## Chapter 1.2 What is poverty Part1

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Hello, Welcome to this chapter entitled **What is poverty?**

Of course, this is a bit of a **provocative question** and we have to humbly admit that there is no chance we could give an “good” answer in the sense of inclusiveness and generality.

There is an incredible wealth of literature on this subject so that it is a **great challenge** to give any kind of answer in one or two short videos.

Nevertheless we will try to give you some basic knowledge on poverty and how it is measured.

First let’s emphasize one of the very few facts on which there is a general agreement: **Poverty is a very complex and muti-dimensional problem**.

It goes well beyond just material or monetary aspects.

Let us look at a few so called **determinants** of poverty, meaning conditions that cause poverty or at least are related to poverty.

Let’s look at these determinants under **three angles**: 1) at the **macro or regional leve**l, 2) at the **community level** and 3) at the level of the **households**.

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At the **Macro level**, determinants of poverty are of course very country specific.

Commonly cited determinants are **Geographic isolation** which refers for example to island states or countries which are landlocked with no access to sea trading routes.

**Having no access to natural resources** can be a factor of poverty but the opposite can be true as well. Think of the so called ‘resources curse’ which burdens certain countries where there is a lot of oil, but where citizens are desperately poor.

**An inhospitable climate** can put an extra burden on countries: for example in the Sahel region where droughts are frequent.

**Bad governance** is an obvious contributor to poverty, for example when corruption or administrative overloads are impacting ease of creating companies or doing business.

**Conditions of Economic, political and Market instability,** will for example act as a deterrent to foreign investment which is important for development.

**Regional insecurity and wars** of course have a direct impact on countries’ ability to prosper.

**Freedom of intellectual expression** is crucial for a sound society in which problems get openly discussed and solved.

**An ineffective and unfair judiciary system** will create inequality and promote instability and corruption

Finally, **Gender, racial, ethnic or social discriminations** will tend to impoverish some classes of population and the country altogether, by denying the potentially fruitful contribution that all humans can and should bring to society as a whole.

They are sources of civil conflicts and wars.

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Now let’s look at **determinants of poverty at the community level**.

At that level, lack of access to adequate **infrastructure** is a definite contributor to poverty: Think for example how a community could possibly prosper without access to **paved roads**, to stable **electricity**, access to **schools**, access to **markets** where to sell goods, or access to **clinics** where to get healthcare.

Unequal access to **employment** will also burden some of the poor communities, which remain in a vicious cycle where they are stigmatized, and are thus not getting access to decent jobs.

In the same vein, **social mobility** is of course also very important: being able to climb up the ladders of society, without hitting glass ceilings is essential.

At community level, **equitable** **distribution of land** is a vitally important factor as it allows local production and reduces vulnerability in the community.

Finally, what happens to the poorest in the community? Do they have access to **social networks and institutions** to help them?

The community as a whole will fare better if its poorer components are taken care of.

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At the household level, there are numerous determinants of poverty as well which we can group into 3 main categories: **Demographic**, **Economic** and **Social**.

In the demographic category we find determinants such as:

**Large household sizes** with members having a younger average **age**.

Obviously, such households generally also have a higher dependency ratio which means that a higher number of family members **depend** on few workers having an income.

The second category is related to **Economics**:

Very obviously the scarcity of income sources is a problem, for example in the case of widespread **unemployment**, but also when the household has no possibility to produce its own food.

**Lack of property** such as the house, land, agricultural equipment, or livestock, is another obvious determinant, which also includes access to **financial assets and credit.**

In the last category we find **Social** aspects:

**Ill health** is associated with poverty and there are many manifestations of this link.

Since in many poor countries there are no health insurances, individuals are very vulnerable to falling into poverty, as a direct consequence of a health problem.

Having **access to education** is absolutely crucial to be able to take advantage of income-earning opportunities, but is not sufficient: there can be access to education but the service is not used for a variety of reasons.

Having a **shelter** is a basic human need. So its absence is an obvious determinant of poverty.

But shelter alone is not enough: key services such as safe water and sanitation, stable electricity or other safe energy sources for cooking, lighting or operating communication technology are needed too.

