



POLICY BRIEFS

On Key Issues In Regional Integration, Vol 8

Promoting Intra-COMESA Trade
Through **Innovation**

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COMESA Secretariat



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Boosting COMESA Trade Through Innovation

Rodgers A. Wanyonyi and Hellen J. Chemnyongoi

The link between innovation and trade has been subject matter of both policy and academic debate in the recent past. Innovation is one way that firms use to establish a competitive edge. It is a source of comparative advantage when combined with factor endowments and it can drive international trade. Trade can also be a source of innovation through the effects of competition, technology transfer, and spillover. International trade exposes local firms to sophisticated international competition thereby making them to innovate to remain afloat.

Available data on innovation, as proxied by various indicators within COMESA, reveals that the region has reported significant growth in innovations. For example, the number of patent applications by both residents and non-residents has grown steadily from 1,436 applications in 2003 to over 3,400 as of 2016. Similarly, the number of journals published in COMESA Member States in the fields of science, technology, engineering and mathematics has grown from 5,713 in 2003 to over 20,000 in 2016. Despite the persistent growth in patent applications in the region, the figures are far below those of economies that the region would benchmark with such as China. World Bank data indicates that China recorded 173,372 patent applications in 2005 and over 1.3 million in 2016. Similarly, the number of technical and scientific journal articles published in China stood at 426,165 indicating a difference of more than 400,000 articles between the Chinese economy and the COMESA region.

Two questions arise from this scenario. First what are the main factors that drive innovation and second, does innovation affect the level of trade within COMESA? More specifically, policy makers would want to understand how innovation levels in the region can be boosted and how that innovation translates in greater regional trade. Policy makers within the region continue to grapple with these questions since they are faced with the problem of designing suitable policies that can help spur growth in innovation and regional trade. In this regard, there is need to establish the drivers of innovation within the region and establish the effect of innovations on trade in COMESA.

The conclusion and policy recommendation from an empirical analysis of the relationship between innovation and trade within the COMESA region is that Member States should strive to increase the levels of innovation to boost regional trade. Specifically, COMESA countries should strive to increase exports of high technology products. They should promote research in science and technology to increase the number of publications in scientific and technical journals to enhance trade.

Additionally, from a comprehensive review of the various determinants of innovation, it was apparent that innovation is a complex, multifaceted phenomenon, and it is influenced by various factors. Drivers of innovation can be summarized into five major categories namely, government policy and support, firm characteristics, research and development, culture of the general population and industry characteristics. The role of government in driving innovation should start with formulation of a proper institutional framework for innovations. This can be achieved through a proper intellectual property rights regime to ensure that producers of new knowledge are able to sell it without losing the derived monopolistic power. This should be followed by sufficient public expenditure on research and development (R&D) since R&D has been demonstrated to have a positive relationship with innovation. Additionally, investment in higher education and research institutions especially universities and technical vocational training institutions, strengthening their research, commercialization of knowledge and setting up innovation universities would spur innovation in the region. Lastly, governments can engage in public promotion of innovations by recognizing and rewarding innovators publicly.



Leveraging Innovation to Increase Intra-COMESA Trade

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Innovation generates greater competitiveness and trade, boosting integration, growth and development. Generally, countries at the top of the Global Innovation Index (GII) are also at the top of the Competitive Industrial Performance Index. Regional integration is both a driver and beneficiary of innovation. Moreover, when members of a bloc such as the Common Market for Eastern and Southern Africa (COMESA) innovate, they are likely to integrate even more with each other through investments and production (value chains), trade and knowledge mobility. African countries in general perform poorly in intellectual property in general. The average GII¹ for the top 10 countries globally for the period 2009 – 2018 was 56-65 while COMESA's average ranges between 12 and 37, a significant gap in innovation achievements. This suggests that the levels of technology innovation, are significantly lower within COMESA compared to the rest of the world (RoW).

Countries that have made significant investments accompanied with visible outcomes in innovation are more likely to have increased R&D funding as a proportion of their GDP. The limited funding to technology innovation in the COMESA region is partly reflected in the number of a country's patents. The majority of COMESA Member States have an average of less than one patent with the exception of Tunisia, Mauritius, Seychelles, and Egypt which have average patents of 9-87. When contrasted with other main importers of COMESA products, it demonstrates how huge the gap is, with Japan having close to 0.3 million average patents. This suggests that technology innovation has not been given adequate attention in the COMESA region.

