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Abstract

Latin American economies are facing two historically defining challenges. First, how to cope with the end of the commodities "super-cycle" and the prospect of a long period of low prices for basic natural resources. After all, raw materials production and semi-industrialized goods encompass most of their comparative advantages. Second, and even more exacting, how to adjust to the present disruptive transition from an old to a new global economic and social model. The 20th century industrial organization is progressively losing its dominant position to 21st century "digital" economy, based on permanent innovation, a pervasive use of information and communications technologies (ICT), and a service-packed consumer-driven organization of production. The 800-pound gorilla question is: where does Latin American societies – and for that matter most developing countries – fit in this new era?

Climbing the Global Digital Ladder Latin America's Inescapable Trial

The digital economy upheaval is already having far-reaching geopolitical and geo-economic implications. A planetary "ladder" would be a suitable metaphor of present times. A global value-added ladder where returns on investment are determined by the rung one can reach for (be it a country, a firm or even an individual). Who will gobble the largest shares of the world economy's global profits?

Top rung technological clusters

At the top – the most profitable position – stand those who master high value-added, service-driven, ICT-centered production processes. These are characterized – as opposed to the traditional "value-chains" – by horizontal, "buyers-driven", "value-networks" (business customers, private consumers, or public procurement). These hybrid networked producers/ consumers ecosystems¹ thrive on permanent innovation and customization, on reacting swiftly to fast-changing consumer needs, tastes and fads, and on handling shrinking technological cycles. Today, survival for value-networks – and even for "old" standard value-chains – hinges on adopting an array of digital technologies, many of which are widely available at reasonable prices and sometimes even for free. Accessibility has become so extensive that a trend towards 'digital commoditization" is already at work².

Yet, widespread use of ICT tools is clearly not enough for this level of the ladder. The real value-added premium is generated not by usage per se, but by the capacity to develop new digital technologies as well as new production models, platforms and standards of digital businesses. This innovative know-how – a privilege of the "Masters of the Algorithms" – is a sine qua non condition for building more or less temporary monopolies or oligopolies based on a "network and platform effect". An impregnable market position, at least for a (profitable) while, with competing newcomers facing higher and higher entry costs. The most popular examples of this new economic logic of winners-take-all are companies like Google, Amazon, Facebook, Apple, Uber...

The cream of the crop of the new digital economy is more and more concentrated in a few powerful innovative geographical "clusters" – Silicon Valley, New York-Boston corridor, London, Cambridge, Berlin, Paris, Tel-Aviv... The great majority of these high-tech hubs are located in the United States and Europe, followed by Israel and Japan, plus a handful and less powerful ones scattered through South Korea, Singapore, Hong Kong or Australia. The recipe for their ongoing success is freedom, a requisite much more important than mere easy access to top new technologies. That means not only free enterprise and a very competitive environment open to the world marketplace, but also freedom of thought, research, information, communication

^{(1).} Mark Skilton, Building Digital Ecosystems Architectures: A Guide to Enterprise Architecting Digital Technologies in the Digital Enterprise, Palgrave Macmillan, New York, 2016.

^{(2).} Jorge Arbache, "Digital economy hopes for Brazil overstretched". The BricsPost.com, 07/06/16, Brasil.

http://thebricspost.com/digital-economy-hopes-for-brazil-overstretched/#.V1be-ukmqPS

^{(3).} Alfredo G. A. Valladão, 2014, op. cit.

or financial flows. Still, a business-friendly culture of freedom cannot prosper without topnotch university centers and high-grade secondary education, strong guarantees for private property, easy access to financing, and predictable and accountable legal systems and political public policies. Thanks to these unique cultural, economic and political ecosystems, these truly urban boom-lands, at the very top of the world's geo-economic hierarchy, take the lion's share of the global value added and profits. Needless to point out that no Latin American country – or conurbation (except São Paulo, partly) – meets this combination of prerequisites to play in this first league.

