INFANT INDUSTRY ARGUMENT: THEORETICAL FRAMEWORK AND CURRENT OPPORTUNITY OF ADOPTION

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Abstract---- This paper verifies the possibility of using Infant industry protection strategy to improve manufacturing competitiveness in developing countries. The main theoretical bases of this strategy are: its significant role in creating dynamic comparative advantages in manufacturing sector. This protection also gives the industry time to learn by doing and achieve its positive externalities. In addition, infant industry protection can be a virtual solution to market failure which may impedes the establishment of such industry. This study supports infant industry argument validity by showing successful experiences of some countries at various times in history. It is found that most countries used such policy to reach their industrialization. Some studies tried to refute the infant industry argument but they based their criticism mainly on the failure of some developing countries to correctly apply this policy, not on their theoretical justification. Despite current WTO restriction to use infant industry, the paper argues that the chance of adopting this strategy still exists. This can be mainly achieved by some policy space of WTO rules to adopt this policy, especially if these countries focus on technology intensive industries. In addition, developing countries can exploit the increasing number of Regional Trade Agreements (RTAs) to support their infant industries. RTAs extend the market size that may help infant industries to develop their competitiveness through achieving economies of scale, learning by doing and supporting backward and forward linkages.

Keywords---- Infant Industry Arguments, Competitiveness, Industry Protection.

1. Introduction
One of the most important approaches to improving manufacturing competitiveness of a certain country is to protect its infant industries. Friedrich List (1841) defines the infant industry " as a type of industry which is in its early stages of development; potentially in need of some form of protective measures in order to survive and successfully compete with (foreign) mature competitors" (Govers, 2012). Because it is in its early stage of development, the infant industry has high initial costs compared to its well-established foreign counterparts; therefore, it needs time to achieve its competitive advantage. Entrepreneurs do not have incentives to establish this
industry due to its initial high costs, so it needs temporary government protection to survive and compete internationally (Ali, 2013). However, to deserve such protection, the infant industry should have strong potentials allow it to increase its efficiency and cause its costs to decline, eventually to reach a competitive state. These potentials should involve achieving its dynamics such as learning by doing, economies of scale, and externalities (Kruger & Tuncer, 1982). It is also not necessary to associate Infant Industry protection with Import Substitution Strategy; it can be used to achieve Export Oriented industrialization. East Asian countries adopted infant industries to upgrade their export oriented strategy in addition to import substitution. Bustelo (1996) reported that South Korea and Taiwan, for example, used protection not only to substitute imports but also to enhance export sectors. In this paper, we will present the theoretical debate regarding Infant Industry Argument (section 2), as well as the criticism of such policy (section 3). It is also important to verify whether currently developed countries have adopted such policies (section 4). Section 5 shows the current restrictive WTO rules of using infant industry strategy. In section 6, we will illustrate if currently developing countries are able to use infant industry policy under the World Trade Organization rules and current global environment.

2. Infant Industry: Theoretical Arguments

The argument of infant industry was first theoretically formulated by Friedrich List (1789-1864) in Germany, who was influenced by the ideas of Alexander Hamilton (1755-1804) and Henry Cary (1793-1879) in the USA, List based his theory on the historical experiences of different countries and then introduced some new theoretical arguments. In his book The National System of Political Economy (1841), List began by criticizing the classical economics doctrine of Cosmopolitan Economics (based on the laissez-faire principle), which supports the necessity of government intervention in order to prioritize national interests. He argued that government intervention is important to establish the productive power of the country. This temporary intervention should concentrate mainly on Infant-Industry protection, because of the lack of experience and high risks involved in its establishment (Kicsi & Buta, 2010, and Shin, 2015). Protection policies should not be limited to trade, but must include macroeconomic policies to enhance the socio-economic environment. List was not against free trade; he argued that protection was only permissible when counties showed uneven levels of development, because free trade would make industrial development in the developing nation difficult and maintain the country at an unvarying developmental stage. In such a case, the protection of Infant-Industries would be necessary for industrial development. When all trade parties show similar levels of development, free trade represents gains for all countries as the differences in their natural and human resources offer more benefits.