There is evidence that COMESA Member States recognize the importance of Science Technology and Innovation (STI) in socio-economic and cultural development and have agreed to cooperate in various fields as stated in the decision of the 2010 COMESA Summit on Science and Technology Development. This called for the establishment of COMESA Committee on STI which has been done; and the office of advisor on STI at national level and at the COMESA Secretariat. Although there are various efforts in COMESA, these have not significantly improved COMESA's STI performance as observed. Furthermore, there is a tendency for the COMESA Member States to trade more with the RoW than among themselves. This is partly explained by the technology deficits within the COMESA region to supply the quality and type of products imported from the rest of the world. The question is; how much innovation is likely to generate a given quantity of intra-COMESA exports?

Methodology

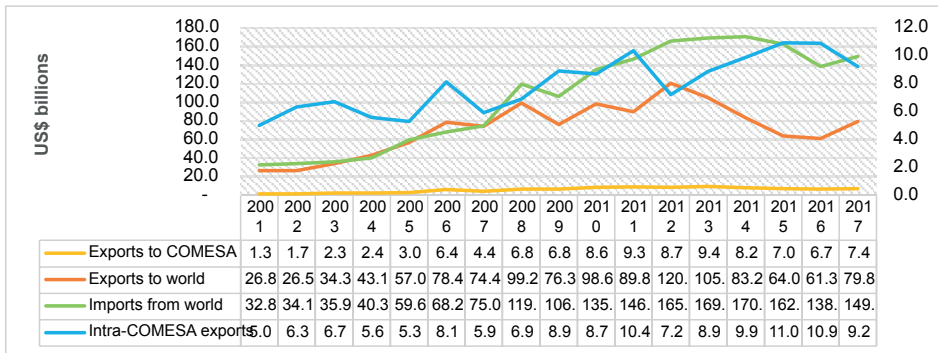
The analysis applied a gravity model using the Poisson pseudo maximum likelihood (PPML) technique to examine whether trade performance is partly attributed to the ability to innovate. It used the GII data as a proxy for technology innovation and the analysis was for the period 2007 to 2018.

Findings

Intra-COMESA exports in comparison to the RoW

Figure 1 shows trade within the COMESA region and between the COMESA region and the world. Intra-COMESA exports are low (valued at US\$ 1.7 billion in 2002, increasing to US\$ 9.4 billion in 2013). This significantly reduced to US\$ 7.4 billion by 2017. Exports to the world (COMESA inclusive) increased overtime, from US\$ 26.8 billion in 2001 to US\$ 120 billion by 2012 and then declining to US\$ 80 billion in 2017.

Figure 1: COMESA Import and Export Trade with the Region and the RoW



On the other hand, imports from the rest of the world are much higher, suggesting a trade deficit over the years. From 2007, an increase in exports has been corresponding with increased imports, probably for capital goods and to facilitate production. This trend however changed in 2014 when imports were registered at US\$ 170 billion before declining. From this analysis, we assert that intra-COMESA trade (read on the right axis in percentage) is much lower compared to COMESA exports to the RoW and yet the region heavily imports from the RoW. Specifically, the share of intra-COMESA exports, which was 5 percent in 2001 and peaked at 11 percent in 2015 fluctuated between 6 to 10 percent over the years. Therefore, although statistics suggest that regional integration has contributed to increasing intra-COMESA trade, it is still significantly low.

The export products originating from the COMESA region are not technology intensive as those imported in the region from the RoW. The region exports commodities and light manufactured products and imports high technology manufactured products. This demonstrates the low levels of technology innovation in the region. It also suggests that the COMESA bloc market for high technology products is available for Member States if regional technology innovation is tapped. The intra-regional exports largely constitute ores, coffee, tea, mineral fuels, cement, sugar and sugar confectionary, inorganic chemicals, iron and steel, tobacco, plastics, cereals, copper, animal and vegetable oils, paper boards, soap, beverages and spirits.

On the other hand the COMESA imports from the RoW constitute the following: Mineral fuels, machinery, electrical machinery, televisions, vehicles, cereals, iron and steel, pharmaceutical products, optical, photographic and cinematographic products, fertilizers, organic chemicals, wood and wood articles, aircraft, spacecraft and parts, and runner and rubber articles, sugars and confectionery. In summary the technology innovation inadequacies and deficiencies in the COMESA bloc partly explain the limited intra-regional trade and huge imports from outside the region.

Estimation Results

The GDP of the COMESA Member States is a proxy for the production capacity and size of the economy; and for importers it is the demand. The GDP of both the exporting and importing countries play a significant role in determining the level of COMESA Member States exports at 1 percent level of significance. A 1 percent increase in the GDP leads to 0.20 percent increase in exports for COMESA Member States. These results imply that Member States should strive to grow their GDP as this significantly determines the level of exports within the bloc. On the side of the GDP of the importers, increasing it by 1 percent leads to 0.13 percent increase of export trade for the Member States, 0.05 percent for the other trading partners and 0.07 percent for the combination of the two.

