	0.191	German	92.5	8	3	7	4	8
8	0.133	Japanese	125.0	27	4	22	6	7
9	0.119	Portuguese	215.0	7	19	13	12	9
10	0.117	Hindi*	310.0	13	16	8	2	10

* If all Chinese dialects/languages (Mandarin being the largest) are considered as one it would not change the rank ordering. However, if Urdu and Hindi – and all the Hindi dialects – are taken as one it would vault it past Portuguese and Japanese.

It should come as no surprise that English is (by far) the most powerful language. It is the *de facto* language of the largest (nominal GDP) economy (USA) and for two other G7 nations (UK and Canada). It is the global *lingua franca*. Mandarin comes second on the strength of the Chinese economy and its sheer number of speakers. French just edges Spanish, both of which have a far-reaching geographic coverage. Arabic and Russian are geographically concentrated but span large land areas.

The top 6 languages – even if diplomacy is ignored – also happen to be the official languages of the United Nations. The remaining 4 in the top 10 include two other BRIC languages (Portuguese and Hindi), and the tongues of two economic heavyweights (Germany and Japan).

This index is a snapshot in time on the power of languages. It does not reflect on past trends or assesses trajectories. The score of Mandarin Chinese 10 years ago would have been lower and likewise 10 years hence it is likely to be higher. Neither is this index a measure of the beauty/merit of a language or its associated culture(s). Rather, it serves simply to show which languages are dominant in society and what doors are open to a speaker of a given language. Likewise, it is not a guide, *per se*, on which language(s) to learn as that is dependent on personal situation (including languages already known).

On a fun note, competitive polyglots may wish to calculate (and compare) their "polyglot language score" by summing the PLI scores of the languages they speak (possibly weighted to reflect fluency).

Full results (124 languages are ranked) and details on the methodology can be found here.

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POWER LANGUAGE INDEX (RESULTS, METHODOLOGY & INDICATORS)

RESULTS

The Power Language Index (PLI) is an assessment of the influence of a language on the global stage. **TABLE 1** below lists 124 languages on their overall importance, as well as their strengths in opening the opportunities of geography, economy, communication, knowledge & media, and diplomacy.

Column 2 below is the PLI score (expressed to 3 decimal places), which ranges from 0 (least powerful) to 1 (most powerful). Column 4 is the number of native speakers of a language in millions. Columns 5 through 9 are the rank orderings of the languages with respect to the five opportunities. Note that only 9 languages are used in (high-level) global diplomacy!

TABLE 1: POWER LANGUAGE INDEX RESULTS (ALL CHINESE & HINDUSTAN LANGUAGES)

RANK	SCORE	LANGUAGE	NATIVE	GEOGRAPHY	ECONOMY	COMM.	K&M	DIPLOMACY
1	0.889	English	446.0	1	1	1	1	1
2	0.411	Mandarin	960.0	6	2	2	3	6
3	0.337	French	80.0	2	6	5	5	1
4	0.329	Spanish	470.0	3	5	3	7	3
5	0.273	Arabic	295.0	4	9	6	18	4
6	0.244	Russian	150.0	5	12	10	9	5
7	0.191	German	92.5	8	3	7	4	8
8	0.133	Japanese	125.0	27	4	22	6	7
9	0.119	Portuguese	215.0	7	19	13	12	9
10	0.122	Hindi	376.0	13	16	8	2	10
11	0.116	Cantonese	80.0	21	11	4	13	10
12	0.108	Italian	64.0	10	8	19	8	10
13	0.084	Dutch	22.0	16	7	24	11	10
14	0.077	Malay	77.0	9	17	21	22	10
15	0.055	Polish	40.0	23	22	23	15	10
16	0.053	Korean	80.0	22	14	37	10	10
17	0.053	Shanghainese	80.0	100	43	9	28	10
18	0.047	Turkish	75.0	11	24	38	16	10
19	0.047	Shanxinese	48.0	89	59	11	28	10
20	0.046	Hunnanese	38.0	85	66	14	28	10
21	0.046	Hokkien	47.0	104	63	12	28	10
22	0.046	Gan Chinese	22.0	88	58	16	28	10
23	0.046	Romanian	24.0	26	37	20	41	10
24	0.045	Northern Min	10.9	104	54	17	28	10
25	0.045	Hakka	31.0	104	63	15	28	10
26	0.045	Eastern Min	9.5	104	54	18	28	10
27	0.043	Norwegian	5.0	43	10	106	25	10
28	0.041	Swedish	9.2	36	13	72	14	10
29	0.040	Persian	52.5	14	36	30	17	10
30	0.040	Urdu	66.0	24	44	25	43	10
31	0.034	Danish	5.5	42	15	84	20	10
32	0.034	Hebrew	4.4	58	23	36	21	10
33	0.033	Czech	10.6	37	21	45	27	10
34	0.033	Kazakh	11.0	15	32	57	56	10
35	0.032	Thai	56.0	17	33	65	37	10
36	0.032	Finnish	5.4	46	18	90	19	10
37	0.032	Ukrainian	30.0	18	50	27	59	10
38	0.030	Tamil	70.0	35	34	31	57	10
39	0.029	Bengali	210.0	71	74	26	36	10
40	0.029	Greek	13.0	20	28	89	24	10

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Power Language Index (May 2016)
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RANK	SCORE	LANGUAGE	NATIVE	GEOGRAPHY	ECONOMY	COMM.	K&M	DIPLOMACY
41	0.028	Serbo-Croatian	19.0	19	45	47	48	10
42	0.028	Slovak	5.2	48	26	53	49	10
43	0.027	Slovene	2.5	64	27	52	40	10
44	0.027	Maltese	0.5	72	25	48	65	10
45	0.026	Hungarian	13.0	33	30	71	38	10
46	0.026	Swahili	10.0	12	79	59	70	10
47	0.026	Javanese	82.0	31	40	32	70	10
48	0.024	Icelandic	0.3	70	20	119	53	10
49	0.023	Bulgarian	9.0	44	39	49	45	10
50	0.023	Latvian	7.8	67	35	54	58	10
51	0.020	Belarusian	7.6	66	38	56	65	10
52	0.019	Vietnamese	76.0	34	49	70	23	10
53	0.019	Azerbaijani	26.0	61	41	64	50	10
54	0.019	Punjabi	100.0	38	60	41	70	10
55	0.019	Tagalog	28.0	45	53	61	26	10
56	0.017	Estonian	1.2	57	31	120	51	10
57	0.017	Lithuanian	3.0	62	29	117	60	10
58	0.017	Turkmen	8.0	52	42	76	70	10
59	0.016	Zulu	12.0	40	46	79	46	10
60	0.016	Macedonian	2.0	77	48	60	63	10
61	0.015	Xhosa	8.2	40	46	94	46	10
62	0.015	Pashto	50.0	28	73	69	70	10
63	0.016	Awadhi	38.0	104	110	28	70	10
64	0.014	Sindhi	75.0	63	70	50	70	10
65	0.016	Chhattisgarhi	18.0	91	100	29	70	10
66	0.014	Amharic	25.0	55	97	42	70	10
67	0.014	Uyghur	10.4	30	68	75	70	10
68	0.013	Tigrinya	6.9	73	116	46	39	10
69	0.013	Mongolian	10.0	25	52	116	53	10
70	0.013	Odia	33.0	90	95	34	70	10
71	0.013	Uzbek	27.0	47	72	68	70	10
72	0.013	Bhojpuri	40.0	104	96	33	70	10
73	0.012	Telugu	76.0	83	92	43	70	10
74	0.012	Maithili	30.0	104	110	35	70	10
75	0.012	Sinhalese	16.0	69	51	78	70	10
76	0.012	Assamese	15.0	93	99	39	70	10
77	0.011	Magahi	14.0	104	110	40	70	10
78	0.011	Malagasy	18.0	49	115	62	70	10
79	0.011	Sylheti	11.0	98	117	44	70	10
80	0.011	Burmese	33.0	39	75	87	43	10
81	0.011	Sundanese	38.0	94	78	55	70	10
82	0.010	Kannada	38.1	87	93	51	70	10
83	0.010	Kyrgyz	4.3	53	86	73	65	10
84	0.009	Georgian	4.3	51	57	110	52	10
85	0.009	Malayalam	38.0	97	98	58	70	10
86	0.009	Madurese	15.0	101	85	63	70	10
87	0.009	Marathi	73.0	82	91	66	70	10
88	0.009	Lao	3.3	54	76	88	64	10
89	0.009	Kurdish	25.0	92	69	74	70	10
90	0.008	Zhuang	16.0	104	54	92	70	10
91	0.007	Somali	17.0	32	122	97	70	10
92	0.007	Saraiki	20.0	104	110	67	70	10
93	0.007	Bambara	4.0	29	107	112	65	10
94	0.007	Armenian	10.0	74	62	111	61	10

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RANK	SCORE	LANGUAGE	NATIVE	GEOGRAPHY	ECONOMY	COMM.	K&M	DIPLOMACY
95	0.007	Khmer	16.0	50	81	108	53	10
96	0.007	Balochi	7.6	104	77	80	70	10
97	0.007	Quechua	8.9	56	71	115	70	10
98	0.006	Gujarati	50.0	86	94	77	70	10
99	0.006	Bhutanese	0.2	78	67	124	42	10
100	0.006	Fijian	0.3	76	61	123	65	10
101	0.006	Nepali	25.0	65	89	99	70	10
102	0.005	Marwari	22.0	104	82	85	70	10
103	0.005	Dakhini	11.0	84	105	82	70	10
104	0.005	Chewa	12.0	68	118	101	70	10
105	0.005	Cebuano	21.0	99	80	91	70	10
106	0.005	Hmong	8.4	104	63	121	70	10
107	0.005	Wolof	4.2	60	90	113	61	10
108	0.005	Kinyarwanda	9.8	75	106	102	70	10
109	0.004	Yoruba	28.0	104	87	93	70	10
110	0.004	Konkani	7.4	102	109	86	70	10
111	0.004	Igbo	25.0	104	87	96	70	10
112	0.004	Ilocano	9.1	104	82	98	70	10
113	0.004	Hiligaynon	8.2	104	82	100	70	10
114	0.004	Hausa	34.0	104	124	81	70	10
115	0.004	Kirundi	8.8	80	121	103	70	10
116	0.004	Oromo	38.0	104	123	83	70	10
117	0.004	Dhundhari	9.6	96	110	95	70	10
118	0.004	Mossi	7.6	59	104	122	70	10
119	0.004	Fula	24.0	81	119	105	70	10
120	0.003	Haitian Creole	9.6	79	103	118	70	10
121	0.003	Haryanvi	14.0	95	101	109	70	10
122	0.003	Shona	8.3	104	120	104	70	10
123	0.002	Chittagonian	16.0	103	108	107	70	10
124	0.002	Akan	11.0	104	102	114	70	10

Dealing with the Chinese languages poses certain difficulties. For one, some would argue that the collection of Chinese languages are indeed just one language which are better viewed as dialects. Given the mutual intelligibility of the variants of Chinese most linguist would disagree. Nevertheless, none of the Chinese languages other than Mandarin Chinese and Cantonese have some kind of official status – even in the case of Cantonese, its status as official in Hong Kong is peculiar as Hong Kong itself has become a special administrative region (SAR) of China and was never a member of the UN. Moreover, China's policy of promoting Mandarin Chinese (*Putonghua*), even at the expense of the other variants of Chinese, detracts from much of the efficacy of the other Chinese languages. For historical reasons and because of the large Cantonese diaspora and the prominence of Hong Kong, Cantonese is typically viewed outside of China as the alternative variant of Chinese. Moreover, Cantonese has a rich number of valid indicators to measure its efficacy, whereas the other variants of Chinese do not.