Second tier high quality players

A second tier of high value-added players sits just beneath the top rungs: the most creative companies of the traditional industrial and services production. They are specialized in very high-quality products with heavy concentrations of innovation, historical know-how, highly trained workforce with old inherited skills, brand recognition and trusted reputation. These firms (sometimes part of a geographical cluster) can bring to market either outstanding finished products, or sophisticated and highly precise parts and components. There is no shortage of well know examples: France's luxury brands, Germany's high-end cars and machine-tools, US high-tech medical devices, European and American large civil aircraft and aviation engine makers or ball bearings companies, US and Swiss "Big Pharma", Swiss branded coffee devices, German and Japanese industrial robots and "co-bots" (collaborative robots).

Most of this production is characterized by either relatively short – or at least restricted – production series, or by single innovative and extremely successful products (a feature often associated with pharmaceutical businesses). However, these sectors of the global value-added chains are not only an appanage of big companies. Innovative and efficient small and medium-sized enterprises (SME) are widely represented with their huge investments in R&D, design, prototyping, top-level apprenticeships, digital services, and highly connected manufacturing processes. Germany's Mittelstand is one of the most famous examples of this kind of successful SMEs.

Companies at that level thrive by monopolistic or oligopolistic global "niches". Indeed, a very high quality product or particular brand cannot be easily replicated. Reaching market dominance, or even a quasi-monopolistic status, is extremely profitable, reinforcing innovative and sophisticated production processes relatively free from the constraints of cost-driven vertical value chains. They also nurture – and benefit from – a very reliable network of high-tech outsourcers, so much so that their small and middle-size brethren have been targets of choice for merger and acquisitions (M&A) strategies of big companies looking for a fast upgrade to more value-added production. Tesla, Space X, Boeing, Airbus, Safran, Apple, Dior, Ferrari, Nespresso, Novartis, Merck, Bristol-Meyer Squibb, Kuka, Fanuc, RBC Bearings... The list can be quite long, but the reality is that the immense majority of this second rung players are mostly concentrated in the US, Europe and Japan, with some other single flagship companies headquartered in South Korea, China, India.

Latin America does have very few big-thicket technological-savvy firms, like Mexico's IT services Softtek or wireless service provider América Movíl, Chile's software provider Sonda, or Brazil's aerospace company Embraer and the electric engineering and automation operator WEG. But these are exceptions. The most important Latino corporations are still extractive or agribusiness

producers and construction firms. Yes, some successful start-ups have emerged in the region and many local governments are promoting "tech hubs" and making an effort to attract "research labs" of world-class tech players (on June 2016, Google launched its startup incubator in Brazil – "Campus São Paulo" – the first in Latin America). But the region's entrepreneurs lack the infrastructure, the socio-economic incentives, the regulatory predictability and the competitive and politically stable environment absolutely necessary to stand a chance to compete at this high level of manufacturing or service providing – at least for moment. In fact, most successful Latino startups are constrained to expatriate their business in order to pursue their own growth.

• Middle rungs: struggling global value chains

The global ladder's middle-range rungs concentrate the remaining bulk of national and global value chains (GCV) designed for "mass production for mass consumption". These big 20th century trans-nationalized conveyor-belts are still at the core of the world economy. A planetary manufacturing base that produces standardized goods and services: "good-enough products" for "good-enough consumers". A global market representing a sizeable but declining share of solvent demand in mature developed regions – and most of the (less affluent) consumption in developing countries. These industrial supply chains can be divided into two main groups: a) producers of low-end goods, mostly unbranded, particularly in Asia, but also in Latin America and some African countries; b) producers of middle-range goods (finished or intermediate), most of them as part of foreign outsourcing and assembly lines open to possible North/South cooperation (e.g. Zara's "fast fashion" products or Foxconn's partnerships with Apple, BlackBerry or Nokia).

Yet, the "old" GVC's survival is threatened by inexorably dwindling margins. First of all, they have to cope with moderate growth demand for their products. Strong environmental constraints are fostering an emerging culture of "responsible" behavior much less hungry for mass consumption goods. This is particularly true for the big American, European and Japanese markets, which together concentrate nearly 70% of the planet's private solvent consumers, and where there is ferocious competition from the digital economy's more sophisticated, customized and personalized products with growing shares of services embedded. But focusing on a presumed explosive expansion of new middle-classes in emerging economies does not look like a very promising alternative. Such prospect would need a radical shift in development models, from export-led to domestic-led consumer growth. China's present difficulties are demonstrating that such a switch is implausible without an open and free economic, social and political environment that warrants substantial – and sustainable – wealth transfers to individual consumers, as well as freedom of choice. An unpalatable perspective for the vested interests of the powerful clientelistic "crony-capitalism" ruling groups that monopolize power in most developing nations.

