# WORLD ECONOMICS CUP

## Sample Paper for Deep Comprehension

**INSTRUCTION**

This document is the official Deep Comprehension paper from the 2023 World Economics Cup (Continental Session C).

Test Structure & Timing

- The test lasts 45 minutes and is administered after a 45-minute lecture.
- There are 50 questions in total, divided into three sections:
    1. Questions 1–20: Based on the lecture.
    2. Questions 21–35: Based on an academic forefront review provided in advance.
    3. Questions 36–50: Based on reading materials provided during the exam.

**Purpose of This Document**

This sample paper is solely for the purpose of familiarizing students with the test format. **It includes only Questions 36–50**, which are based on the reading material provided here.

# How Do Factor Endowments Impact a Country's Comparative Advantage?

## What Is a Factor Endowment?

A factor endowment represents how many resources a country has at its disposal to be utilized for manufacturing—resources such as labor, land, money, and entrepreneurship. Countries with large or diverse factor endowments are typically more wealthy and able to produce more goods than countries with small factor endowments. Factor endowments also affect the opportunity cost of specializing in producing certain goods relative to others.

As a result of the differences and variation in a country's endowments, factor endowment theory states in economic reasoning that these different breakdowns of capital to labor will determine a country's comparative advantage and what to manufacture or specialize an economy on.

A comparative advantage exists when the opportunity cost of specialization is lower than that of other nations. The existence of comparative advantage is, in turn, affected by things such as abundance, productivity, cost of labor, land, and capital. Other factors also might influence a country's comparative advantage in practical terms, such as a highly developed financial system or economies of scale.

Important:
*Factor endowments are the land, labor, capital, and resources that a country has access to, which will give it an economic comparative advantage over other countries.*

## Examples of Factor Endowments

A simple example of a factor endowment with respect to land would be the presence of geographic scale or natural resources such as oil. Countries with abundant oil tend to export oil, redirecting internal resources toward producing the factor they have in quantity. As of 2019 data, Angola is an extreme example of such specialization: oil accounts for more than 86% of its exports.

Other countries, such as the Democratic Republic of Congo (DRC), is one of the countries sitting on Africa's copper belt, which holds more than two-thirds of the entire world's cobalt, as per a 2020 USGS report.

Cobalt, used in rechargeable batteries for electronic gadgets like cellphones, laptops, and even electric cars, is in high demand—meaning, countries like the DRC have heavily relied on mining this resource, leading even to political tensions over this resource.

On the other hand, countries such as the United States that own more acreage can diversify its efforts; capitalizing on soil-rich regions for agricultural production, while using the coasts for exports, and taking advantage of a larger population and labor force.

Speaking of labor, labor is a key input in most products, from agriculture to cellphones, and its characteristics affect a country's comparative advantage. An abundant labor force means that a country has a lower opportunity cost of specializing in labor-intensive activities. A highly skilled labor force is more expensive and more productive than an unskilled labor force. For example, as China's labor force has grown more skilled, wages have risen and China has begun specializing in more complex manufactured goods.

## Changing Factor Endowments

Factor endowments are not static. With education, for example, the characteristics of the labor force can change. The same holds true for investments in capital and infrastructure. Over time, both can affect a country's sources of comparative advantage. As a country develops more complex transportation systems, buildings, and public services, a labor force may be more available to take on complex jobs.

# What Is Comparative Advantage?

## What Is Comparative Advantage?

Comparative advantage is an economy's ability to produce a particular good or service at a lower opportunity cost than its trading partners. Comparative advantage is used to explain why companies, countries, or individuals can benefit from trade.

When used to describe international trade, comparative advantage refers to the products that a country can produce more cheaply or easily than other countries. While this usually illustrates the benefits of trade, some contemporary economists now acknowledge that focusing only on comparative advantages can result in the exploitation and depletion of the country's resources.

The law of comparative advantage is popularly attributed to English political economist David Ricardo and his book On the Principles of Political Economy and Taxation written in 1817, although it is likely that Ricardo's mentor, James Mill, originated the analysis.

