

[MUSIC PLAYING] KATYA GONZALEZ-WILLETTE: Hello, and welcome to the Growth Lab at Harvard University's weekly podcast.

ANNIE WHITE: Our guest today is Tim Cheston, Senior Manager of Applied Research at CID's Growth Lab, and a member of the team leading the Atlas of Economic Complexity, our online tool that can visualize a country's trade, track changes over time, and explore growth opportunities for every country worldwide. Welcome, Tim.

TIM CHESTON: Good to be back.

ANNIE WHITE: To get started, can you tell us about where global growth will happen over the coming decade?

TIM CHESTON: So any discussion of global growth has to start with China and India. The two countries have contributed nearly half of all global growth today. And we see this as a path that will continue over the coming decade. As both economies will be in the top 10 fastest growing countries for the coming decade, although they will increasingly be on different paths.

So as India now is the fastest growing large economy in the world, we see India's growth to slow down to 5.5% annually for the coming decade, while China will now supersede that growth at 6.1% in the projections for the coming decade.

China has realized significant growth over the past decade. Its incomes have risen or nearly tripled in the past decade. And yet China looks to sustain rapid growth despite those income gains because of its current complexity continues to outpace its income level. And so while risks remain for China with an escalating trade war with the United States, its current complexity is high enough with the previous gains alone to sustain rapid growth for the coming decade.

And we contrast that the state of India. India has not diversified into new productive sectors since it opened and liberalized trade in the 1990s. And so that lack of new export growth coming from new sectors or that lack of diversification means that India's complexity continues to outpace its income. But increasingly over time, the lack of new diversification will converge its income level with the rapid growth it's experiencing, which will slow down India's growth moving forward.

And so you can see that today, with a widening trade deficit, will lead to a very narrow policy scope for which to sustain rapid growth in India, which will eventually slow down. At 5.5% growth, India will remain as one of the fastest growing countries and the envy of many other countries around the world.

ANNIE WHITE: The growth projections highlight Uganda, Egypt, Myanmar,

China, and Vietnam as countries all expected to grow significantly. At face value, these countries don't seem to have a lot in common with each other. So what explains their similar projection?

TIM CHESTON: It is a puzzle. There are very few things that combine those countries. You can't look at some uniform measure of education level, or geographic region, even any measure of institutional quality, anything to do with culture or religion.

What we tend to see is that these countries share a sophisticated range of specialized know-how. That is the tacit knowledge that is embedded into their exports. All of these countries have a higher level of know-how than expected for their income level. And that's where we think that that know-how in their productive sector will be experienced through the diversification and growth of their exports to lead faster growth coming in the future.

ANNIE WHITE: Tim, you mentioned know-how, can you explain that term and how it fits into economic complexity?

TIM CHESTON: Certainly. So know-how, for us, refers to tacit knowledge. That what you cannot say and yet you know how to do. You can walk but it's very hard to describe what muscles I use when I know how to walk. We think of technology as three types of knowledge. One is embedded knowledge in which all of the knowledge is put into an iPhone, or a drone, or other types of technology. And using that technology you have access to all of that embedded knowledge.

Another type of knowledge is codified knowledge. Think of blueprints or other guides in which you follow the instructions of a code in order to access that knowledge. But that, for us, does not describe the high variance in incomes around the world today. So if iPhones can be shipped to the furthest parts of the world, if codes can be put on Wikipedia online, why is it that we continue to see such high variance in income levels and high variance in growth rates amongst global countries?

And so that's where we think there's a third type of knowledge, which is tacit knowledge or know-how that is only held in brains. That is accumulated, as Malcolm Gladwell would say, over 10,000 hours to become an expert in anything over long periods of time that does not pass easily from person-to-person, much less region-to-region, neighbor-to-neighbor, country-to-country.

It takes long periods of time. And therefore it's that slow accumulation of that tacit knowledge or know-how that describes why some countries or regions have certain areas of production that they've become competitive in. And why it takes so long for other countries to catch up or converge to other countries globally.

ANNIE WHITE: The concept of know-how is tied to the Growth Lab's more general concept of economic complexity. Can you elaborate a bit more on economic complexity and how that's viewed at the Growth Lab?

TIM CHESTON: Absolutely. So we think of economic growth as a game of scrabble. So hopefully you've played before. But scrabble effectively is combining letters to produce words, or in this analogy, combining bits of know-how, or tacit knowledge, or capability sets into words or products. And so fundamentally, countries are the players in this game or cities of the players in this game. And they differ in the number of letters or the diversity of know-how that they have in their society.

And so therefore countries with very few letters can produce very few words and very basic words. And so as you go about expanding the diversity of the know-how you have or adding letters, anybody who's played scrabble before knows you not only can produce more words, but also words of higher value.

So this happens exponentially to the point that countries with the most diverse number of letters are the ones that can produce the longest, most complex words in the game and therefore benefit, economically speaking, from both a more diversified product set that they are able to produce, but also one of higher value that generates higher income.

ANNIE WHITE: Let's turn a little bit to the process of coming up with projections. Can you describe how the Growth Lab generates these projections?

TIM CHESTON: Sure. So one of the benefits of global trade data is its double accounting. So countries reports to UN Comtrade, both their exports and their imports from other countries. And so using that, we can clean global data for the quality of different reporting countries, both for the good reporters, like the Switzerland's of the world, and the bad reporters, like today's Venezuela where there are incentives to misreport.

So using this clean data set, using the methodology of Sebastian Bustos and Mohammed Yildirim here at the Growth Lab, we are then able to come up with the ranking of economic complexity for all global countries.