For traditional vertical mass production industries, the standard solution when solvable demand stagnates or decreases is to improve productivity and to seek economies of scale. Yet, for businesses churning out cheap low-end products for low-end consumers (most of them living in poor or developing countries), benefiting from a very low-cost labor force is still paramount. But even this segment – forever under threat of extremely tight margins – is already facing growing competition from technological innovations, particularly new robotics or additive manufacturing, which are chipping away at the advantages of low salaries. The best example is the new Adidas offer of personalized trainers, computer-designed and 3-D printed on the spot. And its new robotled pilot factory, recently "reshored" to Ansbach in Germany, spectacularly more efficient than

its own low-cost supply chains in Asia⁴. In the new global geo-economy, the fate of this sort of production will be to attempt to survive by serving dwindling and very poor fractions of national consumer markets, which are not solvent enough to get too much attention from middle-rank mass producers. Or worse: to be downgraded into subsidized and protected national industrial value chains, kept alive only with taxpayers' money.

As for middle-range producers, there is no salvation other than investing heavily in productivityenhancing technology, which can be chosen from a whole range of available digital technologies and services. The objective is to enhance competitiveness by re-organizing the whole value chain, from design and prototyping to inputs and stock management, physical production, logistics, marketing, management of outsourcing partnerships and in-house constraints. It is a tall order. First, many of these new technologies are widely obtainable at reasonable prices (i.e. "digital commoditization"). Competitors can easily replicate basic productivity gains. Therefore, speed and high flexibility to accommodate change are the name of the game. Moreover, a technological and organizational permanent race to reinvent business processes needs not only specific competition-friendly cultural traits but it also costs a lot. Middle-range producers are facing the challenge of sometimes-unbalanced partnerships, as well as the prospect of being swallowed by a more efficient "partner". Last but not least, they are heavily dependent on their home governments' capacities to negotiate international trade and regulatory agreements in order to guarantee – and to lock in – access to the most important consumer and industrial markets: mature industrial economies and new "emergent" urban middle-classes, which are the best clients for these categories of goods.

As a matter of fact, the GVC phenomenon is already reaching a plateau before many developing economies even had the chance to take advantage of it. The fact that since 2008, world trade has been rising at a slower pace than world GDP – and that looks like a structural trend – can be seen as clear signal of a "GVC-peak". There is not enough room in the digitally led global economy for all low- and middle-level supply chains born after the opening of the world market at the end of the Cold War. In a dwindling margins environment, enhancing productivity has limits, particularly if digital tools become widely used by all players. So for the moment, in order to remain competitive, there are not many alternative solutions other than also seeking strong economies of scale. No wonder that mergers and acquisitions (M&A) volumes have hit record levels since 20087. Huge consolidations of global value chains is under way, led by big or just very efficient players in the US and Europe and a buying spree by Chinese firms seeking to escape declining domestic growth.

^{(4).} James Shotter, Lindsay Whipp, Robot revolution helps Adidas bring shoemaking back to Germany, Financial Times, June 8, 2016 http://www.ft.com/intl/cms/s/0/7eaffc5a-289c-11e6-8b18-91555f2f4fde.html?ftcamp=crm/email//nbe/techFT/product#axzz4B0D4I6uJ

^{(5).} Corinne Vadcar, Mutation des chaînes de valeur mondiales: Quelles strategies des enterprises?, Collection International n° 29, Prospective et Entreprise, CCI Paris Ile-de-France, 2016.