In this section, we will review theoretical arguments of Infant Industry Strategy:

A. Dynamic comparative advantage

Ricardo’s concept of comparative advantage (1817) depends on inherited factors of production over a given period: i.e. it is a static concept. The main weakness of this static comparative advantage is its

1 List indicated that the productive power in a country is determined by many factors. These factors involve political and social institutions, natural and human resources, an industrial base, and public work.
disregard for the structural context in developing countries. In most cases, the static advantage of these countries lies in agriculture or natural resources. Relying on these activities alone may inhibit industrialization and higher economic development. The prices of agricultural goods and raw material suffer from large natural fluctuations both upward and downward. GDP fluctuates accordingly, and developing countries cannot reduce the extent of these fluctuations. Furthermore, agriculture and natural resources require skills and experience that do not correspond to industrial activities. Thus, focus on such activities hampers industrialization. In addition, agriculture and natural resources have diminishing returns to scale, which lead to deterioration in productivity, unlike specialization in activities that have increasing returns to scale such as manufacturing. Erik (1996)\(^2\) indicated that, historically, no country has ever achieved economic progress by depending only on diminishing returns to scale activities.

However, the theory of comparative advantage has not completely ignored factors of production growth; but, it has left it entirely to market forces. This does not guarantee acceleration in economic development, and it also deviates resources from industrialization (Shafaeddin, 2000). Developing countries are also unable to deal with important dynamic issues such as how to overcome the technology gap, how to face high competition from developed countries, how to improve the manufacturing sector among other factors (Ohno, 2001).

Because developed countries convinced, and even coerced, developing countries into adopting specialization based on static comparative advantage, industrialization was interrupted in its early stages. Consequently, most developing countries reverted to net export of raw materials and net import of industrial goods. Meanwhile, developed countries focused on increased return activities such as manufacturing and knowledge-intensive products (Zambakari, 2012). Many developing countries may have dynamic comparative advantages in some industries, but depending on static advantages alone makes it impossible for them to compete internationally. Protection is necessary for them to do so in the long run (Alavi, 1996).

To make matters worse, developed countries increasingly support their agriculture sector which means that developing countries quickly lose their comparative advantages in that sector. Nguyen (2008) showed that EU countries and the USA extensively support agriculture which makes producers able to export at lower than their real costs. It also ensures that developing countries will be unable to compete with those products at home or internationally. In 2002, for example, the cost of agricultural production in Europe was two or three times more than that of South Africa. However, EU subsidies for farmers make this cost just one-third of that of South Africa.

To not continue specializing only in agriculture and natural resources, it is necessary to add a dynamic meaning to the comparative advantage. The concept of a dynamic comparative advantage indicates that the comparative advantage can change over time. In other words, a nation can lose its comparative advantage over time and/or can gain another one. Developing nations ought to adopt policies to protect infant industries and then create dynamic comparative advantages in manufacturing.

\(^2\) Cited in (Zambakari, 2012)
B. Learning by doing

The term learning by doing is a dynamic process that refers to the accumulation of experience and knowledge in the process of production (Alavi, 1996). It also leads to improvement in production efficiency and a decrease in average costs (Unterschultz, Lerohl, Peng, & Gurung, 1998). In any new industry, there is learning by doing. Infant industries, however, are unable to compete internationally without government intervention due to early stage discrepancies. Government support gives these industries time to acquire knowledge and experience through learning by doing and then increase productivity and decrease their average costs (Grossman, 1989, Arrow, 1982 as cited in Alavi, 1996, and Nathan Associates Inc., 2004).

However, learning by doing within the industry only cannot justify government protection because producers can be compensated in the future. There must be also a possibility of learning spillover within and between industries (Kruger & Tuncer, 1982). In other words, to deserve protection; the establishment of the industry should not only result in internal externalities, such as economies of scale and learning by doing, but also external ones. These result from transferring the externalities into other firms in the same industry or others outside the industry. The technology spillover and gravitation of skilled workers are good examples. Without government protection, producers would not be compensated for these external externalities, and then they will have less incentive to set up these industries. In conclusion, government intervention should play an important role to support and protect this industry (Alavi, 1996, Suranovic, 2006, and Grossman, 1989).

C. Market Failure

Some studies argue that the existence of market failure requires government intervention to protect infant industries. One of the most important forms of market failure is due to imperfect capital markets in developing countries. Their financial institutions are not effective in providing investment funds, especially for new sectors. The establishment of an infant industry can only exist according to its profitability. Making small or zero profits in its early stages creates an obstacle to the development of this industry. First-best policy is to improve capital market efficiency. When governments encounter difficulties in matching this policy, they should turn to protect the infant industry as a second-best policy (Krugman & Obsfeld, 2003 and Mityakov & Portnykh, 2012).

