



Cattedra

RELATORE

CANDIDATO

Anno Accademico

Alla mia famiglia, per sempre il mio porto sicuro, per avermi dato affetto e stabilità.
A Vittoria, fonte d'ispirazione, che costantemente mi mostra l'essenziale, il contenuto in un mondo
di forme.

Ai miei amici dell'università, con i quali ho affrontato tre anni difficili ma bellissimi.

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Introduction

The coronavirus pandemic has shown once again the huge differences between developing and developed countries. On the one hand, many high-income countries are about to reach herd immunity, and despite the significant number of deaths, their institutions have been able to fight the emergency. On the other, low-income countries are struggling to give vaccines to the population due to their lack of infrastructures and insufficient supply of jabs, and this risks to slow down their already weak economic growth. Why do developing countries fail to grow? Is there a way to eradicate chronic poverty? And can developed countries play a role? The aim of this thesis is to explain why poors remain poor and understand if a wider financial inclusion can benefit developing countries.

The first chapter is entirely dedicated to poverty traps, and the idea that poverty is likely to become chronic below certain levels of income. We will see that there are many determinants of these traps, such as governance, geography, demographic trends and wars. Insufficient or null levels of savings do not allow poors to be better off and do not represent a safe anchor when households are hit by crises. Analyzing what drives persistent poverty is pivotal in order to understand how microfinance can tackle this problem: a multi-dimensional challenge requires a multi-dimensional solution.

The second chapter focuses on microfinance as an alternative to informal financial institutions. Many poors are excluded from financial markets, and they either borrow money from usurers or decide not to apply for a loan. Microfinancial institutions are able to grant loans to poor customers who lack collaterals and minimize risk by exploiting social ties and requiring frequent repayment instalments. What is more, they collect microdeposits and provide insurance to their customers, so that they can rely on a source of wealth during times of economic crisis.

The third and last chapter will measure the impact of microfinance on poverty traps. First of all, it will analyze the channels through which financial inclusion can tackle poverty. Then, it will examine existing literature on a widely debated topic such as the effectiveness of microfinance programs and institutions. In the end, it will analyze data about The Bolivian Foundation for Development's performances in order to assess whether there exists a correlation between microfinance and poverty alleviation and understand whether we have found the ultimate solution to such a challenging problem.

1. Poverty traps

1.1. The cause of poverty is...poverty

Eradicating ‘extreme poverty’ by 2030 is the first of the seventeen Sustainable Development Goals (SDGs). If you live with \$1.90/day or less, than you can be classified as an extreme poor. Data suggest that there is no reason to be pessimistic about the future: while in 1993 33% of the global population was affected by extreme poverty, in 2020 only 9.4%. Had coronavirus not existed, the share would have been even lower (7.9% to be more precise)¹. However, poors are mainly concentrated in Sub-Saharan Africa and South Asia, where conflicts, natural disasters and bad governance represent an obstacle to economic development. Why do these countries fail to eradicate extreme poverty?

Consider a household living in Chad that owns a three-hectare farm. Income per capita can increase if he saves part of the present income and invests in a new fertilizer that optimizes soil’s productivity. The future annual yield would increase together with living conditions. Trade is another source of wealth. The existence of a nearby market would allow the household to specialize in the production of one good that can be produced at a low cost and exchange it for other commodities. As Adam Smith suggests, specialization increases productivity, leading to a higher level of per capita income. We can also suppose that the household learns from another farm how to manage soil nutrients in a more efficient manner: technology of production increases the annual yield of the soil. In addition to this, the government may be able to control the breeding of black flies and the household would be able to move to a more productive farm².

Having this framework in mind, understanding why poor countries are not able to fight extreme poverty is straightforward. First of all, the yield of a farm may be barely enough to ensure the household’s subsistence. The entire product of the farm would be consumed, and it would not be possible to buy a new fertilizer. The plow may break down, and having no means to buy a new one, the household will see his income decrease significantly. The absence of paved roads in poor countries may also limit division of labour, since many households would not be able to reach the nearby market (assuming that the market exists). Moreover, low health conditions might induce the death of the children’s parents. The oldest son would take control of the farm, but his technical knowledge would not be sufficient to manage the soil productively: per capita income of the household would drastically fall. Last, bad governance of the country might not allow to control the

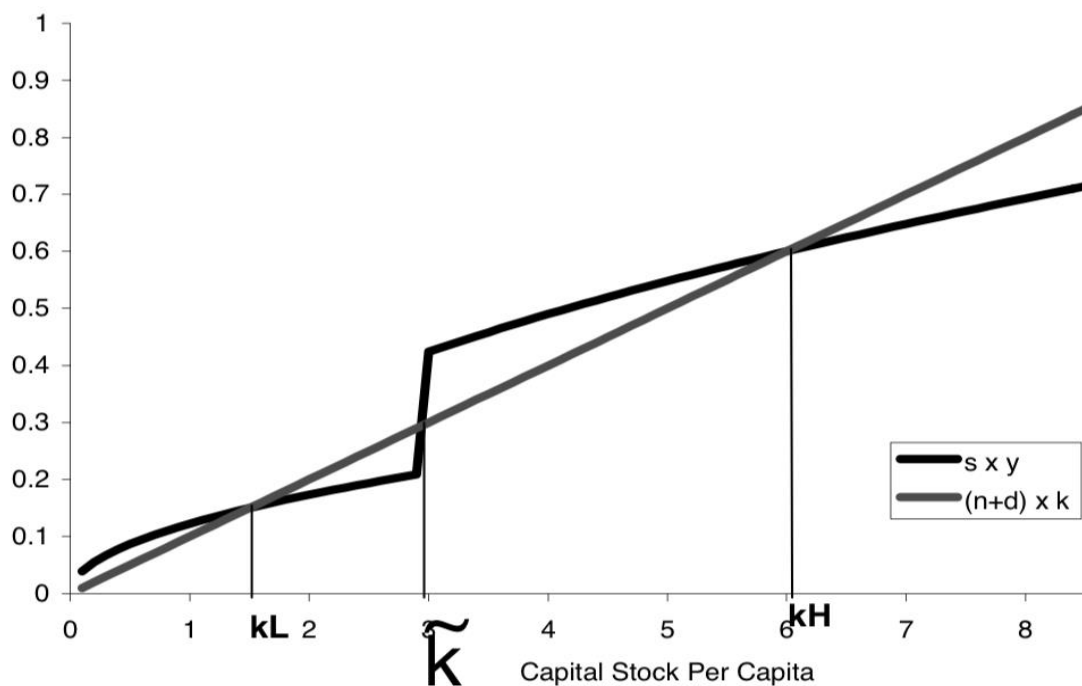
¹ Data taken from World Bank Open Data, available at data.worldbank.org

² J. Sachs, *The End of Poverty. How we can make it happen in our lifetime*, Penguin Books, 2nd ed., 52-53 (2005)

breeding of black flies and no resource boom can happen. If anything, a flood would destroy the existing land.

The cause of chronic poverty is poverty itself. Poors are trapped in a self-reinforcing mechanism (i.e., poverty trap) that makes poverty persistent. In order to escape from the loop, individuals need an external push: this is the reason why those economists who believe in the existence of such traps support the effectiveness of direct intervention by developed countries³. A trap exists only if there is nonconvexity in the production function: Jeffrey Sachs explains that there are increasing returns at low initial capital per person. In order to explain this property, he makes the example of a road that is only half paved. When the unpaved part is repaired, the length of the road doubles, but the output from the road more than doubles⁴.