Similarly, Hindi and Urdu are essentially the same languages that use different scripts and have since their split (the partition of India and Pakistan) developed their own unique features. Moreover, there are various dialects of Hindi which are often classified as languages. Putting these "languages" under the umbrella of Hindi would significantly raise its number of native speakers and extend its scope.

TABLE 2 below presents the results of the PLI if: (1) The Chinese languages are all lumped into one ("Chinese"), with the exception of Cantonese; and (2) The Hindustan languages (Indo-Aryan Central Zone) are all grouped as one ("Hindi"). This change reduces the count of languages in the PLI to 113.

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TABLE 2: POWER LANGUAGE INDEX (MERGE CHINESE & HINDUSTAN LANGUAGES)

RANK	SCORE	LANGUAGE	NATIVE	GEOGRAPHY	ECONOMY	COMM.	K&M	DIPLOMACY
1	0.889	English	446.0	1	1	1	1	1
2	0.411	Mandarin	960.0	6	2	2	3	6
3	0.337	French	80.0	2	6	5	5	1
4	0.329	Spanish	470.0	3	5	3	7	3
5	0.273	Arabic	295.0	4	9	6	18	4
6	0.244	Russian	150.0	5	13	10	9	5
7	0.191	German	92.5	8	3	7	4	8
8	0.134	Hindi	376.0	10	12	8	2	10
9	0.133	Japanese	125.0	26	4	22	6	7
10	0.119	Portuguese	215.0	7	19	13	12	9
11	0.116	Cantonese	80.0	21	11	4	13	10
12	0.108	Italian	64.0	11	8	19	8	10
13	0.084	Dutch	22.0	16	7	24	11	10
14	0.077	Malay	77.0	9	17	21	22	10
15	0.055	Polish	40.0	23	22	23	15	10
16	0.053	Korean	80.0	22	15	37	10	10
17	0.047	Turkish	75.0	12	24	38	16	10
18	0.046	Romanian	24.0	25	37	20	41	10
19	0.043	Norwegian	5.0	42	10	106	25	10
20	0.041	Swedish	9.2	35	14	72	14	10
21	0.040	Persian	52.5	14	36	30	17	10
22	0.034	Danish	5.5	41	16	84	20	10
23	0.034	Hebrew	4.4	57	23	36	21	10
24	0.033	Czech	10.6	36	21	45	27	10
25	0.033	Kazakh	11.0	15	32	57	55	10
26	0.032	Thai	56.0	17	33	65	37	10
27	0.032	Finnish	5.4	45	18	90	19	10
28	0.032	Ukrainian	30.0	18	49	27	58	10
29	0.030	Tamil	70.0	34	34	31	56	10
30	0.029	Bengali	210.0	70	73	26	36	10
31	0.029	Greek	13.0	20	28	89	24	10
32	0.028	Serbo-Croatian	19.0	19	44	47	47	10
33	0.028	Slovak	5.2	47	26	53	48	10
34	0.027	Slovene	2.5	63	27	52	40	10
35	0.027	Maltese	0.5	71	25	48	64	10
36	0.026	Hungarian	13.0	32	30	71	38	10
37	0.026	Swahili	10.0	13	78	59	69	10
38	0.026	Javanese	82.0	30	40	32	69	10
39	0.024	Icelandic	0.3	69	20	119	52	10
40	0.023	Bulgarian	9.0	43	39	49	44	10
41	0.023	Latvian	7.8	66	35	54	57	10
42	0.020	Belarusian	7.6	65	38	56	64	10
43	0.019	Vietnamese	76.0	33	48	70	23	10
44	0.019	Azerbaijani	26.0	60	41	64	49	10
45	0.019	Punjabi	100.0	37	59	41	69	10
46	0.019	Tagalog	28.0	44	52	61	26	10
47	0.017	Estonian	1.2	56	31	120	50	10
48	0.017	Lithuanian	3.0	61	29	117	59	10
49	0.017	Turkmen	8.0	51	42	76	69	10
50	0.016	Zulu	12.0	39	45	79	45	10
51	0.016	Macedonian	2.0	76	47	60	62	10
52	0.015	Xhosa	8.2	39	45	94	45	10
53	0.015	Pashto	50.0	27	72	69	69	10

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Power Language Index (May 2016)
Kai L. Chan, PhD

RANK	SCORE	LANGUAGE	NATIVE	GEOGRAPHY	ECONOMY	COMM.	K&M	DIPLOMACY
54	0.014	Sindhi	75.0	62	69	50	69	10
55	0.014	Amharic	25.0	54	96	42	69	10
56	0.014	Uyghur	10.4	29	67	75	69	10
57	0.013	Tigrinya	6.9	72	115	46	39	10
58	0.013	Mongolian	10.0	24	51	116	52	10
59	0.013	Odia	33.0	89	94	34	69	10
60	0.013	Uzbek	27.0	46	71	68	69	10
61	0.013	Bhojpuri	40.0	103	95	33	69	10
62	0.012	Telugu	76.0	82	91	43	69	10
63	0.012	Maithili	30.0	103	109	35	69	10
64	0.012	Sinhalese	16.0	68	50	78	69	10
65	0.012	Assamese	15.0	92	98	39	69	10
66	0.011	Magahi	14.0	103	109	40	69	10
67	0.011	Malagasy	18.0	48	114	62	69	10
68	0.011	Sylheti	11.0	97	116	44	69	10
69	0.011	Burmese	33.0	38	74	87	43	10
70	0.011	Sundanese	38.0	93	77	55	69	10
71	0.010	Kannada	38.1	86	92	51	69	10
72	0.010	Kyrgyz	4.3	52	85	73	64	10
73	0.009	Georgian	4.3	50	56	110	51	10
74	0.009	Malayalam	38.0	96	97	58	69	10
75	0.009	Madurese	15.0	100	84	63	69	10
76	0.009	Marathi	73.0	81	90	66	69	10
77	0.009	Lao	3.3	53	75	88	63	10
78	0.009	Kurdish	25.0	91	68	74	69	10
79	0.008	Zhuang	16.0	103	53	92	69	10
80	0.007	Somali	17.0	31	121	97	69	10
81	0.007	Saraiki	20.0	103	109	67	69	10
82	0.007	Bambara	4.0	28	106	112	64	10
83	0.007	Armenian	10.0	73	61	111	60	10
84	0.007	Khmer	16.0	49	80	108	52	10
85	0.007	Balochi	7.6	103	76	80	69	10
86	0.007	Quechua	8.9	55	70	115	69	10
87	0.006	Gujarati	50.0	85	93	77	69	10
88	0.006	Bhutanese	0.2	77	66	124	42	10
89	0.006	Fijian	0.3	75	60	123	64	10
90	0.006	Nepali	25.0	64	88	99	69	10
91	0.005	Marwari	22.0	103	81	85	69	10
92	0.005	Dakhini	11.0	83	104	82	69	10
93	0.005	Chewa	12.0	67	117	101	69	10
94	0.005	Cebuano	21.0	98	79	91	69	10
95	0.005	Hmong	8.4	103	62	121	69	10
96	0.005	Wolof	4.2	59	89	113	60	10
97	0.005	Kinyarwanda	9.8	74	105	102	69	10
98	0.004	Yoruba	28.0	103	86	93	69	10
99	0.004	Konkani	7.4	101	108	86	69	10
100	0.004	Igbo	25.0	103	86	96	69	10
101	0.004	Ilocano	9.1	103	81	98	69	10
102	0.004	Hiligaynon	8.2	103	81	100	69	10
103	0.004	Hausa	34.0	103	123	81	69	10
104	0.004	Kirundi	8.8	79	120	103	69	10
105	0.004	Oromo	38.0	103	122	83	69	10
106	0.004	Dhundhari	9.6	95	109	95	69	10
107	0.004	Mossi	7.6	58	103	122	69	10

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RANK	SCORE	LANGUAGE	NATIVE	GEOGRAPHY	ECONOMY	COMM.	K&M	DIPLOMACY
108	0.004	Fula	24.0	80	118	105	69	10
109	0.003	Haitian Creole	9.6	78	102	118	69	10
110	0.003	Haryanvi	14.0	94	100	109	69	10
111	0.003	Shona	8.3	103	119	104	69	10
112	0.002	Chittagonian	16.0	102	107	107	69	10
113	0.002	Akan	11.0	103	101	114	69	10

* Note that lumping all the variants of Chinese into one (with the exception of Cantonese) also changes the scores of the other languages in the index since the transformed indicator scores are derived by dividing by the maximum value in the sample. (The maximum number of native speakers of any given language – Chinese – increases from 960 million to 1,246.4 million.)

With the Chinese (except Cantonese) and Hindi languages each taken collectively, the rank ordering of languages catapults Hindi from 10th to 8th place. But the higher count of native speakers of Chinese does not change its rank, as there is a big gap between 2nd and 1st ranking. Cantonese, the lone "other" Chinese, places 11th just ahead of Italian.

METHODOLOGY

The Power Language Index (PLI) consists of 20 indicators grouped into 5 categories ("opportunities"): geography, economy, communication, knowledge & media, and diplomacy. The index is constructed so that each of the first four opportunities are equally weighted at 22.5 per cent apiece of the final score. The final pillar thus constitutes 10.0 per cent of the index score. Scores of all indicators are mapped into the [0,1] interval by expressing them as a ratio of the maximum indicator value. Indicators in the diplomacy opportunity are indicator variables that take on a value of 1 when condition is true and 0 otherwise. Note that the final index score is itself cardinal and in the range [0,1].

The 124 languages were chosen based on a multi-stage process: (1) Compile a list of the top 100 languages by native speakers; (2) Add languages associated with the 20 indicators if language has significant number of native speakers and/or has official status (though the latter is not sufficient); (3) Add languages associated with UN member states if they are "significant".

GROUPING & WEIGHTS

Within each opportunity the contribution of each indicator is inversely proportional to the number of indicators within that group. However, some indicators are assigned a half weight within their respective opportunity (denoted with an asterisk (*) in FIGURE 1 below). This is done to take into account that some variables logically seem less relevant than their peers (within the same opportunity). For example, native speakers has full weight while the second language speakers (L2) is assigned a half weight.