**KEY TAKEAWAYS**

- Comparative advantage is an economy's ability to produce a particular good or service at a lower opportunity cost than its trading partners.
- The theory of comparative advantage introduces opportunity cost as a factor for analysis in choosing between different options for production.
- Comparative advantage suggests that countries will engage in trade with one another, exporting the goods that they have a relative advantage in.
- There are downsides to focusing only on a country's comparative advantages, which can exploit the country's labor and natural resources.
- Absolute advantage refers to the uncontested superiority of a country to produce a particular good better.

## Understanding Comparative Advantage

Comparative advantage is one of the most important concepts in economic theory and a fundamental tenet of the argument that all actors, at all times, can mutually benefit from cooperation and voluntary trade. It is also a foundational principle in the theory of international trade.

The key to understanding comparative advantage is a solid grasp of opportunity cost. Put simply, an opportunity cost is a potential benefit that someone loses out on when selecting a particular option over another.

In the case of comparative advantage, the opportunity cost (that is to say, the potential benefit that has been forfeited) for one company is lower than that of another. The company with the lower opportunity cost, and thus the smallest potential benefit which was lost, holds this type of advantage.

Another way to think of comparative advantage is as the best option given a trade-off. If you're comparing two different options, each of which has a trade-off (some benefits as well as some disadvantages), the one with the best overall package is the one with the comparative advantage.

## Diversity of Skills

People learn their comparative advantages through wages. This drives people into those jobs that they are comparatively best at. If a skilled mathematician earns more money as an engineer than as a teacher, they and everyone they trade with are better off when they practice engineering.

Wider gaps in opportunity costs allow for higher levels of value production by organizing labor more efficiently. The greater the diversity in people and their skills, the greater the opportunity for beneficial trade through comparative advantage.

## Example of Comparative Advantage

As an example, consider a famous athlete like Michael Jordan. As a renowned basketball and baseball star, Michael Jordan is an exceptional athlete whose physical abilities surpass those of most other individuals. Michael Jordan would likely be able to, say, paint his house quickly, owing to his abilities as well as his impressive height.

Hypothetically, say that Michael Jordan could paint his house in eight hours. In those same eight hours, though, he could also take part in the filming of a television commercial which would earn him $50,000. By contrast, Jordan's neighbor Joe could paint the house in 10 hours. In that same period of time, he could work at a fast food restaurant and earn $100.

In this example, Joe has a comparative advantage, even though Michael Jordan could paint the house faster and better. The best trade would be for Michael Jordan to film a television commercial and pay Joe to paint his house. So long as Michael Jordan makes the expected $50,000 and Joe earns more than $100, the trade is a winner. Owing to their diversity of skills, Michael Jordan and Joe would likely find this to be the best arrangement for their mutual benefit.

## Comparative Advantage vs. Absolute Advantage

Comparative advantage is contrasted with absolute advantage. Absolute advantage refers to the ability to produce more or better goods and services than somebody else. Comparative advantage refers to the ability to produce goods and services at a lower opportunity cost, not necessarily at a greater volume or quality.

To see the difference, consider an attorney and their secretary. The attorney is better at producing legal services than the secretary and is also a faster typist and organizer. In this case, the attorney has an absolute advantage in both the production of legal services and secretarial work.

Nevertheless, they benefit from trade thanks to their comparative advantages and disadvantages. Suppose the attorney produces $175 per hour in legal services and $25 per hour in secretarial duties. The secretary can produce $0 in legal services and $20 in secretarial duties in an hour. Here, the role of opportunity cost is crucial.

To produce $25 in income from secretarial work, the attorney must lose $175 in income by not practicing law. Their opportunity cost of secretarial work is high. They are better off by producing an hour's worth of legal services and hiring the secretary to type and organize. The secretary is much better off typing and organizing for the attorney; their opportunity cost of doing so is low. It’s where their comparative advantage lies.