Figure 1: Solow Model With Poverty Trap



³ C. Barrett, M. Carter, J.P. Chavas, *The Economics of Poverty Traps*, University of Chicago Press, 3-5 (2018)

⁴ W. Easterly, *Relieving the '50s: The Big Push, Poverty Traps, and Takeoffs in Economic Development*, *Journal of Economic Growth* 11, 289-318 (2006)

Figure 1 represents the typical saving-based Solow model with poverty trap as presented by Kraay and Raddatz (2005). Assuming a Cobb-Douglas production function, capital stock per worker is given by:

$$(1) \dot{k} = sAk^{\alpha} - (n + \delta)k$$

where k is capital stock per capita, s represents savings, A is technology, α is output elasticity of capital, n is the growth rate of population and δ is the depreciation rate. In **Figure 1** there are two steady states. k_L is a poverty trap, because saving rate is so low that investments can sustain only a small capital stock per capita. Even if saving rate is considered as exogenous in the model, it can be endogenized by assuming that it depends on the initial level of income. In such case, rich countries could afford to save more, reaching a higher steady state of output and capital. If a country is between k_L and k_H , it will grow until k_H is reached⁵. On the other hand, poor economies can sustain only a low saving rate, and their steady state level is much lower.

Barret and Bevis (2015) argue that there exists a self-reinforcing mechanism between low soil fertility and chronic poverty. Nutrients flows are positively correlated with per capita income in Sub-Saharan Africa for 1983 and 2002-2004. A poor soil limits production and capital. Low levels of production and capital prevent households from investing to improve the fertility of the soil. Deficiencies of nutrients have a negative impact on health, hence on productivity. In addition to this, a fertile soil is more resilient to shocks (floods, drought etc.) than a poor one and natural disasters are the main causes that trap households into poverty⁶. However, we must consider poverty traps under a multi-dimensional point of view: we will see in the next paragraphs that there exist demographic traps, geographic traps, natural resources traps and bad governance. Each of them interacts with the others as branches of a tree, whose roots consist of conflicts and violence, making poverty an extremely challenging economic problem to analyze and solve.

It is essential to highlight that economists are divided in two groups. Many, such as Jeffrey Sachs, believe in the existence of poverty traps. They stress the importance of external intervention, which is considered the only way to escape from persistent poverty; investments and financial aid allow poors to increase available capital and savings, helping them to climb the ladder of economic development. Jalon and Ravaila (2004) argue the existence of a geographic trap. They found out that

⁵ A. Kraay, C. Raddatz, *Poverty Traps, Aid, and Growth*, World Bank Policy Research Working Paper 3631 (2005)

⁶ C. Barrett, L. Bevis, *The self-reinforcing feedback between low soil fertility and chronic poverty*, Nature Geoscience 8, 907-912 (2015)

consumption growth at the household level increases with availability of geographical capital. But there exists also evidence at the macroeconomic level. Bloom, Canning and Sevilla (2003) found a bimodal distribution of the evolution of per capita income across countries, with poor economies centered around the trap equilibrium and rich ones clustered around a high equilibrium⁷. On the other hand, a significant group of economists denies the existence of poverty traps and thinks that intervention does nothing but damage the economic condition of poors. William Easterly analyzed data of per capita income from 1950 to 2001 for 137 countries. He demonstrated that the poorest fifth of countries increased their income by a factor of 2.25, while the other four-fifth by 2.47. He concluded that the difference is not statistically significant, even if some countries such as Chad had zero growth⁸.

Although evidence on poverty traps is not fully conclusive, we can't deny that many countries have failed to eradicate extreme poverty and that external intervention, when based on a multi-dimensional analysis, can lead to economic development (we will see this in Ch. 2-3). It follows that in order to understand how intervention can have a positive impact, it is essential to analyze which are the main drivers of poverty traps.

1.2. Landlocked Countries

Significant inequality between rich and poor countries is a relatively new phenomenon. In 1820, the gap between the richest and poorest economy (UK and Africa) was a ratio of 4 to 1 in per capita income, while in 1998 the ratio was of 20 to 1 (US and Africa). In these 178 years economic growth has been highly uneven: per capita GDP of the US grew at an annual rate of 1.7 percent, in Africa at a rate of 0.7 per year only. The difference may not be relevant if we consider a time span of a few years, but if we take into account more than one century and a half, we can understand the divergence between these two economies. Economic growth started with the First Industrial Revolution, that originated in Britain around 1750. But why was Britain the first country to climb the ladder of economic development?

Many factors contributed to its success: open-minded society, strong institutions and in addition it was the center of the scientific revolution. But above all, Britain has geographical advantages. Firstly, it is an island close to Europe and North America and it has been able to develop low-cost commercial

⁷ A. Kraay, C. Raddatz, *Poverty Traps, Aid, and Growth*, World Bank Policy Research Working Paper 3631 (2005)

⁸ W. Easterly, *Relieving the '50s: The Big Push, Poverty Traps, and Takeoffs in Economic Development*, Journal of Economic Growth 11, 289-318 (2006)

relationships with other countries. Having direct access to the sea is without any doubt a competitive advantage, since it allows fishing and avoids depending on other countries for access to sea trade. Moreover, Britain has navigable rivers that favored internal trade and an agriculture-friendly environment⁹.

Landlocked countries need to rely on neighbors for access to seaports. For example, Ethiopia relies on Eritrea for access to the Red Sea. In 2009, average real per capita GDP of landlocked countries was \$974, \$2392 for non-landlocked nations. Currently, there exist 32 landlocked developing countries (LLDC) and 17 of them are among the Least Developed Countries. Sub-Saharan Africa is the undisputed leader. In 2013, none of the LLDC had more than \$7500 per capita trade and GDP and only 7 of them more than \$4000¹⁰. Isolation seems to be deeper in the mountains, where nature and weather are obstacles to transports and agriculture. Not surprisingly, mountains and uplands represent the majority of FAO's 'critical zones' that are not able to grow enough food to feed inhabitants. Evidence leads to three conclusions; landlocked countries trade less than coastal states, have weaker growth (1.5 percentage points of difference) and had longer recourse to the IMF.

Data suggest that landlocked countries have a competitive disadvantage with respect to coastal nations. Saying that all countries have the same opportunities is not fair; many LLDC would not be landlocked if they were part of a larger and sounder state. Political boundaries in some cases are naïve and arbitrary, since they do not take into account historical or geographical criteria. As a result, many states are oppressed by conflicts and by difficulties in establishing commercial relationships. This is especially true for those countries coming out of the Western colonization¹¹.

Being landlocked cuts off from fishing, an activity than can represent up to 10% of a country's GDP and is vital for developing countries. Trade can be seriously hampered, because it depends on the transit state: as a consequence, transit charges and poor infrastructures increase transaction costs significantly. This has a negative impact on imports and exports. Importing products from other countries is more expensive, while revenues from exporting domestic commodities is lower. However, transportation cost is not the only factor that must be taken into account. Delays have as much as an impact on trade revenues. Multiple clearance systems hamper efficiency and make transportation slower. While coastal countries face 1 clearance process, landlocked states at least 3:

- in the port, where dwell time of domestic cargo is slightly lower than that of transit cargo

⁹ J. Sachs, *The End of Poverty. How we can make it happen in our lifetime*, Penguin Books, 2nd ed., 31-35 (2005)

¹⁰ R. C. Paudel, *Growth and Export Performance of Developing Countries: Is Landlockedness Destiny?*, The Australian National University (2013)

¹¹ R. M. Visconti, *Poverty Traps and Microfinance. From Financial Inclusion to Sustainable Development*, ibidem-Verlag, 39-44 (2011)

- in the borders, whose number influences the overall transit time
- in the final destination, where the cargo faces a final clearance

Time has an important value in trade, because it represents the cost of ownership of goods in the inventory. Financial charges, obsolescence, damaged or stolen goods are costs and may increase as time passes by¹². What is more, trade in many LLDC happens in a background of conflicts and corruption. Megoran et al. (2005) found out that above mandatory costs for transiting in Uzbekistani territory, there are unofficial costs to be paid for speeding up the process. In addition, transit fees are often overpriced and unjustified¹³. All the above-mentioned downsides of being landlocked make some countries unattractive for foreign investors, acting as a brake for economic development.