FIGURE 1: POWER LANGUAGE INDEX STRUCTURE
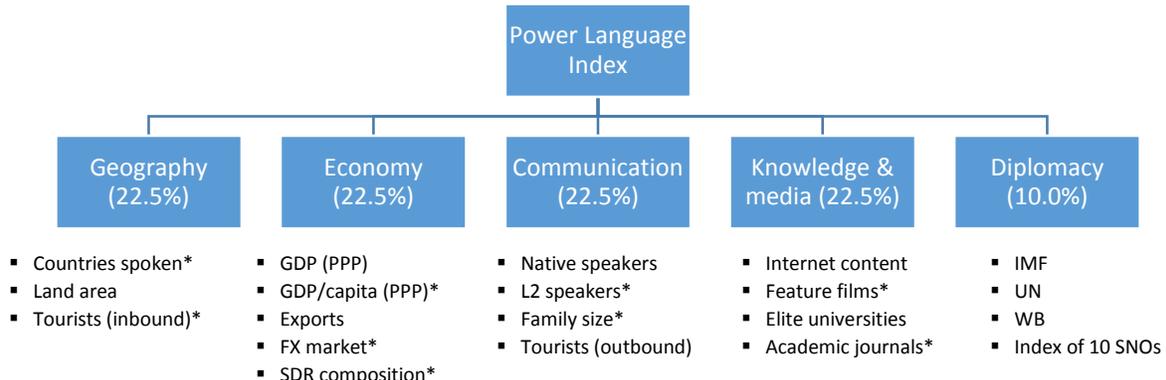
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MAPPING

Many of the indicators used in the index are not directly linked with a language. Rather the bulk are associated with nation states/economies. To map indicator values associated with nation states to languages it is required to define within a country its dominant and minority languages.

A "dominant" language is one that is widely spoken and, for the most part, the majority mother tongue of a country. It is the (or a) *de facto* working language of a country and often has some form of official status. A "minority" language is one subordinate to the dominant language but which has a significant presence (minimum threshold of 10-15 per cent native speakers, but is also dependent on its geographical concentration); it often also some kind of official status or political recognition ("minority"). Having status as an official language of a country is neither necessary nor sufficient to be classified as either dominant or minority.

Then for each indicator associated with a nation-state, the value is mapped to its dominant language(s) by a factor of 1; for minority language(s) it is mapped by a factor of ½.

For example, in Canada English spoken by roughly ¾ of the population and is geographically widespread; whereas French is the mother tongue of about ¼ of the population and is spoken primarily in the provinces of Quebec and New Brunswick. Both languages have official (and equal) status In Canada (at the federal level). Here English would take on a value of 1, while French would count as ½. So the full GDP of Canada is mapped to English, while French gets recognised for half that value.

The number of countries for which the indicators in the index are assessed are the 193 countries recognized by the UN, as well as a few large states outside of the UN charter (e.g. Kosovo and Taiwan) and exceptional cases (e.g. Hong Kong).

INDICATORS

GEOGRAPHY

Knowledge of a language enables the ability to travel and explore geography.

Countries spoken:* This indicator captures the number of countries in which a language is spoken – typically as a native tongue, but sometimes also as a second language. Note that language spoken can be, and is often the case, highly different than the official language(s) of a country. For example, in some African nations French is the official language even though very few actually speak it as a mother tongue or at home. Nevertheless, in the case of many post-French-colonial African nations French acts as the effective *lingua franca* (typically spoken at L2 level) given the otherwise disparate and numerous varieties of tribal languages.

As per the mapping rule, if a language is deemed "dominant" it counts full, whereas if it is "minority" it is counted as half.

Source: UN; national censuses (2016 or most recent)

Land area: The total land and inland water area within the recognised borders of a country, not including territorial claim on the seas. (This indicator corrects for the fact that not all countries are equal in size.) Knowledge of a language enables the exploration of a country. No adjustment is made on quality of land – every square kilometer of land is exactly interchangeable with any other in the world.

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Source: CIA Factbook; national sources (2016)

Tourists (inbound):* The number of international inbound tourist (overnight visitors) whose main purpose is other than business. This indicator captures the desirability of a given land and hence of its associated language(s). It partially corrects for the land area indicator as it, in a sense, is a proxy for the desirability of land.

Source: World Bank (2014 or most recent)

ECONOMY

Language enables participation in the economic life of a country where it is spoken. However, when international business transactions are conducted they are often done in a third language.

GDP (PPP): Gross domestic product (GDP) – i.e. the monetary value of goods and services produced within an economy in a given year – measured in purchasing power parity (PPP) international dollars. PPP is generally preferred to the nominal measure of GPD when making cross-country comparisons.

Knowledge of a language enables one to participate in economies where that language is used.

Source: IMF; World Bank (2015 or most recent)

GDP per capita (PPP):* Gross domestic product (GDP) – i.e. the monetary value of goods and services produced within an economy in a given year – measured in purchasing power parity (PPP) international dollars divided by total population.

Large countries might be on a whole rich, but poor on a per capita basis. GDP per capita is a proxy for the average standard of living in a country and thus also the economic attractiveness of a country.

Source: IMF; World Bank (2015 or most recent)

Exports: The US dollar (f.o.b.) value of goods sold by a country into foreign markets in a calendar year.

Exports from a country are a means by which countries (and hence languages) exert their influence on the international stage. Importing nations receive both goods and soft culture (e.g. language) from their trading partners.

Source: CIA Factbook (2014 or most recent)

Foreign exchange market:* The share of foreign exchange transactions (by value) in the global foreign exchange market. Note that the sum is 200% because each trade is a two-way transaction.

This indicator is a proxy for the global economic heft of countries, as expressed by the share of market turnover by currency in the foreign exchange market. Currencies are mapped to languages based on the "presumed" home country of the currency. In some cases, a country might not have its own sovereign currency (e.g. dollarisation). In this case, English (in the case of dollarization) is over-represented.

Source: Bank for International Settlements (BIS); Investopedia (2015)

Special drawing rights (SDR) composition:* The foreign exchange assets maintained by the IMF.

This indicator is a reflection of the global financial power structure. SDRs are pseudo-currency of foreign exchange reserves managed by the IMF. It is the unit of account for the IMF. It is composition is based on 4 currencies as defined in the table below:

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TABLE 3: SDR COMPOSITION

SDR BASKET	USD (USA)	EUR (Eurozone)	CNY (China)	JPY (Japan)	GBP (UK)
2016-2020	41.73%	30.93%	10.92%	8.33%	8.09%
Language	English	Various*	Mandarin	Japanese	English

Mapping the EUR to languages is based on the share of Eurozone GDP of the respective countries. Where multiple official (and de facto) languages of communication exist in a single country, then the GDP is split equally across the languages. (This works as countries where this condition hold are generally split evenly in terms of population and economic size by language.)

Source: IMF; national censuses (2016)

COMMUNICATION

Language is a means of interacting and communicating with others. The communication opportunity captures how language facilitates social interactions with other humans.

Native speakers: The total number of native speakers of a language.

It may include people who are (fully) bilingual and thus may double count people across languages.

Source: National censuses (most recent)

Second language (L2) speakers:* The total number of people who speak a language as a functional second language.

This excludes, for example, students who (casually) study a language in an academic setting. It is primarily a measure of people who regularly communicate in a second language. For example, native Russian speakers who live in Ukraine and speak Ukrainian at a proficient level (typically in interacting with native Ukrainian speakers within their country).

Source: Wikipedia

Family size:* The total number of native speakers from a given language family (e.g. Romance). It excludes, for a given language, its own count within its family in order to avoid double counting.

Knowledge of a particular language enables speakers to pick up the language of similar/related languages. For example, Italian and Spanish speakers are able to understand much of each other (spoken and written) even without formal training in the other language. Likewise, a native Cantonese speaker (who is literate in Cantonese) is able to read a Mandarin-language newspaper.

The family grouping is usually chosen at a level where there is some mutual intelligibility. Often this can be found 2 or 3 levels below the standard family grouping. For example, Polish belongs to the Indo-European family, which further branches out to Balto-Slavic, then Slavic, then West Slavic, then Lechitic, then Polish. For Polish, Slavic is considered the family.

This variable also takes into account cases where languages may share a common but unique script. For instance, many Chinese characters are used in Japanese (known as kanji). Because kanji is one of three script systems in the Japanese language, the Chinese language family is given just 1/3 weight in Japanese (and vice versa).

Source: Wikipedia

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KNOWLEDGE & MEDIA (K&M)

One of the primary purposes of a language is to enable the consumption of media, and to share ideas and knowledge.

Internet content: The share of Internet sites and traffic displayed in a given language.

Much of the media and knowledge we consume is on the Internet. Although there are services that translate web content, the translations are often not great and browsers seldom will surf in languages they do not know.

Source: W3Techs.com (2015)

Feature films:* The total number of feature films produced in a country.

It is a reflection of the soft power of a language and the extent to which the language is consumed and shared as a medium of entertainment.

Source: Unesco Institute for Statistics (2014)

Top-500 universities: The number of top-500 universities as defined by ARWU (Shanghai JT University).

Note that the language of instruction for a university might not necessarily correspond with the dominant, minority or official language of a country. This would tend to undercount the influence of English, which is often the medium of instruction even in countries where it is not widely spoken.

Source: Shanghai Jia Tong University – Academic Ranking of World Universities (2015)

Academic journals:* The number of peer-reviewed academic journals produced in a given language.

There may be cases where a journal has more than one language of publication (e.g. some Canadian journals that are bilingual English-French) so the total count by languages may exceed the total population of journals.

Source: Wikipedia

DIPLOMACY

The diplomacy opportunity reflects which languages are used in global settings at supranational organisations (SNOs). Most such institutions have a combination of official and working languages (i.e. languages for official communication and work). Many SNOs have multiple official languages but typically have a single *de facto* working language (almost always English).

IMF: This is an indicator variable that takes on the value 1 if a language is an official language of the International Monetary Fund or for which official communication is translated in a given language, and 0 otherwise. The IMF has 7 official/working languages: English (official), Arabic, Chinese (Mandarin), French, Japanese, Russian and Spanish.

UN: This is an indicator variable that takes on the value 1 if a language is an official language of the United Nations and 0 otherwise. The UN has 6 official/working languages: Arabic, Chinese (Mandarin), English, French, Russian and Spanish.

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WB: This is an indicator variable that takes on the value 1 if a language is an official language of the World Bank and 0 otherwise. The WB has 6 official/working languages: Arabic, Chinese (Mandarin), English, French, Russian and Spanish.

Index of 10 organisations: This is an index comprised of 10 indicator variables. Each of these takes on the value 1 if a language is an official/working language of the institution and 0 otherwise. The index is thus created by summing these values and dividing by the total number of institution (10), thus creating an index indicator whose value ranges from 0 to 1. The 10 organisations in the index are:

1. Bureau International des Expositions (BIE)
2. Fédération Internationale de Football Association (FIFA)
3. International Criminal Court (ICC)
4. International Labour Organisation (ILO)
5. International Olympic Committee (IOC)
6. Inter-Parliamentary Union (IPU)
7. International Telecommunication Union (ITU)
8. Organisation for Economic Cooperation and Development (OECD)
9. Universal Postal Union (UPU)
10. World Trade Organisation (WTO)

MIISING VALUES

Where data are missing they are taken to be zero. This is generally inconsequential as data which are missing are generally from sources where the likely true values are indeed zero or close to zero. Indeed, for the indicators in the index, missing data typically affect least developed countries which generally have no or low values for the associated variables.

