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# Artificial islands as a manifestation of glocalisation

**It has been adopted worldwide to talk about artificial islands in two ways – as potential areas of conflict and as oases of luxury – a perfect place to live, isolated from the hustle and bustle of the city and from unwanted people. These types of territories can contribute to the creation of ideal cities, turning into reality the utopian visions of happy cities, mentioned by philosophers over the centuries, starting from the time of Plato.**

However, an artificial island can also contribute to the escalation of various conflicts in the international arena, as the creation of artificial lands brings some kind of competitive advantage in economic or military terms. An additional area of land may in fact contribute to the development of, for example, transport – here, the seaports or airports may be created. It can also be a space for the development of the wind power industry or, for example, chemical industry, which are often somehow burdensome to the local community. Artificial islands may also be some kind of storages, where it is possible to securely locate, for example, powerful servers that store data.

Artificially created lands happen to become also the areas contributing to military advantage, where military bases, radar stations are built, and the transit of goods transported by ships can be controlled.

Thus, it is clear that an artificial island can become an important element shaping the development of a given country, but assuming that its construction is carried out under control, in accordance with a specific law. The maritime law differentiates here the terms of island and artificial island. An island is a common name for a land surrounded by water [Jędrusik, 2005], created as a result of natural geological processes, which must rise above the surface of water [Galea, 2009], also during a high tide. Islands have their own *territorial waters, contiguous zones, exclusive economic zones* [UNCLS].

Whereas, artificial islands are made by man, who used to create these types of spaces from the Middle Ages, both in Europe, and in the area of the Pacific Ocean or in South America. The definition of an artificial island was first formulated in 1930, during the *Hague Codification Conference*, where it was established that an artificial island becomes an island when it is fixed to the seabed [Grote Stoutenburg, 2015]. This artificially created land should also – according to the lawyer Gilbert Gidel – fulfil the same functions as natural islands, so it should be possible for man to exploit it [Galea, 2009]. It should also be remembered that according to these arrangements, an artificial island cannot be a temporary installation, i.e. it cannot be removed overnight [Galea, 2009], which is possible in the case of a drilling platform, although the law in this matter is

still not clear. One important information is also the fact that, according to the law in force, artificially created areas do not have their own territorial sea [UNCLS, V, 60, 8]. This entry was established so that individual states would not increase their territories [Galea, 2009]. Nowadays, however, it turns out that the definitions and the law in force have become insufficient in the situation where new technologies of construction of artificial islands are in place. For instance, the definition of an artificial island does not cover the case of floating islands. According to the United Nations Convention on the law of the sea, only the coastal countries have the right to build artificial islands [UNCLS, V, 60, 1], and they can exercise power over them, which is connected with issuing relevant decisions with regard to *customs, fiscal, health, security and immigration laws and regulations* [UNCLS, V, 60, 2], that should be binding thereof. The involved countries also have some responsibilities, as they must inform the whole world about having built or destroyed this kind of land [UNCLS, V, 60, 3]. Also the location of an artificial island is crucial, as it cannot interfere with the existing sea routes [UNCLS, V, 60, 7]. A country having an artificial island is also obliged to establish a protection zone around this type of area [UNCLS, V, 60, 4].

This last entry can induce individual states to feel that by means of creating artificial islands, they can increase their territorial range, and thus, achieve a kind of advantage over other countries, which can lead to all sorts of conflicts.

This article is mainly devoted to the economic rationales in favour of creating this kind of artificial lands and their functioning. It seems that economic geography is a good theoretical platform for this kind of considerations. In this context we can observe that building artificial islands is related to the process known as glocalisation. The economic motives for building

artificial islands can be largely explained by reaching to Paul Krugman's new economic geography. Whereas, the functioning of artificial islands in principle can be narrowed down to the concept of micro-economic equilibrium of firm, as an artificial island can be treated as its analogue.

### Artificial islands as a manifestation of glocalisation

Just like many phenomena worldwide, also the formation of artificial islands can be interpreted in the light of the phenomenon of *glocalisation*. It is justified by the fact that glocalisation is a universal process and affects, similarly to globalisation, almost every field of human activity. It is mainly concerned with, but not limited to, economic activity. The worldwide processes of integration described by the above-mentioned notions (i.e. glocalisation and globalisation), take place not only in the area of economics, but also, for example, in culture, and have already taken place (and they still occur) in technology.