**Important:**

*Comparative advantage is a key insight that trade will still occur even if one country has an absolute advantage in all products.*

## Comparative Advantage vs. Competitive Advantage

Competitive advantage refers to a company, economy, country, or individual's ability to provide a stronger value to consumers as compared with its competitors. It is similar to, but distinct from, comparative advantage.

In order to assume a competitive advantage over others in the same field or area, it's necessary to accomplish at least one of three things: the company should be the low-cost provider of its goods or services, it should offer superior goods or services than its competitors, and/or it should focus on a particular segment of the consumer pool.

## Comparative Advantage in International Trade

David Ricardo famously showed how England and Portugal both benefit by specializing and trading according to their comparative advantages. In this case, Portugal was able to make wine at a low cost, while England was able to cheaply manufacture cloth. Ricardo predicted that each country would eventually recognize these facts and stop attempting to make the product that was more costly to generate.

Indeed, as time went on, England stopped producing wine, and Portugal stopped manufacturing cloth. Both countries saw that it was to their advantage to stop their efforts at producing these items at home and, instead, to trade with each other in order to acquire them.

**Fast fact:**

*Comparative advantage is closely associated with free trade, which is seen as beneficial, whereas tariffs closely correspond to restricted trade and a zero-sum game.*

A contemporary example: China's comparative advantage with the United States is in the form of cheap labor. Chinese workers produce simple consumer goods at a much lower opportunity cost. The United States'comparative advantage is in specialized, capital-intensive labor. American workers produce sophisticated goods or investment opportunities at lower opportunity costs. Specializing and trading along these lines benefit each.

The theory of comparative advantage helps to explain why protectionism is typically unsuccessful. Adherents to this analytical approach believe that countries engaged in international trade will have already worked toward finding partners with comparative advantages.

If a country removes itself from an international trade agreement, if a government imposes tariffs, and so on, it may produce a local benefit in the form of new jobs and industry. However, this is not a long-term solution to a trade problem. Eventually, that country will be at a disadvantage relative to its neighbors: countries that were already better able to produce these items at a lower opportunity cost.

**Fast fact:**

*The classical understanding of comparative advantage does not account for certain disadvantages that come from over-specialization. For example, an agricultural country that focuses on cash crops, and relies on the world market for food, could find itself vulnerable to global price shocks.*

## Criticisms of Comparative Advantage

Why doesn't the world have open trading between countries? When there is free trade, why do some countries remain poor at the expense of others? Perhaps comparative advantage does not work as suggested. There are many reasons this could be the case, but the most influential is something that economists call rent seeking. Rent seeking occurs when one group organizes and lobbies the government to protect its interests.

Say, for example, the producers of American shoes understand and agree with the free-trade argument but they also know that their narrow interests would be negatively impacted by cheaper foreign shoes. Even if laborers would be most productive by switching from making shoes to making computers, nobody in the shoe industry wants to lose their job or see profits decrease in the short run.

This desire leads the shoemakers to lobby for, say, special tax breaks for their products and/or extra duties (or even outright bans) on foreign footwear. Appeals to save American jobs and preserve a time-honored American craft abound, even though, in the long run, American laborers would be made relatively less productive and American consumers relatively poorer by such protectionist tactics.

**Advantages and Disadvantages of Comparative Advantage**

**Advantages**

In international trade, the law of comparative advantage is often used to justify globalization, since countries can have higher material outcomes by producing only goods where they have a comparative advantage, and trading those goods with other countries. Countries like China and South Korea have made major productivity gains by specializing their economies in certain export-focused industries, where they had a comparative advantage.

Following comparative advantage increases the efficiency of production by focusing only on those tasks or products that one can achieve more cheaply. Products that are more expensive or time-consuming to make can be purchased from elsewhere. In turn, this will improve a company's (or a country's) overall profit margins, since costs associated with less-efficient production will be eliminated.