However, not all landlocked countries are poor, as some of them have upper middle-income levels. Their wealth can be attributed to good governance, but more importantly to the level of development of their neighbors. Collier (2007) explains the differences between Uganda and Switzerland. The former must rely on Kenya for sea trade, whose poor infrastructures hamper efficiency and raise costs. The latter has Italy and Germany as neighbors: it follows that access to seaports is easier and at lower costs. LLDC depend on neighbors not only as corridors to markets but as markets themselves, and we can't deny that some are better than others. Italy has a higher level of economic development than Kenya and it is easier to trade with the former than with the latter¹⁴.

Greater unity and good governance are a solution to this problem. However, many landlocked countries are in conflict with their neighbors and lack proper governance, making isolation a geographic trap. Geography matters, as it interacts with other traps and makes poverty persistent.

1.3. The Demographic-Economic Paradox

Poors make more children. Niger is one of the poorest countries globally and has a fertility rate of almost 6 children per woman, which leads to a population growth rate that is among the highest ones. Between 2005 and 2014, the incidence of poverty in Niger fell from 54% to 45%, while the number of poors went from 6.8 million to 8.2 million: the increase in population outweighed the fall in poverty

¹² J. F. Arvis, J. F. Marteau, G. J. Raballand, *The cost of being landlocked: logistics costs and supply chain reliability*, World Bank Group (2010)

¹³ N. Megoran, *The Critical Geopolitics of Danger in Uzbekistan and Kyrgyzstan*, Environment and Planning D-society & Space, 23, 555-580 (2005)

¹⁴ P. Collier, *The Bottom Million: why the poorest countries are failing and what can be done about it*, Oxford University Press, 54-58 (2007)

rate¹⁵. Chad has a fertility rate of almost 6 children per woman, and not surprisingly is one of the poorest countries in the world. Before analyzing the correlation between population growth and economic development, it is useful to understand why poors make more children, in order to highlight how every poverty trap both produces other traps and is a product of other traps as part of a self-reinforcing loop.

Extremely poor parents see children as financial instruments; the higher the number of kids, the higher the probability that in the future at least some of them will take care of their parents when they will be old. An inevitable consequence is that many parents decide to invest less in females: being under the control of their husband, they have less possibilities to help their parents. As a result, many parents decide to give birth to many children just to reach the desired number of males, creating a vicious circle that skyrockets the fertility rate¹⁶.

One of the determinants of fertility rates is the age at first birth, which is mainly determined by the age at first union. Research suggests that there exists a negative correlation: the younger a woman at first birth, the higher the total number of births. Not surprisingly, in high fertility rate countries the median age at first marriage is 17.7 years. However, mortality affects fertility rate more than anything else. When the former declines, also the latter does. If parents know that some of their children are likely to die young, they will decide not to invest in their kids and to avoid the risk of wasting precious resources. Income is another determinant although it is a weak predictor of fertility decline. Angeles' (2010) made a regression analysis of fertility decline between 1960 and 2000: income per capita has the expected negative coefficient but the estimated effect is weaker than that of other factors such as education and mortality. Lastly, fertility rate is not restrained by an unlimited access to contraceptives. On the one hand, their availability may be restricted. On the other, low levels of education may hamper their usage¹⁷. Having understood why poors make many children, does a tradeoff between population and economic growth exist?

As every economist would answer, it depends. Rich countries are able to afford both a high economic development and high population growth. However, in developing countries, where a significant share of individuals is trapped in chronic poverty, such tradeoff may temporarily exist. For poors, children erode already scarce resources, making themselves even poorer. If the pie does not grow, each of them gets a smaller slice of it. Nations with higher GDP per capita have lower fertility rates

¹⁵ L. Razafimandimby, V. Swaroop, *Can Niger escape the demographic trap?*, World Bank Blogs (2020)

¹⁶ A. V. Banerjee, E. Dufo, *Poor Economics: A radical rethinking of the way to fight global poverty*, New York: Public Affairs, 136-137 (2012)

¹⁷ World Bank, *Determinants and Consequences of High Fertility: A Synopsis of Evidence* (2010)

even if a rich population can sustain more children: this is the demographic-economic paradox¹⁸. High fertility can have a negative impact on:

- Health, since children from higher-order births have greater risk of dying young and maternal mortality is more likely at high pregnancy orders
- Human capital investment. Many studies found out that children from large families attain less schooling
- Economic growth. When there is a drop in fertility, the output of a country usually increases. The effects of high fertility are severe particularly in the long-run
- Natural environment, because population growth contributes to global warming and water shortages are more likely in overcrowded countries¹⁹.

Demography, as any other kind of poverty trap, is strictly linked to conflicts. Poors are mainly young and concentrated in overcrowded cities, where their basic needs (education, health, food etc.) are unmet. As a result, they are attracted by violence and extremism.

In order to escape from the demographic spiral, developing countries have to : improve education level, improve health conditions and offer insurance and safety for elderlies. Yet, in many cases bad governance hampers any improvement.