However, in the area of economics, these processes have a somehow more intricate nature. In this case it is not only about imitation, i.e. transferring of certain patterns and their possible local adaptation or not, as it is especially in the case of culture (and in technology to some extent). It is not just about the fact, as it is especially in technology (although in the culture to some extent as well) that the nature of the physical world is similar everywhere, so optimal technical solutions applied in different places should be quite similar. The point is that in the area of economics, these processes are the result of mechanisms also other than imitation or resulting from a unitary physical nature of the world, since in the economics, these two processes are the effect of transformations mutually conditioning themselves that change the functioning of economic algorithms governing the world

economy. Explaining the nature of these processes in this case is a bit more difficult from the theoretical point of view. Whereas, from the practical point of view, the formulation of possible recommendations for the economic policy, both for the entire countries as well as for individual microeconomic entities, turns out to be very difficult. Of course, in the area of culture, these phenomena can also be complex, but without so significant consequences for politics and decision makers, as in the case of economics.

### **The notion of glocalisation and the essence of glocalisation as a two-way process**

Lexically, the notion of *glocalisation* has been created by the fusion of the words globalisation and localisation, and according to the intention of its first users, this term was supposed to mean a process that combines the trend to produce for the global market, with simultaneous adjusting of the product to local conditions and needs. It is, therefore, about working according to the principle “think globally act locally”, and originally this term referred only to the narrow area of economics, that is to marketing. However, today, the process of glocalisation includes also, for example, indigenisation, creolisation, and hybridisation accompanying globalisation. These notions were originally related to phenomena occurring in culture, after the notion of glocalisation has been transposed by R. Robertson [2004] from marketing economics to culture.

It turns out, though, that also in the area of economics as such, these three phenomena occur and they can be extensively explained on the basis of the theory of trade, and especially on the basis of the so-called new economic geography of P. Krugman [1997, 1998]. A deeper analysis leads to the conclusion that on the grounds of economic theory, glocalisation should be interpreted as a process of trade

expansion, which has certain specific features, observed for some time in the economic reality of the world [compare Kuciński, 2011 a].

Currently, glocalisation should not be understood only as originally, as a globalisation taking into account the needs of the local recipient of a “global product”, i.e. a product intended for the market of the entire world. This is also the situation, when a local product becomes a global one, even if it happens only partially (i.e. the product is subject to internationalisation, although not necessarily immediately becoming a global one). In the first case, we have only the situation, where the global product is produced in some different versions, in order to respond better to the needs of the local consumer, and increase sales, in this way getting ahead of the competition. In the second case, we have the situation, where opening of local markets to the production intentionally planned for the market of the entire world is accompanied by opening of the world to the local production. For the global product to penetrate further to numerous but narrow local markets, it must be adjusted more to the local needs and conditions, also, for example, cultural ones. At the same time however, the vast world market is able to absorb even not so much excellent local products, usually produced in relatively small volumes. The window for glocalisation becomes a window to the world in the opposite direction, which means it can be, but does not have to be, a development opportunity for particular locations.

### **Static reasons behind glocalisation**

The static reasons for the occurrence of glocalisation include the logistic and the economic reasons *sensu stricto*. The first relate to the natural transport economics, consisting in that the consequential costs of transport can be lowered if on the way back the means of transport is used

in some manner. This results in searching for goods that for a small fee are barely profitable to be transported in the return stream of the means of transport. The basic stream of appealing goods can, thus, partially cover the costs of transport of goods that are less attractive on the way back – goods that in the existing cost conditions would not be transported independently. Still, these goods are transported because the means of transport must return to its initial point, to make its another basic course. “Breaking the window” to a local market, consisting in, for example, building a port that can operate in both ways or abolishing administrative restrictions (duties), will also generate exports of local goods, and not only imports of global products, just for logistic reasons. Such a port can involve the creation of an artificial island.

Apart from logistic reasons, there are also sheer economic (also static) reasons, resulting from the nature of international trade. A trade imbalance consisting of a surplus growth in imports over exports in terms of value, causes (to be more precise, contributes to) a fall in the exchange rate of the local currency, so the foreign products become relatively more expensive on the domestic market and the domestic products relatively cheaper on the foreign markets. This phenomenon will foster a relative growth in the value of exports of local products, for which the price elasticity in exports is high. These exports, at least partially, will compensate for the surplus in imports. Also in the countries prevailing on the market of global goods (usually it applies to more developed economies), a similar phenomenon will occur, but in the opposite direction. The trade imbalance consisting of a surplus growth in exports over imports in terms of value, will cause (contribute to) an increase in the exchange rate of the currency of the given country. This will cause the foreign products to become relatively cheaper on

the domestic market and the domestic products relatively more expensive on the foreign markets. This phenomenon will foster a relative growth in the value of imports of local products from other countries, at least partially compensating for the surplus in exports (and also here it is about products with high price elasticity). These purely economic processes are here understood in value terms, i.e. all goods and services subject to exchange are expressed in monetary units.

