28. 3 CHALLENGING FUNCTIONALITY: A MORE PENETRATING CRITIQUE

LEARNING OBJECTIVES

By the end of this section, you will be able to:

- Identify different radical of critiques of the orthodox free trade model
- Define the phrase factor endowments.
- Define the concept of an export-led growth model.
- Explain that critiques of the orthodox free trade model are not only technical but also functional.
- Analyze ways in which the orthodox economic trade does not explain the "real world."

Whereas the model imperfections critiques often cite the idea that the orthodox theory, while too simple, still provides an approximation of the real world. More radical critiques of the orthodox free trade story argue that not only does the orthodox story not generalize to the actual world in which we live, but that the model also cannot be modified to explain certain events or phenomena. For many more radical economists the usefulness of any economic model is how well it can explain the basic functioning of the economy. Failure to account for the actual functional behavior of the economy cannot be corrected by ad hoc assumptions. Instead, what is required, is an altogether different theoretical structure.

The following critiques reflect functional limitations associated with the orthodox trade story. Functional limitations imply the failure of theory to adequately explain events relevant to the real world. Perhaps the theory is simply too narrow in scope and fails to account for other important economic considerations, such as economic growth or economic development. For example, the whole point of the orthodox comparative advantage story is to demonstrate trade between two countries improves the overall economic plight of both countries. Paradoxically, even as the immediate exchange benefits appear, the same theory can be utilized to also explain why the long term economic growth within both economies may be harmed as a result of free trade. In other words, trade is shown to make countries both better off and worse off? How is this possible? The answer is that it is probably not possible, therefore the functional usefulness of the orthodox economic trade story is called into question.

THREE COUNTRIES AND THREE PRODUCTS

Perhaps no example of the limits to the applicability of the orthodox free trade story is more direct

than the curious situation of three countries and three products. Given three countries and three commodities, it is not obvious that each country will have a clear lowest opportunity cost product to produce. Absent a clear comparative advantage, what does a country do? If a country doesn't have a comparative advantage does it produce nothing? Does it produce all three products? Can the country without a comparative advantage refuse to engage in trade? Should the country just export its entire population, put up a border wall, and stop functioning? The orthodox presentation of the trade story cannot answer any of these questions. The absence of comparative advantage is the absence of a theoretical explanation.

Clearly this issue of three countries and three products is not the exception, but rather the rule. In the actual world where we there are over 200 hundred countries in the world and, potentially, millions of products. The comparative advantage story is not at all relevant to the actual world, and this proves to be a drastic failure of the orthodox economic model.

Consider the table below:

	COLOMBIA	SCOTLAND	PERU
COFFEE	100	10	30
WOOL	50	40	30
SOYBEANS	60	20	30
	1C : .5W	1C : 4W	1C : 1W
	1C : .6S	1C : 2S	1C : 1S
	1W : 2C	1W : .25C	1W : 1C
	1W : 1.2S	1W : .5S	1W : 1S
	1S : 1.67C	1S : .5C	1S : 1C
	1S : .83W	1S : 2W	1S : 1W

The table represents a scenario in which there are three countries and three products. In the above table, one country will not have a comparative advantage in producing any of the products. The numbers and letters highlighted in red indicate the comparison between two products and the point of lowest opportunity cost production which, recall, is the basis for comparative advantage. For example, as can be seen above, Colombia has a comparative advantage in producing coffee relative to both wool and soybeans. In the case of coffee to wool, every 1 unit of coffee produced requires that Colombia foregoes producing ½ unit of wool. In the case of coffee to soybeans, for every 1 unit of coffee produced 3/5 of a unit of soybeans are foregone. No other producer of coffee can produce coffee at such a low opportunity cost. The reader should note, Colombia also has a comparative advantage in producing soybeans relative to wool, while Scotland has a comparative advantage in producing wool to soybeans and wool to coffee as well as soybeans to coffee. At no point does Peru ever have a com-

parative advantage. So what should Peru do? The answers really are not remotely obvious with possible solutions becoming increasingly complex. Consider just one possible scenario.

In one scenario, it can be argued that the only viable product that Peru could specialize in producing is soybeans. After all, because Colombia has a comparative advantage in coffee to wool and coffee to soybeans, and its coffee to wool ratio is better than its soybeans to wool ratio, Colombia may find it desirable to specialize in coffee production. Additionally, because Scotland has a comparative advantage in wool to coffee and wool to soybeans, and its wool to coffee ratio is better than its wool to soybeans ratio, Scotland may find it desirable to specialize in wool production. In this case, Peru could, theoretically specialize in soybean production as neither Colombia nor Scotland are producing soybeans but the residents of those countries may want to consume soybeans so Colombia and Scotland could then trade for soybeans and, as Peru is the only soybean producer, Colombia and Scotland would be forced to trade with Peru.