External positive externalities, which cannot be compensated, are also considered a form of market failure. The market mechanism is unable to compensate the first producer for the costs of establishment of the infant industry while other producers benefit from this establishment, through technology or knowledge spillover, and the movement of labor. Therefore the first producer's incentive to establish such industry declines. As a result, intervention is necessary as a second-best policy to stimulate producers to develop such industry (Krugman and Obsfeld, 2003, and Ali, 2013).

D. International unfair practices

Free trade is not completely dominated as many developed countries support their own industries. In fact, almost all of today’s "rich" countries use tariff
protection and subsidies to develop their industries (Chang, 2003). For example, the USA, the European Union, and Japan increasingly subsidize or protect their industries in high-technology intensive (Orhan, 2012).

Their support is based mainly on "strategic trade policy", which relies on imperfect competition in the international market. It makes the choices of each firm (e.g. output and prices) based on the strategic decisions of other foreign companies. The state role is to make the decision of its national firm dominate in order to achieve its dynamics. These arguments involve the existence of market failure, generating external economies and economies of scale, sources of technology, R&D spillover, and innovation (Orgun, 2012).

It seems logical here to compare the strategic trade policy in developed countries and the infant industry in developing countries. They have some similar arguments. However, the first is based on imperfect competition and directs its policies to well-established industries to achieve national interests at the expense of other nations. The infant industry argument does not assume this market structure and directs policies to industries that are not established in the developing countries which also have the potential to achieve its dynamics in the future.

As long as developed countries support their industries (based theoretically on the Strategic Trade Policy), it is fair for developing countries to protect their industries based on the Infant Industry Argument. Moreover, the industrial support of developed countries puts another obstacle to industrialization of developing nations.

3. Infant Industry Criticism

There are some arguments against the use of the infant industry policy that arise in the applied framework. The possibilities of this policy to succeed, like any policy, depend on different circumstances of each country. There are several problems that can come about when governments adopt such policy. First, it is difficult to select the industry which deserves protection. It requires proper criteria to choose the candidate industries. Second, it is possible for some parties to use this policy just to achieve private interests regardless of efficiency considerations. In their book, International Economies, Krugman and Obsfeld (2003) indicated that:

In practice, it is difficult to evaluate which industry really warrants special treatment, and there are risks that a policy intended to development will end up being captured by special interest. There are many stories of infant industries that have never grown up and remain dependent on the protection. In addition, some other counterarguments also appear due to lack of information and small market size.

Many developing governments are unable to determine which industries deserve protection and for how long. This can lead firms or lobby groups submitting reasons to protect their firms. This lack of governmental decision-making can also cause resources to deviate from those deserving industries to those that can survive in free trade independently (Govers, 2012). The situation could be made worse when the protected producers claim that their industries still need protection for a longer time, not in order to compete internationally, but to benefit from that protection. In this case, protection will result in impeding, not improving, the competitiveness of these industries. To continue
benefiting from protection, the producers may also have less incentive to achieve their competitiveness (Surnavic, 2010, and Nathan Associates Inc., 2004). In addition, the infant industry argument assumes the existence of fair governments, but in practice, it may be quite different. There may be political pressure to protect certain industries, which do not have the competitive potential to achieve political interests (Nathan Associates Inc., 2004). Srinivasan & Tendulka (2002)\(^3\) indicated that attempts to help infant industry reach their aims in the five-year developmental plans in India, for example, failed to achieve public interest. The result was that this policy was used as a tool for distribution according to political interests. Nathan Associates Inc. (2004) also indicated that once protected Ghanaian industries were separated and exposed to foreign competition, the result became a negative added-value.

Ohno and Kenichi (2001) also concluded that the serious problem in adopting infant industry policy is the government inability to design and implement industrial development under temporary protection. The role of government involves not only the protected measures (e.g. tariff or subsidies), but also market failure corrections, macroeconomic management, income redistribution, and managing external integration process, etc. However, in developing countries, governments have low capacity, rigidity, red tape, corruption, low salary, political influence, etc. Consequently, it might not be possible to enhance their industrialization even with protection policies.