**Disadvantages**

On the other hand, over-specialization also has negative effects, especially for developing countries. While free trade allows developed countries to access cheap industrial labor, it also has high human costs due to the exploitation of local workforces.

By offshoring manufacturing to countries with less stringent labor laws, companies can benefit from child labor and coercive employment practices that are illegal in their home countries.

Likewise, an agricultural country that focuses only on certain export crops may find itself suffering from soil depletion and destruction of its natural resources, as well as harm to indigenous peoples. Moreover, there are also strategic disadvantages to over-specialization, since that country would find itself dependent on global food prices.

## Pros and Cons of Comparative Advantage

Pros

- Higher Efficiency
- Improved profit margins
- Lessens the need for government protectionism

Cons

- Developing countries may be kept at a relative disadvantage
- May promote unfair or poor working conditions elsewhere
- Can lead to resource depletion
- Risk of over-specialization
- May incentivize rent-seeking

## Who Developed the Law of Comparative Advantage?

The law of comparative advantage is usually attributed to David Ricardo, who described the theory in "On the Principles of Political Economy and Taxation," published in 1817. However, the idea of comparative advantage may have originated with Ricardo's mentor and editor, James Mill, who also wrote on the subject.

## How Do You Calculate Comparative Advantage?

Comparative advantage is usually measured in opportunity costs, or the value of the goods that could be produced with the same resources. This is then compared with the opportunity costs of another economic actor to produce the same goods.

For example, if Factory A can make 100 pairs of shoes with the same resources it takes to make 500 belts, then each pair of shoes has an opportunity cost of five belts. If competitor factory B, can make three belts with the resources it takes to make one pair of shoes, then factory A has a comparative advantage in making belts, and factory B has a comparative advantage in making shoes.

### What Is an Example of Comparative Advantage?

An interesting example of comparative advantages often arises for high-powered executives, who may consider hiring an assistant to answer their emails and perform certain secretarial functions. The executive may even better at performing these duties than their assistant—but the time they spend doing secretarial work could be spent more profitably by doing executive work. Likewise, even if the assistant is mediocre at secretarial work, they would likely be even more ill-suited for executive work. Together, they are ultimately more productive if they focus on their comparative advantages.

# Heckscher-Ohlin Model Definition: Evidence and Real-World Example

## What Is the Heckscher-Ohlin Model?

The Heckscher-Ohlin model is an economic theory that proposes that countries export what they can most efficiently and plentifully produce. Also referred to as the H-O model or 2x2x2 model, it's used to evaluate trade and, more specifically, the equilibrium of trade between two countries that have varying specialties and natural resources.

The model emphasizes the export of goods requiring factors of production that a country has in abundance. It also emphasizes the import of goods that a nation cannot produce as efficiently. It takes the position that countries should ideally export materials and resources of which they have an excess, while proportionately importing those resources they need.

Warning: Here is some important information regarding the Heckscher-Ohlin model.

- The Heckscher-Ohlin model evaluates the equilibrium of trade between two countries that have varying specialties and natural resources.
- The model explains how a nation should operate and trade when resources are imbalanced throughout the world.
- The model isn't limited to commodities, but also incorporates other production factors such as labor.

## The Basics of the Heckscher-Ohlin Model

The primary work behind the Heckscher-Ohlin model was a 1919 Swedish paper written by Eli Heckscher at the Stockholm School of Economics. His student, Bertil Ohlin, added to it in 1933. Economist Paul Samuelson expanded the original model through articles written in 1949 and 1953. Some refer to it as the Heckscher-Ohlin-Samuelson model for this reason.

The Heckscher-Ohlin model explains mathematically how a country should operate and trade when resources are imbalanced throughout the world. It pinpoints a preferred balance between two countries, each with its resources.

The model isn't limited to tradable commodities. It also incorporates other production factors such as labor. The costs of labor vary from one nation to another, so countries with cheap labor forces should focus primarily on producing labor-intensive goods, according to the model.