The trouble with the Peru specializing in soybeans scenario is that it wouldn't take Colombia and Scotland too long to realize that they are each better off producing some soybeans for themselves, because each can produce soybeans at a lower opportunity cost than can Peru. For example, if Colombia produced coffee and traded with Peru for Soybeans, the minimum price that Peru could charge Colombia for the soybeans would be 1 unit of soybeans for 1 unit of coffee. If Scotland decided to produce some soybeans to trade with Colombia for coffee, the minimum price Scotland could charge Colombia for soybeans is 1 unit of soybeans for a ½ unit of coffee. In this case Peru would simply not be able to compete with Scotland's price. The same circumstance emerges with Scotland trading wool for soybeans with Peru. The lowest price Peru can charge Scotland for 1 unit of soybeans is 1 unit of wool. If Colombia decided to produce some soybeans to trade with Scotland for wool, the lowest price Colombia could charge is 1 soybean for .83 wool. Peru is, once again, not price competitive and Scotland and Colombia are better off trading with one another for soybeans than they would be trading with Peru for soybeans.

COMPARATIVE ADVANTAGE AND CONSTANT RETURNS TO SCALE

The comparative advantage story is based on an assumption of constant returns to scale. As a reminder, constant returns to scale implies that as a productive process grows, the returns in total output generated grows proportionally to the expansion of the productive process. In other words, if a production process doubles in size, then the amount of productive output will also double. The constant returns to scale concept is closely tied to the linear production possibilities frontier concept discussed above. After all, if a production possibilities frontier is linear, and all productive inputs double, then the production possibilities frontier will shift outward proportionally, remaining parallel to the previous production possibilities frontier. The essential point to be grasped here is this, constant returns to scale imply that as production of one product increases

The challenge associated with the concept of constant returns to scale is, what happens if returns to scale are not constant for producers? Orthodox economic theory provides a theoretical foundation for the idea that sometimes production processes experience increasing returns to scale. As a reminder, increasing returns to scale implies that as a production process expands, the associated increase in production expands by more than the growth of the production process. In other words,

as a production process doubles its size it will more than double its output yielding a declining average total cost for the output as more output is produced.

Under conditions of increasing returns to scale in production, the country that is the first to produce a commodity will develop a comparative advantage in the production of the commodity. The reason why the first producer of the product will have the comparative advantage is because as that country increases its production of the product, its costs of doing so will decline making it difficult for another country to compete with the first country to produce the product. In other words, one country will have a head start that other countries will not be able to competitively overcome. Presumably, where increasing returns to scale hold for production processes, the first producer of any product will have a competitive advantage over all producers. In this situation, one country could come to dominate production throughout many industries leaving other countries to produce a limited range of other products.

Of course, where increasing returns to scale applies the thought that one country can dominate production may not be acceptable to other countries, particularly for countries attempting to develop economically. The implication is that countries need to protect their industries until those industries have increased their production to the point of increasing returns to scale and, thus, declining average costs of production emerge. Only when a producer has achieved low enough average total costs will it be able to compete effectively in global markets.

ABSOLUTE COSTS ARE MORE IMPORTANT THAN FACTOR ENDOWMENTS

One theme that emerged above when describing model imperfections is the notion that due to **factor endowments**, some countries are going to be more prone to a greater loss of employment from specialization and trade than would other countries. The basis for the less than full employment argument was a byproduct of the concept of factor endowments. The concept of **factor endowments** is an idea that argues a country's comparative advantage may be influenced by which factors of production the country has an abundance of and which are relatively scarce. A country is said to be factor endowed when it has a relative abundance of a given factor of production. When a country has an abundance of a factor of production, orthodox economics argues that the country will tend to produce products whose production processes are organized to require a lot of the factor of which the country has an abundance. Due to the relative low cost of the abundant factor, the country will likely have a comparative advantage in producing the product that which they have an abundance of the factor of production. So, for example, a country with an abundance of land will likely produce agricultural products as land is the relatively low cost factor of production that the country is more abundantly endowed.

Taken further, the factor endowment story goes so far as to argue that production processes will be modified to adjust to a country's factor abundance and factor scarcity. For orthodox economics what this means is that if a country has an abundance of capital, then the products it produces will utilize an abundance of capital even if the same product can be produced elsewhere with an abundance of labor. Should labor be the factor of production that a country is relatively well endowed, then production processes will be modified to include more labor and less capital, and so on, and so forth.