Import transport costs have a negative impact on COMESA export trade to both COMESA and non-COMESA import partners. Whereas a one percent increase in import transport costs leads to 0.06 percent decrease in COMESA export trade to non-COMESA partners, it leads to only 0.03 percent decrease for the combined set of importers. The results thus suggest that import transport costs are a significant impediment to COMESA export trade.

The implication of tariff reduction in the COMESA region is pronounced in the results. This result suggests that the process of tariff reduction within the bloc has been to a large extent successful. Decreasing tariffs by 1 percent among the other importers leads to increase in COMESA exports by 0.04 percent. The results thus call for continuing the liberalization process within the COMESA region to generate more intra-regional trade.

The analysis accounted for the GII index in both the exporter and importer countries. While in the exporter country, it is expected to increase exports, in the importing countries it is expected to increase consumption hence imports. Both the coefficients of the GII for the exporters and importers are positive and significant at 1 percent. An increase in the GII index by 1 percent leads to an increase in COMESA Member States imports by 0.40 percent, non-COMESA importers by 0.32 percent and a combination of the two by 0.43 percent. On the other hand, increasing the GII by 1 percent leads to a 0.5 percent increase in the level and value of exports for the COMESA Member States.

Conclusion and Policy Implications

The results suggest that indeed technology is a key element in increasing trade given that it is positively linked to improving the quality of goods and services. When countries innovate, they generate a body of knowledge that enables them to produce new products, improve existing ones and consequently improve on their levels of competitiveness. From the results, it is concluded that increasing technology innovation by 10 percent leads to increase in exports within the COMESA region by 5 percent. It is noted that technology innovation is just one of the many areas to consider in increasing exports including tariff reduction, trade facilitation to reduce costs of doing business and increase competitiveness among others.

Regarding technology innovation, it is recommended that COMESA Member States should:

- Establish a COMESA Innovation Fund, increase and target funding of R&D to generate innovative technologies to foster product improvement, development, and diversification;
- Formulate innovation policies to address institutional linkages and collaboration; weak engineering and entrepreneurship capabilities and

limited financial resources for technological innovation;

- Establish science and technology parks; artisanal and industrial clusters for purposes of incubation; and
- Provide legal and institutional frameworks to enhance technology diffusion, adaptation and harness knowledge from the rest of the world.





Innovation and the Architecture of IPR Regimes: Evidence from COMESA Countries

Professor Albert Makoche Kanwa and Mr. Shingirai Mashura

Introduction

In the contemporary world which is governed by the dictates of globalization and compounded by, among other things, free trade, foreign direct investment (FDI), and international exchange of knowledge, any given country's technological progress is dependent not only on local research and development (R&D) capital but also on foreign R&D capital (Coe and Helpman, 1995). Baker, et al (2017) contends that the 'weightless economy', that is, the economy of ideas, knowledge and information, will become an increasingly important fraction of economic output and ever more important for economic growth and development, both in developed and developing economies in the 21st Century. At the same time, Bechtold and de Rassenfosse (2019) argues that a patent policy (which is a form of an intellectual property right (IPR)) is a key component of innovation policy, which is concerned with the set of government interventions that help economic actors create, develop, transfer, and commercialize innovations.

The debate on how IPR provides a breeding ground for innovation activities which leads to trade of innovated products, services and processes has two sides on the continuum. In general, IPR are perceived as catalyst for the promotion of technological innovation and to the transfer and dissemination of technology, in a manner conducive to social and economic welfare (World Trade Organisation, Agreement on Trade-Related Aspects of Intellectual Property Rights (WTO-TRIPs) Article. 7). The proponents of IPRs base their arguments on the positive role of IPRs (Rothschild and Newman. (2002); and these includes (i) incentivization of people to be creative, (ii) rewarding of individuals for their creative efforts, (iii) afford of legal rights to people for their creative efforts, (iv) fulfilling the principle of moral rights, (v) encouraging of public disclosure of inventions, (vi) facilitation of technology transfer, (vii) promotion of growth in innovation investments, and (viii) provision of guidance towards the industrial policy and strategy of the nation.