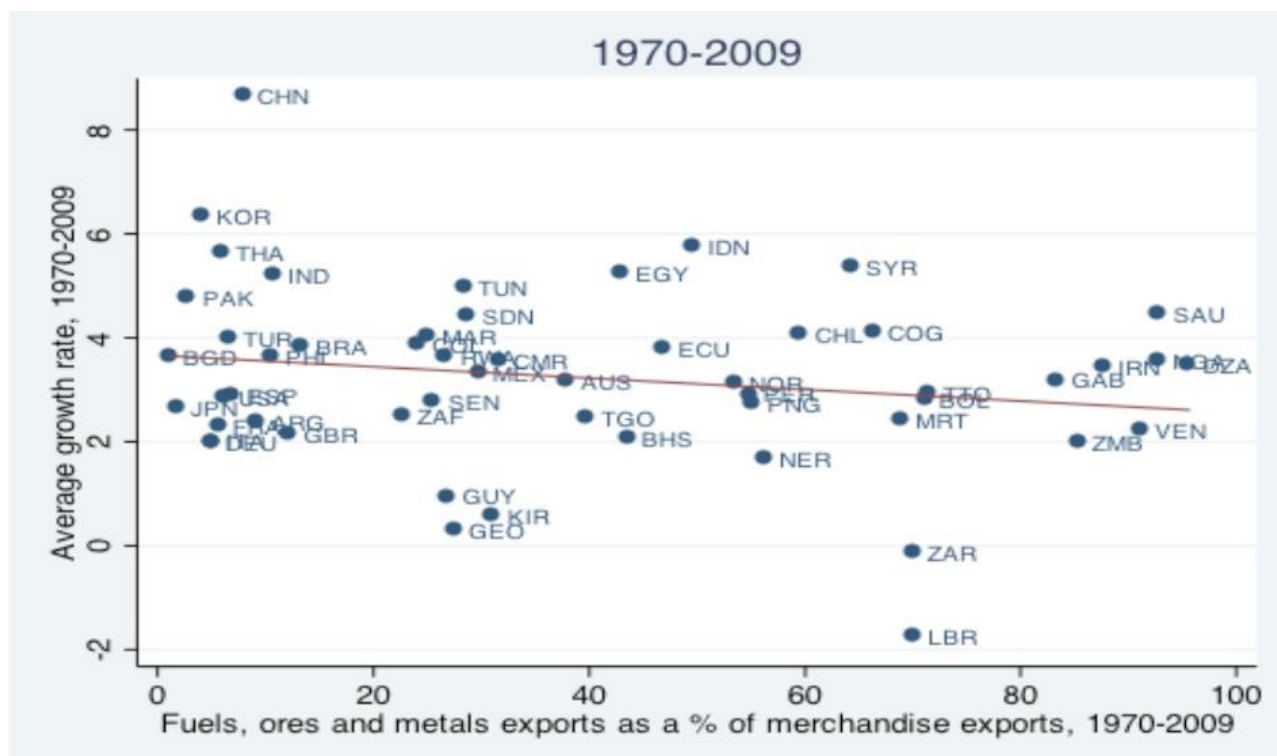
1.4. The Natural Resource Curse

Surprisingly, a resource-rich soil not always leads to prosperity. Evidence shows that, particularly for developing countries, mineral resources make economies grow slower than normal: this is phenomenon is known as the ‘natural resource curse’ and is another poverty trap. What should be a blessing for a country turns out to be an ‘unlucky bingo’ (Tommaso Moro Visconti, 2011). **Figure 2** shows that for a sample of countries, mineral products as a percentage of total exports are negatively correlated with growth rate in the period between 1970 and 2009. Even if such correlation is not strong, we can certainly conclude that these two variables are not positively correlated. Many countries, above all Liberia, are resource-rich, yet they struggle to grow at a satisfying rate.

¹⁸ R. M. Visconti, *Poverty Traps and Microfinance. From Financial Inclusion to Sustainable Development*, ibidem-Verlag, 65-67 (2011)

¹⁹ World Bank, *Determinants and Consequences of High Fertility: A Synopsis of Evidence* (2010)

Figure 2



Source: *World Development Indicators*, World Bank

A possible explanation can be found in what economists call the ‘Dutch disease’. In the 1960s, the North Sea gas exported by Holland made the currency appreciate with respect to others currencies and made other exports not competitive anymore. The crowding out of other sectors, above all the manufacturing one, can hamper profitable opportunities and technological progress. For underdeveloped countries, the Dutch disease effect is more severe: deindustrialization is harmful against basic industries such as the textile or agricultural sector, where women are employed. In the end, weak women become even weaker, enforcing an already existing gender bias.

The negative correlation between mineral resources and economic growth may also be the result of volatility in prices and revenues. During booms, managing the economy may result hard, especially in developing countries. Very often governments increase their spending and public investment skyrockets. However, when the phase of recession starts, public expenses have to be reduced and what gets cut is not the item that went up during the boom but other commodities that are politically more vulnerable. In the 1980s, an oil boom in Nigeria made the government borrow and spend heavily. Banks wanted to exploit this new opportunity and went on a ‘lending spree’. The mixture of bad governance and weak credit culture turns an economic boom into a recession; in 1986 oil price

crashed and revenues were drastically reduced. As a result, repaying debts became extremely challenging and banks cut off lending in order to avoid additional losses. In the end Nigerian living standards halved²⁰.

Evidence suggests that an oil-rich soil is an obstacle to democratization. After the wave of oil nationalization in the 1960s-1970s, wealth has been concentrated in the hands of the public sector: authoritarian regimes exploited rents to stay in power endlessly²¹. Autocratic governments are likely to misuse resources, accentuating inequalities within the society. Smith (2007) found a positive influence of oil on stability of regimes²². Wright, Frantz and Geddes (2015) discovered that countries with large oil reserves are more likely to be autocracies²³.

Lastly, abundance of natural resources can lead to unsustainability, anarchy and wars. The rapid depletion of minerals impoverish the soil, hampering any kind of activity. Conflicts and bad governance are a *conditio sine qua non* for chronic poverty, as we will see in chapter 1.5.

1.5. Conflicts and Bad Governance

If we examine the daily life of an Italian citizen, not surprisingly we discover that he/she faces no trouble in reaching the nearby market to buy food or other commodities. Roads are paved and there is freedom to move in any area of the country (imagine coronavirus did not exist). The framework is way different if we take into account the life of a citizen living in a developing country. First of all, some roads may not be paved as a result of bad governance, making movements between areas particularly harsh. In addition, conflicts may put in danger the life of a normal citizen that wants to reach the nearest market. Trapped in chronic poverty and lacking proper education, many poor people abandon themselves, embrace violence and become the cause of the self-reinforcing loop in which they were born. Humans were not born all with equal opportunities.

Between 2013 and 2015, the government of Congo sold mining assets to shell companies in the British Virgin Islands, which in turn flipped the assets to mining companies listed in London. In the end, citizens of Congo lost 1.3 billion dollars of natural resources, and they will never have them

²⁰ J. A. Frankel, *The Natural Resource Curse: A Survey*, John F. Kennedy School of Government, Harvard University (2010)

²¹ F. Guliyev, *Unpacking the Political Resource Curse: How Oil Fuels Personalism and Undermines Democratization*, (2014)

²² B. Smith, *Resource Wealth as Rent Leverage: Rethinking the Oil-Stability Nexus*, Conflict Management and Peace Science, vol. 34, no. 6, 597-617 (2017)

²³ J. Wright, E. Frantz, B. Geddes, *Oil and Autocratic Regime Survival*, British Journal of Political Science, 287-306 (2015)

back. Governments use resources to exploit rents and accumulate wealth, while many household are not even able to send all their kids to school. Banks prioritize profits over sustainability, supporting industrial logging and imposing severe repayment conditions to poor borrowers (we will analyze this in chapter 2). Bad governance and conflicts are different faces of the same die and represent the foundations of persistent poverty.

We can say that there exists a conflict trap if a war increases the risk of having another conflict in the long-term. There are three reasons why present conflicts can be positively correlated with long-term ones²⁴:

- Wars (especially internal ones) lead to polarization of the population
- Conflicts are an obstacle for the creation of democratic political institutions
- Violence exacerbates poverty and slows down economic development

Collier, Hoeffler and Soderbom (2008) found out that almost half of all civil wars are due to post-conflict relapses²⁵. Gates et al. (2010) discovered that internal conflicts reduce economic development by 2%, but this should come with no surprise²⁶. Financing war is expensive: money that are normally spent in health, education or infrastructures for citizens are devoted to weapons and military vehicles. Much human capital is lost, and buildings or roads are demolished. Lastly, conflicts make trade (internal and external) almost impossible. Poverty is a structural condition that facilitates war, and at the same time conflicts increase poverty.

However, literature is not homogeneous on the long-term effect of wars on growth. The classical Solow model links conflict to war through three channels: destruction of resources, change in saving rate and change in technology. If thriftiness of citizens increases and war leads to technological progress, then long-term growth may be stimulated. Koubi (2005) studied the consequences of civil wars on growth for some countries between 1960-89, finding out that: post-conflict economic performance is positively correlated to the severity and duration of the war, and this growth-enhancing effects vary negatively with a country's level of development²⁷.

According to Olson (1982) war influences the political structure of a country and entrenched coalitions pursue their own interest without taking into account public interest, slowing down

²⁴ H. Hegre, S. Gates, H. Strand, H. M. Nygard, *The Conflict Trap* (2011)

²⁵ P. Collier, A. Hoeffler, M. Soderbom, *Post-Conflict Risks*, Journal of Peace Research, 461-478 (2008)

²⁶ H. Hegre, S. Gates, H. Strand, H. M. Nygard, *Consequences of Civil Conflict* (2010)

²⁷ V. Koubi, *War and Economic Performance*, Journal of Peace Research, 67-82 (2005)

country's adaptation to new technologies²⁸. Easterly (2001) found historical evidence that private interests retarded significantly the adoption of new technologies²⁹. In any case, there is absolute consensus on the short-term link between war and poverty.