Certainly, for some types of production, the factor endowment story will be relevant, which also makes the idea of a less than fully employed economy, as argued in the sub-section above, also rele-

vant. However, what happens when the product and the production process are inextricably linked? It is not at all uncommon for a production process to require the same combination of land, labor, and capital, regardless of where production takes place. So even if a country has a large supply of labor, and relatively cheap labor, this does not mean that firms will suddenly change their production processes to take advantage of the cheap factor endowment. An example of this concept can be seen with a company like Boeing. Boeing produces commercial and military aircraft. The production processes require a significant amount of technological know- how, with capital and labor being very specialized and highly skilled. Furthermore, the capital and technology employed in the production of an airplane are very expensive. It is also a well- known fact that Boeing produces airplanes in the United States and China. In comparison to one-another, the United States has an abundance of capital and China has an abundance of labor. If factor endowments were relevant, Boeing would produce its aircraft differently in China than in the United States. In China, Boeing would use more labor and in the United States Boeing would use more capital. In fact, Boeing uses the same combination of capital and labor in its production processes regardless of location of production. The advantage to producing in China is, then, some reductions in absolute labor costs. In this scenario, absolute costs are far more important than some vague notion of opportunity cost. Furthermore, the labor cost reduction is not, however, necessarily significant because the overall costs of producing airplanes tend to be more closely tied to capital, due to the advanced capital and technology used in production, as opposed to overall labor costs. As such, if all of the other costs, such as transportation costs, are not favorable, then it may not be cost effective to produce airplanes in China as opposed to the United States. Either way, absolute costs, not opportunity costs, are often times the most important determinant of what is produced and where it will be produced.

MARKETS ARE NOT STATIC

So much of the orthodox free trade story seems to be built on a model that yields a surprising lack of choices for producers. After all a country is deemed to be endowed with an allotment of land, labor, and capital, and among those three factors of production the choice of what is produced is determined by which products can be produced at the lowest opportunity cost of production. In this scenario, the country does not choose its initial endowments of factors of production nor, at that point, is the country really making a choice as to what products to produce as the opportunity cost of production will depend on the country's endowment of factors of production relatively to all other countries' endowments of factors of production. In essence, any country is relegated to being at the mercy of global circumstances and global markets.

Being at the mercy of the market is an awfully risky proposition for many countries. A country better hope that what it specializes to produce and then trade will always be a desirable commodity. Unfortunately for many countries, the reality of global markets, where new technologies and changes in tastes and preferences arise on a regular basis, often times causes countries to suffer significant economic hardship and economic development setbacks.

But, are countries and their economies really at the mercy of a global market? If history is a guide, the answer to this question appears to be unequivocally, no. Many students evaluating the factor endowment story outlined above might, for example, question why a given country would accept its factor endowment position? After all, factor endowments such as labor and capital are not, over time, static. Given time, populations tend to grow and countries will find that their allotment of capital stock will

also tend to grow. It is not as though the United States was endowed with capital stock from some divine being and, as a result, is a capital intensive country. Any country could, presumably, develop a capital intensive economy. If so desired, countries have the power to influence where capital stock accumulates and toward what end that capital stock can and should be used. Under conditions such as this it appears as though countries have the power to direct their place in the global economy.

Among advanced developed economies there are countless examples of industrial planning and trade protections, essentially market manipulations, being utilized to promote domestic economic objectives and steer a country's economic place in the global economy. In the 18th and 19th centuries countries such as Great Britain and the United States both utilized trade restrictions in an effort to support the development of domestic, high value added, industries, particularly manufacturing. Into and throughout the 20th century, the United States as well as countries such as Germany, Japan, and South Korea have all also utilized trade restrictions and industrial planning policies. In the case of post-World War 2 Japan and Germany, trade restrictions and planning policies were utilized to allow domestic industries that had been destroyed during the war to re-establish themselves in their respective domestic markets. By the 1970s, the protective policies utilized by Japan and Germany allowed both countries to engage in international export of products such as automobiles and electronics, stimulating an **export-led growth model**. An export-led growth model is the idea that a country can use trade surpluses, exporting more products than they import, to boost domestic economic activity, generate economic development, and improve the country's international competitiveness in the global economy.

Not to be left out, other countries, particularly in Asia, also recognized the benefit of export-led economic growth. South Korea, as one of the Asian Tigers, used trade protections to bolster and create a domestic electronics and automobile industry. Over time South Korean producers such as Samsung in electronics as well as Hyundai and Kia in the automobile industry have become internationally competitive and internationally recognizable producers. Another example is China. The Chinese economy, through use of targeted industrial planning, trade restrictions, and currency adjustments, has utilized an export-led growth model. China has run consistent trade surpluses with the countries within the European Union as well as the United States. The results, since China's "Great Opening Up" in 1978, which began under then Chinese leader Deng Xiaoping, have been an economic boon for China. In the nearly forty years since 1978, China has experienced consistent annualized growth rates of 7-10%.

BREAKOUT BOX – A NOTE ON CHINA'S INCLUSION IN THE WORLD TRADE ORGANIZATION (WTO)

As of December 11, 2001, China has been a member of the World Trade Organization (WTO). As noted by the policy think tank, the Economic Policy Institute (EPI), China's inclusion in the WTO has not been benign in terms of economic consequences. An EPI study suggests that 2001 and 2013, China's export-led growth model and subsequent trade surpluses

with the United States (or U.S. trade deficits with China) has caused the United States to lose 3.2 million jobs, including 2.4 million job losses in the manufacturing sector.