 $[\]textbf{(6).}\ Otaviano\ Canuto, ``What\ Happened\ to\ World\ Trade?'',\ Policy\ Brief\ 15/16,\ OCP\ Policy\ Center,\ Rabat,\ 01/06/16.\ http://www.ocppc.ma/sites/default/files/OCPPC-PB1615.pdf$

^{(7).} IMAA, "M&A Statistics", Institute for Mergers Acquisitions and Alliances. https://imaa-institute.org/statistics-mergers-acquisitions/

End of the road for commodity exporters and domestic supplychains

Finally, the lower rungs of the global value-added ladder are filled by commodity exporters (raw materials and producers of basic semi-industrialized goods) and domestically focused local industrial value chains. These segments are the big losers of the 2008 global financial crisis and of the dawn of the new digital economy. They are the ones who suffered the worse slowdown in the last five years. And they are now hit by a "double whammy"⁸: a much slower growth for their range of exports goods and a sizeable reduction in industrial foreign direct investments and off-shoring projects.

The commodity prices super-cycle of the first decade of the new century, particularly for extractive industries, is over. And it is not coming back soon. The two main engines of this natural resources golden age have lost traction: the dynamics of global industrial value chains are wearing out and China's explosive economic growth is clearly slowing down. The new service-led digital economy is much less hungry for raw materials. And China is threatened by the "middle-income trap" and by the many financial and political obstacles to its government stated goals: to speed up the transition to a more domestic market-oriented growth and a services-driven economy. Meanwhile, the huge Chinese demand for its "world's factory" chains has been dwindling away.

The recent World Bank Global Economic Prospects report has pointed out a catastrophic drop of GDP growth in emerging and developing commodity exporters. This fall is dragging down the whole "Global South" prospects: for the first time since the beginning of the 21st century, this group of countries are no longer closing the income gap with the rich world⁹. Yes, the global economy still needs food, feed, fuels and minerals. But like it or not, commodities are not anymore – if ever – a winning ticket to sustainable development. Extractive industries and agribusiness will no longer guarantee crucial balance of payments surpluses, and they are not diversified and job-friendly enough to ensure inclusive growth and decent work for a whole national polity.

The other bad news is that "old" domestic industrial value chains, even if they can benefit from protected internal markets, are less and less able to compete with transnational value chains. And their very low and subsidized margins do not leave any room for investments in productivity enhancement. Domestic demand alone cannot sustain economies of scale: national supply chains' relatively small-scale cannot face GVCs that can reach for the global market – unless one chooses to retreat into autarchy (e.g. Cuban, North Korean or even Zimbabwe models), resulting in an authoritarian regime and a general impoverishment of the population.

Boomlands and stagnant backwoods

Summing up, the global ladder that images the world's new geo-economy is a pretty rough and competitive place to be. The transition from a dominant mass production/mass consumption model to a digital networked production for customized consumption is deeply disruptive, economically, socially and politically. Winners can win big, while losers lose a lot. Historically, such violent transitions breed strong income and wealth inequality, before a new paradigm matures and readjusts to a more acceptable social distribution¹⁰. Meanwhile, it's no wonder that

^{(8).} Otaviano Canuto, op. cit.

^{(9).} World Bank, Global Economic Prospects: Divergences and Risks, June 2016, Washington D.C.

^{(10).} Ian Morris, "The Lunch Question", Global Affairs, Stratfor Global Intelligence, February 11, 2015. https://www.stratfor.com

governments around the planet are under pressure from angry citizens. Their capacity to control this global metamorphosis has clearly been impaired, even in the core countries of the "4.0 Revolution".

In the two top rungs, high-value added and high-profit service- and customer-driven production networks, as well as very high quality consumer and industrial goods, are mostly concentrated in a relatively small number of "clusters" situated in the US, Europe, Israel and Japan. Very few successful firms, and some less powerful clusters, are also scattered around the globe. Territorial concentration and the sheer pace of innovation are creating a two-speed geography: urban boomlands surrounded by large economic backwaters, either inside national borders or between nations. Until the digital economy's brake-neck pace slows down and settles to a "new normal", there is not much the rest of the world can do – besides actively upgrading its cultural and socioeconomic compound in order to become part of this new future. Or else, just helplessly standing on the sidelines.