What is more, economists agree on the correlation between conflicts, violence and bad governance. As Tilly (1975) says, 'preparations for war have served to promote territorial consolidation, centralization, differentiation in the instruments of government, and monopolization of the means of coercion, all the fundamental state-making processes. War mad the state and the state made war'³⁰. Having centralized governments in developing countries leads to bad governance, from which leaders become super-rich. They like things the way they are, keep citizens uneducated and hamper equal economic development. It is essential to specify that bad governance is not a trap as long as societies learn from failure and correct themselves. There are moments of reform also in poor countries, but the 'bottom billion' lacks technical knowledge and brave politicians are oppressed by other forces before they find out the right strategy³¹.

Bad governance is the ultimate foundation of poverty. Natural resource traps would not exist if governments did not expropriate rents to stay in power endlessly at the expenses of citizens. The right investments can increase the level of education, which would have benefits on future productivity and provide children with the technical knowledge that is required to any leader of a country. In addition, there is no doubt that schooling subtracts children from conflicts. When the government does not meet the needs of children, violence does.

Financial markets and institutions in developing countries are weak. Can a stronger financial system be the solution to chronic poverty? This will be the topic of the next chapters.

²⁸ M. Olson, *The Rise and Decline of Nations: Economic Growth, Stagflation, and Social Rigidities*, Yale University Press (1982)

²⁹ W. Easterly, *The Middle-Class Consensus and Economic Development*, *Journal of Economic Growth*, 317-335 (2001)

³⁰ C. Tilly, *The Formation of National States in Western Europe*, Princeton University Press (1975)

³¹ P. Collier, *The Bottom Billion: why the poorest countries are failing and what can be done about it*, Oxford University Press (2007)

2. Microfinance

2.1. Financial markets in developing countries

The inefficiency of financial systems in developing countries is an obstacle to economic development. Financial markets and institutions channel funds from savers to spenders, giving opportunities to borrowers that lack purchasing power while offering safe investments to lenders. In many developing countries, poors are not able to save money and rely heavily on credit. However, they can't have access to formal loans due to their low 'worthiness' and end up borrowing money from informal sources.

Minsky has been one of the first economists to understand the importance of a stable financial system for the real economy of a country. Nowadays, there exists abundant literature on how financial development is positively correlated with economic development. In 1969 the Indian government decided to nationalize the fourteen largest commercial banks of the country, which went under the control of the Central Bank. The program, called the Indian Social Banking experiment, was born with the purpose of reducing drastically rural poverty. Burgess and Pande (2005) analyzed the outcome of the program. They found out that, while rural poverty in India peaked in 1967, with a poverty rate of 61%, by 2000 it was significantly reduced to 31%³². Banerjee and Newman (1993) explained that financial development reduces income inequality and poverty by mitigating asymmetric information, which is larger for poors³³. Galor and Zeira (1993) found out that financial development allows poors to invest in education and look for more remunerative jobs³⁴. Existing literature is homogeneous and makes us conclude that limited access to finance is one of the reasons why poors remain poor. Not surprisingly, low income countries have the least developed financial systems, as shown in **Figure 3**.

The problem that microfinancial institutions want to solve is the heavy reliance on informal credit in developing countries. Commercial banks have stringent capital, reserve and liquidity requirements, together with ceilings on lending and deposit rates. The standards set for finance to low income households are inadequate, procedures are complex and the banking network does not have a proper

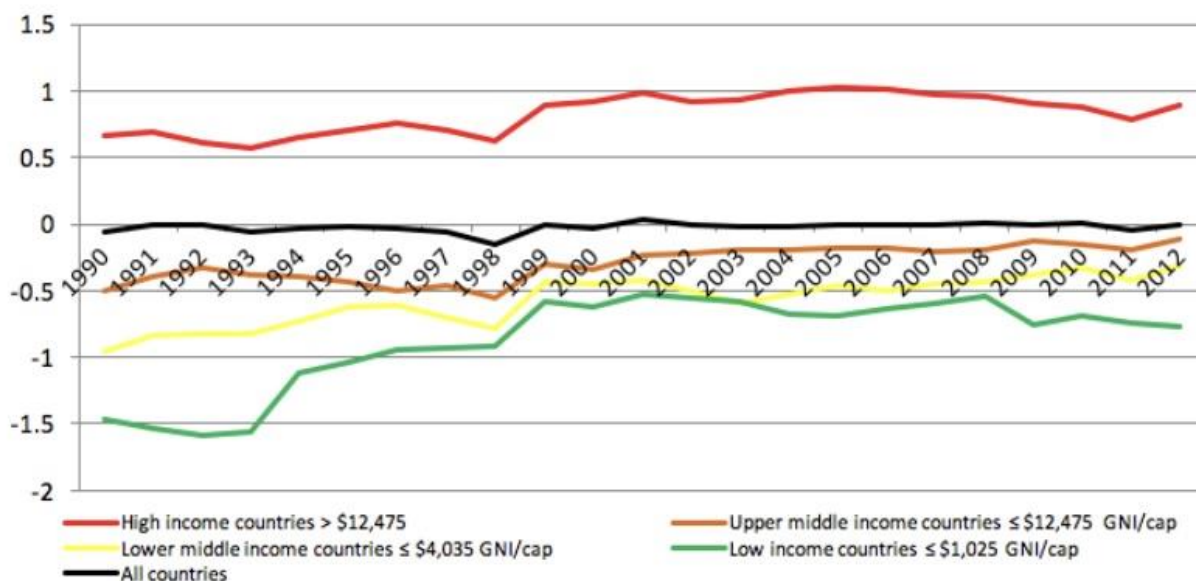
³² R. Burgess, R. Pande, *Do Rural Banks Matter? Evidence from the Indian Social Banking Experiment*, American Economic Review, 95 (3), 780-795 (2005)

³³ A. Banerjee, A. Newman, *Occupational Choice and the Process of Development*, Journal of Political Economy, 101(2), 274-298 (1993)

³⁴ O. Galor, J. Zeira, *Income Distribution and Macroeconomics*, Review of Economic Studies, 60 (1993)

coverage. On the other hand, poor borrowers are not credit worthy and can't offer guarantees or collaterals. Screening and monitoring activities are significantly hard and expensive for formal institutions. As a result, asymmetric information and inadequate financial means of banks lead to credit rationing; 50 to 90% of households in developing countries remain outside formal

Figure 3



markets and rely on informal sources for loans³⁵. In 2002, 50% of Indian loans came from informal lending agencies, which charged annual interest rates of 30% or above. These agencies have a competitive advantage over commercial banks: since they have closer relationships with borrowers, they are able to monitor them in a more efficient way.

The main features of informal credit markets are:

- Limited information and market segmentation. Lenders grant credit only to people with which they have a close relationship, avoiding adverse selection and moral hazard problems
- Interlinkages between markets. The outcome of one market influences the outcome of others and lenders deal with borrowers in at least two markets
- High and varying interest rates, which make cost of borrowing expensive³⁶

³⁵ Srinivas, Hari, *People-centered Credit Systems in Developing Countries*, Global Development Research Center (2015)

³⁶ N. Haugen, *The Informal Credit Market: A Study of Default and Informal Lending in Nepal*, University of Bergen (2005)

Many hypotheses attempt to explain why interest rates in informal markets reach such high levels. Some scholars suggest that rates reflect costs of providing credit, such as opportunity and administrative cost. Another additional cost is risk, but it is not a strong explanation of high interests because insolvency rates are low on average. For example, in 2011 insolvency rate on informal loans in Pakistan was 2%, even if annual rate of interest was almost 78%.