A very large non-equilibrium in the balance of foreign trade is therefore unsustainable in the long run. The penetration of global goods, usually produced by technical civilisations preponderant in a given period (i.e. the centres belonging to the so-called *core*), to foreign local centres that do not belong to the core (the so-called *periphery*), will be always accompanied by a transport of local goods from the periphery to the core. This usually means a continuous presence of a development opportunity for countries that are relatively retarded, which theoretically can use exports as a development lever in overcoming their relative backwardness (*vide* the so-called Asian Tigers) [Kuciński, 2011 a]. Here, we are considering the total streams of exports and imports. The imbalance in economic terms in bilateral relations can be compensated in multilateral trade (polygonal trade), which is facilitated by e.g. the application of a unified standardised container technology from the point of view of logistics.

### **Dynamic reasons behind glocalisation**

The above mentioned static reasons concerned a situation in which the cost algorithms governing the foreign trade did not change substantially. However, in the long run, the most important component of cost circumstances in international trade, i.e. the costs of transport, can significantly change. Their reduction

can happen as a result of the technological progress, including in particular the introduction of new propulsion technologies in the means of transport, such as: sail, steam engine, internal combustion engine, electric engine, which subsequently are more and more economically efficient in the field of their application. A particularly important matter is also the introduction of new construction materials, that is mainly steel, instead of former materials, that is mostly wood, allowing for designing and building of larger means of transport with larger capacities, which due to the positive economies of scale are cheaper per units of transported goods. Substantially important is the investment activity in the scope of building an infrastructure supporting the means of transport. This applies to the investments in structures such as ports, channels, roads, bridges, rail roads, etc. Also a suitable investment level into the replacement of older generations of the means of transport by the new ones is important. Recently, decreasing in sizes gained importance, in particular in the weight of the newer generations of some goods, which are much cheaper in transport, while maintaining their utility. Such goods have a larger market range compared to the traditional ones. For example, flat-screen TVs, and computer monitors, keeping the same or even better utility, are much cheaper in transport compared to traditional CRT devices. So, they are able to “penetrate” the space of the international trade much more. One of the elements of this process of lowering costs of transport may also be an artificial island as a seaport or an airport, when there is no other way to avoid the use of this solution.

The decrease in the costs of transport per unit causes, firstly, an increase of the number of goods, the shipment of which is profitable. More and more goods which were untradeable (*untradables*) become commodities that can be internationally

traded (*tradables*). This happens until a ceiling is reached, at which all goods become tradables, except for some relatively small group of goods, and particularly services closely related to a given location. Secondly, the streams of trade of each commodity will grow. Theoretically, this is going to happen until a certain level is reached, at which the distribution of all goods becomes uniform (proportional to the spatial distribution of the aggregated demand) in the entire space of the integrated markets, assuming uniform tastes and needs of the consumers [Kotlewski, 2013]. In theory, each commodity, which used to be untradeable, will eventually become a commodity uniformly available throughout the common trading space, that is in the entire common market. In the history of civilisation, there were also new products, which immediately became tradables (such as cars), and nowadays also goods that immediately become global products (such as mobile phones). Significant differences in consumer tastes and needs are levelled following globalisation.

With respect to a single commodity or rather a group of substitutable goods, these processes firstly cause the appearance of a competition between many centres that initially produced a given commodity (or a group of substitutable goods), as the barrier in the form of high costs of transport, protecting from competition, disappears. This competition is won by some centres at the expense of others, and finally centres prevailing in the production of a given good evolve, due to an initial advantage resulting from a favourable geographical position or an advantage achieved historically. Because of some substitutability between many goods and their frequent complementarity, and most of all, due to their similarity in relative transport conditions, this issue should be analysed for a “bundle”

of goods with similar transport costs, the bundle of commercial goods specific for a given historical period. In this way, the above-mentioned centres that belong to the so-called core and the so-called periphery emerge in terms of economic activity. In a given historical period, the centres belonging to the core are usually more advanced than those from the periphery also in other civilisation fields.

This phenomenon has been accelerated and amplified in the 19th century, causing over time that the economics gained preponderance, or in any case, started to play a far greater role, in relation to the political and military factors, in the emergence of such centres forming a “constellation” of countries belonging to the core. The last stage of this process, especially from the economic point of view, is globalisation. Its final result is the formation of three super-centres, of a *triad* of countries. It includes some of the countries of the Far East (starting from Japan), Western Europe and North America. The countries of this triad, gained an almost complete dominance over the rest of the world in exports of global goods.