ANNIE WHITE: Can you explain a little bit how you come up with that projection?

TIM CHESTON: So using a country's economic complexity, we are able to analyze whether a country is more complex than expected for its level of income or less complex than expected. And we combine that with a second measure, which is to say, when we measure the letters that you

have expressed in your exports, how easy is it to redeploy those letters to enter a new productive sectors? So effectively if a new complex product is only one letter away, you are able to redeploy your existing know-how to enter more valuable sectors.

But for many countries in the world, entering high value segments like automobiles is a very long, complex word or a very long, complex process that remains very far away from what they currently know how to do. And so that leap is farther away from what they currently know how to do, therefore generating greater risk in any such action. And so we are able to therefore predict that countries grow and diversify not by making long leaps, but by making incremental gains by adding one letter at a time to move into other segments of the economy.

So analyzing then both your economic complexity today, and how easy it is to use your existing know-how to enter new sectors, we're able to come up with a global growth projections. And so that single measure is not aiming to compensate for all of the political dynamics, all of the economic vulnerabilities in an economy, but it is able to capture a useful measure of the know-how that exists within an economy as a measure, not simply to explain your current income level, but actually its value comes in its productiveness in measuring future growth.

And that measurement is more accurate than any other single measure, whether it be education, or other measures of institutional quality, or global competitiveness. Not simply in explaining today's income levels, but predicting that growth to the future.

ANNIE WHITE: How many countries are included as part of this study?

TIM CHESTON: Well, this year we've actually added eight countries to the rankings to reach a total of 133 countries. So amongst those countries, we have now included a Bahrain, Cyprus, Myanmar, Togo, Burkina Faso, amongst others. Another important inclusion is trade in services, which total around 1/3 of global trade. And so represent a very important inclusion into this year's Atlas to analyze both the existence of different services, but also what new services might be around the corner for different countries.

ANNIE WHITE: And what's the significance of projecting out to 2027?

TIM CHESTON: So we aim for a long-term measure of growth projections moving forward. So notwithstanding kind of short-term crises, both political and economic, our goal is to use the latest trade data. And so in this year, we are looking at the latest reporting of 2017 trade data and projecting for the coming decade, which brings us to 2027.

ANNIE WHITE: Great. Were there any surprises you found in this year's growth projection?

TIM CHESTON: There were a number of surprises this year. We see that East Africa will hopefully guide the decade of the future for Sub-Saharan Africa, just as East Asia or the East Coast of-- another continent in Asia drove the growth of the previous decades amongst global regions. And so East Africa currently is being driven by a high level of rapid population growth, but also some diversification into more complex segments of textiles and garments in countries like Ethiopia, but also into limited plastics in countries like Uganda.

And so they are less dependent than West Africa on natural resources or other commodities. And we think that that diversification and the value-add coming from moving into those productive sectors, like plastics and textiles, lead to the potential for income growth more sustainably for East Africa moving forward.

Another surprise that we've seen are some of the countries that have fallen in the ranking. And so among them, we see countries that have unfortunately fallen into Civil War, like Madagascar. Or countries with high levels of instability, like Zimbabwe. But amongst that ranking is also Australia. And so we need to explain why Australia has fallen so far in the economic complexity ranking, currently at 93rd amongst all global countries.

And for us, this is a clear pattern in which China's rise and dependency on raw materials for that rise have increasingly come from Australia. So a lot of China's coal and iron ore now come from Australia, which has decreased the diversity of Australia's exports as they become more reliant on raw material exports. And the prices of those raw materials have fallen is creating large scale macro implications for Australia's economy moving forward.

ANNIE WHITE: And what about some of the more advanced economies around the world? What does the growth projection look like for them?

TIM CHESTON: Another one of our big surprises was actually how much sense some of these rankings made of some of the global dynamics we've seen recently. So amongst the most advanced or the most complex countries in the world, the one that fell the most and the ranking was the United Kingdom, which might explain some current dynamics involved in the UK today. And the fastest rise are amongst advanced economies was China.

And so again, 2017 data does not contain any of the current dynamics involved in the uncertainties around the global trade war. But we are already seeing that the current complexity that China possesses, that is the diversity and specialization of its know-how and its production, will allow China to sustain rapid growth moving forward, because it is still more complex than expected for its level of income.

And so countries like the UK have fallen, while countries like China will maintain rapid growth from its current income level moving forward. So the historic rate that China has maintained its growth over the past three decades, we see as continuing at a slightly slower pace than in the past few decades, but nonetheless amongst the fastest growing countries in the world for the coming decade.

ANNIE WHITE: As part of this newly released research, the Growth Lab also updated its economic complexity index. Which countries are the most complex?

TIM CHESTON: On top the rankings we see Japan, Switzerland, South Korea, Germany, and Singapore with very little movement among them. Actually, South Korea now is third and Germany fell to fourth. Although at the highest levels of complexity, those movements are much less meaningful.

At 12th, we see the United States. Italy at 13th. And the United Kingdom, again, fell to 14th. And then we also have France at 16th. Again, all just ahead of China who has been one of the greatest improvers or gainers in this reading of economic complexity.

ANNIE WHITE: Thank you, Tim, for your insights and your time. That's all the time we have today. Visit atlas.cid.harvard.edu for a complete summary of the 2027 growth projections and the updated economic complexity index.

KATYA GONZALEZ-WILLETTE: If you want to learn more about the Growth Lab's latest research and events, please visit growthlab.cid.harvard.edu. See you next week.

[MUSIC PLAYING]