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Broadening the scope: moving from the triple to the quadruple helix of innovation or bi-regional cooperation as a tool for innovation, upgrading international specialization and restoring productivity progress.

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Introduction

During the first Academic Summit in Santiago in 2013 the need for closing the gap between universities/research centers and firms - especially SMEs - appeared clearly as one of the priority tasks for the bi-regional cooperation for promoting innovation and the development of technology based business opportunities between Europe and CELAC. Therefore, an obvious conclusion was to start by closing the gap between the Academic Summit and the parallel Business Summit organized in the same context and place, which was also drawing the attention upon the need for SMEs and firms to benefit from universities. This common concern for promoting the exchange of knowledge, technology transfer and co-creation processes to foster the competitiveness of SMEs and an equitable and sustainable socio-economic development in both regions has to be translated into at least the organization of a common seminar between participants to both summits. Although initial ambitions had to be significantly reduced as the matching events of the Business Summit were transferred to Milano by unilateral decision from the European Commission, Eurochambres and the Academic Summit organizers seized the opportunity of the existing helpdesk for SMEs on IPR for organizing a joint seminar on some aspects of innovation. The Helpdesk IPR is an instrument put in place by the European Commission for Mercosur partners which was precisely about to be extended to the whole Latin American area in July 2015.

This paper points to give the background and to identify the process at work able to justify a bi-regional approach for bringing together key European and CELAC research and innovation actors in order to contribute to solve competitiveness and trade participation of both regions.

1) What is the main goal of this joint effort of Eurochambres (in the name of the Business Summit) and IRELAC (in name of the Academic Summit) about innovation and IPR?

It is to draw upon IPR issue for focusing upon the broader process of what we name the “*2x2x2 cocktail*” i.e. the way to integrate better 2 key stakeholders (firms and universities) from 2 different regions (EU and CELAC) with the support of cooperative policies from these 2 different public actors. In other terms this 2x2x2 cocktail transforms the so-called “Triple Helix” (Firms – Universities - Governments) into a “Double Tripe Helix dynamics”, i.e. to add a fourth dimension to the interplay of the three traditional actors moving the triple helix or better to rename it a “*Quadruple Helix*”: the bi-regional cooperation allows for speeding-up the triple helix in both regions. Indeed, this additional component of putting together two regions acts as a powerful catalyzer spurring the interplay of the three respective categories of complementary actors.

2) For which main purpose should this bi-regional cooperation be activated?

The objective is to improve the respective productivity and insertion into global value chains of producers of both regions, what existing policies have been unable to do efficiently up to now.

Innovation (technological, institutional and social) leads to the growth of total factor productivity which is the key-factor ensuring sustainable output growth and social progress over the long run. Ensuring adequate productivity growth through innovation in turn depends precisely upon a combination of availability of efficient services (especially logistics supporting output for exports, like transport, infrastructures, custom organization etc.), in a context where the “rule of law” warrants for good governance, safety, stability and property rights, with a fiscal system able to warrant decentralized incentives to investment, innovation, progress of knowledge and human capital, together with the availability of undertakers who allows for flexible responses, speeding-up changes and innovative applications. With the acceleration of the globalization process in the last three decades, the strategic importance of this peculiar combination has been significantly increased, moving from a competitiveness moved by natural or existing factor endowments to a more dynamic competition across activities inside the production processes (the so-called “de-bundling” of value added increasing delocalization abilities or the “trade-in-tasks”) along “global value chains” (Baldwyn 2011).

In the present dynamic fragmentation of production worldwide, the CELAC region is trapped in a particularly weak international insertion while the EU better position is rapidly weakening and under threat of emerging economies invading the production sectors from which the EU economies use to benefit from rents as a result of their past technological advances. Productivity growth goes hand in hand with a better insertion into this permanently moving process of Global Value Chains (GVCs) which forces to try to climb into the ladder of international specialization under the threat of being caught up and overpassed by newcomers. Such an upward pressure for specialization implies necessarily to look for international cooperation between firms, researchers and (implicitly or not) governments. For SMEs of both regions this cooperation generally cannot appear spontaneously and could result only from a voluntary public-private cooperation which could precisely be accelerated by mutual international cooperation. We base this acceleration virtue upon our observation of effective international cooperation: it stimulates the public private partnership inside each region and expose national policies to the scrutiny of the partners, forcing to levelling upwards their adequacy and efficiency.