The dynamics of the falling costs of transport does not stop at this level, though. With further decrease of the costs of transport, the logistic infrastructure associated with the countries of the core can be used by the peripheral countries to distribute the goods produced locally on the immense global market, as the costs of transport will gradually fall further, below the difference in the costs of production between the core and the periphery, difference resulting mainly from differences in the costs of labour and the costs of congestion (e.g. prices of land and renting premises). This phenomenon leads also to the so-called relocation of the economic activity from the core to the periphery. Given the size of the global market compared to a local market, in the

conditions of increasingly lower costs of transport, the local centre can effectively sell its own, local products, which are not necessarily outstanding in quality. Taking over of the relocated production of goods subject to standardisation, strengthens this process of bilateral trade integration even more. In its later development, this centre, which was initially peripheral, can move from price competition to quality competition, which ultimately can mean further a shifting of the given local centre to the group of countries belonging to the current core – but it requires time, and as it is known is not always successful (*vide* the middle development trap), also because it increasingly interferes with the interests of countries of the current core.

In turn, at this stage of development, the centres belonging to the core are left only with further adjustment of the global product to the already less numerous unconquered small local markets, that is acting in accordance with the original marketing meaning of the term glocalisation or, what can be increasingly difficult, but in more modern times often proved to be effective, the continuation of bringing to life new global products at the faster pace than the process of relocation of the manufacturing of standardised products. In the economy based increasingly on services, the countries of the core also take over for themselves supplying the global market with the most profitable kinds of services.

*Il va de soi*, that currently glocalisation in the field of international economics and in the field of regional science, must be understood more broadly as a process involving also the migration of production factors, besides the two-way movement of goods. The so-called relocation is naturally accompanied by indigenisation, creolisation, and hybridisation, as the market economy will explore different combined solutions on its own in the

search for the best one at a given stage of development and in the given conditions. When we divide goods into bundles with similar costs of transport, it can be concluded that for many such bundles of goods, the process of relocation is already well advanced, while for other bundles of goods the process of concentration continues in the centres belonging to the core. This last phenomenon, involving simultaneous occurrence of relocation and concentration of the economic activity should also be considered as a phenomenon consistent with the process known as glocalisation and it is also the integral part of the new economic geography of P. Krugman [1997, 1998].

### **Unpredictability of global integration process outcomes**

The processes described above cause, among others, that the future development of the centres belonging to the core and the existing periphery becomes difficult to be correctly predicted. It is not exactly clear in which direction will the evolution of the economic geography of the world go, as an element of chaos is appearing in this process and it is happening at the time, when with Paul Krugman's new economic geography the above phenomena are successfully formally explained, and it can be said that they were basically predictable, with the exception of the political and military factor which used to be more important before in the creation of core civilisation centres. The creation of artificial islands as ports of strategic importance, sometimes determining even the civilisational development of certain areas, can be considered as an intervention element in these processes. Such an example would be Venice, which given some assumptions, can be regarded as a kind of structure in the nature of an artificial island.

Unpredictability here means as much as the fact that it is unknown whether and

which centres of the core are doomed to fail in the coming future. It is also unknown which parts of the periphery will become part of the core. The core, consisting of a constellation of a certain number of countries, in a very long run, takes the form of an "amoeba" crawling over the planet, whose behaviour, much before the occurrence of these considerations on globalisation, glocalisation and the new economic geography, was governed by processes not quite deterministic. It is because this evolution is subject to too many variables and by some analogy, it can be stated that it is governed by chaos. This analogy is the move of multiple stars in the space. It is well known that the location of double stars can be foreseen, it is difficult to foresee the location of triple stars, but the location of multiple stars, starting from quadruple stars cannot be deterministically foreseen, as the number of variables in the equations precludes their solution, and this problem remains impassable, also on the grounds of theoretical mathematics. In this case, the deterministic issue changes into a probabilistic one.

What are the variables that for the purpose of this analysis (rather qualitative) will be grouped and named more generally as circumstances? In the bilateral relationship between the core and the periphery, we have at least three groups of them. Firstly, it is not known whether the given country from the periphery will make use of the chance to join the core in the conditions of today's stage of the broadly understood glocalisation, as it is known that it happens only sometimes (e.g. in the case of the above-mentioned Asian Tigers). The process of joining the core is not only a deterministic mathematical economic process at the macro-economic level, but it is also related to the development of some cultural and institutional features (business culture,

work ethos, law and order institutions, education, optimistic mentality, etc.). The leadership of the given country must be of high quality for a long period of time and be fortunate when making some risky decisions. There were countries that made rational decisions, but which historically turned out to be wrong.