Other scholars who supports existence of IPRs such as (Davis, 2006) provides other benefits for patents. Firstly, after investing considerable human and relationship capital and incurring significant R&D expenditures to get to the invention stage and transform it into a useful innovation that satisfies the customer/consumer needs, a given firm needs IPRs to protect such inventions and innovations against imitations. Furthermore, inventors need to have time to recover their costs and reap benefits for their efforts through superior products/services, thereby affording them to charge premium prices, and be able to invest in newer inventions. At the same time, scholars

such as Bertin and Wyatt (1988); Hanel (2006); Mansfield et al. (1981); Oppenlander (1977) among others, argue that innovators and firms could use IPRs defensively and offensively. Secondly, patents present a possible alternative source of revenue to firms through licensing or sale, in non-competing applications. Thirdly, according to Grindley and Teece (1997); Hall and Ziedonis (2001)), patents may also strengthen a firm's position in negotiations. Thus, patents establish the legal basis for cooperation. Finally, IPRs could enhance the market capitalization of the firm, acting as strategic signal of the strengths of the firm (Rivette and Kline 2000a, b). IPRs may also help the firm to attract more capital from investors and shareholders. Thus, patents may serve as indicators of firm's value

The antagonists of IPRs strongly believe that IPRs actually hinder innovation and contribute to negative effects. (Deardorff 1992) shows that IPR protection is not a reliable mantra for promoting either innovation or wellbeing of all the people in the world. According to Hamilton (1996) and Gollin (2008) some of the negative consequences of IPRs include the fact that they: prevent the public from being able to fully access the details of innovation due to exclusive rights; raises the costs to consumers; creates unhealthy monopolies; misdirects innovation efforts to just profitable areas and not to what is important to public; creates unnecessary competition rather than cooperation; are expensive to obtain and maintain that they stay out of reach of poor and unsophisticated individuals/organizations; necessitate highly bureaucratic organizations and elaborate rules of governance, and creates conflicts between legality, morality, and ethics.

Given that no scholastic research has been done on the impact of IPR on innovations in COMESA region, this study provides contextualized evidence from which Member States and policy makers can learn and be guided in terms of policy making on this particular issue. This research empirically investigates the role of IPRs protection in innovations across countries from the global South using COMESA countries as the case study, thus attempting to further the literature in the subject area in three ways. First, most existing studies that examine the relationship between IPRs and innovations focus on a single country, such as Japan the U.S., while few studies provide cross-country evidence. This COMESA cross-country study provides new evidence and lends implications to international economic policies, such as Trade Related Aspects of Intellectual Property Rights (TRIPs). Second, this paper uses a panel dataset of 12 COMESA countries for which data was available covering the period 2012 to 2017. Crucially, to obtain robust estimates, this study adopts various measures of IPRs

protection indices. Third and most crucially, whilst IPRs have become an important determinant in the extent to which a country attracts FDI into its territory, analysis of the link between IPRs, innovation in the context of developing countries becomes paramount in the development agenda of such countries.

Study objectives

The broad objective of the study was to investigate the role played by intellectual property rights (IPRs) in promoting or discouraging innovation. Specifically, the research investigated the impact of IPRs on innovation and analysed other factors that impact on innovation

Methodology

The empirical approach used in this study builds upon the theoretical model borrowed from Yang et al (2014), Pakes and Griliches (1980) and Léger (2006). Panel data econometrics was used for the period covering 2012 to 2017 on 12 COMESA countries for which data was available. These countries are Egypt, Eswatini (Formally Swaziland), Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Seychelles, Tunisia, Uganda, Zambia and Zimbabwe.

Findings

The following are the major findings of the study:

- i. As R&D expenditure is the key input of patent production, the coefficient is however not significant in the case of COMESA countries. This is in sharp contrast to other studies where R&D was found to be an important determinant of innovation. One of the possible explanations of this anomaly finding maybe the fact that there is no serious (in terms of absolute dollars spent) R&D which has resulted in innovations which resulted in life products or services that significantly enhance lives or business operations which have been done in COMESA Member States. R&D conducted in most COMESA countries are more on how best to assimilate or adapt new innovations and/or technologies which have been done in other continents.
- ii. The IPR variable, the estimated coefficients of IPR variable across all the models are negative and generally significant, though at different statistical levels. This result demonstrates that stronger IPRs protection overall discourages or negatively impact on innovations. For the case of COMESA

this finding provides evidence to the fact that IPR discourages innovation, and the finding is not unusual given the dichotomy in the literature. This study's finding is consistent with previous studies, Deardorff (1992) whose findings concluded that stronger IPR hurt developing countries. Presenting a case of the negative impact of IPR on innovation, McCalman (1999) found that the move toward stronger IPRs in developing countries may work against national economic interest, transferring rents to multinational corporate patent holders headquartered in the world's most advanced countries.

- iii. The positive and significant coefficients on GDP per capita and manufacturing variables reveal that robust economic activities and manufacturing production are an important channel which stimulates innovation in any given economic setup. The finding on GDP per capita is in line with Leger (2006) that a vibrant economic activity implies profitability, thus encouraging innovation activities by firms. A politically stable country is associated with innovation as firms can easily engage in R&D which yields new ideas, products and processes even in the long run without fear of possible expropriation or loss due to potential risks emanating from political challenges.