Therefore, bi-regional EU-CELAC cooperation appears as an available potential tool for organizing better a win-win game of joint-search for complementarity specializations and applied researches for increasing joint-competitiveness of both regions able to improving the joint-insertion of SMEs in the GVCs. So, Strategic Allianz -the purpose of the EU-CELAC Summits - makes more sense if priority is given to supporting internationalization of universities & firms - mostly for SMEs – by developing matching instruments and cooperative strategies for innovation, productivity and well-being. SMEs need specific supports for finding better specialization and complementarities required for entering into dynamic GVCs (information, technology transfers, quality control, adaptation to norms and regulations, distribution circuits and technological networks for training and specialized services etc.). European firms are better placed à-priori for being still more advanced, but they need anyway to identify complementarities with new partners at lower stage in the chain of production for improving their own productivity, making mutually supportive joint-strategies by firms from both regions, but allowing so to spur successful internationalization for SMEs from CELAC area in their own interest. In turn their productivity progress resulting from the external spillovers will bring competitiveness progress to the whole production chain in a mutually beneficial way for both sides. This win-win game would act as a lever for improving productivity in both regions, providing so a solution to their decreasing productivity growth.

This is urgent and necessary for our two regions: both the EU and the CELAC economies have registered decreasing trends for their total productivity growth (TFP) with CELAC presenting the worst results in comparison to other regions of the world (with even a lower level than in 1998!) and the EU being the second worst region in the world (only an average annual growth of only 0,1% in the last 15 years!).

In such a disastrous situation, there is an urgent case for strengthening this bi-regional cooperation EU-CELAC. The basic idea relies upon the very fact that the patterns of technology adoption, reallocation, and productivity growth within and between firms in both advanced regions and lagging ones, are directly complementary for strengthening respective competitiveness on world markets. The successful

integration of the Central and Eastern European countries into the EU economy in more advanced countries' production networks (especially through the German/Austrian firms strategies) shows the ideal road to follow and to apply for the relations between EU and CELAC economies. Ideal conditions of such a "win-win game" for both regional partners (EU & CELAC) could be organized along the same lines.

In the present global crisis with its acceleration of competition pressures, both European and CELAC firms must strengthen their participation to international production structure, the so-called "Global Value Chains" (GVCs) since globalization has substituted the traditional sector competition (trading products) for a new and faster competition between fragments of value-added (trading tasks) or fragments of activities. In this wild world, both regions need to find out the best partners, and they do but too slowly for not being the best (vicious circles). On the contrary, both regions show a deterioration of their structural competitiveness and insertion in the GVCs, because their total factor productivity (efficiency) is increasing at the slowest rhythm of the world. Nevertheless, the respective participation to the GVCs present clear complementarities which offer opportunities for cooperating in order to exploit these differences for improving productivity. Our main argument is simply that a closer bi-regional cooperation - focusing applied research and helping SMEs to internationalize – could speed up the technological catching-up in both regions (moving towards the production frontiers) and even provide the resources for feeding the creation of new technological leadership (moving-up the production frontier).

The reason is that inefficiencies in CELAC area are broadly different from inefficiencies in the EU. These differences offer incentives for joint-ventures for reaping the gains from moving together towards the production frontiers. Indeed, CELAC partners – being generally at lower stage in the international ladder – present bigger potential gains of efficiency just by applying (at very low costs of transfer) European technologies which in return make simultaneously EU firms more competitive outside. Most CELAC firms are working below the "possibility frontier" (of their production function) and this is also the case but with less intensity for a majority of EU firms. This feature offers an opportunity for creating synergies able to improve rapidly and at low costs the joint-competitiveness of SMEs from both regions working to common projects for penetrating or climbing higher in GVCs: EU firms brings technologies and know-how creating big productivity progress at very low costs (an upward movement towards their production frontiers) moved by the incentive of buying cheaper inputs or tasks which will make the EU firms globally more competitive, while Latin American partners benefit directly from the technological transfer and the ensured access to global markets. This is exactly what Germany/Austria reached to do with Eastern European lagging production structures and what should found the EU-CELAC cooperative strategy.