For a household, **living in isolation,** without access to roads and public transportation is a determinant of poverty.

It will prevent individuals from accessing **markets** where to sell goods, or finding **jobs**.

Last but not least, lack of **personal safety** is a terrible burden for many people who are thus prevented from living productive and joyful lives.

As said before, this list is by no means complete but it gives you a sense of the multiple dimensions of poverty.

Later in this course, we will discuss an initiative that strives to define a framework for a sustainable development in many of these areas: The **United Nations Sustainable Development Goals.**

Remember also that **correlation** does not necessarily mean **causation** and that the real causes are often hidden: Things are almost always much more complex than they appear.

Now let us try to find a **workable general definition of poverty**.

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For this, let us refer to an organization whose very mission it is to reduce poverty: **The World Bank**.

This institution defines poverty as quote “pronounced deprivation in wellbeing” unquote. This does not sound very useful does it?

Luckily for us, the world bank has given some precisions in their documentation and it goes on to define wellbeing as

As a state which…quote “ **can be measured by an individual’s possession of income, health, nutrition, education, assets, housing, and certain rights in a society such as freedom of speech.**

Poverty is also a **lack of opportunities, powerlessness, and vulnerability**.

And the world bank concludes **Poverty is truly a multi-dimensional phenomenon…**” unquote.

Now having said that poverty is multidimensional, are there ways to assess poverty quantitatively?

**How many** people are poor, **how poor** are they? **Where** are they located?

This of course is useful in order to understand **where to focus our attention** if we want to reduce poverty.

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Although there is no single figure or index or number which can accurately describe the state of wellbeing of a given population or country, there are **indicators** which can be helpful.

There are broadly speaking **three classes of such indicators**:

1) those that are **monetary**, that is they are expressed in terms of **income or consumption** as we will see,

2) and those that are **non-monetary**, for example life expectancy at birth, as we will see, or Infant mortality rate and

3) those which are **composite,** meaning that they combine both monetary and non-monetary metrics.

Let us start with some **monetary** indicators which are widely used as a catch-all figures to assess state of wellbeing or poverty.

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The world bank’s definition of poverty starts with “Poverty is pronounced deprivation in wellbeing, where wellbeing can be measured by an individual’s **possession of income** etc.”

Can we measure a household’s income?

If we can do that, we may then be able to define a **threshold under which a household is considered poor**: that is the so called **poverty line**.

We will come back to this.

It is possible to measure household incomes using **surveys** based on interviews conducted with a sample of households in the countries.

Unfortunately however in many cases, estimating income is not very convenient because households tend to **under-report** their income.

Also some aspects of household-income are difficult to **quantify** such as an increase in farm livestock.

In general, thus economists prefer to use household **consumption** as a criterion except in certain countries.

Generally either consumption or income can be used and this doesn’t really matter much if we look at things in a general way.

**Consumption surveys** cover all monetary expenditures for goods and services, plus the monetary value of all in-kind consumption, such as food produced on the family farm.

Countries routinely conduct such surveys which are then **aggregated** by the world bank.

Generally economists transform the Household consumption into a **consumption per person or *per capita*.**

That means the total household consumption, is divided by the number of individuals living in that household.

This gives a figure of **how many units of local currency are expensed per person and per day** for living.

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Let's imagine a **hypothetical country** which we will call country C.

We conduct a survey of household consumption, and we get a distribution of income.

We divide this income by the number of people in the household and we get the income distribution *per capita*, in the local country’s currency.

We now draft income in function of the **share of population who lives on a specific income base**.

This is a probability **density function**.

Here for example, we have 10% of the population who lives on say **5 items of local currency** per day.

Are they poor or not?

To answer this question, the local country authorities will determine a minimum level of income under which an individual is to be considered poor by local standards.

This is the **National poverty line** and remember, it is in local currency.

**[CLICK]**

This poverty line is very different from one country to another.

If we want to know what is the **total share of people in the country living on less than the poverty line,** we have to sum up (or integrate) the all the contributions below the curve, up to that point.

**[CLICK]**

Now let us assume we would like to **compare the situation of wealth of that particular country with other countries**: we now have the problem of the difference in **currencies or exchange rates**, but that is not the only problem.