Conclusions and Policy Recommendations

GDP per capita and a stable political environment are important factors explaining innovating activities. IPR have a negative impact on innovative activities in the region. This is supported by the view that strong IPR may harm research which leads to innovation in developing countries. COMESA countries and policy makers are encouraged to be cautious when instituting regulations which emphasize stringent IPR. Given the level of development across the region, Member States should consider relaxed, as opposed to stringent IPR regulations in order to encourage innovation activities in COMESA region.



Does the Quality of Governance Matter in the Nexus Between Innovation and Intra-Regional Exports? **The Case of COMESA**

Adam Willie

The agenda to increase intra-regional trade has seized COMESA for a long time with minimal success. Low level of innovation and its implications on competitiveness is argued to be one of the causes of low intra trade. Furthermore, the region's lower level of innovation is reasoned to have its origins in poor quality institutions/governance existing within COMESA Member States.

While intra-African trade is just 15 percent of its trade with the world, the European Union (EU) trades 70 percent of its goods within itself. In Asia 51 percent is intra trade and 19 percent in Latin-America. This relative statistics show how Africa is remote to itself in terms of trade. COMESA pattern of trade is no different. COMESA's intra-exports averaged 12 percent of total regional trade between 2001 and 2017. This can be compared to the 50 percent and 19 percent of Southern Africa Development Community (SADC) and the Community of Sahel-Saharan States (CENSAD) respectively. Whilst intra-COMESA exports are low relative to other regions, this category of trade is also on a declining trend which calls for urgent interventions. Innovation is one possible option that COMESA can embrace to save the situation. Innovation brings with it greater potential of introducing wholly new products, designs and industries that improves the region's competitiveness to foreign products.

COMESA region has not been performing well in the innovation front. The region's output of innovation activities as reflected by number of patents filed with the European Patent Office fluctuated over the period 2008 to 2017 with an overall declining trend. COMESA Member States also scored much lower on the six World Governance Indicators (WGI) for the period 2008 to 2016. In all the six WGI, COMESA Member States scored below -0.6 on average for the period 2008 to 2016. The WGI are measured on a scale ranging from -2.5 to 2.5 with 2.5 being the best performance and -2.5 the least performance. Institutional indicators are argued to be key determinants of technological progress as they define the structure of incentives available that induce economic agents to mobilise resources so that they invest in knowledge generation activities.

Noting the presented trends in intra-exports, innovativeness and governance indicators for the COMESA region, coupled with the theoretically and empirically predicted linkages flowing from institutions through innovation to trade performance, this study hypothesised that the agenda to achieve innovation led intra-COMESA export growth should be anchored on strong reforms. Such reforms should be targeted at stimulating innovation in the region with governance playing a principal role in this effort. Put differently, the effects of innovation on exports are influenced by the quality

of institutions. High quality institutions stimulate more innovation which in turn result in more exports. On the contrary, low institutional quality retards innovation leading to low exports. This paper empirically investigated this hypothesis.

The methodology adopted to demonstrate the role of governance/institutions in the innovation and exports nexus included descriptive and econometric analysis. The empirical approach was designed to answer the question: whether institutions reinforce the impact of innovation on intra-exports of COMESA Member States.

Descriptive analysis have shown that on average each COMESA Member State filed 17 patents with the European Patents Office in the year 2016. However, there is great variability in innovativeness among Member States as reflected by a standard deviation form the mean of 37 patents, minimum of 1 and maximum of 151 patents filed. Furthermore, COMESA countries scored much lower on the governance/institutional indicators with all the six governance indicators scoring below -0.5. Preliminary analysis of correlation between exports, innovation and governance indicates that innovation is positively related to intra COMESA exports. Governance indicators that include government effectiveness, control of corruption and rule of law were found to be positively related to innovation. This sheds light, though little, to the assertion that governance reinforce the role of innovation in influencing exports.

The findings from econometric analysis are summarised as follows:

- i. Innovation was found to have a statistically significant positive relationship with intra-COMESA exports;
- ii. The interaction variables of innovation and the six governance indicators were all found to have positive and highly significant relationship with intra-COMESA exports;
- iii. The magnitude of the innovation coefficient increases as the interaction between innovation and government effectiveness is added to the model;
- iv. The magnitude of the innovation coefficient increases as the interaction of control of corruption and innovation is added to the model;
- v. The magnitude of the innovation coefficient increases as the interaction between regulatory quality and innovation is added to the model;

- vi. The magnitude of the innovation coefficient increases as the interaction of the rule of law and innovation is added to the model;
- vii. The magnitude of the innovation coefficient increases as the interaction of voice and accountability and innovation is added to the model; and
- viii. The magnitude of the innovation coefficient increases as the interaction between political stability and innovation is added to the model.