OMITTED VARIABLES

The index strives to be parsimonious and included indicators were specifically chosen to be cardinal variables (so that the index itself is a cardinal measure). For sure there are many indicators not included whose inclusion would help make the index more robust. For example, size and geographic reach of expat and diaspora communities, etc. An obvious limitation is the availability of such data.

TRANSFORMATION

All 20 of the indicators in the index are non-negative cardinal-valued variables. They are all "positive" in that higher values are associated with more language efficacy. They are transformed to a score in the [0,1] range by dividing the raw indicator value by the maximum value in the sample: $s_i = x_i / x_{max}$. (So for each indicator there will be at least one language that takes on the maximal score of one.)

AGGREGTION

The transformed scores of the 20 indicators are aggregated into an index score for a country by summing the weighted scores of the indicators: $I = \Sigma_j \omega_j s_j$. Since each transformed score takes a value in the range [0,1] it follows that the aggregated index score also falls in the range [0,1].

Note that the aggregated final index score is a cardinal measure. This is because all the inputs are themselves cardinal and transformed in a way that preserves cardinality.

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ENGLISH

PLI rank: 1
PLI score: 0.889
Language family: West Germanic
Geographic coverage: Global
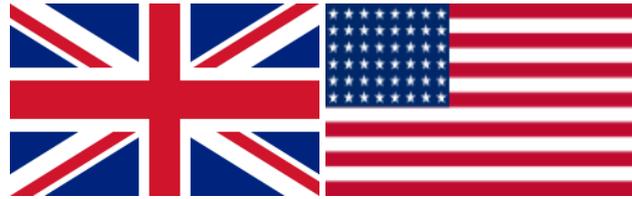
IND #	INDICATOR	VALUE
1	***GEOGRAPHY***	
1.1	Countries spoken	42.5
1.2	Land area (mn km²)	37.1
1.3	Tourists-in (mn)	202.9
2	***ECONOMY***	
2.1	PPP GDP (Int$BN)	31,161
2.2	PPP GDP/cap (Int$)	17,853
2.3	Exports ($BN)	4,418
2.4	FX mkt share (%)	117.1
2.5	SDR composition (%)	50.4
3	***COMMUNICATION***	
3.1	Native speakers (mn)	446
3.2	L2 speakers (mn)	510
3.3	Family size (mn)	115
3.4	Tourists-out (mn)	250.3
a		

IND #	INDICATOR	VALUE
4	***KNOWLEDGE & MEDIA***	
4.1	Internet content (%)	55.5
4.2	Feature films	819
4.3	Top-500 universities	237
4.4	Academic journals	5,452
5	***DIPLOMACY***	
5.1	IMF (indicator)	1
5.2	UN (indicator)	1
5.3	WB (indicator)	1
5.4	Index of 10 SNOs	1.0
OPP #	OPPORTUNIY	RANK
1	Geography	1
2	Economy	1
3	Communication	1
4	Knowledge & media	1
5	Diplomacy	1

English: opportunity and final scores

Geography 1.000 — Economy 0.896 — Communication 0.669 — K&M 0.942 — Diplomacy 1.000 — Overall PLI 0.889
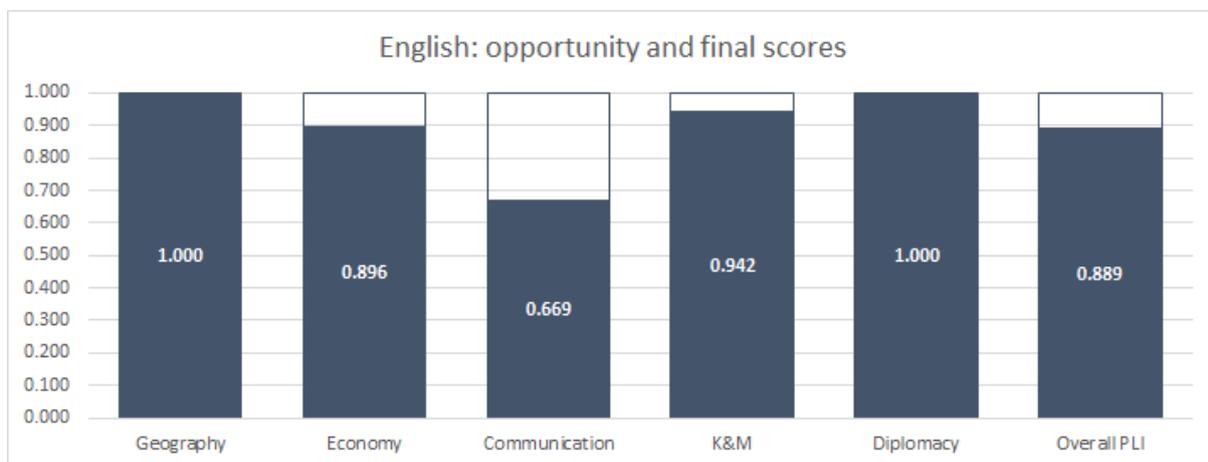
English is the world's *lingua franca*. Its dominance as the global means of communication is unrivalled. It is (by the measure of the PLI) more than twice as effective as its nearest rival (Mandarin Chinese). It is the leading language in each of the five opportunities opened by language.

The rise of English as the most important powerful language is spurred by the economic dominance and geographic reach of the English-speaking countries, a legacy of the British Empire that gave rise to many modern-day powerhouse nations. Most notably, the USA is the world's economic, cultural and military superpower, and the UK, along with Canada, are also leading nations (G7) themselves.

The "neutrality" of English has also helped spur its usage and uptake. For example, in both India and Singapore it was chosen to be an official language and means of inter-linguistic communication. The "Englishisation" of cultures at the same time threatens to displace lesser languages.

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MANDARIN

PLI rank: 2
PLI score: 0.411
Language family: Chinese
Geographic coverage: East Asia, Southeast Asia

IND #	INDICATOR	VALUE
1	*GEOGRAPHY*	
1.1	Countries spoken	3.0
1.2	Land area (mn km²)	9.4
1.3	Tourists-in (mn)	84.4
2	*ECONOMY*	
2.1	PPP GDP (Int$BN)	19,594
2.2	PPP GDP/cap (Int$)	13,944
2.3	Exports ($BN)	3,133
2.4	FX mkt share (%)	2.2
2.5	SDR composition (%)	10.9
3	*COMMUNICATION*	
3.1	Native speakers (mn)	960
3.2	L2 speakers (mn)	90
3.3	Family size (mn)	408
3.4	Tourists-out (mn)	158.1

IND #	INDICATOR	VALUE
4	*KNOWLEDGE & MEDIA*	
4.1	Internet content (%)	2.8
4.2	Feature films	584
4.3	Top-500 universities	43
4.4	Academic journals	6
5	*DIPLOMACY*	
5.1	IMF (indicator)	1
5.2	UN (indicator)	1
5.3	WB (indicator)	1
5.4	Index of 10 SNOs	0.2
OPP #	OPPORTUNIY	RANK
1	Geography	6
2	Economy	2
3	Communication	2
4	Knowledge & media	3
5	Diplomacy	6

Mandarin: opportunity and final scores

Geography	Economy	Communication	K&M	Diplomacy	Overall PLI
0.249	0.446	0.623	0.154	0.800	0.411
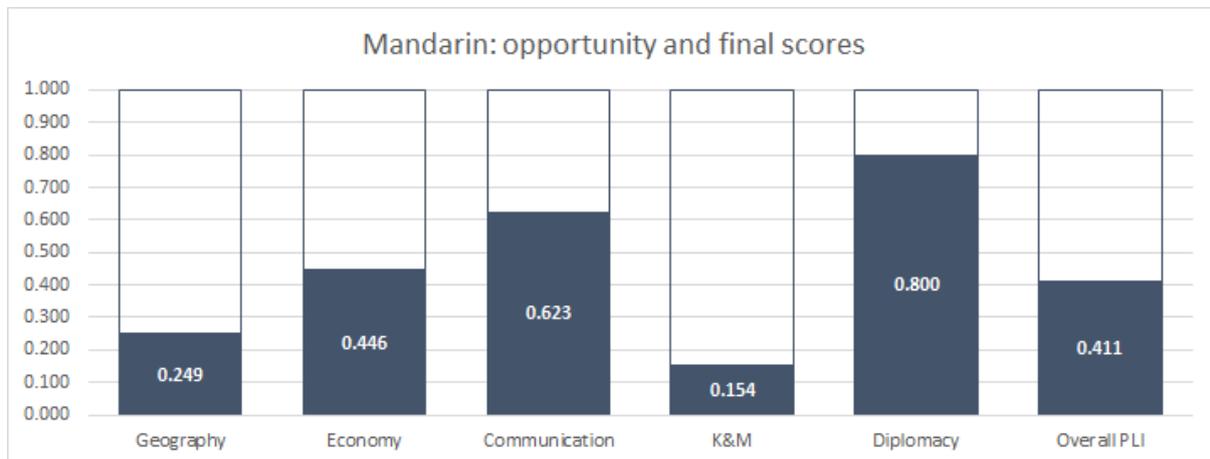
Mandarin Chinese is the second most powerful language, just edging out French. Its rise on the global stage is a recent phenomenon. Mandarin was hardly spoken outside of China until recent years; China itself had remained largely outside of the modern global economy until economic reforms were ushered in post-Mao. However, Mandarin remains far behind English, though its prominence is growing. Nevertheless, it is a regional language, with its uptake outside of Greater China limited mostly to the Chinese diaspora and expatriate communities.

There are two modern written forms of Chinese: traditional and simplified. Simplified has been used in China since circa 1950s as part of the Chinese government's scheme to promote greater literacy. Traditional characters are used in Taiwan, Hong Kong and Macau. Singapore – where Mandarin was not native – opted to install Mandarin (with simplified Chinese) as its official Chinese language when it was established (to avoid the language politics of competing Chinese languages there).