Secondly, since not everyone will join the core, it cannot be prejudged whether a country of the established core will not be able to stay there. Its strength on the world market as a large country of the core can allow it (like to the Sumo wrestler) to carry out such an economic policy which will compensate for these elements of the glocalisation process that are disadvantageous to the centres belonging to the core. A natural economic process can be turned into a controlled one, taking into account a deliberate use of the advantage already held, such as, for example, in the case of the so-called strategic trade policy. Large countries of the core can dictate to their economic environment regulatory solutions and standards that are most comfortable to them and are responding to their own geographical positions. They can also monopolise some activities (e.g. stock exchanges), which with the force of inertia will remain in the existing area of the core.

Thirdly, what is also associated with the above-mentioned second group of circumstances, services, that are gaining in significance, are largely free from Krugmanian algorithms. For banking, financial and insurance services, the costs of transport are irrelevant, whereas the initial advantage of the massiveness of the core over the peripheral countries is significant. The peripheral countries in a given period, the so-called emerging markets and emerging economies, can get stuck mostly in the so-called middle development trap.

## **Internationalisation and indigenisation of economic activity**

The internationalisation of the economic activity in the context presented here should be understood as a phenomenon consisting of not only the production of goods intended in advance for the global market, but also consisting of the use of global resources during their production, without discrimination on the grounds of origin. Those are resources such as raw materials, but also (and especially) semi-finished products and components. Today, most of the global products contain components from many parts of the world. For the countries of the core it means relocation of some stages of production to the peripheral countries. It is facilitated as the so-called “brand” of the product, usually insurmountably guarded by the countries of the core, refers rather to the finished product. Relocation of a part of the production from the core means locating the production on the periphery. In this way, the creation of a more competitive global product starts to be accompanied by the search for relevant locations, which have not been taken into account previously, for the production of its components. This phenomenon should also be considered as part of the glocalisation process. Of course, the resources include also the capital resources (in the case of which globalisation happened earlier), which nowadays flows in two directions, i.e. both from the core to the periphery, and from the periphery to the core, and the labour resources (although in this case to a limited extent), when e.g. appropriate experts are searched for on the global labour market.

But there is also the indigenisation of the economic activity. It is a situation, when during the production of the global product, located in a particular country partly on the basis of external factor resources, i.e. for example external components and external management, and pos-



sibly others, these external factor resources are replaced by local factor resources. The variants of these phenomena are creolisation and hybridisation. Creolisation best refers to culture, and means blending of “global” culture with local culture (formerly culture of a metropolis controlling a given colony with the own culture of the colony) inseparably. In the case of production of goods, it can be understood as the production on the basis of a mixture of components of different origin, including in particular mixed components, containing inseparably both the elements produced locally and globally, elements involving also the mixed production factor resources, including the mixed local and world technical knowledge (which somehow approaches this phenomenon to an analogous one occurring in culture). In turn, hybridisation concerns the production of products on the basis of combining some components, or larger parts from different geographical origins, components that are sometimes based on completely different technical thoughts (e.g. the construction of portions of aircraft fuselage from aluminium in the “honeycomb” technology or from composite materials, sometimes completely interchangeably). In this context, indigenisation, creolisation, and hybridisation should also be considered as a manifestation of glocalisation. An artificial island treated as a real and virtual port (which will be discussed later on) will strengthen these processes.

### **Homogenisation and heterogenisation of locations**

Homogenisation of locations is about different locations becoming uniform between each other, as a result of displacing of local products by global products that are similar around the world. It can include also local products which by means of internationalisation gradually take on the features of global products. Due to

their continuously increasing share on the local markets, the growth rate of global products is higher than that of the local ones in the so-called long run. This results in their more beneficial impact on the pace of economic growth than in the case of local products. The peripheral countries that want to catch up with the countries of the core and to join the core should, therefore, launch the production of global products in their homelands (even if they are only components), and transform their own local products into internationalised products, and in time even global products. As these global products are heterogeneous, from the point of view of their components (more generally, the contribution of production factors of different origin), it is mainly about the participation in their production. Of course, sometimes there are “shortcuts” in catching up with the countries of the core by means of certain specific products, taking the role of accelerated levers of development at times, but usually the countries of the core or near the core do maintain the predominance in their establishing (such product was for example Finland’s Nokia mobile phones in their time).