Conclusions and Policy Recommendations

Innovation is important in stimulating intra-COMESA exports and the quality of governance as captured by the six governance indicators also matters in this relationship. On the role of institutions in the nexus between innovation and trade, the study found that institutions reinforce the impact of innovation on intra- COMESA exports. High quality institutions stimulate more innovation which in turn leads to more exports.

COMESA Member States are encouraged to improve various facets of governance indicators in order to stimulate innovation led intra-COMESA exports. This includes improving the effectiveness of their governments, that is, the quality of public service, civil service and the degree of their independence from political influence, the quality of policy formulation and implementation, and the credibility of the governments' commitment to such policies. This will create a conducive environment for innovation which in turn stimulates trade. Similarly, there is need to control corruption Ensuring political stability, improving the quality of regulation, adhering to the rule of law, and enabling economic agents the freedom of expression and public accountability to encourage economic agents to invest in innovation which may lead to boosting intra COMESA exports.



Do stronger Intellectual Property Rights Stimulate Intra-COMESA Exports?

Douglas Chikabwi

Intra-COMESA exports are fairly low compared with other regions of the world. The region exports 11.9% within itself, while East Africa Community (EAC) is at 18.7%, Southern African Development Community (SADC) at 17.9%, Economic Community of West African States (ECOWAS) 8.1% and the European Union (EU) at 63.6% (UNCTADSTAT, 2019). Clearly, COMESA Member States (MS) are remote to each other than the external world. The region exports more to other regions of the world compared to itself, a situation that has made it susceptible to international shocks.

To stimulate intra-exports, COMESA MS abolished tariffs through formation of FTA in the year 2000. Nonetheless, intra-exports responded marginally. Boosting intra-COMESA exports demands a renewed focus with more attention on the elimination of non-tariff trade barriers. Theory proposes Intellectual Property Rights (IPRs) protection as a key variable of innovation-induced trade. In terms of IPRs protection, COMESA exhibits weaker IPRs protection compared to other regions. Would strengthening IPRs protection in the COMESA region stimulate intra-export flows?

Intellectual Property Rights Index (IPRI) is an innovative instrument which rank countries according to their strengths and efforts to protect both physical and intellectual property. The index overall grading scale ranges from 0 to 10, with 10 representing the strongest level of property rights protection and 0 reflecting non-existence of secure property rights in a country.

EU, SADC and EAC exhibit stronger rights protection than COMESA and ECOWAS regions. Average IPRI index scores for 2018 were EU (6.9), SADC (5.1), EAC (5.1), COMESA (4.7) and ECOWAS (4.6) out of a total of 10 index scores. Of interest, is that, regions with low average index scores, exhibit low intra- trade. For instance, COMESA exports more to regions with strong IPRs protection than itself, such as SADC and EU. This analysis suggests that weak IPRs deters COMESA region from exporting within itself as well as motivating exports to regions with strong IPRs.

Theory suggests that IPRs protection facilitates bilateral trade. Strong property rights protection induces domestic innovation while weak IPRs protection encourages imitation-led innovation. IPRs-driven innovation enhances domestic firms' competitiveness and contributes to production of new products, use of new cost saving production techniques and new product designs that ultimately motivates trade. Accordingly, regions are encouraged to establish optimal levels of IPRs protection that balances a trade-off between facilitation of imitation-led innovation and providing

incentives for domestic innovation for them to stimulate their internal trade.

The study employed the gravity model of trade analysis and counterfactual simulations methodologies to establish the impact of the current and the envisaged level of rights protection on intra-COMESA exports. The counterfactual simulations consider the impact to intra-exports “if” all COMESA MS strengthened their IPRs protection from the current status by 2 and 4 index scores. The envisioned simulations were guided by the available potential for COMESA MS towards the strongest level of property rights protection as preserved in the IPRI.

Findings

The current level of Intellectual Property Rights protection in COMESA exporting countries stimulates intra-exports by 0.001%. The same level of IPRs protection in the importing countries reduces exports by 1.5%. The net effect of the obtaining level of IPRs protection is a reduction in intra-COMESA export flows. Given that, all COMESA exporting countries increase their index scores by 2 scores, intra-exports would increase by 6.3% and reduce by 1.1% from equal increment by the importing COMESA countries. The net effect is a 5.2% increase in intra-COMESA exports.

Further, strengthening of IPRs by COMESA exporting countries by 4 scores from the current levels have insignificant effect on intra-COMESA exports, whereas, similar increase in IPRs by the importing COMESA countries would lead to a 0.5% increase in intra-COMESA exports. Consequently, the optimal level of protection is reached when all COMESA Member States increase IPRs protection by 2 scores. It is important to note that, weak and very strong protection, either below or above the established level would spur low exports.