### Evidence Supporting the Heckscher-Ohlin Model

Although the Heckscher-Ohlin model appears reasonable, most economists have had difficulty finding evidence to support it. A variety of other models have been used to explain why industrialized and developed countries traditionally lean toward trading with one another and rely less heavily on trade with developing markets.

The Linder hypothesis outlines and explains this theory. It states that countries with similar incomes require similarly valued products and that this leads them to trade with each other.

### Real-World Example of the Heckscher-Ohlin Model

Certain countries have extensive oil reserves but have very little iron ore. Meanwhile, other countries can easily access and store precious metals, but they have little in the way of agriculture.

For example, the Netherlands exported almost $577 million in U.S. dollars in 2019, compared to imports that year of approximately $515 million. Its top import-export partner was Germany.

The model emphasizes the benefits of international trade and the global benefits to everyone when each country puts the most effort into exporting resources that are domestically naturally abundant. All countries benefit when they import the resources they naturally lack. Because a nation does not have to rely solely on internal markets, it can take advantage of elastic demand. The cost of labor increases and marginal productivity declines as more countries and emerging markets develop. Trading internationally allows countries to adjust to capital-intensive goods production, which would not be possible if each country only sold goods internally.

## Linder Hypothesis: What it is, How it Works, Testing it

## What is the Linder Hypothesis?

Linder Hypothesis is an economic hypothesis that posits countries with similar per capita income will consume similar quality products, and that this should lead to them trading with each other. The Linder hypothesis suggests countries will specialize in the production of certain high quality goods and will trade these goods with countries that demand these goods. The theory was proposed by Staffan Linder in 1961.

## Understanding the Linder Hypothesis

Linder proposed his hypothesis in attempt to address problems with the Heckscher-Ohlin theory, which suggests that countries export goods that use their factors of production the most intensely. Because the production of capital-intensive goods is associated with higher income levels compared to labor-intensive goods, this means that countries with dissimilar incomes should trade with each other. The Linder hypothesis suggests the opposite.

The Linder hypothesis works off the assumption that countries with similar income levels produce and consume similar quality goods and services. Research has shown that both export prices and demand are strongly correlated with income, specifically for the same quality of goods, though income is used as an approximation for demand. In this vein, countries with high incomes likely consume more high quality products.

The hypothesis focuses on high quality goods because the production of those goods are more likely to be capital-intensive. For example, while many countries produce automobiles, not all countries have healthy export markets for these products. Japan, Europe and the United States actively trade automobiles.

The Linder hypothesis presents a demand-based theory of trade. This is in contrast to the usual supply-based theories of trade involving factor endowments. Linder hypothesized that nations with similar demands would develop similar industries. These nations would then trade with each other in similar, but differentiated goods.

## Testing the Linder Hypothesis

Despite anecdotal evidence suggesting that the Linder hypothesis might be accurate, testing the hypothesis empirically has not resulted in definitive results. The reason why testing the hypothesis has proven difficult is because countries with similar levels of per capita income are generally located close to each other geographically, and distance is also a very important factor in explaining the intensity of trade between two countries.

Studies that do not support Linder have only counted countries that actually trade; they do not input zero values for situations where trade could happen, but does not. This has been cited as a possible explanation for their different findings. Also, Linder never presented a formal model for his theory, which resulted in different studies testing the Linder Hypothesis in different ways, under varying conditions.

Generally, a "Linder effect" has been found to be more significant for trade in manufactured products versus non-manufactured products. Among manufactured products, the effect is more significant for trade in capital goods than in consumer goods, and more significant for differentiated products than for similar, more standard products.