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FRENCH

PLI rank: 3
PLI score: 0.339
Language family: Romance
Geographic coverage: Africa, Europe, North America
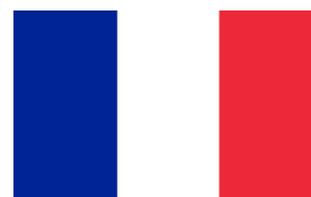
IND #	INDICATOR	VALUE
1	*GEOGRAPHY*	
1.1	Countries spoken	24.5
1.2	Land area (mn km²)	13.6
1.3	Tourists-in (mn)	125.0
2	*ECONOMY*	
2.1	PPP GDP (Int$BN)	4,949
2.2	PPP GDP/cap (Int$)	12,877
2.3	Exports ($BN)	1,434
2.4	FX mkt share (%)	7.8
2.5	SDR composition (%)	7.2
3	*COMMUNICATION*	
3.1	Native speakers (mn)	80
3.2	L2 speakers (mn)	140
3.3	Family size (mn)	773
3.4	Tourists-out (mn)	68.9

IND #	INDICATOR	VALUE
4	*KNOWLEDGE & MEDIA*	
4.1	Internet content (%)	4.0
4.2	Feature films	272
4.3	Top-500 universities	44
4.4	Academic journals	76
5	*DIPLOMACY*	
5.1	IMF (indicator)	1
5.2	UN (indicator)	1
5.3	WB (indicator)	1
5.4	Index of 10 SNOs	1.0
OPP #	OPPORTUNIY	RANK
1	Geography	2
2	Economy	6
3	Communication	5
4	Knowledge & media	5
5	Diplomacy	1

French: opportunity and final scores

	Geography	Economy	Communication	K&M	Diplomacy	Overall PLI
Score	0.482	0.196	0.260	0.124	1.000	0.339
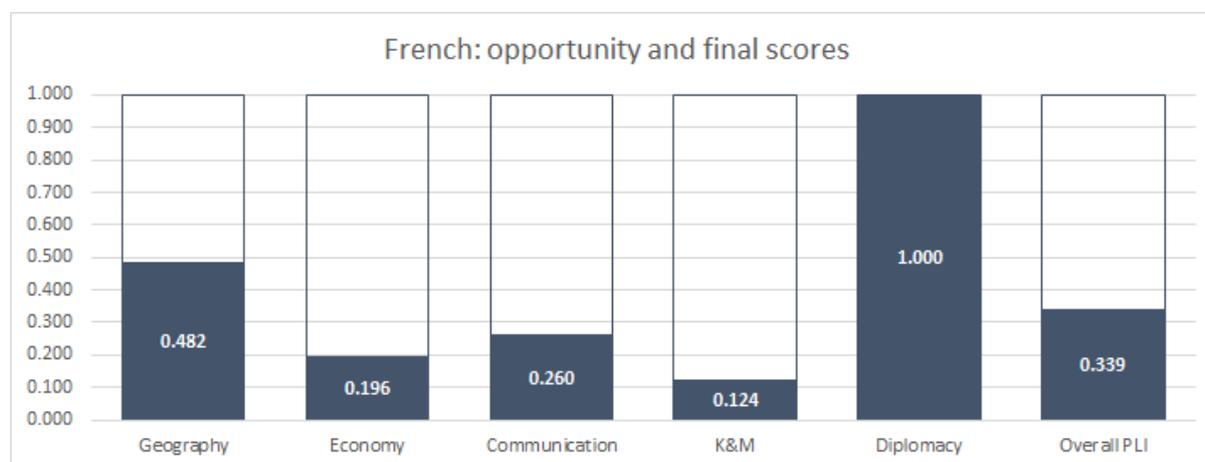
French is the third most powerful language, buttressed by its strong standing in diplomatic circles. Indeed, French retains an air of sophistication and is the go-to second language people acquire when they wish to appear educated or sophisticated. The language of De Gaulle holds official status at most major international organisations (and all tracked in the PLI), even if English happens to be the *de facto* working tongue. Nevertheless, where English and French once vied against each other to be the global *lingua franca*, French has clearly slipped behind its cross-Channel rival.

French punches above its weight relative to its small base of native speakers. The language counts just 80 million speakers, the smallest of any of the top-10 languages. But the power of French can be seen in its high number of L2 speakers (trailing only English and Arabic). Indeed, French is the *lingua franca* or the language of the elite in many African nations even if it is not the mother tongue of the population at large.

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SPANISH

PLI rank: 4
PLI score: 0.330
Language family: Romance
Geographic coverage: Europe, Latin America

IND #	INDICATOR	VALUE
1	*GEOGRAPHY*	
1.1	Countries spoken	21.0
1.2	Land area (mn km²)	12.1
1.3	Tourists-in (mn)	123.5
2	*ECONOMY*	
2.1	PPP GDP (Int$BN)	7,813
2.2	PPP GDP/cap (Int$)	17,438
2.3	Exports ($BN)	1,265
2.4	FX mkt share (%)	6.0
2.5	SDR composition (%)	3.2
3	*COMMUNICATION*	
3.1	Native speakers (mn)	470
3.2	L2 speakers (mn)	90
3.3	Family size (mn)	383
3.4	Tourists-out (mn)	59.4

IND #	INDICATOR	VALUE
4	*KNOWLEDGE & MEDIA*	
4.1	Internet content (%)	4.6
4.2	Feature films	219
4.3	Top-500 universities	17
4.4	Academic journals	28
5	*DIPLOMACY*	
5.1	IMF (indicator)	1
5.2	UN (indicator)	1
5.3	WB (indicator)	1
5.4	Index of 10 SNOs	0.8
OPP #	OPPORTUNIY	RANK
1	Geography	3
2	Economy	5
3	Communication	3
4	Knowledge & media	7
5	Diplomacy	3

Spanish: opportunity and final scores

Geography	0.438
Economy	0.207
Communication	0.319
K&M	0.081
Diplomacy	0.950
Overall PLI	0.330
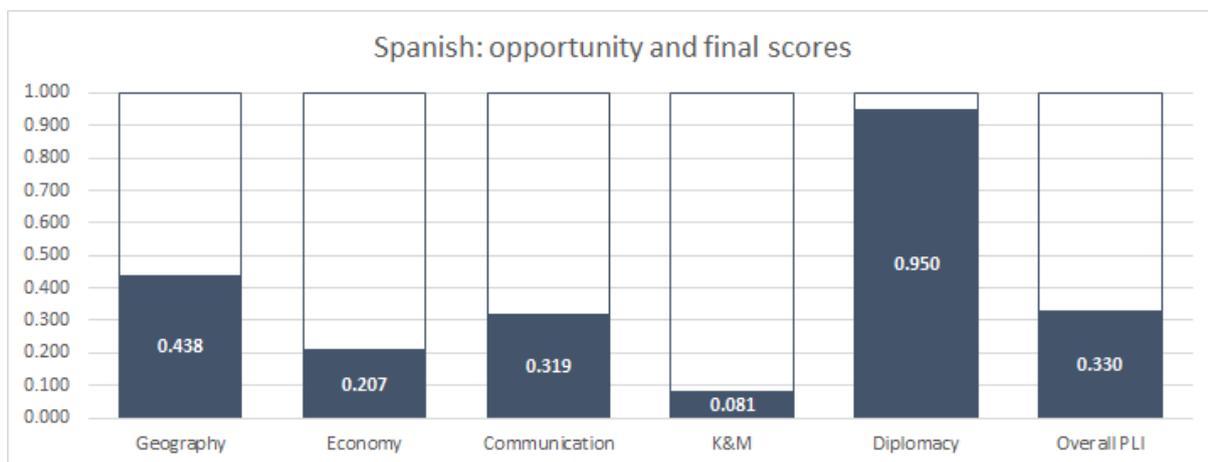
Spanish places just behind French, but its trajectory going forward may soon have it eclipse its Romance-language rival as Latin America grows. In terms of number of native speakers it trails just Mandarin. On the global diplomatic stage it trails just English and French in facilitating global communication. Nevertheless, its global reach is limited by its geography as it is spoken only in Europe and Latin America.

Amongst the five opportunities Spanish fares worst on Knowledge & Media. But this is more an artefact of the dominance of English in this sphere rather than shortcomings, per se, of the Spanish language. Nevertheless, the quality of intuitions of higher learning – and ergo the research and knowledge they embody – in the Spanish-speaking world lag that of those with English, French of German roots.

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ARABIC

PLI rank: 5
PLI score: 0.273
Language family: Semitic
Geographic coverage: Middle East North Africa (MENA)

IND #	INDICATOR	VALUE
1	*GEOGRAPHY*	
1.1	Countries spoken	20.5
1.2	Land area (mn km²)	13.9
1.3	Tourists-in (mn)	76.1
2	*ECONOMY*	
2.1	PPP GDP (Int$BN)	5,973
2.2	PPP GDP/cap (Int$)	14,916
2.3	Exports ($BN)	1,142
2.4	FX mkt share (%)	0.0
2.5	SDR composition (%)	0.0
3	*COMMUNICATION*	
3.1	Native speakers (mn)	295
3.2	L2 speakers (mn)	250
3.3	Family size (mn)	37
3.4	Tourists-out (mn)	49.2

IND #	INDICATOR	VALUE
4	*KNOWLEDGE & MEDIA*	
4.1	Internet content (%)	0.8
4.2	Feature films	5
4.3	Top-500 universities	9
4.4	Academic journals	0
5	*DIPLOMACY*	
5.1	IMF (indicator)	1
5.2	UN (indicator)	1
5.3	WB (indicator)	1
5.4	Index of 10 SNOs	0.4
OPP #	OPPORTUNIY	RANK
1	Geography	4
2	Economy	9
3	Communication	6
4	Knowledge & media	18
5	Diplomacy	4

Arabic: opportunity and final scores
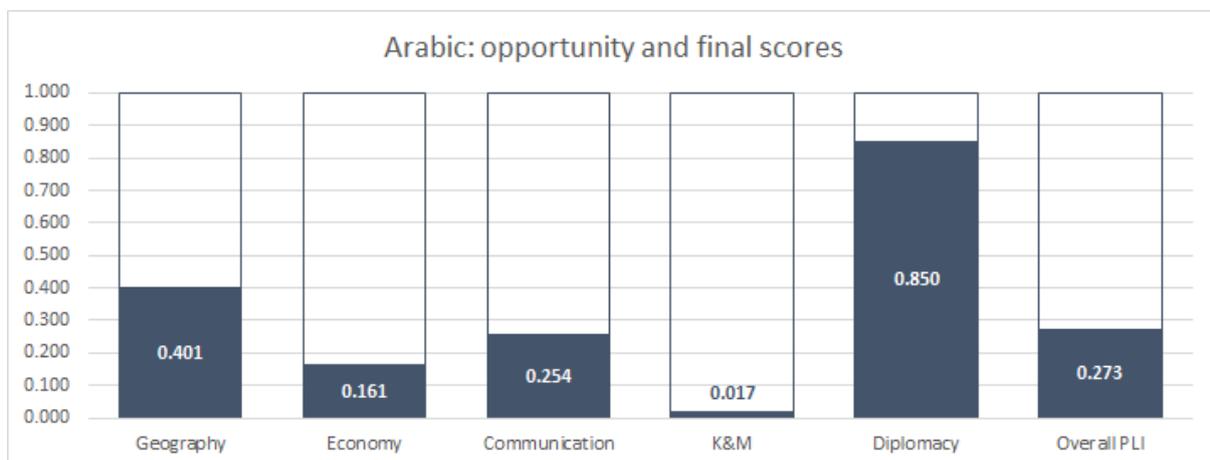
Arabic is the fifth most powerful language. It is spoken primarily in Middle East North Africa (MENA), but its status as the language of the Quran compels many Muslims worldwide to study it. For this reason, it counts 250 million L2 speakers, second only to English. The strength of Arabic is also supported by the prosperous economies of oil-rich Arab nations, a phenomenon that may retreat as the price of oil has fallen sharply since peaking in 2014.

