BOOK REVIEW

New Theory of International Trade and New Economic Geography

(Волчкова, Н., 2009, Новая теория международной торговли и новая экономическая география, *Вопросы теории*, С 68-83)

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Professor Natalia Volchkova (Наталья Волчкова) in her paper tittled *The New Theory of International Trade and New Economic Geography*, discussed about Paul Krigman`s contribution (rewarded with Nobel Price in Economics 2008) to the analysis of the structure of trade and distribution of centres of the economic power. Volchkova (Волчкова), first, emphasizes Krugman's skill to present complex ideas in a simple and accessible way. Pointing to the important current phenomena and rejecting less important characteristics in a particular context, Krugman gives us the ability to perceive the cause-effect relations with the naked eye. This skill is necessary, in particular, when the ideas should be presented and recognized as such, and when the right decisions should be made.

According to Volchkova (Волчкова), Krugman's papers from 1979 and 1980 made an important step in creating the mechanism of international trade, which explains different contradictions. The basic contradiction in international trade suggests that about one quarter of the world trade refers to inter-industrial trade. Specifically, over time industrial countries have become similar in terms of: technology, availability of capital and skilled work force. As the largest trading partners apply similar technology and resources, there is often no clear comparative advantage at the country level, and therefore the most of the international trade refers to two-way exchanges within industries, rather than to intra-industrial specialization.

Elaborating on the analysis of the impact of mutual relationships between economy of scale and comparative advantages in the form of international trade, Volchkova (Волчкова) then turns to Krugman's view that a combination of the mobility of factors and growing of the scale of the economy leads to a strong distil of the factor of trade. In this way, it has been pointed to the mechanism potentially responsible for concentration of the economic activity in one region and cease of it in another region. Besides, in this section Volchkova (Волчкова) analyzes Krugman`s mathematical approach that allows the modelling of the flow of goods and accomplishing of the spatial distribution of production and consumers. This model is called "the centre-periphery". In this model, households are equal and require two commodities: agricultural c_a and industrial c_m, which are presented by Koba-Douglas's function, as follows:

$$U = c_m^{\mu} \, c_a^{1-\mu}. \tag{1}$$

Aggregate industrial goods, on which part of μ income is spent, reprezent the composition of such a large number of N subtypes, that the function of the demand of subtypes is characterized by fixed coefficient of price elasticity $\sigma > 1$. (2).

$$c_m = [\Sigma c^{(\sigma-1)/\sigma}]^{\sigma/(\sigma-1)}. \tag{2}$$

Suppose that the economy consists of two regions. Farmers are equally distributed in the regions and there is no moving of them from one region to another while workers can move freely from region to region. Label the labour supply of workers in the regions L_1 and L_2. Suppose, also, that the production technology of agricultural goods requires one worker per one unit of goods. Transportation of goods in the region is free.

Tehnology parameters are equal for all subtypes:

$$L_{mi} = \alpha + \beta x_i, \tag{3}$$

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the L_{mi} represents the number of workers needed in production, and x_i is a unit of industrial production. The transport of industrial goods is, however, related to the costs whose modelling is based on an expenditure type "iceberg", meaning that in order to transfer one unit of industrial goods to a neighbouring region, it is necessary to send $\tau > 1$ units of goods from a factory. The difference in the costs of transport between the agricultural and industrial goods (necessary for simplifying the solution), provides equal earnings for farmers, and can be used as a universal norm of the nominal size in the region.

Suppose that there are many industrial firms and the each firm may be specialized for certain subclass of goods. A monopolistically competitive firm maximizing revenue determines the price for its goods defined by the total costs and the elasticity of demand. In the region, a price of industrial goods is equal to:

$$pi = (\sigma / \sigma - 1) \beta w_i, \tag{4}$$

taking w_i for the wage of workers in the first region. This way, the prices of industrial goods in both regions are to be defined by relative earnings of their industries.

$$p_1 / p_2 = w_1 / w_2. \tag{5}$$

The free acces for the new firms to the monopolistic competition market provides zero gain for the representative firm of each region, i.e. the next equation is valid:

$$L_{im}w_i = p_i x_i$$

$$(\alpha + \beta x_i)w_i = p_i x_i. \tag{6}$$

and solving the equation (6) by αw_i the following formula is obtained:

$$(p_i - \beta w_i)x_i = \alpha w_i \; x_1 = x_2 = \alpha (\sigma - 1)/\beta. \tag{7}$$

From the relation (7) it follows that the proportion of the firms in the regions are equal and determined only by parameters of demand and technology.