This means that a strategic cooperation between firms across the Atlantic (especially for SMEs) provides a direct way to consolidate competitiveness along Global Value Chains associating the two regions, generating common interests along with this dynamic impulse through shared productivity increases and concrete innovative opportunities which result from exploiting differences. The lagging regions would benefit directly from the existing momentum to push-up the productivity frontier in those leading sub-regions which in turn need anyway (from Latin American partners or others) better and cheaper inputs from less advanced sub-regions for comparative advantages reasons (lower costs). Indeed, the top-firms have a direct interest in contributing to make their less-advanced partners to move-up inside the existing frontier while these partners collect direct benefits from the efforts of the leader-firms to transfer and expand the technological frontier and as a result of the sunk-costs and common purposes of their cooperation, reduce the uncertainty of the global competition fight. Indeed, CELAC economies generally produce more below the productivity frontier (especially SMEs) than in the EU, making the effort to move-up at firm-level much easier and faster when incorporated into an international production chain under the scrutiny of more advanced partners which become partners sharing their risks. This dynamic specialization effect results from the combination of competition (imposed by their exposed position in a competitive global chain for attracting external partners) with cooperation (transfer of technologies, information and strategy as well as better access to marketing and distribution channels by the external partners) which is induced by the complementarities of the respective insertion into

GVCs which create common interests for improving productivity and sharing innovative process for facing outsiders from third regions.

3) Is it rational to promote a strategy between two regions sharing weaknesses of productivity by comparison with an association with the top leaders?

Cooperation between EU and CELAC partners is an economic and geo-political strategy which does not exclude a parallel research policy with the top level worldwide. We should not confuse “fundamental research” with the “applied research” at the service of EU and CELAC social objectives and economic interests. We pretend that EU-CELAC cooperation viewed as a key-instrument for building a full Strategic Partnership could be a lever for solving economic difficulties in both regions in a win-win game for improving our joint-competitiveness and creating common interests for resisting to the threats of globalization as explained above.

Although bi-regional cooperation might appear at first glance as a complication by cumulating obstacles, doubling already existing problems of cooperation or coordination in each region and adding up to their respective heterogeneities, an important thesis developed here on the basis of practical experiences, is that the opposite is true: bi-regional cooperation is a catalyst for regional cooperation in innovation and this principle is more active in the EU-CELAC than with any other region.

Three main reasons explain this apparent paradox:

The first one is that EU and CELAC share the same values and socio-economic objectives more than with any other regions, making CELAC area the best candidate for a successful Allianz with the EU. This is not just a political discourse argument, but a strategic reality: CELAC countries offer sufficient differences and divergences for creating attractive synergies as any other LDCs or emerging countries, but at the same time they offer simultaneously the closest similarities between social objectives and the kind of societies in which citizens want to live which are necessary for a binding strategic Allianz.

The second reason is the growing risk of “incentive competition” across economies with the standardization and generalization of the “Triple Helix” approach which inspires most national policymakers, generalizing the same kind of strategy but applied in isolation from other countries (and in some cases even inside the same economy between local authorities). Due to the present crisis context, facing the same constraints, governments look for the same exit strategy: to invest in R&D and promote business innovation, strengthening “national innovation systems” on their own in a segmented manner. These policies tend to become a norm generating a growing standardization of research and innovation practices, fields of inquiry and modes of organization around the world. This generates a “policy competition” with similar measures and subsidies which increase competition reduce positive cooperation and could become counterproductive. The problem is on the contrary to restore and increase research diversity in order to intensify innovation and to broaden the opportunities for matching interests and exploiting synergies. Therefore, the divided national Triple helixes must be transformed and integrated into a Quadruple Helix through a bi-regional cooperation which extends the scope and range of contacts and makes room for a win-win game.