In addition, competition plays an important role. Number of lending agencies, borrowers' accessibility to credit and supply and demand of loans set the level of competition. Since few lenders have perfect information about poor borrowers, they exploit their monopoly power by charging a mark-up above costs.

Asymmetric information is probably the main determinant of interest rates. Informal lenders need to screen and monitor borrowers. When they set high rates, borrowers have more incentives to run away with the money. As a result, lenders have to increase the monitoring activity, raising the cost of borrowing as well. In the end, this multiplier effect may skyrocket interest. High cost of collecting information is also a reason why competition does not put downward pressure on interest rates. Indeed, after a lender collects information about the borrower, future loans become cheaper. Changing the source of loans would result in increasing the cost of borrowing once again³⁷.

Many governments perceive informal moneylenders as usurious. Aleem (1990) analyzed information obtained from a survey on the cost of screening loan applicants in a rural money market in Pakistan. His paper examines whether the high interest rates in informal markets reflect the actual cost of operating in the market. Costs' estimates suggest that charges are equal to average cost of lending but exceed marginal cost. The result is consistent with the view of informal markets as monopolistic competition in the presence of imperfect information³⁸.

2.2. ROSCAs

Poors' exclusion from formal financial institutions led to the creation of informal intermediaries such as self-help groups and ROSCAs (Rotating Savings and Credit Association), which are driven by the

³⁷ M. Bhattacharjee, M. Rajeev, *Interest rate formation in informal credit markets in India: does level of development matter?* Global Development Institute Working Paper Series (2010)

³⁸ I. Aleem, *Imperfect Information, Screening, and the Costs of Informal Lending: A Study of a Rural credit Market in Pakistan*, The World Bank Economic Review, Volume 4, 329-349 (1990)

unmet need to save money. Understanding how these organizations work is pivotal because they exploit social mechanisms that are the core of group lending.

Two main types of ROSCAs can be identified: random and bidding ones. In the former type, members put a fixed amount of money into a pot every period. Lots are drawn so that the pot is randomly given to one of the members. In the subsequent period the process is repeated, but the member that received money before cannot be selected anymore. When everyone has received the pot, the procedure may be repeated. Bidding ROSCAs allocate savings using a bidding procedure, in which the member which bids the most receives the pot (only once)³⁹.

These informal groups are not effective against risk, because the probability that a member receives the pot is not related to the circumstances. However, they are not vulnerable to problems of non-repayment, because they are not anonymous institutions, but groups of individuals from the same village or town whose social connection works as an antidote against moral hazard. Defaulters receive social sanctions and are prevented from participating in other ROSCAs.

Microfinance, which was born with the goal of making credit more accessible and convenient for poor households, exploits features of both formal and informal institutions in order to increase financial development.

2.3. Grameen Bank Model

The Grameen Bank Model is the most successful development program which involves microfinance. Started by Professor Muhammad Yunus in Bangladesh as an experiment, it soon became a widespread phenomenon, reaching more than 40 countries and covering approximately 81,678 villages. Although the first attempts to grant small loans to poor people were a failure, with borrowers struggling to repay their debt, Yunus eventually came up with a successful lending model, which has the following features:

- Lending to poor women, which are more reliable than men when it comes to repaying debts
- Dividing borrowers in blocks of five, in which every member is liable for each other's loan

³⁹ T. Besley, S. Coate, G. Loury, *The Economics of Rotating Savings Associations*, The American Economic Review vol. 83, No. 4 (1993)

- Establishing centres in which 30 women (6 cells) meet to apply for loans and repay debts on a weekly basis
- Charging higher interest rates than NGO programs and government schemes
- Requiring mandatory microsavings to borrowers each week
- Standardized loans that require small and regular repayments
- Training young graduates to manage services in order to minimize corruption

Poors are bright entrepreneurs. In addition, at low income levels there are increasing returns to scale. Yunus has been able to exploit these features in order to break the vicious cycle of chronic poverty. However, as the number of clients started growing, loans became bigger, but repayments rates were falling and managers inflating their performance figures by issuing new credit to defaulters. This led to a crisis, which reached its peak in 2000 and pushed managers to adjust their banking model in order to avoid bankruptcy. As a result, in 2001 Yunus announced 'Grameen II'. The main differences with the previous model are: a stronger focus on savings, the provision of flexible and non-standardized loans and a major focus on 'struggling members'.

Between 2002 and 2005 the bank tripled the deposits held and doubled its amount of outstanding loans⁴⁰. According to many scholars, the main driver of its success has been joint liability. Stiglitz tried to develop a model that describes how group lending can benefit poor borrowers while guarantee profits to microfinancial institutions.

2.4. Adverse Selection

Adverse selection arises from information asymmetry when borrowers who are more likely to produce an adverse outcome are the ones most likely to seek for a loan and, as a result, most likely to be selected. When banks are not able to obtain information about the borrower, they decide either not to lend money or charge an above-average interest rate. In the second case, the cost of borrowing is too low for risky applicants while too high for safe ones. In both cases, financial institutions underperform: they do not allocate wealth in the most efficient way. For this reason, several techniques are used by banks in order to minimize asymmetric information in developing countries. Joint liability is, at least theoretically, a solid antidote against adverse selection.

⁴⁰ D. Hulme, *The Story of the Grameen Bank: From Subsidized Microcredit to Market-based Microfinance*, Brooks World Poverty Institute (2008)

2.4.1. Limited Liability

In order to understand the benefits of group lending, it is pivotal to analyze first the case of limited liability. Suppose that an entrepreneur can invest \$1 in a one-period project and, having no wealth on his own, has to apply for a loan. The bank knows that the borrower can be safe or risky. In the former case, he invests \$1 and obtains a return y with certainty. In the latter case, he gains y' with probability p and 0 with probability $1-p$. Assume that in both cases the expected return is equal since $y' > y$. Moreover, assume that the bank has to cover at least its gross cost k , and $y > k, py' > k$.

A safe borrower will be charged a gross interest rate equal to k , since the outcome of his investment is certain and in this way the bank will fully cover its gross cost.

When the borrower is considered risky, interest rate must compensate for risk. Assume that q is the portion of safe borrowers, while $1-q$ the portion of non-safe ones. The break-even gross interest rate R must be such that the expected return from lending to an unknown borrower is equal to k . Accordingly, $[q + (1-q)p]R = k$, hence:

$$(2) R = k / [q + (1-q)p]$$

After a few calculations, it is straightforward to conclude that $R > k$. An above-average interest rates can have several drawbacks. First of all, safe borrowers may decide not to apply for loans, since the cost of borrowing is too onerous for them. Secondly, since risky borrowers are the only ones willing to pay a high interest rate, the bank may suffer substantial losses. Finally, and this applies mainly to developing countries, the majority of poor borrowers are cut out from the credit market and have no chance to overcome persistent poverty.

2.4.2. Joint Liability

Group lending refers to when individuals without collaterals create groups and ask a loan to a lender. Although loans are granted to individual members, all of them are liable if one is facing difficulties in repaying the debt. The core advantage is that, while problems such as adverse selection and moral hazard are softened, the bank does not need to learn something new because group members have sufficient information about the others. Muhammad Yunus realized that group lending has an additional advantage: indeed, it reduces significantly screening and monitoring costs. If the group fully repays the debt, then it earns the chance to obtain a larger loan and establish a solid relationship with the bank.