Before illustrating Krugman's explanation of the dynamics of overflow of workers from one region to another, Volchkova (Волчкова) discusses Krugman's view of short-term equilibrium (in economics) as well as the implications of the distribution of workers between regions. If the distribution of industrial workers between regions is symmetrical, the relationship of real wages in the industry of both regions induces two effects that are directly opposite. The first (in order) is the effect of the local market, occurring when firms attempt to stimulate production in the region, thereby raising it to a higher level, and also reducing transport cost when the majority of manufactured goods was realized at the local market. Enlarging the region proportion provides a strong growth of industrial production, as well as a growth of export.

Volchkova (Волчкова) concludes that the effect of the local market has a positive influence on wage growth in industry, meaning that in a larger region the wages of industrial workers are higher. On the other hand, Volchkova notes that on a larger market the competiton for the consumer increases, and a firm (on a monopolistic competition market) may for its own more favourable reasons move production to a less populated region. Transferring the capital in the less populated region is the second effect of a relationship between real wages in the industry. This effect influences the relation between the earnings of the region.

In order to more efficiently consider the dynamic effects of Krugman's model, Volchkova (Волчкова) assumes that workers were initially equally distributed in both regions. In this case, we have two perfectly equal regions in term of industrial output, wages, etc. However, Volchkova asks whether the equilibrium is constant. In other words, what happens when some workers accidentally move to another region? In this case, there is an accumulation (agglomeration) of industrial workers in one region. If the agglomeration process develops at an enormous speed we obtain two regions: an industrial centre and an agricultural periphery. This case, by Volchkova, has named Krugman's model – centre-periphery.

The second situation that Volchkova (Волчкова) analyzes refers to the symmetrical migration. Symmetrical migration provides an equal distribution of production and market equilibrium. However, the equal distribution of production depends on the effect of the local market, the effect of the value of life and the effect of competition.

(1) The effect of the local market: the tendency of a monopolistic firm to deploy production as close to large markets as possible and to export the goods to niche markets.

(2) The effect of the value of life: the value of life is lower in areas with a large number of industrial firms, because the value of goods that they produce is less than the costs of transport.

(3) The effect of competition: firms that compete in an inadequate way tend to remove production to those areas where competition is less.

By analogy with the physical phenomena, the forces that stimulate agglomeration phenomena are called centripetal forces (population is immigrating in the region), and forces that act in the op-

posite direction are called the centrifugal (population is emigrating from the region). Which forces will prevail in the economy depends on the parameters of the economy, the elasticity of substitution in the function of demand and the proportion of transport costs. In Krugman's model it is shown how the interaction of these three parameters determines dynamics of production distribution in the economy: whether the regions in their economic development converge or, on the contrary, become distant. Volchkova (Волчкова) directs attention to the Krugman's thesis that economic development accelerates agglomeration processes. Moreover, attaining the maximum or critical level of economic development provides a spontaneous acceleration of agglomeration. This provides "balanced development" of economy based on the principle "centre-periphery". The term "balanced development" excludes the possibility of domination of centripetal forces over centrifugal forces and vice versa. If the actual level of development is below a critical level, then, depending on the combination

of parameters, the dominance of both centripetal and centrifugal forces is possible in the economy. Furthermore, high transport costs and large elasticity of demand for industrial products accelerate centripetal forces bringing convergence of different regions.

The important conclusion of Volchkova (Волчкова) is that Krugman, relying on a simple enough and intuitively transparent model, a complete picture of the distribution of the production in the area has been created, what many scientists before him tried, but they only managed to present its isolated moments. A further development of those ideas, on which worked not only Krugman, but also his colleagues, including Venebals Fujita who gave the special contribution, has led to that particular point of view that has developed into a complete field of economics, named economic geography, and which, in turn, has fundamentally affected the development of such areas of research like the regional economy or urban economics.