# Questions

36. What is a factor endowment?

A) An economic theory that proposes that countries import what they can most efficiently and plentifully produce

B) An economic concept referring to the variety and quantity of the resources a country has available to put towards production

C) The equilibrium of trade between two countries that have varying specialties and natural resources

D) A key insight that trade will still occur even if one country has an absolute advantage in all products

37. Based on the factor endowment theory， what does a large labor force result in?

A) A country's economic instability

B) A higher opportunity cost of specializing in labor-intensive activities

C) A country's high levels of unemployment

D) A lower opportunity cost of specializing in labor-intensive activities

38. What is comparative advantage?

A) An economy's ability to produce a particular good or service at a lower cost than its trading partners

B) The uncontested superiority of a country to produce a particular good better

C) A country's economic competitiveness compared to other countries

D) The excess of a country's exports over its imports

39. Who is the economist famously associated with the concept of comparative advantage?

A) Adam Smith

B) Eli Heckscher

C) Paul Samuelson

D) David Ricardo

40. What is opportunity cost in the context of comparative advantage?

A) The cost of producing a particular good or service

B) The cost of trade barriers

C) The potential benefit that is given up by choosing a particular production option over another

D) The cost of labor and capital used in the production of goods and services

41. What does comparative advantage suggest about countries and trade?

A) Countries without a comparative advantage in any goods should avoid trade

B) Countries should aim to become self-sufficient

C) Countries should trade with each other， exporting the goods in which they have a relative advantage

D) Countries should only trade with those that have similar economic systems

42. What is a limitation of focusing only on a country's comparative advantages?

A) It can result in the exploitation and depletion of the country's resources

B) It can lead to economic stagnation

C) It can encourage monopolies

D) It can lead to the overproduction of goods

43. What does the Linder hypothesis propose?

A) Countries with similar per capita income will consume similar quality products， leading to them trading with each other

B) Countries with abundant natural resources have a competitive advantage in international trade

C) Countries with a skilled workforce have a competitive advantage in international trade

D) Countries with advanced industrialization have a competitive advantage in international trade

44. What is the Heckscher-Ohlin model?

A) An economic theory that proposes that countries export what they can most efficiently and plentifully produce.

B) A theory that suggests countries will engage in trade with one another， exporting the goods that they have a relative advantage in.

C) A theory that posits that countries with similar per capita income will consume similar quality products， and that this should lead to them trading with each other.

D) An economic theory that suggests countries with high per capita income have an advantage in global trade.

45. What does the Heckscher-Ohlin model emphasize?

A) The importance of a country's GDP

B) The benefits of international trade when each country exports resources that are domestically abundant and imports resources they naturally lack.

C) The relevance of a country's political stability

D) The impact of a country's tax policies

46. What does the Linder Hypothesis predict about countries with similar income levels?

A) They compete in producing the same goods

B) They consume and produce similar qualities and types of goods

C) They have similar exchange rates

D) They have similar inflation rates

47. How can comparative advantage be measured?

A) By measuring a nation's GDP

B) By looking at the income levels of a country

C) By comparing opportunity costs of different economic actors to produce the same goods

D) By calculating the rate of inflation in a country

48. How does the Linder Hypothesis differ from the Heckscher-Ohlin model?

A) The Linder Hypothesis focuses on supply-based theories of trade， while the Heckscher-Ohlin model focuses on demand.

B) The Linder Hypothesis focuses on demand-based theories of trade， while the Heckscher-Ohlin model focuses on supply.

C) The Linder Hypothesis is focused on domestic trade， while the Heckscher-Ohlin model is focused on international trade.

D) The Linder Hypothesis is focused on international trade， while the Heckscher-Ohlin model is focused on domestic trade.

49. According to the text， what can be a main disadvantage of comparative advantage?

A) It can result in the devaluation of a country's currency

B) It can lead to trade wars between countries

C) It can promote unfair or poor working conditions elsewhere

D) It can lead to overproduction and waste

50. What is the key insight of comparative advantage?

A) Countries should focus on self-sufficiency

B) Trade will occur even if one country has an absolute advantage in all products

C) Countries should aim to have a trade surplus

D) Trade is most beneficial when countries have similar per capita incomes

Answer Keys:

36. B

37. D

38. A

39. D

40. C

41. C

42. A

43. A

44. A

45. B

46. B

47. C

48. B

49. C

50. B