Assume as before that a business project requires \$1 of investment. This time, the borrowers are divided in groups composed by two members. A share q of loan applicants is safe, while a share $1-q$ is considered risky. In the first case, the investment yields a certain gross return y . In the second, it yields $y' > y$ with probability p and 0 with probability $1-p$. Again, assume that $py' = y$. Since borrowers know each other, safe borrowers choose a safe partner, while risky borrowers are forced to pair together, so groups can be either (safe, safe) or (risky,risky). $Y' > 2R$, so one member can repay the debt of the other. The probability that a (risky,risky) group is able to repay can be denoted as $g = [1 - (1-p)^2]$. Hence, $[q + (1-q)g]R = k$, which leads to:

$$(3) R = k/[q + (1-q)g]$$

Since $g > p$, the interest rate is lower than in the case of individual lending, because the matching process makes the probability that risky borrowers repay higher. Consequently, many safe borrowers can be included in the credit market and the allocation of wealth is more efficient.

2.5. Moral Hazard

Asymmetric information may lead to moral hazard after the disbursement of a loan. The borrower can indeed engage in risky activities that reduce the probability of the debt being repaid. As for adverse selection, moral hazard hampers the well-functioning of financial institutions and the inclusion of poors in the credit system.

2.5.1. Limited Liability

Suppose that there exists a one-period project that requires an investment of \$1. A poor entrepreneur goes to the local credit institutions and applies for a loan. After receiving the money, he can either work hard to repay his debt, gaining an amount y with certainty, or decide not to put effort, gaining y with probability $p < 1$. If c is the cost of effort and r the gross interest rate, then the borrower has an expected return $R_e = (y-r)-c$ if he puts effort, $R_n = p(y-r)$ if he does not put effort. As a result, the decision to work hard in order to repay the debt depends on whether $(y-r)-c > p(y-r)$, which leads to:

$$(4) r < y - [c/(1-p)]$$

Moral hazard thus imposes a restriction on the interest rate charged by the bank. If the repayment is higher than this threshold, the borrower is highly incentivized to engage in risky activities that can harm the lender⁴¹.

2.5.2. Joint Liability

Stiglitz (1990) provided a model of an ex ante approach to moral hazard which involves group lending. He has shown how penalties and monitoring between borrowers represent an efficient mechanism against information asymmetry.

Suppose that there are two borrowers in the same group and again a project that requires an investment of \$1. r is the gross interest rate charged by the bank and c the cost of effort. If both members put effort, they gain a joint return $R_e = (2y - 2r) - 2c$. If none of them put effort, then $R_n = p^2(2y - 2r)$. If only one of them is diligent, he will repay also the other member's debt, nullifying any possibility to gain a positive return. The borrowers both put effort if $(2y - 2r) - 2c > p^2(2y - 2r)$, which leads to:

$$(5) \quad r < y - [c/(1 - p^2)]$$

Since $p < 1$, $(1 - p^2) > (1 - p)$, thus the interest rate threshold is higher than the previous one. The bank can now charge a higher interest rate without incurring in the risk of losing money. The joint liability contract relies on group's sanctions, which decrease the probability that one of the members does not put enough effort to repay the bank⁴².

2.6. Dynamic Incentives

When there is information asymmetry, microfinancial institutions take advantage of some dynamic incentives in order to minimize the risk of default. Establishing stable lending relationships with

⁴¹ B. Armendáriz de Aghion, J. Morduch, *The Economics of Microfinance*, The MIT Press (2005)

⁴² J. Stiglitz, H. Karla, *Introduction: Imperfect Information and Rural Credit Markets-Puzzles and Policy Perspectives*, World Bank Economic Review (1990)

customers is a solid antidote against moral hazard. Behr et al. (2010)⁴³ and Berg and Kirschenmann (2012)⁴⁴ have shown how repeated bank-borrower relationships benefit both lenders and customers. When interactions between lender and borrower are repeated, the former can protect loans through the threat of future punishments such as credit rationing: this is the rationale behind dynamic incentives. In addition, the value of future loans is usually higher than that of current ones. This mechanism is called progressive lending and there exists vast literature that analyzes its effectiveness. First of all, it enhances the client's loyalty towards the lender by promising a bigger loan size in the future in the case of proper repayment. New customers must abide by stricter rules, which are relaxed when the borrowers are recognized as reliable. Moreover, the bank is perceived as strong and safe, both in the present and in the future. Bond and Rai (2009) show the importance of perceived stability in the customers' point of view. When borrowers detect signals of potential bankruptcy, they are more likely to default⁴⁵.

Progressive lending can have significant benefits on farmers. In developing countries, lending to farming clients is usually expensive due to difficulties in screening and monitoring. Slowly increasing loans size as relationships become stronger enables banks to gain experience with their customers and decrease risk.

A peculiar feature of microfinancial institution's credit contracts is that repayments start immediately after the loan's disbursement on a weekly basis. The advantage is that the borrower can repay the instalments with his own income stream, even if the project he asked money for fails. Banks based on Grameen's model divide principal plus interest by 50 and collect on a weekly basis starting from a few weeks after the transaction. The rationale behind it is that the bank is lending partly against the borrower's outside source of income. If the customer has an income of \$y per week, then the bank can grant a loan of size $L < 50y$, so that the borrower has resources to pay even if his project fails. Moreover, frequent instalments help to screen out undisciplined borrowers without suffering significant losses, particularly if combined to the other dynamic incentives previously described. However, competition can seriously weaken dynamic incentives. Threatening to stop lending may be inefficient when there are many alternative lenders in the market. The key problem is that borrowers take multiple loans from different banks. When they use debt in order to repay debt, they end up in a spiral that inevitably leads to default. Similar problems arose in Bangladesh and Bolivia, but also in

⁴³ P. Behr, E. Annekathrin, A. Guettler, *How do Lending Relationships Affect Access to Credit and Loan Conditions in Microlending*, Journal of Banking and Finance (2010)

⁴⁴ G. Berg, K. Kirschenmann, *Funding vs. Real Economy Shock: The Impact of the 2007-2009 Crisis on Small Firm's Credit Availability*, World Bank Policy Research Working Paper No. 6030 (2012)

⁴⁵ P. Bond, A. Rai, *Borrower Runs*, Journal of Development Economics vol. 88 (2009)

Uganda, Kenya, Guatemala, El Salvador and Nicaragua, as McIntosh and Wydick (2005) highlight⁴⁶. Obviously, protecting monopolies is not the right path to follow. What financial markets need is cooperation between microlenders, that have to share information in order to avoid overindebtedness.

2.6.1. Threatening to stop lending

We consider a simple two-period model in order to understand how threatening to stop lending can benefit the relationship between borrower and bank. Suppose that a farmer, having no other source of credit, applies to a bank for a loan of size D , that he will invest in a project that yields a return y with probability p , or 0 with probability $1-p$. For simplification, we assume that p is exogenous, meaning that there is no moral hazard problem with respect to the borrower's effort, but only in the repayment stage.

In the second period, the bank can decide either to lend again or to stop lending depending on the behaviour of the borrower. When the latter defaults, the overall expected gain for the farmer is $y+v\delta y$, where δ is the discount factor, while v is the probability that the bank will decide to lend money also in the second period.

If the borrower repays in the first period, then the expected return is $y-r+\delta y$, where r is the repayment due. In this case, $v=1$ because the bank extends the loan to reward the farmer. At the end of the second period, the borrower defaults with certainty because the bank is not able to grant another loan in the subsequent period. As a result, he gains δy .

Threatening to stop lending is effective if:

$$(6) \ y-r+\delta y \geq y+v\delta y$$

The most reasonable choice for the bank is to set $v=0$, that is, to certainly stop lending if the farmer does not repay in the first period. It follows that $r \leq \delta y$, where δy is the maximum interest rate that can be charged by the lender, and at the same time the borrower's opportunity cost of not repaying his debt. It is not reasonable for him to repay more than the opportunity cost; thus, it seems rational that the maximum achievable interest rate is δy .