Amongst the top-10 languages, Arabic is the laggard in the Knowledge & Media opportunity, and primarily on the aspect of Knowledge. Modern higher education and research are still nascent in the region, and the political and cultural climates currently are not as conducive to the modern research university. Colonial legacy has also given rise to French (and in modern time to English) as the prestige language in some Arabic countries.

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RUSSIAN

PLI rank: 6
PLI score: 0.244
Language family: Slavic
Geographic coverage: Central Asia, East Europe

IND #	INDICATOR	VALUE
1	*GEOGRAPHY*	
1.1	Countries spoken	5.0
1.2	Land area (mn km²)	20.4
1.3	Tourists-in (mn)	40.7
2	*ECONOMY*	
2.1	PPP GDP (Int$BN)	4,146
2.2	PPP GDP/cap (Int$)	21,522
2.3	Exports ($BN)	601
2.4	FX mkt share (%)	1.6
2.5	SDR composition (%)	0.0
3	*COMMUNICATION*	
3.1	Native speakers (mn)	150
3.2	L2 speakers (mn)	110
3.3	Family size (mn)	125
3.4	Tourists-out (mn)	59.1

IND #	INDICATOR	VALUE
4	*KNOWLEDGE & MEDIA*	
4.1	Internet content (%)	5.9
4.2	Feature films	140
4.3	Top-500 universities	2
4.4	Academic journals	27
5	*DIPLOMACY*	
5.1	IMF (indicator)	1
5.2	UN (indicator)	1
5.3	WB (indicator)	1
5.4	Index of 10 SNOs	0.3
OPP #	OPPORTUNIY	RANK
1	Geography	5
2	Economy	12
3	Communication	10
4	Knowledge & media	9
5	Diplomacy	5

Russian: opportunity and final scores

Geography 0.354; Economy 0.125; Communication 0.182; K&M 0.058; Diplomacy 0.825; Overall PLI 0.244

Russian is the primary language of Russia, but is also widely spoken in many of the former Soviet states (and satellite states), where large Russian diaspora communities also exist. In spite of recent economic and political shocks, Russia remains a globally important nation (nuclear power, UN Security Council permanent member, etc.) and the vast geography of the nation (and its resource riches) give it a good foundation to grow (notwithstanding political issues).

Russian uses the Cyrillic alphabet, in contrast to the other influential European languages which use the Latin script. Soviet legacy has expanded the use of Cyrillic, where it is the form of writing in Kazakh and Mongolian amongst other places. Nevertheless, there is a push in some of these nations now to adapt the Latin script and even within Russia.

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GERMAN

PLI rank: 7
PLI score: 0.192
Language family: West Germanic
Geographic coverage: West Europe

IND #	INDICATOR	VALUE
1	*GEOGRAPHY*	
1.1	Countries spoken	5.0
1.2	Land area (mn km²)	0.5
1.3	Tourists-in (mn)	66.3
2	*ECONOMY*	
2.1	PPP GDP (Int$BN)	4,675
2.2	PPP GDP/cap (Int$)	47,192
2.3	Exports ($BN)	2,007
2.4	FX mkt share (%)	16.0
2.5	SDR composition (%)	10.0
3	*COMMUNICATION*	
3.1	Native speakers (mn)	93
3.2	L2 speakers (mn)	13
3.3	Family size (mn)	468
3.4	Tourists-out (mn)	107.9

IND #	INDICATOR	VALUE
4	*KNOWLEDGE & MEDIA*	
4.1	Internet content (%)	5.8
4.2	Feature films	212
4.3	Top-500 universities	54
4.4	Academic journals	67
5	*DIPLOMACY*	
5.1	IMF (indicator)	0
5.2	UN (indicator)	0
5.3	WB (indicator)	0
5.4	Index of 10 SNOs	0.3
OPP #	OPPORTUNIY	RANK
1	Geography	8
2	Economy	3
3	Communication	7
4	Knowledge & media	4
5	Diplomacy	8

German: opportunity and final scores

	Geography	Economy	Communication	K&M	Diplomacy	Overall PLI
score	0.118	0.322	0.237	0.141	0.075	0.192

German places seventh on the PLI on the strength of the German-speaking economies. Indeed, the per capita wealth of German-speaking nations ($47,192) is the highest amongst all language groups. But the influence of the German language is limited by its small geographic coverage, being spoken (in large numbers) only in West Europe. Nevertheless, the prominence of German may rise as post-Brexit EU will see less influence of UK (and ergo English language) culture on the Continent.

The influence of German is in some ways largely self-imposed, as German speakers seldom "force" the language on foreigners (in contrast to French speakers). Indeed, in many professional settings Germans will switch to English to accommodate even the presence of one non-German speaker in the group. This phenomenon is largely a consequence of Germany's war past and the occupation of the country by Allied (especially American) forces.

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JAPANESE

PLI rank: 8
PLI score: 0.133
Language family: Japonic
Geographic coverage: Japan

IND #	INDICATOR	VALUE
1	*GEOGRAPHY*	
1.1	Countries spoken	1.0
1.2	Land area (mn km²)	0.4
1.3	Tourists-in (mn)	10.4
2	*ECONOMY*	
2.1	PPP GDP (Int$BN)	4,768
2.2	PPP GDP/cap (Int$)	37,593
2.3	Exports ($BN)	700
2.4	FX mkt share (%)	23.0
2.5	SDR composition (%)	8.3
3	*COMMUNICATION*	
3.1	Native speakers (mn)	125
3.2	L2 speakers (mn)	0
3.3	Family size (mn)	442
3.4	Tourists-out (mn)	16.9

IND #	INDICATOR	VALUE
4	*KNOWLEDGE & MEDIA*	
4.1	Internet content (%)	5.0
4.2	Feature films	441
4.3	Top-500 universities	18
4.4	Academic journals	9
5	*DIPLOMACY*	
5.1	IMF (indicator)	1
5.2	UN (indicator)	0
5.3	WB (indicator)	0
5.4	Index of 10 SNOs	0.0
OPP #	OPPORTUNIY	RANK
1	Geography	27
2	Economy	4
3	Communication	22
4	Knowledge & media	6
5	Diplomacy	7

Japanese: opportunity and final scores

	Geography	Economy	Communication	K&M	Diplomacy	Overall PLI
Score	0.024	0.221	0.120	0.114	0.250	0.133
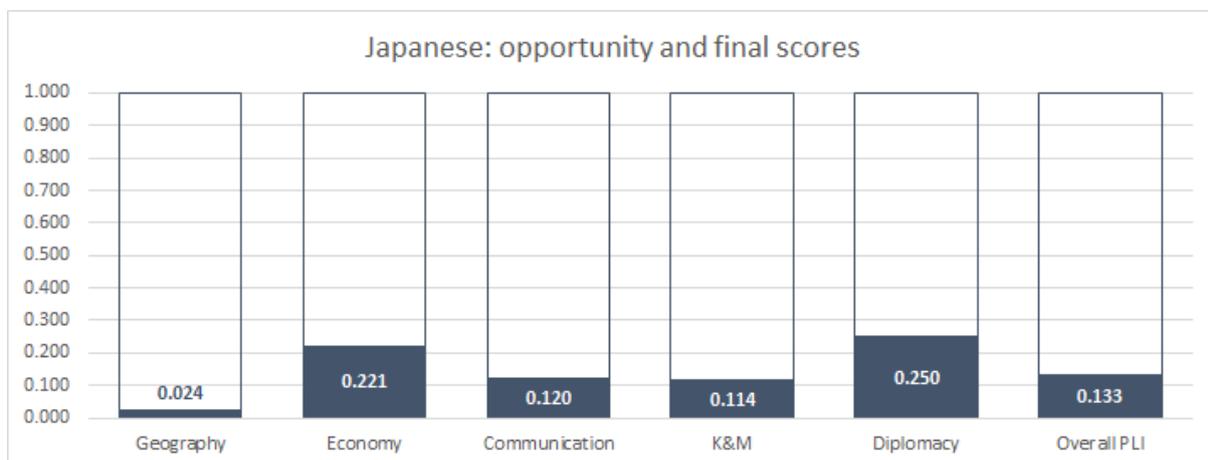
Japanese is the most isolated of the top-10 languages. It is spoken in just one country, which is itself an (isolated) island nation. The complexity of the language (for most foreign learners) – it uses three writing systems ((*katakana*, *hiragana* and *kanji*) as well as the Latin alphabet for transliterations – has limited the uptake of the language as a second language. Nevertheless, the popularity of Japanese popular culture, especially with respect to *anime,* has nevertheless gained it a sizeable number of students studying the language.

Declining birth rates and lack of immigration in the country will see a sharp drop in the population of Japan over the next century. Combined with the economic stagnation of the economy, these suggest that the influence of the Japanese language will wane over time. However, as the strength of (Mandarin) Chinese grows there may be scope for Japanese to leverage its strength – *kanji* are Chinese characters used in Japanese (albeit not necessarily with the same meaning).

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PORTUGUESE

PLI rank: 10
PLI score: 0.118
Language family: Romance
Geographic coverage: Africa, Europe, LatAm

IND #	INDICATOR	VALUE
1	*GEOGRAPHY*	
1.1	Countries spoken	8.0
1.2	Land area (mn km²)	10.7
1.3	Tourists-in (mn)	18.2
2	*ECONOMY*	
2.1	PPP GDP (Int$BN)	3,790
2.2	PPP GDP/cap (Int$)	14,056
2.3	Exports ($BN)	390
2.4	FX mkt share (%)	1.7
2.5	SDR composition (%)	0.5
3	*COMMUNICATION*	
3.1	Native speakers (mn)	215
3.2	L2 speakers (mn)	35
3.3	Family size (mn)	638
3.4	Tourists-out (mn)	10.4

IND #	INDICATOR	VALUE
4	*KNOWLEDGE & MEDIA*	
4.1	Internet content (%)	2.5
4.2	Feature films	9
4.3	Top-500 universities	9
4.4	Academic journals	9
5	*DIPLOMACY*	
5.1	IMF (indicator)	0
5.2	UN (indicator)	0
5.3	WB (indicator)	0
5.4	Index of 10 SNOs	0.1
OPP #	OPPORTUNIY	RANK
1	Geography	7
2	Economy	19
3	Communication	13
4	Knowledge & media	12
5	Diplomacy	9