In fact we all know that prices vary enormously across countries even when converted to a reference currency such as the US Dollar: The **purchasing power** is different.

Think for example of the cost of **buying a lunch** in a restaurant or **paying an apartment rent:** there are big differences between countries.

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To solve this issue, it is necessary to convert all local currencies into a reference currency which is called the **international dollar**, and to factor-out the **difference in buying power**.

This can be done by referring to a **standardized basket of goods and services**.

We then determine **how much this basket used to costs in the United States in a specific reference year**, for example in 2011.

After that we can determine the **cost of the same basket** of goods and services, in our country C’s local currency.

**[CLICK]**

The ratio between the cost in the United States and the cost in the country’s local currency is called the **Purchasing Power Parity (or PPP) Conversion factor**.

It represents how many items in local currency would be needed, to have the same buying power than the Dollar had in the United States at a certain point in time.

One PPP dollar should thus buy the same basket of goods in Kenya, India or the US.

We can now express **consumption in any country in terms of international dollars at PPP**.

Doing this with other countries will allow us to compare them.

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Now we can re-calculate the income or consumption distribution per capita per day **in international dollars at PPP**.

We now have a curve that still represents precisely the country C that we are considering, **but can be compared to other countries**, where of course the same calculations were done.

Having done this, we would now need to know **what happens to the poverty line**.

In fact, what we are interested in, is to know how this particular country compares in terms of poverty with other countries.

**[CLICK]**

For this, the world bank has defines an **international poverty line** that tells us what it means to be in extreme poverty in terms of international dollars at PPP.

This line is calculated by taking the **average value of the national poverty lines of some of the poorest countries**.

It is currently at **1.9 international dollar per capita, per day at PPP.**

This is a very crude threshold which, being based on the poverty lines of the poorest countries, is an absolute minimum.

We can now calculate **the number of people living on less than 1.9$/capita/day in country C:**

This gives us the so called **poverty headcount ratio**.

It is simply the area under the curve in our graph, on the left of the poverty line.

This allows us to determine **where on the planet most of today’s extreme poor people live**, let us have a look.

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This map shows you the countries with their respective **poverty headcount ratio**.

Globally this represents about **900 million** people living in the most extreme form of poverty, struggling to meet their **most basic needs**.

Of course there is no such a thing as a clean limit between poor and non-poor: If we were to consider a limit of **3 $ per capita per day**, which is still very low, the amount of people concerned goes up to a **staggering 2 billion worldwide**.

In general, around **50%** of all Africans live below the poverty line. In many African countries it is even more than that.

This is a terrible situation in this marvelous continent, and this is why our MOOC is focused mainly on the context of sub-Saharan Africa.

For those of you who have read about the subject of poverty, there is a concept that is sometimes used called the **Bottom of the Pyramid**.

The bottom of the pyramid is generally defined as those people living on less than **2 dollars a day** which is pretty much equal to our international poverty line.

In our next video, we will continue the discussion on monetary metrics such as **Gross Domestic Product**. We will then talk about **non-monetary metrics** and finally we will discuss **Composite metrics** which combine both monetary and non-monetary indices.

Good bye.

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## Chapter 1.2 What is poverty Part2

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Hello, Welcome to the second part of the chapter entitled **What is poverty?**

In the first video, we have seen that **Poverty is a multi-dimensional problem**.

We have also seen the **definition of poverty by the world-bank**, which we have used as a base to try and understand how we can measure poverty.

To do this, we have defined **three types of metrics**:

1) those metrics based on **monetary values**,

2) those based on **non-monetary** metrics and

3) **composite metrics** which combine the former two.

We have started looking at monetary metrics and have seen the concept of the **poverty line**, defined as 1.9 international dollar, **per capita, per day, at Purchasing Power Parity** or PPP.

There is another monetary metric which we need to mention because it is very widely used: the **Gross Domestic Product per capita**.

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The idea is to measure the market value of the **total production or output** within the country in a given year.