Another counterargument states that small market size is a barrier to achieve economies of scale returns and that it also restricts developing infant industries. Also, there are many least developing countries that have small market size compared to developed ones (Grubel, 1966, as cited in Govers, 2012). Small market-sized countries, however, can form alliances with other countries to enlarge market (Govers, 2012, and Shafaeddin, 2000).

Bell (1984) assessed the performance of infant industry application in some less developed countries. He found that many industries failed to reach international competitiveness due to some specific factors. First, governments failed to select the right industries that are in line with relative factor endowments and who cannot therefore reach international competitiveness and/or adopt the right protection policies. Second, protected industries failed to acquire technological capabilities that increased their productivity and which also helped them keep up with technological changes. The choice of production methods which were not in line with relative factor endowments was also another cause of infant industry failure. Finally, Bell (1984) also indicated that another reason was governments’ inability to overcome market failure. This inability was greatly associated with external externalities, including transfer of technological capabilities across firms. These externalities led firms not to allocate sufficient funds for technology enhancement.

Also, Gala & El-Megharbel (2008) concluded that the failure of protecting and supporting some infant industries in Egypt (1980-2000) resulted from certain factors: 1) Selected industries were outdated activities (e.g. textiles, clothing, and leather products) with a limited effect to build industrial capability, unlike the newer and more technology intensive industries; 2) The government did not associate its protection with the performance of its protected

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\(^3\) As cited in Nathan Associates Inc. (2004).
firms. This association is necessary for deciding whether or not to continue in such protection; and 3) The government did not use a specific time limit to remove its protection which led producers not to enhance their productivity while they continued receiving protection.

As can be seen, criticism of infant industries appears when nations incorrectly apply it, but it is rare to find a study that criticizes the theoretical basis of the argument. This means that this criticism shows the failure of some countries to apply infant industry strategy and disregard several cases of success as we illustrated above. However, it is necessary to mention these studies in order to realize the causes of failure to avoid them when a country intends to protect infant industries.

4. Infant Industry: International Experiences

It is useful to verify whether the currently developed and most recently industrialized countries used infant industry strategy during their early stages of industrial development. We will review some experiences of these countries.

Friedrich List based his theory of infant industries on the real experiences of already industrialized countries of his time. He says that developed countries try to throw away the ladder to prevent other countries from developing (Chang, 2001 and Chang, 2009). Shafaeddin (1998) concluded that there is no country, other than Hong Kong, that has achieved its industrialization without protecting (with different protection degrees and varying policies) its infant industries. Chang (2002) also stated that the infant industry protection was used by now developed countries to be rich in the nineteenth century. The history of developed countries industrialization proves that they depend mainly on infant industry promotion (Maddison, 1991 as cited in Siddiqui, 2015). Harrison (1994) and Tybout (1992) empirically illustrated that there was a positive correlation between such protection policy and productivity growth. We chose a sample of different countries that achieved their industrialization in different times of their history. It is useful to show how this policy is essential regardless of time. It is also crucial to show that the main difference among these countries in adopting such strategy is the existence of some changes in policy tools used for protection.

England and the USA have started their protection policies by selecting some light industries and then turned to heavy ones. Britain began adopting infant industry promotion in the 18th century. It began by protecting the wool industry which accounted for about half of British exports during the 18th centuery thanks to protection (Chang, 2001). England, then, turned to protect cotton products followed by iron. The next group of protected industries included shipbuilding, fisheries, flax and silk (Shafaeddin, 1998). The USA also commenced by protecting several light industries such as cotton cloth and wool (Chang, 2001 and Shafaeddin, 1998. Between 1824 and1864, the USA also turned to substantially protect its iron and textiles. Also, Irwin (2000) indicated the USA’s protection of the tinplate industry in the late 19th century (specifically in 1890). It also recently supported some industries such as computers, aerospace, and the internet through giving R&D support. Chang (2001) stated that all of such industries would not have existed without R&D funding by the federal government.

In respect to protective policies, England and the USA have depended mainly on tariff protection that
included higher tariff rates on imported final goods and lower rates on imported raw materials that have been used in the protected industries. The policy measures also included export subsidies and R&D funding (Chang, 2001). In England, in 1720, there was a legislation specifically aimed at promoting infant industries. It involved a decline in import duties on raw materials, duty drawbacks on imported raw materials, export duties abolition, an increase in export subsidies, a rise in duties on foreign manufacturing goods, and product quality control. Chang (2009) summarized that in the 18th century, Britain was an aggressive user of industrial and trade policies which tended to develop and support infant industries. In the USA, the first Tariff Act (1789) included protection contained high tariffs imposed on imported final goods and an exemption on raw materials from import duties (Chang, 2001, and Shafaeddin, 1998).