Product homogenisation of different locations facilitates other flows, e.g. the migration of people (including tourism), as it levels down cultural barriers between locations, cultural barriers present also in products. It also favours production moving due to the wide availability of similar complementary products (process not concerning here the aforementioned components), additionally well-recognisable to the international management cadres.

Apart from homogenisation of different locations on a global scale, there happens also a heterogenisation of each location inside it. Local markets are often initially (i.e. before the qualitative change coming with globalisation and glocalisation) dominated by single products, single

technical solutions, and also by local monopolies in the classical microeconomic sense, and the institutional network monopolies (monopolies in energy supply, telecommunications, communications, and the like).

Opening of locations to the world results in a partially automatic elimination of these technical and/or economic monocultures and of these monopolies, and partially in their controlled elimination (more or less successful) by the economic policy of a given country. The trade balance with the external world can be sustained when local products also internationalise, gradually becoming global, and when the locations host the production of global products, or at least take part in their production. Economies of scale at the local level, which were the economic reason (apart from other reasons) lying behind the perpetuation of these local monocultures and monopolies, are being replaced by the economies of scale achieved by exports of products to the broad world market.

Theoretically, the existence of the broad world market allows for product heterogenisation on the local markets without losing the benefits from the economies of scale, both in the core and on the periphery (these phenomena are best described by P. Krugman [1990]). The countries of the core trading between themselves benefit so far mostly from this process of mutual commercial integration.

### **Artificial island as a real and virtual port**

Not all locations significantly benefit from the process of glocalisation. It is so for a variety of reasons. These include also such, reference to which could violate the “political correctness”. It concerns the phenomena that are euphemistically called for example “business culture”, “ethos of work”, etc. Generally it applies

to the cultural differences, had they not occurred, there would be no reasons for differentiation in the level of economic development of different locations of the same development potential. The level of economic development of particular locations could have also been determined historically, as a result of achieving, sometimes even in a very distant past, of a location advantage resulting from the effect of being first, which is clearly indicated by P. Krugman [1997, 1998] in his new economic geography. A formerly established centre, even artificially, for example a capital city of some empire, has an advantage referred to generally as the economies of agglomeration, which must be understood *sensu stricto* in accordance with the regional science literature, such as in R. Domański [2012]. They include, among others, the economies of scale, which gained particular significance after the industrial revolution of the 19th century. Among them, there are also the so-called localisation economies, which involve, for example in trading, the search for common places (bazaars, cloth halls, and now shopping malls) to do business, also competing with other businesses, as it increases the demand from consumers that want to have a choice and the possibility to do more comprehensive shopping. The third component of the agglomeration economies are the urbanisation economies. They concern a situation where, due to the concentration of economic activity, their participants benefit thanks to the access to a common labour market, to a common market of services and products, especially those with a short range in terms of transport. The common market of labour and services frees, for example, the entrepreneurs from having to organise their own training of local staff, from creating artificial living conditions for the “imported” professionals on the periphery, from maintaining employee reserves in their own firms, from maintaining their

own support services and auxiliary production, as the *outsourcing* can be used, thanks to the existence of a large specialised market of those services and products in the given location (e.g. large city).

But, the causes lying behind a differentiation in economic development of locations, which manifests itself by the appearance of a core and a periphery, include also objective, material circumstances, resulting from the physical geography of the world. In the economic geography of the world, it can be found just by cursory observation that the centres of economic activity are located most often on the sea coasts or nearby. Locations without good access to the sea are closed locations, of which the markets are less connected with the world, due to the qualitative difference between the relatively high costs of land transport and the relatively low costs of maritime transport. This isolation, due to the lack of access to the sea, causes also that the centres belonging to the core are seldom there. The few exceptions (e.g. in the past, Baghdad and Samarkand, etc. located on the Silk Road) are related with this limitation being surmounted. Closed locations can occur also on the coast, when there is no suitable place to build a seaport. This reasoning also applies in some (still limited) extent to airports (localisation of a suitable airport), and to virtual ports, broadly understood here as the ports through which all kinds of information flows. In this context, an artificial island can be a gateway to globality and a port to locality, as it can be the mean to overcome the isolation of closed locations. It can be a port/gateway in the classic sense, i.e. create access to the world ocean, which due to the low costs of maritime transport remains a “transmission belt” for the globalisation process and naturally for glocalisation (*pontos* – the world ocean). But there are examples of artificial islands that open locations in different ways, such as Kansai Airport in Japan. The closeness

in this case involved the lack of a relevant flat space for the construction of an airport, which limited the local development potential related to communication with the world, enabled by the new airport on an artificial island. The artificial island in this case is a “prosthesis” of the missing location for the access port. It becomes part of the infrastructure of the previously closed location.