It is therefore recommended that policy options be targeted at stimulating low levels of IPRs protection in the COMESA region. Increasing IPRs scores by 2, for all COMESA countries enables the region to realise the demonstrated potential increase in intra-exports. Member States are encouraged to strengthen IPRI components such as legal and political environment, Physical Property Rights and Intellectual Property Rights.



Incentivize the Youth to Take Part in Academic Research that Translates to Commercialization of Research Output to Harness Demographic Dividends in COMESA

Ms Jedah Nyaboe and Dr. George Kosimbei

One of the most significant determinants of economic growth is the rate of technological innovation. In an effort to spur this rate and facilitate the transfer of knowledge from universities to industries, substantial investment should be made in universities and Public Research Institutes (PRIs) to encourage research and support the education of the workforce. Achieving growth especially in the manufacturing sector in COMESA countries will therefore largely depend on the extent to which the young population take on their skills and knowledge to engage in writing science and technology journals, especially university-industry collaborative research. In addition, it depends on whether there will be adequate research and development (R&D) resources by the government and industries to provide the needed enticements that will support the transfer of knowledge from the universities to industry.

The research carried out by university researchers contributes to economic growth in numerous ways. It increases the knowledge base and the approaches available to society, as well as the ability to absorb new knowledge. The universities educate a pool of researchers that can then pursue employment in industry. New discoveries at the universities can be made available for commercialization in the private sector through patenting or licensing. Alternatively, researchers can set up their own start-ups to commercialize the patents. Patents arising out of academic projects may be an important tool in transferring technology from the universities to industry. There are also alternatives, however, in the form of R&D collaboration with companies in which the latter provide the funding and often, also own the results.

On the other hand, the government can itself conduct R&D through its own PRIs and universities. This type of R&D accounts for the major part of the government research budgets as it aims to satisfy public needs. In instances where governments provide direct funding of the companies' R&D, it is often the governments that decide what type of projects should be funded. Direct funding can, for example, be awarded to projects where the social return is high compared to the private return (the early phases of technology projects) or to projects that are useful to the government's own objectives (defense, healthcare). R&D funding that comes in the form of grants often comprise specific demands, e.g. that the company establishes cooperation with universities or other companies.

With the changing demographic structure in COMESA countries, the proportion of the youthful population has increased tremendously with 70 percent of the region's population aged below 30 years. This has resulted in increased youth unemployment

in these countries. That said, several incentive effects on academic researchers of different policies call for urgent attention in improving university-industry linkages. One of the major weaknesses of the innovation ecosystem in many economies is the existence of the “valley of death”. This arises from the realization that out of a significant proportion of research conducted in institutions of higher learning and laboratories is basic research, very little of it translates into applied research. Most of the research conducted in COMESA countries’ universities remain basic research that does not proceed to application.

Other challenges relate to incentives for the youth to take part in academic research that translates to commercialization of research output, developing and implementing policies that aim at strengthening the innovation ecosystem, developing mechanisms for harvesting intellectual property from research in universities and PRIs, providing quality tertiary education that contextualizes innovation and entrepreneurship, among others. In addition, companies under-invest in R&D because knowledge is non-excludable, and they cannot prevent someone else from using it (spillovers are created).

In addressing these challenges, first and foremost involvement of researchers is crucial in the commercialization process especially adaptation of the invention/innovation to the requirements of the market. The youth should therefore be involved in both public and private research activities conducted in universities and PRIs research, which will add to their stock of knowledge. This will in turn act as an engine for growth in the manufacturing sector through innovation and direct employment into the manufacturing sector. For this to happen more funding is required for the advancement of Technical and Vocational Education and Training (TVETs) and research activities as well as policy advocacy for the private sector to promote research and its output commercialization in the manufacturing sector. There are also counteracting incentives for researchers where prestige in the university world is measured by the number of articles published rather than the number of commercialized products. As a result, there is lack of players who are prepared to take on the role of scaling-up the universities’ small-scale laboratory work to applied R&D projects that lead to large-scale production. This calls for institutions and governments intervention in funding R&D applied projects.

Secondly, it is important to strengthen the innovation ecosystem by developing and implementing policies on the same. This will ensure that intellectual property

management system is robust and innovations and inventions are properly incentivized. A competent and well-motivated researcher will go a long way in ensuring a significant proportion of research conducted in institutions of higher learning and laboratories is translated into applied research, commercialized and the products availed to the market.

Thirdly, universities and PRIs need to develop mechanisms for harvesting intellectual property including patents from the research that is carried out. This can be achieved by coming up with interactional symposiums and incubation centers. This way, talents among students and innovative ideas can easily be identified, nurtured and eventually developed into viable businesses and products. Furthermore, governments and development partners should support provision of quality tertiary education that contextualizes innovation and entrepreneurship. On the other hand, knowledge is not something that can be downloaded for free. In order to use knowledge created by others, the ability to absorb the knowledge is required, which can be acquired through quality education, as it is difficult for anyone to get a free ride.

