HILL OF BEANS

EARTH matters
Studies For Our Global Future

introduction

The average citizen in the United States is wealthier than the average person in the world, and far wealthier than people who live in the world's **least developed countries**. The **gross national income (GNI)** of a country at **Purchasing Power Parity (PPP)**, gives a fairly good idea of a country's wealth. GNI is the total domestic and foreign income claimed by residents of a nation. PPP is a method of converting international currency to show both its value in U.S. dollars and the power that currency has to purchase goods. When this number is divided by the number of people who live in a country, we can see a fairly good picture of the wealth of that country's citizens. Of course, per capita GNI PPP is just an average. Many people in a country will fall outside of the average, but it is a useful tool for comparing global wealth.

Prosperity around the globe has grown significantly in recent decades. Average **life expectancy** has grown from 52 years in 1960 to 73 years today, and GNI PPP per capita has nearly tripled in just the past 25 years. Still, progress has been much slower for the 29 countries categorized as "low income" by the World Bank, and there remains a great divide between the world's richest and poorest countries. The United States is one of the most developed and wealthiest countries in the world. The Central African Republic is one of the least developed countries. Life as a citizen in one of the poorest countries in the world has immense challenges – resources like food and clean water are scarce, disease spreads easily with little access to reliable health care, things that some take for granted, like education and electricity, often aren't accessible, and life expectancy is low. It is in these same least developed countries where the majority of our global population growth is expected in the coming years, making it even harder to support the needs of the world's most vulnerable people.

Vocabulary: gross national income (GNI), least developed countries, life expectancy, Purchasing Power Parity (PPP)

materials

- Dry beans
- 3 opaque cups
- 3 large clear jars

concept

Americans accumulate more wealth, live longer, and consequently use more resources than people in other nations.

objectives

Students will be able to:

- Examine how the wealth of the average U.S. citizen compares to that of an average citizen in the Central African Republic.
- Explain why people in the U.S. live longer and accumulate more wealth than people in least developed countries.
- Analyze how the quality of life differs for the average citizen in a wealthy country versus a poor country.

subjects

AP Human Geography, Geography, Statistics, Economics

skills

Analyzing data, observing, comparing and evaluating

method

Students compare wealth of the average person in the world to that of a person living in the U.S. and a person living in the Central African Republic, one of the poorest nations in the world.

procedure

1. Before class, label each cup and jar with the name of the area it represents: U.S., World, and Central African Republic. Leave the three jars empty. Place one bean in the Central African Republic cup, 23 in the World cup, and 93 in the U.S. cup. (Large beans such as kidneys or limas work best.)

2. Read or summarize the following to your students:

   "*We can use a variety of economic indicators to compare the standard of living from one region to another. One commonly used indicator is the Gross National Income (GNI) at Purchasing Power Parity (PPP). GNI is a measure of a nation's wealth, equaling the total domestic and foreign income claimed by residents of a country. PPP is a method of converting international currency to show both its value in U.S. dollars and the power that currency has to purchase goods. PPP accounts for price differences between countries, making wealth comparisons more accurate. The GNI PPP divided by the population of a country shows the average wealth of citizen in that country over a year. In the U.S., the per capita GNI PPP in 2019 was $66,080. Remember that this is an average – some people are much more wealthy and some much less. We can estimate a person's lifetime wealth by taking the average annual GNI PPP and multiplying it by the average life expectancy. The average U.S. resident born today has a life expectancy of 79 years. So, assuming that wealth trends hold over time, the average person in the U.S. would collect $66,080 in wealth for 79 years, or a total of $5,220,320 over their lifetime.*"

3. How do we compare to other regions? Display the following chart:

Region	Per capita GNI PPP (2019)	Life expectancy (2019 est.)	Lifetime wealth
United States	$66,080	79 years	$5,220,320
World	$17,587	73 years	$1,283,851
Central African Republic	$1,060	53 years	$56,180

Source: The World Bank

4. Of the three groups, people living in the Central African Republic have the lowest lifetime wealth, $1,060 per year over their 53-year lives. Explain to students that you'll be using beans to represent wealth and ask students the following question:

   If the average person in the Central African Republic gets one bean, how many, proportionately, would the average person in the world or in the U.S. get? *(Answer: 23 and 93, respectively. For example: 1/$56,180 = x/$5,220,320 to determine beans for the U.S.)*

5. Explain to students that you're now going to do an auditory comparison of relative wealth. Ask the students to close their eyes. Tell them to listen to the lifetime wealth of the average citizen of the Central African Republic. Drop the single bean into the jar labeled "Central African Republic."