Without going into details, **GDP is defined roughly as the sum**

…of **private household consumption (C)** such as durable and non-durable goods and services

…Of **Investments (I)** made by public or private sectors on capital equipment, inventories and structures

…Of **Government spending (G)** such as compensation of government employees, public health spending etc

…**plus the net exports of the country** which is the value of all exports (X) minus the value of imported goods (M).

In other words, it represents the value of **domestic goods purchased by foreigners,** minus the value of **foreign goods purchased by nationals**.

Finally of course this figure is in **units of national currency** and must beconverted into **international dollars at PPP** as we have seen.

Furthermore, it is divided by the amount of people living in the country to end-up with **GDP, per capita, at PPP.**

This concept is based on the work of **John Maynard Keynes in the 1940’s**.

At that time there was a need to measure Great Britain’s ability to wage war, which in economic words meant: its ability to produce tanks and airplanes.

It is really intended as a measure of **production or output, not of welfare**. However, it is still widely **used -and abused**- as a metric for welfare.

To illustrate this discrepancy, take for example **Equatorial Guinea:** it has a GDP which is rather high at **33’000 $/capita,** which would make it a high-income country!

And yet **close to 80%** of the population lives below the poverty line.

How is that possible?

In fact, Equatorial Guinea has **oil, which it exports**, and this increases **the X** in our equation.

However, the **share of that GDP available for household consumption is only 17% of the whole**, which is the **C in our equation**.

This tells us that a majority of all households do not benefit from the oil-revenues, which are kept by a minority.

We will come back to this question of **income distribution**.

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Based on the calculation of GDP per capita, or more precisely on **Gross National Income which is a variant of GDP,** the world bank has a defined a classification of countries.

It defines as **Low-income,** those countries which have an income of **1’045 dollars per capita, per year, or less**.

**Middle Income countries** are split into **lower-middle** and **Upper-middle income**, and finally we have **high income countries.**

Those are the ones with a Gross National Income **above 12’736 dollars per capita at PPP**.

In our MOOC we will often refer to **Low and Middle-Income countries** as the region of interest.

As you can see on this map, many of the poorest countries are **landlocked,** such as the string of countries running through the center of the African continent, or **Nepal** for example.

Other countries, such as **Afghanistan or Somalia,** remain poor because they are afflicted by war.

You might ask yourself if it is enough to know how countries compare. Remember the case of Equatorial Guinea: wouldn’t it be interesting to know also **how wealth is distributed** inside a specific country?

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To determine the level of inequality inside of a country, economists use another metric developed in 1912 by the Italian statistician **Corrado Gini**, thus called the GINI index.

He had the idea to use the so called **Lorenz curve** to calculate an inequality index.

The **Lorenz curve** is obtained if you draft **cumulative income** in function of **cumulative population**.

In other words, you list the **poorest on the lef**t of the horizontal axis, and then add population in **increasing degree of wealth** up to the richest. You then divide everything by the **total** **number of people** and you get an axis with the **cumulative share of people** ranked from lowest to highest income.

On the vertical axis you represent the **cumulative share of income earned**.

If we consider a **perfectly equal society** you would have to have the poorest 30% of the people owning 30% of the income, the poorest 50% having 50% of the income and so forth.

The Lorenz curve of such a hypothetical country would be the **straight line, in blue**.

Unfortunately, in the real world, income is **not evenly distributed:**  some parts of the population have much more income than others.

So the Lorenz curve really looks like the **yellow one** where you can see that the **poorest 30% of the population own only roughly 10%** of the income, while the richest **10% get about 30% of the income**.

The Gini index measures the **area between the Lorenz curve and the hypothetical line of absolute equality**.

This is expressed as a percentage of the maximum area under the line, **or A over A plus B.**

Thus a **Gini index of 0 represents perfect equality**: the yellow curve would be identical with the straight blue line.

An **index of 1** implies perfect inequality which would mean that **one person gets all the income, and all the others get none**.

This index can now be applied to look at **how unequal different countries are**.

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Here is a list of some countries' GINI indices.

As you can see, **it is not because a country is poor** that it has a high level of inequality: **Tanzania** which is a low-income country is less unequal than the **United States,** which is a High-income country.