Portuguese: opportunity and final scores

Geography	Economy	Communication	K&M	Diplomacy	Overall PLI
0.214	0.094	0.178	0.029	0.025	0.118
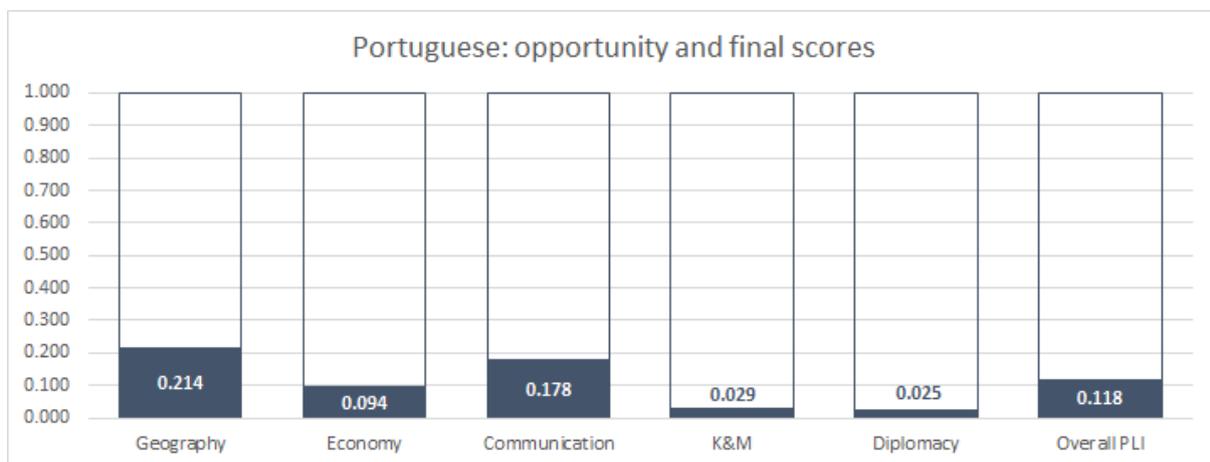
Along with English, the Portuguese language is now more prominent outside of its historic homeland (Portugal). The diversity of its geography is second only to English: Portuguese is spoken on four continents. Portuguese is also a close cousin of Spanish (and it is claimed that Portuguese speakers are better able to understand Spanish than vice versa), so Portuguese speakers will also gain in a world where the prominence of Spanish grows.

The trajectory of Portuguese hinges a lot on the fate and success of Brazil, a so-called "BRIC" nation. The re-emergence of Portuguese in East Timor is one of the few exceptions going against the "Englishisation" phenomenon. Indeed, When East Timor gained independence it came as a bit of a surprise as English and/or Indonesian seemed like more logical choices to promote as official languages.

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HINDI

PLI rank: 9
PLI score: 0.117
Language family: Indo-Aryan
Geographic coverage: South Asia

IND #	INDICATOR	VALUE
1	*GEOGRAPHY*	
1.1	Countries spoken	1.5
1.2	Land area (mn km²)	3,297
1.3	Tourists-in (mn)	7.3
2	*ECONOMY*	
2.1	PPP GDP (Int$BN)	7,415
2.2	PPP GDP/cap (Int$)	5,766
2.3	Exports ($BN)	330
2.4	FX mkt share (%)	1.0
2.5	SDR composition (%)	0.0
3	*COMMUNICATION*	
3.1	Native speakers (mn)	310
3.2	L2 speakers (mn)	120
3.3	Family size (mn)	122
3.4	Tourists-out (mn)	18.4

IND #	INDICATOR	VALUE
4	*KNOWLEDGE & MEDIA*	
4.1	Internet content (%)	0.0
4.2	Feature films	1,255
4.3	Top-500 universities	0
4.4	Academic journals	0
5	*DIPLOMACY*	
5.1	IMF (indicator)	0
5.2	UN (indicator)	0
5.3	WB (indicator)	0
5.4	Index of 10 SNOs	0.0
OPP #	OPPORTUNIY	RANK
1	Geography	13
2	Economy	16
3	Communication	8
4	Knowledge & media	2
5	Diplomacy	10

Hindi: opportunity and final scores

Geography	Economy	Communication	K&M	Diplomacy	Overall PLI
0.062	0.103	0.186	0.167	0.000	0.117
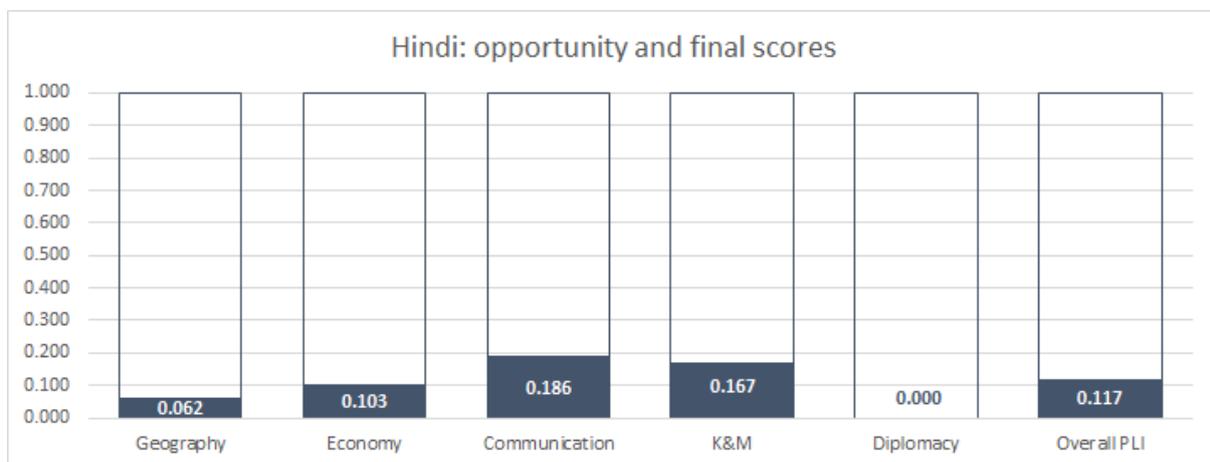
Hindi is the dominant language of India, but India is also home to hundreds of other languages. This has given rise to a situation whereby the influence of Hindi has been limited as the government of India needs to placate the concerns of competing languages. Indeed, Hindi punches well below its weight (in contrast to French) relative to its number of native speakers (310 million).

The language politics of India have limited the ability of the country to promote its most prolific native language. Indeed, competition across the various linguistic factions in India (and the history of English colonialism) has helped spur the rise of English in India (and globally). With no internal push from India to promote the use of Hindi, either within the country or internationally, the language remains low on the international radar in spite of it being the dominant language of the world's second most populous nation and third largest economy (PPP).

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KAZAKH

PLI rank: 0.033
PLI score: 34
Language family: Turkic
Geographic coverage: Kazakhstan

IND #	INDICATOR	VALUE
1	*GEOGRAPHY*	
1.1	Countries spoken	1.0
1.2	Land area (mn km^2)	2.7
1.3	Tourists-in (mn)	4.9
2	*ECONOMY*	
2.1	PPP GDP (Int$BN)	420
2.2	PPP GDP/cap (Int$)	23,768
2.3	Exports ($BN)	87
2.4	FX mkt share (%)	0.0
2.5	SDR composition (%)	0.0
3	*COMMUNICATION*	
3.1	Native speakers (mn)	11
3.2	L2 speakers (mn)	0
3.3	Family size (mn)	151
3.4	Tourists-out (mn)	10.2

IND #	INDICATOR	VALUE
4	*KNOWLEDGE & MEDIA*	
4.1	Internet content (%)	0.0
4.2	Feature films	12
4.3	Top-500 universities	0
4.4	Academic journals	0
5	*DIPLOMACY*	
5.1	IMF (indicator)	0
5.2	UN (indicator)	0
5.3	WB (indicator)	0
5.4	Index of 10 SNOs	0.0
OPP #	OPPORTUNIY	RANK
1	Geography	15
2	Economy	32
3	Communication	57
4	Knowledge & media	56
5	Diplomacy	10

Kazakh: opportunity and final scores

	Geography	Economy	Communication	K&M	Diplomacy	Overall PLI
	0.049	0.061	0.036	0.002	0.000	0.033
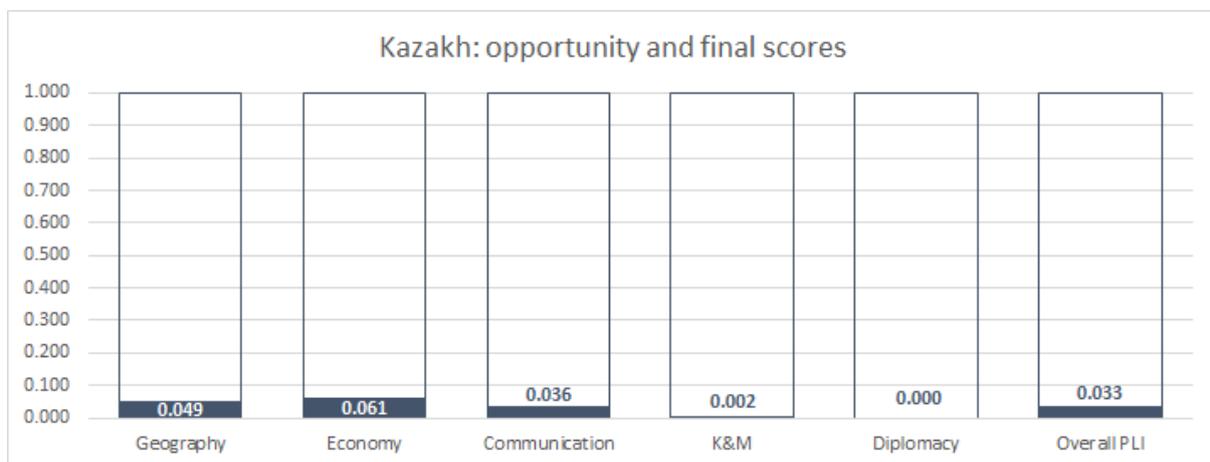
Although Kazakh speakers can be found throughout Central Asia, it is essentially only spoken in great numbers in Kazakhstan. Although its roots are as a Turkic language, Soviet legacy has made the Cyrillic alphabet the current means of writing the language. Nevertheless, there are ambitions by some to switch to the use of the Latin alphabet. But the existence of Russian, which uses Cyrillic script, as a second official language in Kazakhstan may counter any such push.

The Kazakh language ranks 34 in the PLI. The vast geography of the country, and its strategic position between China and Russia, suggest bright economic prospects for the country. With only 11 million native speakers it will invariably remain a local language (for the foreseeable future) – although the population of speakers has not limited other languages over the course of history from functioning as a *lingua franca*. Nevertheless, it behooves Kazakh speakers to take up a more powerful second language to help them navigate the global economy.

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COUNTRY PLI SCORE

The PLI assesses and compares the efficacy of languages. But every country has a language profile. Nations derive a part of their competitiveness based on their languages spoken. English-speaking countries enjoy the benefit that the world conducts business in their tongue. And as English is the world's *lingua franca* it means that talent can easily flow there. Moreover, English speakers can easily travel and work abroad as the second language in virtually every country is English (where it is not already native).