6. Tell students to keep their eyes closed, and now you want them to listen to the lifetime wealth of an average person alive in the world today. Slowly drop the 23 beans into the jar labeled "World."

7. Again, ask the students to keep their eyes closed, and now you're going to represent the lifetime wealth of an average American. Slowly drop the 93 beans into the jar labeled "United States."

8. Display the jars with the beans in them so students can see the representations of the average lifetime wealth for individuals of the different regions. You may also want to display the bean numbers (1, 23, and 93) or add a column for "Number of beans" to the chart above.

discussion questions

1. What did you observe as we compared the wealth of people in the U.S., the average person in the world, and people in the Central African Republic?

   People in the U.S. are far wealthier than either of the other groups. People in the Central African Republic have far less wealth than the average person in the world as a whole. There is enormous wealth inequality in the world today.

2. How would your life be different if you had the wealth of a person in the Central African Republic?

   You would not be able to afford many of the luxuries that most Americans enjoy today. You may not have access to medical care or enough food to lead a healthy life. Many things would not be affordable or accessible. In the Central African Republic, only 25 percent of the population has access to basic sanitation facilities and 32 percent has access to electricity. Compare that to 100 percent for both categories in the United States. Five out of every 100 people in the Central African Republic have internet and 32 out of 100 have a cell phone subscription. In the U.S., those numbers are 87 and 124 respectively (this means that in the U.S., there are more cell phone subscriptions than there are people).[1]

3. Why do you think the average U.S. person accumulates so much more lifetime wealth than the average person in the world?

   The United States has access to a relative abundance of natural resources, a highly educated population, an industrial infrastructure, a stable political system, etc. People in the U.S. also live longer than the average resident in many other countries, so the average lifetime wealth is higher.

4. Why does the average person in the U.S. live longer than an average person in the other regions?

   Answers may include: better nutrition, better access to vaccinations, antibiotics, and other benefits of modern medicine, safer living and working conditions, increased access to clean water, nearly universal access to education, etc.

5. People who live in wealthier countries tend to use more resources over the course of their lifetimes; they contribute more to climate change, use more water, and produce more waste. For example, the average person in the U.S. emits over 238 times the amount of CO_2 and withdraws almost 87 times as much fresh water as the average person in the Central African Republic.[2] Why do you think this is true?

   The people in wealthy countries have more money to spend on goods and services. They are more likely do things like drive cars, use electricity, run the dishwater, and buy lots of manufactured goods. Wealthy countries also have more industry, which requires the use of energy, water, and raw materials from the Earth. The fact that people in wealthy countries live longer increases their resource consumption even more.

6. Could the world support more people if we all lived like residents of the Central African Republic?

   Yes, if people used fewer resources, the world could support more people.

7. Would we be better off if we all lived like the average person in the Central African Republic?

   No. The standard of living for the average person in the Central African Republic is very low, and there are many harmful effects of this standard of living on the health and well-being of the country's citizens. For example, people in the Central African Republic are at a very high risk of contracting major infectious diseases such as malaria, typhoid fever, and hepatitis A. One-fourth of all children under five in the Central African Republic are considered underweight.

8. The population of the Central African Republic is growing much faster than that of the United States. The population of CAR is projected to double in just 47 years, whereas it is projected to take 140 years for the U.S. population to double. How might the Central African Republic's rapid growth impact the quality of life for people living there?

   It will become even harder to supply basic needs to the country's population. There will be more mouths to feed, more water needed, and an even greater need for healthcare and other public services.

9. Are there any ways that people in the U.S. could reduce their impact on the planet without harming their quality of life?