The governments need to pursue modalities to attain synchronization with the various research institutes and industries. This will smoothen the negotiation process for commercialization of research output and reduce mistrust between innovators and the industries. For example, if all universities and PRIs worked closely with the industries especially in conducting university-industry collaborative research, it would greatly enable researchers/students to work on projects that add value to the industries and solve issues affecting the community at large.

COMESA countries therefore need to embrace Information and Communication Technology to overcome barriers to the transfer of knowledge from universities/ PRIs to the industries. This can be done through social media networks and online training platforms which may in turn necessitate further investments in internet-related infrastructure.



The Role of Intellectual Property Rights Protection on Intra-COMESA Trade: The Case of Trademarks

Stein Masunda

Intellectual property rights (IPRs) are critical in international trade. IPRs refer to the creations of the mind such as literary and artistic works, designs, symbols names and images used in commerce which is protected by law. These include patents (inventions), copyrights, trademarks and geographical indications that enable their creators to earn recognition or financial benefit from what they create.

In the COMESA region, the use of IPRs is low. For instance, the overall number of patent application is 0.73 per million of population. Nonetheless, Rwanda, Mauritius and Kenya are rated highly in terms of intellectual property rights as measured by the intellectual property protection index while the Democratic Republic of Congo is considered the weakest. In terms of competitiveness index (global competitiveness index (GCI)), Seychelles is the best performer with the least being Burundi. COMESA countries are major users of trademarks when compared to patents. This shows that in terms of inventions, COMESA countries are not good performers with an outlier being Seychelles which has the highest applications of patents relative to its COMESA counterparts. Patents and trademarks indicate the number of applications for a million persons in the population. Malawi, Burundi and D R Congo did not have any patent application. Overall, the average number of applications in the selected countries was 0.73 per million population, which is an insignificant number. Most of the countries are above average users of intellectual property rights except Zimbabwe where such rights are weaker. The global competitiveness index ranks most of the COMESA countries as weak in terms of providing a competitive environment. Most of the countries are positioned above 100 except Mauritius, Seychelles, Egypt and Kenya.

The mean imports of the 10 selected products (tobacco, pharmaceutical, dairy, beverages, footwear, paper, furniture, clothing, rubber and plastics) averaged US\$666.97 million for the period 2000 – 2017. Most of the countries (74.2 percent) in the COMESA region speak the same language while 14.1 percent share the same border. Forty-nine percent of the countries have the same colonial history. In the COMESA region, strengthening of trademarks has no significant effect on the import volumes of trademark related products at the aggregate level. However, on a more disaggregated level, trademarks are important in the trade of tobacco, rubber, and clothing products. For tobacco products, the strengthening and enforcement of trademark related intellectual property rights lead to an increase in the import of trademark related tobacco products while an opposite effect is observed for trademark related rubber and clothing products.

Increasing IP protection by countries leads to promotion of trade for tobacco products while proving disadvantageous to countries exporting rubber, clothing and footwear products. In particular, a 1 percent increase in trademark applications (strengthening of IPRs) increases the volume of tobacco imports by 0.085 percent. Tobacco brand names are associated with quality, as such the protection of trademarks corresponds to an increase in imports of the same products. On the contrary, strengthening of trademarks creates a market power effect for rubber, clothing and footwear products leading to a decrease in imports. This is usually the case if the trademark protection corresponds to an increase in prices. A 1 percent increase in trademark applications leads to a 0.079 percent, 0.068 percent and 0.085 percent decreases in clothing, footwear, and rubber imports. This confirms the heterogeneous effects of IPRs strengthening on trade at the sectoral level. Neither the outright market power nor market expansion effects of strengthening trademarks on intra-COMESA trade has been confirmed.

COMESA countries that have the same colonial history trade more in trademark related products. However, countries that have a common official language trade less on trademark related products. This may as a result of the products originating from countries with similar languages, may be, having trademark names that could be confusingly similar. Compared with those emanating from countries using different languages, consumers may find it easy to distinguish source and origin which may lead to more trade.

The effects of strengthening of trademarks are countervailing. Strengthening of trademarks can lead to a decrease in trade if results in unfair competition as in the case of rubber, clothing, and footwear products. But if it necessitates competition as in the trade of tobacco products, then strengthening of trademarks should be embraced. Thus, trademarks should be enforced and strengthened for tobacco related products and a lax approach considered for rubber, footwear, and clothing products. There is also need for harmonization of intellectual property rights and competition laws.



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