The third argument is more pragmatic and is based upon the observed dynamics of firms and researchers involved in concrete cooperation in internationalization. Researchers and SMEs from both regions moved by the need to solve concrete issues bring to their partners their own cases of contacts and tools to partners opening concrete opportunities for cooperative productive uses, accelerating the diffusion of information and multiplying the probability of successful matching. This has a direct effect upon reducing the traditional gap between research, SMEs (inside both regions) and policies. Also the gap of productivity between bigger firms and SMEs would be easier to be reduced by offering additional incentives and opportunities for matching needs and for creating joint-ventures across the Atlantic. Helping to put directly together researchers and SMEs from Europe and CELAC regions is more efficient than acting previously at home on its own in a dispersed nationally separate way. The reason is basically the dynamics of the business/professional interests which move SMEs and universities to benefit from existing networks and instruments for collecting the spillover effects generated by extending the geographical range and the heterogeneity of cases. Respective regional heterogeneities don't add up organization difficulties but on the contrary, by multiplying information and network contacts, they simplify it as they both increase individual incentives for innovation and reduce the costs

for meeting synergies and new opportunities for SMEs which are under common external competition pressures for finding operational process and for mobilizing and improving available public tools. On this field too, bi-regional cooperation multiplies the efficiency by the exchanges of best practices and the “upwards attraction” created by the emulation across civil servants and policymakers which results from exposing each policy to the scrutiny of the other region partners (competition effects). Therefore, bi-regional cooperation could create a win-win game dynamics which would speed-up the exploitation of complementarities: heterogeneities become a fertile ground and a specific innovation incentive.

The recipe of this “*2x2x2 cocktail*” comes from the concrete incentives for moving out of the national limits, constraints but also protections, escaping traditional contacts and environment i.e. pushing to “*think-out-of-the box*” and find out new partners under external stronger competitive pressures, a key-element for managing faster changes and innovation. The result of this bi-regional cooperation cocktail should contribute to recovering a growth path for total factor productivity, in order to face the challenges of socio-economic sustainable development in both regions.

4) Conclusion and recommendations: How to implement this bi-regional cooperation for spurring innovation?

The answer is by starting from concrete cases and existing instruments like IPR-helpdesk and Alinvest programs, for broadening and extrapolating these aspects and tools to other means able to spur innovation by using bi-regional cooperation along our recipe of the *2x2x2 cocktail*” or the “Quadruple Helix”: EU-CELAC bi-regional cooperation is a catalyzer for closing simultaneously the gap between firms and universities in both regions, through reducing the gap in internationalization of firms and especially SMEs and triggering this dynamics of common interests for improving joint competitiveness along GVCs, upgrading the participation of both regions with existing instruments.

One of the main causes of the low productivity level and growth rate in the CELAC area relies in the SMEs weaknesses and shortcomings, and especially in their lower internationalization, which reflects the vicious circle of the SMEs lower productivity and higher barriers to innovation. With a lower participation of SMEs in exports, although SMEs support most of the existing jobs and output, less than one third of exports come from SMEs, while this is very different in emerging Asia where 8 of 10 SMEs is exporting. The key for reducing the productivity gap relies in SMEs.

Bi-regional cooperation initiatives should point to match European Universities with the CELAC’s ones, and simultaneously to organize the connection of SMEs from both regions for spurring their mutual internationalization and their technological and managerial evolution. An example of a concrete instrument for this action for SMEs is the IDB “connectamericas” which is a web platform for supporting internationalization efforts of the SMEs which need to find partners either for selling output or for buying inputs, materials or technics. The EU should amplify rapidly its similar instruments and to combine those into a specific platform “connect EU-CELAC SMEs”.

Starting from such kind of tool, bi-regional cooperation should focus upon identifying the barriers to SMEs exports and better specialization, and looking for operational solutions with the firms, the universities and the public instruments or policies.