**South Africa** on the contrary is an **upper-middle income country** with has a **very high Gini** index.

This indicates that there are very **important differences** in income across the population.

Together with GDP, the Gini index this is a convenient way to explore and measure progress with regards to poverty and its distribution. However these metrics are based on **monetary dimensions.**

As we have seen, poverty is multi-dimensional, so let us now **turn to some non-monetary** metrics and indicators for the state of wellbeing.

There are **numerous such metrics** which measure any of the different dimensions of poverty.

We will **pick just two**, one in the area of **health** and the other in the area of **Education**.

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**Life expectancy at birth** is a health indicator that is calculated based on a number of **assumptions**.

It represents the number of years a newborn infant would live **if** prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.

It incorporates the **mortality pattern** that prevails across all age groups in a given year – children, adolescents, adults and the elderly.

In this table we have listed the **average Life expectancy at birth per income group** according to the world-bank definitions.

Obviously, at first sight, countries with higher incomes have a longer life expectancy: there are more funds available to pay for healthcare, clean drinking water and good quality food.

Things are of course a bit more complicated than that. For example if we consider an African country like **Cameroon**. Its **Life expectancy at birth is as low as 55 years**.

However, this very low value is largely influenced by the shockingly high level of **child mortality** in this country: Cameroon has an **infant mortality rate of 88 children for every 1000 live births** as compared to **7 for every 1000 live births** in the United States.

In other words, a child is over **10 times more likely to die** before reaching its 5th birthday in Cameroon, as in the United States. This of course significantly reduces the overall Life expectancy at birth.

As with any single numerical indicator, one has to remain cautious about how the indicator is constructed: about what it does account for and, what it doesn’t.

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The second non-monetary metric characterizes **education**.

It is called the **primary completion rate.**

This factor measures the **proportion of people entering the last grade of primary education** compared to **all the people who would have the age to be enrolled**.

In this table you can see that in Chad, which is one of the poorest countries, **not even 40 percent** of the population finishes primary education.

The difference between male and female is also very important. It is thus very sad that **less than one in 3 girls** can achieve only primary education, let alone secondary.

This is obviously sad for the **people** themselves, but sad as well for the **perspectives** of that country.

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We will now turn to the **last type of metrics which we called composite,** because they involve both monetary and non-monetary parameters.

Let us look at one such metric called the **Human Development Index**.

It was first proposed in the **1990 by the United Nations Development Program.**

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The Human Development Index is a **geometric mean** of a **life expectancy index**, times an **education index**, times an **income index**.

The **Life Expectancy Index**, or LEI, is based on life expectancy at birth which we have just have seen.

The **Education Index**, or EI, is a combination of **mean years** of schooling and **expected years** of schooling, and is yet another non-monetary index.

Finally, **the Income Index,** II, is based on the **logarithmic value of the Gross National Income** expressed in PPP dollars per capita

All these indices are **normalized in order to have a value between 0 (worst) and 1** which represents an aspirational but realistic goal to be reached in that particular dimension: for example a life expectancy of **85 years in a particular country**, which corresponds to the highest level reached worldwide, would give this country a **Life Expectancy Index of 1**.

The Human Development Index is used by the United nations Development Program **to rank countries**: Let’s look at a few of them.

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The table represents the **Human Development Index** in the second column, and in the third column, the country’s **ranking** when compared to others.

There aren’t any big surprises at first glance: high-income countries have a higher Human Development Index and of course tend to rank better than low income countries.

Differences do appear however if you compare the **ranking of South Africa**, based on the Human Development Index, with the ranking based on GDP: If we refer to GDP, South Africa ranks **84th , while it is only 116th** if you look at Human Development Index.

This, of course **reflects the influence** of non-monetary metrics such as Life expectancy that is accounted for in the Human Development Index but not in GDP.

In effect, the life expectancy at birth in South Africa is only **57** years which explains this difference.

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We have now been able **scratch the surface of this complex question of what is poverty**.

We have learned to characterize it using **Monetary**, **non-monetary** and **composite metrics**.

This will give us the necessary background for the remainder of this course on **how to reduce poverty** through innovation and technology development.

**Good Bye.**

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