An artificial island can, therefore, be a real port, though not necessarily a seaport. But it can also be a “virtual” port. The new space of an artificial island can be freely shaped like a city built from scratch. Thus, it can be designed as a particularly appealing site, which is necessary due to the high investment costs that in this case preclude the advisability of building trivial objects. The artificial island then becomes an alternative to the gentrification of cities. The phenomenon of returning elites to city centres can meet competition created by the new attractive crowding on an artificial island. The function of a city as a centre of wealth accumulation can be also performed by an artificial island. Then, the artificial island becomes an analogue of a city, and the city in this context is nothing else but a port to the world for the location, and a port to the location for the world, and this particularly in the virtual sense, as a place of flow of all kinds of information, embodied or unembodied in matter. This information flows also with the people travelling through a given centre, and meeting in a given centre. The artificial island in this context becomes a “storefront of the world” to the previously closed location, and it is a place launching the previously closed location to the world. This promotion includes any freight traffic, services, including tourism, and the flows of broadly understood information, a part of which is directly related to the flows of wealth, and this part which is not directly related to payments,

has an indirect, long-run impact on it. In this context, the artificial island can stand as a virtual port also in places where the existing real port is not suitable for this purpose, for example due to its unattractive, excessively industrial shape. Therefore, it can also support the existing open locations.

### **Artificial island as an analogue of a firm**

The firm is a microeconomic entity defined in a specific way, which is subject to the well-known microeconomic laws, related to the so-called marginal revolution, within the framework of which the theory of producer behaviour and the concept of firm equilibrium have been created. A firm can, therefore, be understood as a “piece of the economy”, which is different from other “pieces” freely cut from the economy in that it must have a positive economic result, i.e. it cannot make losses in the longer run, as otherwise it will go bankrupt and will no longer remain to be a firm, as it is then acquired or liquidated (it seeks to maximise its total profit). For instance, if there are three firms, one of which starts to make losses, and then, if they are merged into one firm, it may turn out that as a whole they are again in a positive balance with the external economy. Thence, inside the firm, there can be parts of negative profitability, but as a whole, the firm must have a positive economic result, at least in the longer run (we ignore the circumstances of short-run losses, e.g. related to the business cycle). This circumstance concerns also the remaining microeconomic entities, such as households which can also have subjects with negative profitability, but as a whole should be in a positive economic balance with the external world.

From this feature of the firm arises the fact that e.g. a city can be treated as an analogue of a firm, as any city with negative economic results will gradually die

out. In our approach, what is characteristic for a city as a “piece of the economy” is that it should have a positive economic result, which is not necessarily true in the case of other “pieces” of similar size differently cut from the economy. Therefore, even if an investor is a public investor, and not only a private one, as it often happens when setting up new towns, in the case of this kind of investments, it is usually assumed that the new town will be profitable at least in the long run. This means that a city should be managed as an analogue of a firm as a whole, and not only according to accounting and budgetary terms.

All this applies perhaps even more to an artificial island. An entity of this kind should be distinguishing itself by a long-run positive economic result. Any activity related to an artificial island as a whole should exhibit positive economic results in total, otherwise the artificial island will become a “ball and chain” for the rest of the economy of a given country. This kind of entity with negative profitability will be finally abandoned, or discarded in some other way. This means that an artificial island also is in fact an analogue of a firm to an even greater degree than a traditional city and should be managed in a similar way as a firm.

The specificity of this management is the fact that the division into fixed and variable costs for an artificial island remains in the long run. It is a result of the fact that the fixed cost related with the initial investment in the construction of an artificial island and its entire infrastructure has a very long pay-back period, and further generates the fixed cost related to preventing this investment from deterioration. In accordance with the microeconomic theory of producer behaviour, an artificial island should be kept alive until the revenues from its activities cover at least its variable cost, the share of which

in the case of an artificial island is definitely lower compared to typical firms. So even when the investment in an artificial island was *de facto* an extravagance of a country experiencing a “temporary” economic boom, the failure to meet the economic expectations related to this object is not yet a reason to abandon it.

In the categories of the monopoly theory, an artificial island can be treated as an intermediate object of a medium level of monopolisation, just like all territorial sites. It is because each territorial site, e.g. a city, is a monopoly at its own location, which excludes the perfect competition. If some separate territory has two port cities, the situation resembles a duopoly. But it is not a perfect duopoly, as each port has unique features of its location, and at the same time it is always to some extent exposed to competition from other transportation routes.