Canada also used the infant industry strategy; in 1879 the Canadian parliament passed what is called the National Policy. This Policy divided manufacturing goods into three categories depending on the competitive pressure they faced. As industry was more vulnerable to foreign competition, the government imposed more tariff protections (Harris et al., 2015). Harris et al. (2015) showed that the growth rate accelerated much faster in industries that received the highest rates of tariff protection. Hinton (2012) concluded that due to the National Policy Tariff of 1879, the Canadian cotton mills, as an example, grew substantially.

In 1911, Japan introduced several tariff reforms aimed at protecting its infant industries which also facilitated the import of raw materials as well as controlled luxury consumption goods (Kiyota and Okazaki, 2016 and Chang, 2001). This reform included a foreign exchange allocation system that restricted the amount of foreign exchange permitted to import each commodity. Hernandez (2005) indicated that after its occupation by American forces between 1945-52, Japan turned its focus to developing heavy industries such as shipbuilding, automobiles, steel and aluminum refining. Ohyama and Braguinsky (2001) showed that the Japanese government used some measures to subsidize a number of model factories in the cotton textile industry. The consequences of Japanese developmental efforts were significant after World War II. For instance, Japan's GDP per capita grew by 11.6% between 1960 and 1970, which was an astonishing rate compared to what was happening in most developed countries (Okuno-Fujiwara, 1991, and Chang, 2001).

It should be noted that the International Monetary Fund (IMF) and General Agreement on Tariffs and Trade (GATT) and other foreign countries requested Japan to remove its foreign exchange allocation system. In response to these pressures, Japan completely removed the foreign exchange allocation system in the 1960s. However, a new tariff system was introduced in 1961 whose primary purpose was to protect growing infant industries. This new system increased tariff rates for 251 goods out of 2233 total commodities (Kiyota and Okazaki, 2016). In addition, it used other protective measures such as tax advantages and subsidies in various forms. In the 1970s, Japan shifted its focus to technology-intensive industries, for example electronics and semiconductors. To promote these industries, Japan utilized various policy measures that were not limited to trade protection. They involved tax incentives,
R&D incentives, subsidized credit, direct subsidies, purchasing of foreign technology, barriers to entry and competition regulation, consultative system, and administrative guidance (Hernandez, 2005). Fujiwara (1991) showed that export competitiveness in a number of technology-intensive industries, particularly in the electronic sector, was mainly attributable to the infant industry promotion strategy (Okuno-Fujiwara, 1991).

Hernandez (2005) showed that there is a consensus that East Asian governments extensively intervened to upgrade their industries. There are some similarities between protective policies used in the postwar period in East Asian countries with those used in other currently developed countries. However, industrial policies in East Asian countries were more sophisticated. These policies involved better-designed export subsidies, less export tax tariff rebates for the imported raw materials and machinery for export subsidies. They also contained policies that tended to promote technological capabilities and human capital accumulation (Chang, 2001).

Bustelo (1996) showed that South Korea and Taiwan protected infant industries since the 1950s. Protections involved an export-import system which permitted firms to take import licenses according to export targets. Korea and Taiwan relied on industrial development through several protective policies (tariff and non-tariff), in addition to their support for accumulative technological capabilities to reach export objectives (Lall, 2003, and Lee, 1996). They also used certain policy measures aimed at achieving high exports. These measures included duty exemption for imported inputs, tax incentives, preferential access to capital, price controls, and facilitated credit from state-owned banks (Hernandez, 2005).

In respect to deserving industries, we found Taiwan, for example, relies on the Stanford Research Institute to select deserving infant industries. This institute helped to select plastic, apparel, home appliances, and consumer electronics until the early 1970s. Since the 1980s, Taiwan has shifted its policies to support high-tech, heavy, and petrochemical industries (Hernandez, 2005, and Lall, 2003).