However, at the same time it is very powerful to speak other languages. A country conversant in English and Mandarin – the numbers 1 and 2 PLI languages – would be able to engage with a large swathe of the world. Better yet, multilingual society that speaks English, Mandarin and French.

It is possible to calculate the "language dividend" of nations as the weighted average of the PLI scores based on the profile of languages spoken there. For example, in Switzerland the language profile looks like:[1]

Table 1: Switzerland language profile

LANGUAGE	SHARE (%)	PLI SCORE
German	67.6	0.191
French	23.8	0.338
Italian	8.6	0.108

Thus the PLI score for Switzerland is the weighted average of the PLIs that prevail: 0.228. For unilingual United States the PLI would be 0.889. But is the gap between the two really that expansive? Most people in Switzerland are able to speak English. This should be reflected in the country PLI outcome.

The country PLI score needs to take into consideration that English is the global *lingua franca*. This can be done by adjusting the weighted-average PLI score by the nation's level of English proficiency. Fortunately, there is a handy measure for this: The English Proficiency Index (EPI).[2] Using the EPI, the country PLI can be calculated as the weighted average PLI plus the English proficiency score of the share of non-native English speakers.[3] This yields the table below listing countries by PLI.

Table 2: Country PLI rank and score

RANK	COUNTRY	COUNTRY PLI	WGT AVG PLI	ADJUSTED EPI
1	Singapore	0.926	0.460	0.718
2	Canada	0.925	0.751	0.758
3	Denmark	0.901	0.090	0.811
4	USA	0.889	0.889	0.810
5	UK	0.889	0.889	0.803
6	New Zealand	0.889	0.889	0.832
7	Australia	0.889	0.889	0.827
8	Ireland	0.889	0.889	0.837
9	Barbados	0.889	0.889	0.837
10	Jamaica	0.889	0.889	0.831
11	Trinidad & Tobago	0.889	0.889	0.771
12	Netherlands	0.889	0.080	0.809
13	Israel	0.879	0.125	0.754
14	Norway	0.871	0.090	0.781
15	Austria	0.867	0.191	0.676

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[1] Certain simplifying assumptions are made including overlooking multilingualism.
[2] Education First English Proficiency Index (2016).
[3] To scale the EPI to be comparable with the PLI, the EPI score is averaged with the share of native English speakers in a given country.

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Power Language Index (May 2016)
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RANK	COUNTRY	COUNTRY PLI	WGT AVG PLI	ADJUSTED EPI
16	Sweden	0.863	0.090	0.773
17	Germany	0.849	0.191	0.658
18	Dominican Republic	0.837	0.329	0.507
19	Switzerland	0.835	0.228	0.607
20	Belgium	0.818	0.219	0.600
21	Malta	0.801	0.027	0.774
22	Taiwan	0.792	0.411	0.381
23	Iceland	0.786	0.024	0.762
24	France	0.785	0.337	0.448
25	Sierra Leone	0.781	0.222	0.746
26	Liberia	0.777	0.222	0.740
27	Finland	0.774	0.090	0.684
28	Philippines	0.758	0.013	0.745
29	Lebanon	0.737	0.299	0.438
30	Bahrain	0.727	0.273	0.454
31	Jordan	0.727	0.273	0.454
32	Spain	0.722	0.329	0.393
33	Cyprus	0.718	0.038	0.680
34	Ghana	0.705	0.223	0.643
35	Malaysia	0.705	0.090	0.615
36	Cameroon	0.682	0.276	0.470
37	Botswana	0.681	0.444	0.472
38	Luxembourg	0.680	0.079	0.601
39	Egypt	0.678	0.273	0.405
40	Uruguay	0.677	0.329	0.347
41	China	0.670	0.411	0.259
42	Costa Rica	0.669	0.329	0.339
43	Argentina	0.654	0.329	0.325
44	Honduras	0.644	0.329	0.314
45	Mexico	0.643	0.329	0.314
46	Nigeria	0.631	0.222	0.545
47	Chile	0.628	0.329	0.298
48	Peru	0.625	0.329	0.296
49	Slovenia	0.624	0.027	0.597
50	Latvia	0.623	0.106	0.517
51	Ecuador	0.605	0.329	0.276
52	India	0.603	0.377	0.339
53	Hong Kong	0.602	0.100	0.502
54	Colombia	0.593	0.329	0.263
55	Morocco	0.592	0.273	0.319
56	Greece	0.577	0.029	0.548
57	Panama	0.575	0.329	0.246
58	Guatemala	0.568	0.329	0.238
59	Yemen	0.567	0.273	0.294
60	Venezuela	0.562	0.329	0.233
61	Estonia	0.561	0.017	0.544
62	Macedonia	0.560	0.012	0.548
63	Serbia	0.560	0.000	0.560
64	Tanzania	0.551	0.371	0.299
65	Chad	0.550	0.312	0.239
66	Nicaragua	0.549	0.329	0.219
67	El Salvador	0.549	0.329	0.219
68	Poland	0.548	0.055	0.493
69	Brunei	0.545	0.077	0.468
70	Korea	0.540	0.100	0.440
71	Russia	0.533	0.244	0.289
72	Zimbabwe	0.533	0.091	0.491
73	Croatia	0.532	0.000	0.532
74	Gabon	0.529	0.229	0.299

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RANK	COUNTRY	COUNTRY PLI	WGT AVG PLI	ADJUSTED EPI
75	Nepal	0.527	0.006	0.521
76	Italy	0.524	0.108	0.416
77	Côte d'Ivoire	0.519	0.169	0.351
78	Congo DR	0.518	0.182	0.336
79	Tunisia	0.511	0.273	0.239
80	Mauritania	0.511	0.273	0.239
81	South Africa	0.509	0.148	0.427
82	Romania	0.496	0.050	0.446
83	Oman	0.490	0.273	0.217
84	Sri Lanka	0.488	0.015	0.473
85	Kuwait	0.488	0.273	0.215
86	Lithuania	0.487	0.017	0.469
87	Japan	0.482	0.133	0.349
88	Ethiopia	0.478	0.008	0.470
89	Saudi Arabia	0.477	0.273	0.205
90	Bosnia	0.477	0.000	0.477
91	Bolivia	0.468	0.249	0.219
92	Czech Republic	0.464	0.033	0.430
93	Indonesia	0.453	0.069	0.385
94	UAE	0.451	0.156	0.295
95	Slovakia	0.444	0.028	0.416
96	Madagascar	0.441	0.093	0.348
97	Algeria	0.441	0.198	0.243
98	Portugal	0.436	0.001	0.435
99	Vietnam	0.436	0.019	0.417
100	Albania	0.433	0.000	0.433
101	Bulgaria	0.432	0.023	0.409
102	Moldova	0.428	0.061	0.367
103	Hungary	0.420	0.026	0.394
104	Malawi	0.419	0.222	0.263
105	Cape Verde	0.418	0.119	0.299
106	Montenegro	0.416	0.000	0.416
107	Lesotho	0.408	0.000	0.408
108	Thailand	0.404	0.032	0.372
109	Brazil	0.398	0.119	0.279
110	Mozambique	0.395	0.095	0.299
111	Ukraine	0.392	0.074	0.318
112	Qatar	0.389	0.156	0.233
113	Paraguay	0.384	0.165	0.219
114	Benin	0.384	0.118	0.266
115	Bangladesh	0.380	0.029	0.351
116	Kenya	0.376	0.026	0.351
117	Tajikistan	0.373	0.040	0.333
118	Turkey	0.372	0.047	0.324
119	Namibia	0.344	0.000	0.344
120	Kazakhstan	0.341	0.026	0.314
121	Mali	0.339	0.073	0.266
122	Zambia	0.336	0.000	0.336
123	Mauritius	0.336	0.000	0.336
124	Rwanda	0.335	0.005	0.330
125	Georgia	0.334	0.009	0.324
126	Armenia	0.331	0.007	0.324
127	Bhutan	0.308	0.000	0.308
128	Senegal	0.304	0.038	0.266
129	Uganda	0.288	0.000	0.288
130	Pakistan	0.284	0.016	0.268
131	Burundi	0.276	0.037	0.239
132	Iran	0.272	0.040	0.232
133	Gambia	0.255	0.002	0.253

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RANK	COUNTRY	COUNTRY PLI	WGT AVG PLI	ADJUSTED EPI
134	Azerbaijan	0.253	0.019	0.235
135	Kyrgyzstan	0.247	0.033	0.214
136	Mongolia	0.227	0.013	0.214
137	Cambodia	0.204	0.007	0.197
138	Laos	0.201	0.009	0.192

Source: Author's calculations based on PLI and EPI and share of English speakers

The country PLI can be interpreted as the efficacy with which the average citizen/resident of that nation can engage the world by virtue of their language ability. For example, although Chinese citizens speak the second most powerful language, their low proficiency in English makes them less effective in engaging outside of Greater China – they rank 41st in country PLI. Singapore, on the other hand, actually has a country PLI score higher than the English PLI score (0.889) because its residents speak a mix of English, Mandarin[4] and Malay, and for those whose native tongue is not already English they have a high proficiency in it.

Canada and Denmark are the other nations that have a country PLI score higher than the English PLI score (0.889). In the case of Canada, its residents speak English and French; while Danish is the sole native tongue of Danes, but they are highly proficient in English such that the whole country is effectively bilingual Danish-English.

INDIVIDUAL PLI SCORE

A caveat of the country PLI score is that it ignores multilinguals and only considers English as a second language. Calculating PLI at the country level is a difficult exercise. However, it can be done at an individual level with relative ease. Consider a person with the following language profile:

Table 3: Individual PLI score (example)

LANGUAGE	FLUENCY*	PLI SCORE
English	1.00	0.889
Cantonese	0.75	0.116
French	0.75	0.337
German	0.50	0.191
Mandarin	0.50	0.411
Russian	0.25	0.244

* See Table 4 below

The individual PLI score is the weighted sums of the language profile PLIs (1.591 above). The score is a measure of how easily a multilingual could engage the world by virtue of their language facilities. It is also a way to compare the efficacy of multilinguals with different language profiles. A polyglot who speaks (only) French, Italian, Portuguese and Spanish (all fluently) is much less powerful in languages than a polyglot who speaks (only) English, Mandarin, Russian and Arabic (all fluently) – scores of 0.893 vs 1.817, respectively. In fact, an English-Mandarin bilingual (PLI score of 1.300) is more effective than a Romance languages polyglot (even if we add the remaining Romance languages).

Table 4: Fluency mapping to CEFR

FLUENCY	CEFR	DESCRIPTION
1.00	C1, C2	Native or bilingual
0.75	B2	Advance / fluent
0.50	B1	Independent
0.25	A2	Threshold
0.00	A0, A1	Novice

Anyhow, the world is the oyster of the (PLI-strong) polyglot. And it's never too late to start learning!

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[4] Mandarin is the official Chinese language used in Singapore, although many of its residents actually speak as native one of the other variants of the Chinese languages/dialects (e.g. Hokkien, Teochew, Cantonese, etc).

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