At the bottom of the ladder, the situation is equally challenging. Old and uncompetitive light industries working for the internal market, or purely domestic P&C supply-chains, don't stand a chance in the new global environment. Systemic public subsidies and protectionist measures always end up with damaging misappropriations of scarce national resources, which are sorely needed for effective development programs, as well as comfort clientelistic practices and cronyism. Commodities producers, for their part, are in slightly better shape. Countries mainly dependent on extractive industries are doomed to suffer the roller coaster of world prices and currency swings, and the decline of global demand, but they can survive stuck into a low growth future. A big chunk of the "Global South" is part of that category: South America, most African states, Central Asia, Middle-East oil producers, a few South East Asian nations. Yet, new ICT and automation technologies can seriously boost productivity and enhance the share of services embedded in the delivery of raw materials (logistics, insurance, branding, customization...). "We should export mining, not minerals", explained the Minister of Economy and Development of Chile¹¹, a country deeply reliant on copper production. His stated goal is to multiply by ten the value of goods and services associated to mining activities through partnerships with top-tier foreign companies.

This same strategy can be – and is being – followed by extremely competitive agribusiness firms in some developing countries. These big global players – many of them in South America, particularly in meat, poultry and soya complexes – have already incorporated sophisticated technologies (big data weather prediction, automation, traceability, space imagery, GPS sensors on tractors, agri-research...) to their processes. However, their contribution to their national societies' welfare is limited, and more localized in their production areas. And they too have to endure permanent volatility of international prices, as well as the protectionism of big consumer markets and the ongoing trend of prioritizing "greener" local products. Last but not least, wider availability of these new high-tech tools to North American and European big and small producers will make competition even harder. In the end, if a huge effort to "digitalize" and "servicify" the production of commodities is successful, it could, at best, keep a national economy afloat, buying time for much more unavoidable, sensitive and long-term institutional and socio-economic structural reforms.

^{(11).} Luis Felipe Céspedes, Speaking at the 2016 International Economic Forum Latin America and the Caribbean, OECD Development Centre and Inter-American Development Bank, Paris 3 June 2016.

• The Way Up: Industrial "niches" inside US and European value-chains

The best opportunities for Latin America still lie in the middle range rungs of the global value-added ladder: supply-chains of "good enough products for good enough consumers". Indeed, without abandoning their competitive advantages in basic commodities, the only way forward is to try to climb the ladder. Many countries in the region already have decades-old experiences with manufacturing, and Brazil and Mexico do benefit from impressive industrial hubs. However, practically none of these Latino non-commodities "mass production for mass consumption" value chains have the required competitive advantages in order to become global leaders. In the new environment of GVC's dwindling margins, the unavoidable "great consolidation" of industrial chains is being led by three mega-poles: US, Europe and China/Japan. Three "families" of transnational value chains, competing and collaborating with each other, and trying to expand their production and market reach to the rest of the world – including their main contenders' turfs. This great economic rivalry has also become a race to integrate and control – or at least to build preferential business relations with the best performing outsourcing partners (tiers 2, 3 and 4 suppliers), whatever their locations in the planet¹².

For a Latin American industrial upgrading, there are not many possibilities other than seeking the best possible value-added "niches" inside the three big families of global value-added chains. It is probably the smartest and only way of fostering more sustainable economic performances. True, it is not an exceedingly exciting endeavor, but it takes time to build the judicial, political, educational, social and cultural conditions, as well as the indispensable modern infrastructure, which is needed for playing at higher levels. Meanwhile, something has to be done to answer the inexorable decline of commodity dependence and of closed uncompetitive incipient national industries. Otherwise, the gap with the rich mature economies will become unbridgeable for a very long time.

This industrial path is not an easy one. All Latin American economic and social policies are in need of deep structural reforms. A business-friendly climate, a bold opening of national economies, a much stronger domestic competition and efficient regional integration schemes will have to be encouraged. All the more since the range of possibilities is even narrower: most Latino manufacturing companies are not competitive enough to win significant "niche" market shares inside Asian GCVs. They cannot rival – yet – with the financial, educational or labor-costs advantages of South- and South-East Asian contenders, without mentioning the vast cultural and language barriers that both sides have to overcome and the fact that Asian low-end and middle-range "good-enough" goods are today the most dangerous competitors to Latin American domestic production. As a matter of fact, the region's "niche" approaches will have to target US-and European-led GVCs mainly.