   Yes, we can conserve resources like water, fossil fuels, food, and paper products. Small actions that have a big impact include driving less, eating less red meat and more local unprocessed foods, reducing the use of paper and paper products, buying fewer and less packaged material goods, etc.

10. Are there any ways that we could increase the "hill of beans" for other countries, such as the Central African Republic?

    Central African Republic and other nations currently receive support from major international development agencies such as the World Bank and the International Monetary Fund, as well as from individual countries. But this monetary support, often in the form of loans, may come with strings attached. For instance, loans from the IMF often require governments to implement austerity measures to reduce government spending and privatize services that previously were administered by the government. While intended to root out governmental corruption and help countries to become self-sufficient, these stringent regulations may be unrealistic in a country's economic context and can exacerbate poor economic conditions. Despite potential drawbacks, these policies have sometimes been exactly what an economy needs: during the 1997 Asian financial crisis, the finance sector reforms implemented by the IMF are credited with helping South Korea escape a recession and rebound into one of Asia's most successful economies.

    The United States budget for economic and development assistance to other countries through the U.S. Agency for International Development (USAID), the government's main government aid department, was 16.8 billion in 2019. This is more money than any other country, but a smaller percentage of its GDP than most other developed countries (about $51 per U.S. resident). There are many private groups working to improve access in other countries to lower-cost health care services and help the citizens of those countries to improve their economies.

11. How might your life in the United States be impacted by the vast income inequality in the world?

In countries where citizens don't have access to basic necessities, education and employment, there can be a great deal of social unrest. This can lead to conflict, war, and migration both within that country and abroad. Because we live in an interconnected global society, this type of instability often has ripple effects beyond a country's borders and even worldwide. Supply chains could be interrupted due to unrest or a global health crisis, such as the COVID-19 pandemic. When people do not have access to quality healthcare, it can hinder global public health.

With an increasingly globalized economy, many goods are produced in developing countries where labor regulations may be less stringently enforced than in wealthier countries. Because these goods dominate the market and are often much cheaper than alternative products, it can be difficult or impossible for people in the U.S. to purchase basic necessities without financially supporting child labor, low pay, or abusive working environments in developing countries.

assessment

Share the following information with students:

"An Oxfam report released in January 2017 estimates that just eight mega-wealthy men hold the same amount of wealth as the poorest half of the world's population, combined. Six of those eight men live in the United States."[3]

Considering this information and the bean demonstration, students write a reflection on the state of wealth inequality in the world.

follow-up activity

Have students calculate the lifetime resource use and bean quantities for additional countries. Data can be found through the World Bank statistics or CIA World Factbook. Sample statistics appear below.

Country	Per capita GNI-PPP	Life expectancy	Lifetime wealth	Beans
China	$16,790	77 years	$1,292,830	23
India	$6,920	69 years	$477,480	8
Mexico	$19,990	75 years	$1,499,250	27
Norway	$69,610	83 years	$5,777,630	103
Portugal	$35,790	81 years	$2,898,990	52

[1] World Bank, World Development Indicators. (2021). *People using at least basic sanitation services (% of population).* [Data file]. Retrieved from https://data.worldbank.org/indicator/SH.STA.BASS.ZS?view=chart; *Access to electricity (% of population).* [Data file]. Retrieved from https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS?view=chart; *Individuals using the Internet (% of population).* [Data file]. Retrieved from https://data.worldbank.org/indicator/IT.NET.USER.ZS?view=chart; *Mobile cellular subscriptions (per 100 people).* [Data file]. Retrieved from https://data.worldbank.org/indicator/IT.CEL.SETS.P2?view=chart

[2] World Bank, World Development Indicators. (2021). CO_2 *emissions (metric tons per capita).* [Data file]. Retrieved from https://data.worldbank.org/indicator/EN.ATM.CO2E.PC?view=chart; Food and Agriculture Organization of the United Nations, AQUASTAT. (2021). [Data file]. Retrieved from http://www.fao.org/aquastat/statistics/query/index.html

[3] Oxfam America. (2017, January 15). *An economy for the 99 percent.* [Brief]. Washington, D.C. Retrieved from https://www.oxfamamerica.org/explore/research-publications/an-economy-for-the-99-percent/