But the situation of an artificial island is usually “worse” compared to a natural city, as the new “added” object to the economy is in the position of an almost perfect competition with the rest of the economy of a given country on the one hand, and with the world economy, on the other. To be more precise, it can be said that the products and services of an artificial island take part in an almost perfect competition with the rest of the world. Therefore, to reduce this almost perfect competition, some arrangements are used that allow to limit it, and arrangements that allow to disperse the risk related to the establishment of an artificial island.

Firstly, should be invited to an artificial island rather those entrepreneurs that already operate in the condition of a limited competition, that is such that have high profit margins and who can maintain an additional deficit object on an artificial island, for example for the sake of prestige. Even if a large entrepreneur decides to limit their losses and to sell their object on

an artificial island, still, some part of the economic risk related to the establishment of an artificial island will be taken over by this entrepreneur. The second way is to invite to an artificial island rich consumers, who can afford to cover the high costs of real estates – the new owners of the real estates on an artificial island take over the risk related to the high initial investment. The third way is bearing this risk by the State, as the State can wait for the possible long-run return on the investment.

The most important way of “overcoming” perfect competition is, however, acting according to the idea of monopolistic competition, which is building a brand of the product. An artificial island should be a unique object, thus, have its own brand that would limit perfect competition, and participate more in the qualitative competition instead of the cost competition (for example: for a tourist, a unique object does not necessarily have to be cheaper from others, to be worth visiting). Artificial islands usually strive to stand out as much, as to win the best customers and investors, and the unique possibility of a significant freedom in spatial shaping of an artificial island is used, e.g. by investing in a nontrivial architecture.

Another matter is the functioning of true companies on an artificial island, if the artificial island is not a single infrastructural object, such as Kansai airport. The basic problem is to attract well engaged firms to this new territory, that will have to be given a voice in the management of this site. It can be said that contrary to a city, which is in this context also an analogue of a firm, an artificial island should be a kind of consortium of firms (a city is rather a “consortium of citizens”) operating there, in order to engage them more in protecting the interests and the “identity” of an artificial island and possibly protecting its survival through new investments. Otherwise, there would be only the Government budget left, the mo-

tives of which are also political and not only economic. But, when the charm of novelty related to an artificial island were to evaporate, not only the economic profitability, but also the political motive to keep it alive can disappear.

If we adopt that an artificial island is an analogue of a firm, then apart from meeting the requirements related to the microeconomic theory of firm equilibrium, the increased chances of survival of an artificial island will result mainly from the location theory, and this issue

must be in this case considered in the context of the theory of location risks of firms [Kuciński, 2014]. If an artificial island is a strong “prosthesis” of the missing natural location, it will survive, as the external world that needs this allocation will exhibit a demand for the services of such artificial island. Thus, the position of an artificial island can then turn out to be stronger compared to a typical, well located firm that can possibly be replaced by another, whereas an artificial island, as only an analogue of a firm, cannot be replaced.

### References:

1. Domański R. [2012], *Ewolucyjna gospodarka przestrzenna*, Poznań, Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu.
2. Galea F. [2009], *Artificial Islands in the Law of the Sea*, Faculty of Laws – University of Malta.
3. Grote Stoutenburg J. [2015], *Disappearing Island States in International Law*, BRILL.
4. Jędrusik M. [2005], *Wyspy tropikalne – w poszukiwaniu dobrobytu*, Warszawa, Wydawnictwa Uniwersytetu Warszawskiego.
5. Kotlewski D.C. [2013], *Impact of International Trade on Economic Growth*, „Gospodarka Narodowa”, No. 1-2.
6. Krugman P. [1990], *Rethinking International Trade*, Cambridge Mass., MIT Press.
7. Krugman P. [1997], *Geography and Trade*, Cambridge Mass., MIT Press.
8. Krugman P. [1998], *Development, Geography and Economic Theory*, Cambridge Mass., MIT Press.
9. Kuciński K. (ed.) [2011 a], *Glokalizacja*, Warszawa, Difin.
10. Kuciński K. [2011 b], *Glokalizacja jako indygenizacja globalizacji*, „Rocznik Żyrardowski”, No. 9.
11. Kuciński K. (ed.) [2014], *Ryzyko lokalizacji przedsiębiorstw w Polsce*, Warszawa, CeDeWu.
12. Robertson R. [2004], *The conceptual promise of glocalization: commonality and diversity*, [http://artefact.mi2.hr/\\_a04/lang\\_en/theory\\_robertson\\_en.htm](http://artefact.mi2.hr/_a04/lang_en/theory_robertson_en.htm), access date 20/01/2017.
13. UNCLS, *United Nations Convention on the Law of the Sea*.

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