^{(12).} Peerless Research Group, "Outsourcing Manufacturing: A 20/20/ view", Supply Chain Management Review, E2open, March 2015, Austin (USA). http://www.scmr.com/wp_content/e2open_wp_outsourcing_mfg_011316.pdf

• Mexico and Central America: betting the farm on North America

But Latin America is not a geopolitical or a geo-economic entity. From the Rio Bravo del Norte to Tierra del Fuego, and in spite of some common economic traits and shared Iberian heritage and languages, Luso-Hispanic America is quite diverse. Presently, in global economic terms, the region has to cope with at least two significant dividing lines. A North/South separation running more or less along the Equator, and an East/West division between Atlantic and Pacific countries, reminiscent of the old 16th century "Tordesillas line"¹³. Nearly all the countries situated north of the Equator have strong economic links to the United States and are deeply dependent on their Northern neighbor for trade and investment. Most South American nations, for their part, are "global traders", with more balanced economic relationships between themselves and with Europe, Asia and the US. But today, in the southern half of the continent, Pacific countries are following a path leading to a more open and competitive economic environment and a deeper integration into the global economy through free-trade agreements. While on the Atlantic side, Brazil and most of its Mercosur partners have been championing a much more protectionist policy – at each nation's borders and also around the trade bloc – as well as a more inward-looking industrial development.

Mexico – thanks to NAFTA (North American Free Trade Agreement) – and Central America – through CAFTA (Central America Free Trade Agreement) – have secured an open access to the humongous US market (with the usual exceptions shielding hard-nosed vested interests). This privilege had a price – at times a heavy one depending on the degrees of protection of each domestic economic sector: a countervailing opening of their own internal markets to North American firms. This new policy choice was the starting point for a development model based on active involvement in US-led transnational value chains, and on stronger regional integration of Central American value chains. The Central American Integration System (SICA) was shrewd enough to include in the agreement with the US the acceptance of cumulative rules of origin, which favors the generation of intra-SICA supply-chains. True, the US was already the biggest client, by far, of these northern Latin American economies: from 40% (Guatemala) to 75% (Mexico) of their exports go to the United States¹⁴. But the new industrial value-chain model also boosted the internal regional market: intra-zone exports, in spite of narrow domestic markets, have reached between 24% (Honduras) to 44% (El Salvador)¹⁵.

This on-going transition from quasi-total dependence on staple agriculture products – or oil, which was the case for Mexico – to more dynamic "niche" industrialization processes is due, essentially, to the political decision to accept this close North America/Central America economic integration. And in order to hedge its bets, Mexico and Central America have also concluded Association Agreements with the European Union, and have signed (or are negotiating) FTAs with some Asia-Pacific economic powerhouses (Japan, China, Korea, Singapore, Australia...).

The results are tangible. Mexico has found very profitable niches – components or final products – in North American supply-chains producing information and telecommunications equipment, cars, trucks and tractors, or medical instruments. These three sectors represent nowadays about

^{(13).} Alfredo G. A. Valladão, "The new Tordesillas line: The present great Latin America East-West divide", Quaderni IAI, n° 29, November 2007. Rome

^{(14).} Alexander Simoes, The Observatory of Economic Complexity, macro connections, MIT Media Lab, Cambridge (MA). (15). Ibidum

63% of Mexican exports, most of it to the US¹⁶, and the country has attracted huge volumes of foreign direct investment from North America and Europe, nearly 60% going to manufacturing industries. Central American players have bet on textiles: apparel production for the North American market using US (and sometimes Chinese) yarn and fiber. El Salvador, Honduras and, to lesser degree, Nicaragua have been quite successful in pursuing that path, while Guatemala is still struggling. Costa Rica is a separate case¹⁷. At the beginning of the century, its government took all the necessary measures to attract an export-driven, world-class integrated circuits manufacturing plant from Intel. The idea was to stimulate local clusters of high tech firms. This success story (integrated circuits and office machine parts represent 50% of the countries exports¹⁸) constitutes a high tech basis that enables Costa Rica to start overcoming the recent transformation of Intel's assembly plant into an R&D center: now, the country is building a niche in medical and orthopedics instruments.