With respect to Singapore, its major success factor was its ability to attract FDI by offering several incentives that increasingly focused on high-tech activities. The government intervention was focused on fields that supported the education system, R&D and infrastructure (Hernandez, 2005). Lall (2003) also indicated that Singapore adopted highly interventionist policies, but always in the context of free trade. It aimed at promoting selected industries by using policies to attract FDI inflows to achieve industrial development.

In China, despite its large market, the government realized that international competitiveness guarantees its survival in the global market. So, China has merged the protection of its local industry (as in Japan) with attracting FDI inflows (as in other East Asian countries). China selected key industries. First, from 1979-1986, it supported light industries and textiles with measures such as direct control of quantity and price, and allocation of capital and foreign exchange. It then focused on infrastructure, energy industry, and material industries (coal, oil and iron) until 1992. It also started to introduce FDI and giving incentives. From 1992 to 2001, China promoted automobile, machinery, electronics, petrochemical, construction and housing industries. Since
2001, it has been supporting high-tech industries. In general, China adopted several policies to support its industries such as financing leading industries, foreign exchange rationing, high tariffs, import quotas, and tax incentives (Kuchiki, 2007).

5. The Infant Industry policy and WTO rules

From the international experiences of adopting infant industry strategy, it is clear that countries have used three main categories of policies to develop their industries: tariff protection, subsidies, and FDI enhancement. WTO rules restricted using all of these policies. Therefore, it is more difficult for currently developing countries to promote their industries. In spite of developing countries participation in the WTO rounds, their developmental objectives are not met (Siddiqui, 2015).

In respect to tariffs, WTO restrictions included binding and decreasing import tariffs, restricting import quotas (Aggarwal and Evenett, 2014). Shafaeddin (2009) concluded that developed countries pushed developing countries to radically reduce tariffs on their industrial and agricultural goods, services, and to facilitate the activities of multinational corporations. This exchanged for slight decline in tariffs from developed countries on industrial goods and in agricultural support. Consequently, developing countries become less able to develop industries on a 'dynamic comparative advantage' basis, while developed countries gained more access to developing countries' markets, especially in industrial goods.

Subsidies are also restricted by WTO rules. The Subsidies and Countervailing Measures (SCMs) agreement restricted the ability of developing countries to adopt policies aimed at enhancing their industrial base, which depends mainly on labor and capital-intensive activities, while at the same time, this agreement facilitated the support of technological-intensive activities that are dominant in developed countries (Natsuda & Thoburn, 2014). The agreement divided subsidies into three categories. The first category is prohibited subsidies that include export subsidies and subsidies for domestic, rather than imported, inputs. The second category is the actionable subsidies that are not necessarily illegal unless other countries present a proof of injury. The third category is the permissible (or non-actionable) subsidies, which involve subsidies that their target is promoting Research and Development (R&D), regional development (assistance to disadvantaged regions or unemployment), and environmental protection (subsidies to support plant and equipment for new environmental regulations) (Natsuda & Thoburn, 2014).

It is evident from the Agreement that the usage of subsidies to enhance industrial development is restricted. Although there is a policy space which is reflected in some subsidy usage to upgrade technological activities, regional development, and environmental protection, these permissible subsidies are often more afforded by industrial economics, while developing economies have a shortage of public funds, which may create an obstacle to adopt such subsidies. In other words, the SCMs Agreement encourages the support of technological-intensive industries that are dominant in developed countries and limits the ability to support labor and capital-intensive industries that are dominant in developing countries (Shafaeddin, 2009, and Aggarwal and Evenett, 2014).

In respect to the ability of developing countries to enhance FDI, WTO also restricted this ability.
However, FDI enhancement does not mean only the absolute increase in these flows, but, more importantly, means also the necessity of achieving positive effects on the economy such as job creation; strengthening the backward and forward linkages with domestic industries, and technology transfer. “Trade-Related Investment Measures (TRIMs)” decreased developing countries ability to enhance foreign investment direct inflows. TRIMs agreement requires no discriminating treatment between domestic and foreign investors. It results in the elimination of some performance requirements and quantitative measures that governments may impose on foreign investors in order to develop backward linkages from foreign investors to domestic firms, create jobs, and transfer technology (Shafaeddin, 2009, and Aggarwal & Evenett, 2014).

Moreover, The Agreement on Trade-Related Property Rights (TRIPs) created a legal framework to protect intellectual property rights (IPRs) such as copyrights, trademarks, patents, and industrial designs. It therefore limits the abilities of developing countries to obtain technology spillover.