• South America's great divide: outward-looking Pacific, inward-looking Atlantic

In the last few years, most South American Pacific Rim countries are trying to follow the same track. More than 60% of Chile, Peru and Colombia's exports still come from extractive industries (minerals, metals, oil) and foodstuff. They have a modest participation in GVCs as they occupy mainly forward linkages in upstream positions, which constitute the inferior lower value-added rungs of these chains¹⁹. But all three countries have negotiated free-trade agreements with the US and – together with Mexico – have rushed to be part of the Washington-led Trans-Pacific Partnership (except Colombia, but it has already shown its willingness to become a full member). They also formed the Pacific Alliance, in 2011, in order to guarantee, as a group, their central policy choice in favor of open and competitive economies, as well as their niche strategies inside global value chains. Their first reaction to the signing of TPP were clearly a glow of satisfaction about being able to have a much more competitive access to the US market and GVCs. However, they still have a long way to go. Peru has started to follow the Central America example by building an apparel production for North American and South American markets. Chile is diversifying into high-end foodstuff (wine and salmon), a technological upgrade of mining processes and financial services, while Colombia still has to wait for a more stable institutional environment. Institutional instability and unpredictability constitute even higher obstacles for the so-called "Bolivarian" countries (Venezuela, Bolivia and Ecuador) stuck into the "raw materials curse" and populist inward-looking unsustainable economic policies.

But South America's economic big prizes are still the Atlantic Mercosur member countries, particularly Brazil and Argentina. Traditionally, these two biggest GDPs in the region have mainly relied on exports of commodities (agriculture and mineral) and semi-manufactured goods from natural resources. However, they also developed relatively strong traditional technological low- and medium-level industries – São Paulo is Latin America's most important industrial hub – and even single high-tech leaders like Embraer, which benefits from its many backward

^{(16).} Ibid.

^{(17).} Theodore H. Moran, "Using FDI to Upgrade and Diversify the Export Base: the Case of Costa Rica and Intel", Foreign Investment and Supply Chains in Emerging Markets: Recurring Problems and Demonstrated Solutions, Working Paper 14-12, December, Peterson Institute for International Economics, Washington, DC 2014, pp. 8-12 https://piie.com/publications/wp/wp14-12.pdf

^{(18).} Alexandre Simoes, op. cit.

^{(19).} OECD/UN/CAF, "Country Notes", Latin America Outlook 2016. Towards a new partnership with China, OECD/United Nations/CAF 2015 pp. 185 ss.

linkages into large transnational supply chains. Yet, this industrialization process was based on import-substitution models with their array of public subsidies and protectionist measures, and their reliance on closed domestic markets and their distaste for internal or foreign competition. Since its creation in 1991, Mercosur has struggled to implement its original goals: an effective Customs' Union and a gradual stronger integration into the global economy. It still has to live with many intra-bloc tariffs and a host of regulatory obstacles, and with its incapacity to conclude any consequential trade agreements with the outside world. It is extremely difficult indeed to negotiate any FTA when your strategy is to ask for open access to your competitive products (mostly agricultural goods), while refusing any meaningful concession on opening your own domestic market to more competitive foreign industrial goods. A situation that can explain the growing restlessness of the smaller original member states, Uruguay and Paraguay, which are much more in need of wide access to the world's big economies in order to compensate for their limited internal markets.

The question now is that even Brazil and Argentina cannot pull through anymore on commodities alone. Even their high value-added agribusiness sectors are not enough. Worse still: they now have to face stagnant domestic consumer markets and a huge drop in their industries' competitiveness. Profound economic and social policy changes are becoming unavoidable. And that means painful structural and political reforms. The old protectionist patterns (internal and external) that feed and reinforce pervasive clientelistic and rentist cultures are deeply incompatible with the tenets of the new digital economy: open, competitive, well educated, permanently innovative and adaptable societies and production processes. Maybe, the recent collapses of rightist and leftist populist models in many South American countries will open the way to these sorely needed reforms. The alternative is bleak: a very long period of economic and social stagnation, and an evermore unbridgeable gap with the mature digital high-tech industrial societies of the Northern hemisphere.