6. Infant Industry Policy: Current Possibility of Adoption

The developing countries’ opportunity to promote their infant industries can exist in some policy space of the WTO and Regional Trade Agreements (RTAs):

A. Policy Space in WTO rules

Despite the above mentioned restrictions, there is still policy space which is permitted after the Uruguay Round. Article 18 (Governmental Assistance to Economic Development) is the first article that takes special rights of developing countries into consideration (Whalley, 1999, and Zedillo et al. 2005). In this Article, developing countries are permitted to use protective measures and sufficient flexibilities in their tariff structure to establish a particular industry and adopt quantitative restrictions for balance of payment purposes. This article requires a form of compensation if the member uses it to establish an industry. Since 1967, there is no country used sections that require such compensation (Zedillo et al., 2005). However, Section B of this Article does not require compensation. It aimed at alleviating balance of payment problems through the imposition of quantitative restrictions on the imported products if these imports negatively affected the balance of payment and monetary reserves. Since Section B does not require compensation, several countries have used it. This section was revised in the Uruguay Round and members must now announce their time schedule to remove restrictive import measures taken to solve balance of payment problems (Zedillo et al 2005). Developing countries can use this section to promote industries through using restrictive measures on trade that protect infant industries against imports that threaten their balance of payment (Amsden, 2000).

In addition, there are other permitted provisions in specific cases that can be used to protect domestic industries in developing countries. In particular, there are some measures aimed at protecting from unfair trade practices that could distort the competitive market internationally. These measures can be found in the agreements of 'Subsidies and Countervailing Measures' (SCM), and 'Anti-dumping Measures' (ADM). These agreements permit contracting members to levy compensatory duties if the imports are subsidized and anti-dumping duties if the imports
are dumped into the domestic market (Amsden, 2000). The Safeguard Agreement moreover allows developing countries to protect their industries against the surges of imports. Countries are permitted to temporarily use import restrictions if these imports increase either in absolute term, or relative to domestic production, in a case that would lead to serious injury in competitive domestic industries. These restrictions help domestic industries to adjust structure towards improving competitiveness. Also, in Safeguard, it is approved that no measures should be used against developing countries' products if they do not exceed 3% of imports (Whalley, 1999).

With respect to foreign direct investment, the critical point in TRIMs argument is that it prohibits discrimination between domestic and foreign firms. If the policy tool does not discriminate, it will be allowed. In other words, FDI measures that do not violate the national treatment principle and which are consistent with WTO’s rules are allowed (Natsuda & Thoburn, 2014).

Developing countries can also follow a distinct approach to protect their infant industries. This can be carried out through protecting technology-intensive industries because of their importance as well as the increased policy space available to upgrade such industries.

Contemporary technology represents a main determinant to ameliorate growth and competitiveness. Technology-intensive firms innovate more, gain new markets and exploit available resources more productively. Higher technology industries expand more strongly in international trade (CIP Index, 2013). The transformation from low to medium and high technology-intensive industries offers opportunities to accumulate capital and open up for innovation, new technology and skill development. In addition, turning to technology intensive industries represents a transformation from lower to higher value added and from lower to higher productivity sub-sectors. This kind of structural change is currently needed to improve competitiveness in the manufacturing sector, especially in developing countries and to generate funds to further upgrade manufacturing.

The policy space in the WTO to enhance technology-intensive activities has also increased. In SCMs agreement, for example, the permissible subsidies are partly aim at promoting such industries. In addition, exports can be indirectly subsidized in case of establishment of science parks or export processing zones (EPZs). Also, WTO provisions related to science and technology allows developing countries to develop their mid-technology and high-technology industries through science parks, R&D national projects, in addition to temporary and transparent barriers to imports. For example, Korea, China, Taiwan, and India have recently established science parks aimed at promoting selected industries (e.g. biotechnology). They have also adopted certain policies that have included subsidies, special loans, and tax incentives (Amsden and Hikino, 2000). In addition, governments can use permitted safeguarding measures to adjust their industrial structure towards the adoption of technological improvement or modification of their production process (Raza, 2005).

To sum up, WTO rules reduced the policy usage to protect domestic industries; yet, developing countries can still currently select and protect strategic industries, especially in medium- and high-
technology. Developing countries can also select certain operations or functions such as R&D, human capital development to better develop their industries.

B. Regional Trade Agreements (RTAs)
Regional economic integration is a preferential agreement which links two or more economies through the reduction or removal of barriers to economic transactions such as tariffs and administrative controls so as to increase standards of living and peaceful relations (Abdi & Seid, 2013). Recently, RTAs have been increasing as a consequence of the WTO framework based on MEN principle. Instead of removing or reducing tariffs for all WTO parties, countries tend to do that for only a subset of countries. Therefore, they expand the market for their domestic industries without breaking WTO rules (Pokrivcak, 2007). These regional agreements become a considerable way to promote trade and growth. More than half of world trade happens in the context of such agreements (Khorana et al, 2009). Most countries, including developing ones, have joined one or more of the regional trade agreements. 312 RTAs had been notified to WTO until June 2005. All parties of WTO are members of RTAs, except Mongolia (Afifi, 2007).

RTAs have several effects. In addition to their static effects (trade creation and trade diversion⁴), they have dynamic effects. The most important of these effects is protecting infant industries. RTAs give industries an artificial “regional import substitution industrialization” environment (Abdi & Seid, 2013). In other words, a RTA expands the market in front of such industries which lets them achieve economies of scale, learning by doing and other internal and external externalities. Therefore, these industries may reach their maturation and achieve their international competitiveness. In addition, RTAs lead FDI to increase to benefit from the large market and facilitation of trade among parties. These flows may enhance backward and forward linkages and technology transfer that support domestic industries (Abdi & Seid 2013, Pokrivcak 2007, and Fox, 2004).

To sum up, RTAs are a great opportunity for developing countries to promote their infant industries especially in countries that have small market size. Some of these regional agreements have explicit articles to protect the infant industries of their parties. For example, COMESA agreement, in article 49, devotes removal of non-tariff barriers and other restrictions to infant industry protection.

7. Conclusion
The infant industry protection indicates that temporary protection should be given to a deserving industry to enable it to gain experience and compete internationally (Krugman and Obsfeld, 2003). The arguments of infant industry protection state that this policy can create dynamic comparative advantages in manufacturing, which helps ameliorate competitiveness. Otherwise, the economy would rely only on static comparative advantages which keep its production structure dependent mainly on agriculture and raw materials. Protection also gives the industry time to gain knowledge and experience through learning by doing.

Some studies also referred to the market failure (e.g. imperfect capital market and external externalities without compensation) as another reason for government protection. The study found this protection a possible solution to alleviate pressure

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⁴ Trade creation happens when higher-cost imports outside RTA members are replaced by lower-cost imports from the region. This leads to greater trade and specialization. Trade diversion takes place when lower-cost imports outside the RTA members get replaced by higher-costs imports from a RTA member.
from unfair practices internationally, such as subsidized and dumped imports. On the other hand, there are some counterarguments that arise due to inabilities to correctly apply it. For example, the government may be unable to select deserving industries, suitable protective policies, and the duration and level of such protection.

The paper also found that most currently developed countries have adopted the infant industry strategy during their industrial development periods. We reviewed experiences of several countries as examples (Britain, USA, Canada, Japan and East Asian countries). We selected countries that achieved their industrialization in different times during the history, to show that protection is vital regardless of timing, even if policy measures may differ.

World Trade Organization (WTO) rules restricted the possibilities of infant industry usage. However, developing countries can still protect certain industries under WTO rules. This can happen through: benefiting from measures that aimed at alleviating balance of payment problems, protecting from dumped and subsidized imports, as well as safeguard measures that protect from the surge of imports.

Developing countries could also benefit from the support of the GATT 1994 for technology intensive activities. They can develop their mid- and high-technology industries through science parks, Research and Development (R&D), and permissible subsidies for such activities, in addition to temporary and transparent barriers to imports.

Developing countries can also depend on their RTAs to develop their infant industries. These agreements expand the market size and protect from competitors outside the country members.

References


Ali, S. (2013). Why have most cases of infant-industry protection failed to generate benefits in terms of economic development? Retrieved from Academia.edu: https://www.academia.edu/2364603/Why_have_most_cases_of_infant-industry_protection_failed_to_generate_benefits_in_terms_of_economic_development

Amsden, A. H. (2000). High-level Round Table on Trade and Development: Directions for the Twenty-first Century, INDUSTRIALIZATION UNDER NEW WTO LAW. UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT. Bangkok.