On the other hand, the bank maximizes r subject to the incentive compatibility constraint (6) and the individual rationality constraint:

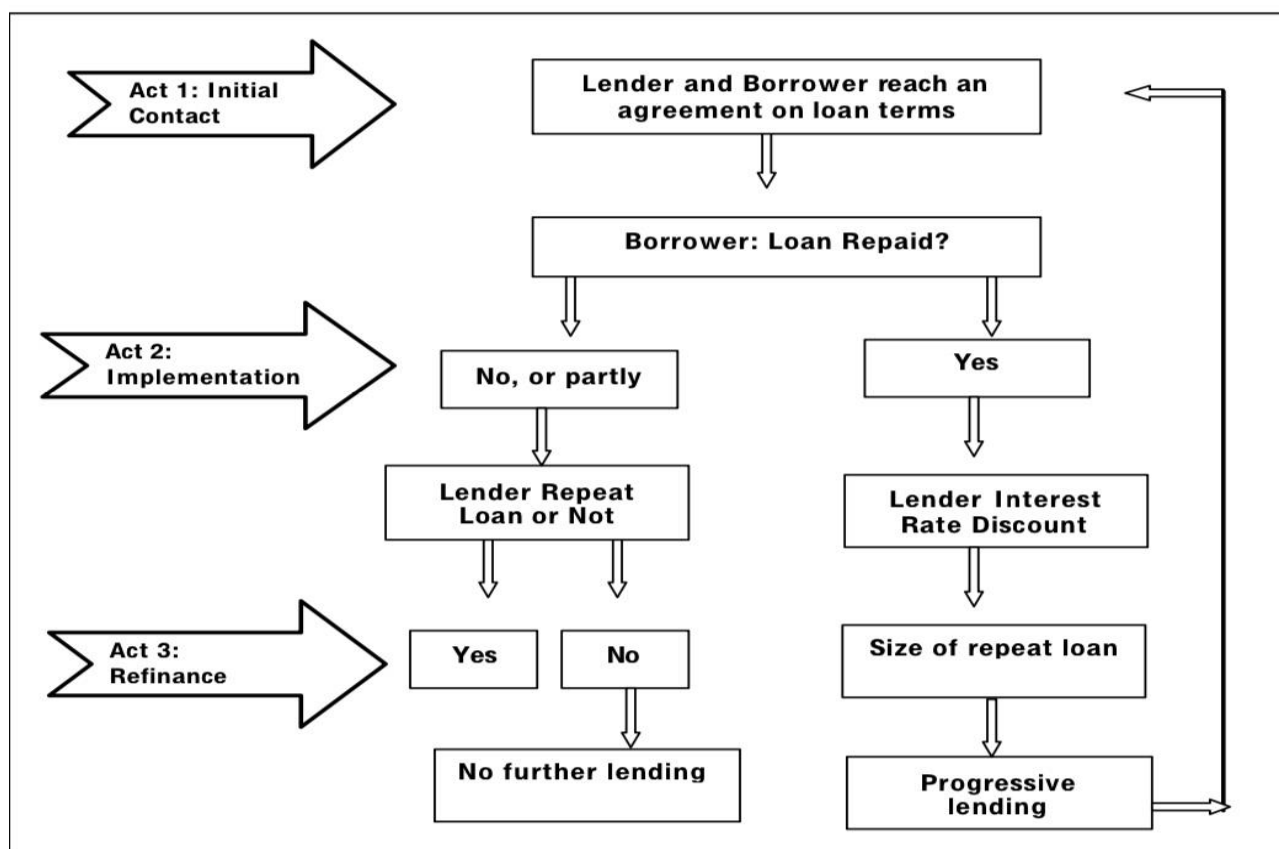
⁴⁶ C. McIntosh, B. Wydick, *Competition and Microfinance*, Journal of Development Economics vol. 78 (2005)

$$(7) p(y-r+\delta y) \geq 0$$

The optimal solution is setting $v=0$ and $r=\delta y$ ⁴⁷.

2.6.2. Progressive lending

Figure 4



Source: Hume and Mosley (1996)

Figure 4 explains the mechanism behind progressive lending using a game theoretical approach proposed by Hume and Mosley (1996)⁴⁸. The future of the lender-borrower relationship depends on whether the latter defaults or not. Progressive lending allows the bank to lend huge amounts of money only to customers who have been reliable in the past.

⁴⁷ B. Armendáriz de Aghion, J. Morduch, *The Economics of Microfinance*, The MIT Press (2005)

⁴⁸ D. Hume, P. Mosley, *Finance against Poverty* (1996)

Armendáriz de Aghion and Morduch (2005) highlight how to increase the opportunity cost of non-repayment. Suppose that the bank increases loan size by a factor $g > 1$ between period 1 and period 2. In this way, the opportunity cost of not repaying would increase by the same factor. The new one would be $g\delta y > \delta y$, so the bank can charge a higher interest rate without harming the borrower.

2.7. Beyond Loans

Tackling poverty traps demands going beyond a simple credit-based approach. Poores need safe savings more than loans. Setting aside money is the best insurance against poverty traps and economic recessions, which are common among developing countries. What is more, savings are a safe harbor when income is volatile, and they allow to keep consumption above mere subsistence levels.

A common and wrong belief is that poores do not save money due to cultural factors and low levels of education. Obviously, the reality is that they have to consume their entire periodical income, otherwise they would die. Even when they succeed to save, they struggle to find a safe harbor for the money. Poor savers constantly face problems such as thefts and decreasing purchasing power due to inflation.

In developing countries, individuals very often collect non-monetary in-kind savings (in livestock or lands), which are not a good fit for periods in which cash is required. Microsavings have the potential to become the poores' safe harbor that, together with microloans, might break poverty traps. Microdeposits can go along together with credit, representing a type of financial collateral. Group lending packages usually require forced savings. However, these deposits are unattractive for poores, because they pay no interest. There are three reasons why loans are more demanded than savings. First of all, compliance policies are harder for the latter. Second, it is harder for MFIs to persuade customers to deposit savings. Last, while debt repayments are set periodically, deposits occur randomly.

From the MFI's perspective, deposits' collection is easier than granting loans, because only the depositor faces risk, and information asymmetries that characterize credit are absent. The main problem is that collecting small deposits can be expensive for MFIs, since costs per dollar transacted are higher than in the case of large savings.

In order to create synergy, credit and savings must be combined to microinsurance. The latter usually follows loans and deposits because poores perceive it as more sophisticated. Sometimes, microcredit packages offer life insurance. Credit-life contracts pay off any outstanding loan and give a payout to the family in the case of death. FINCA Uganda runs a program according to which, when the customer

accidentally dies, his dependents receive \$700 and outstanding loans are repaid. If death is not accidental, they receive only \$175. If the customer's spouse dies, he receives \$350. Should one of his children die, he receives \$175 per child.

This program benefits both the customer and FINCA Uganda. The American Insurance Group (AIG) provides coverage and gets 45% of the premia collected, while FINCA keeps the rest, generating profits. The other benefit is that outstanding loans are repaid in case of death, so that both the family and FINCA do not face additional troubles⁴⁹.

However, microinsurance is far from being a worldwide phenomenon, and restricting financial services in developing countries to loans and (few) deposits is not the right path to defeat poverty.

⁴⁹ R. M. Visconti, *Poverty Traps and Microfinance. From Financial Inclusion to Sustainable Development*, ibidem-Verlag (2011)

3. Measuring the impact

3.1. Microfinance and poverty traps

In order to evaluate to what extent can microfinance benefit poors, it is essential to understand how each poverty trap interacts with the others. As we learned, poverty may become a self-reinforcing mechanism. However, financial inclusion has the potential to break vicious circles and send poors on the path towards development. The following table describes all kinds of poverty traps and difficulties faced by developing countries, together with the channels through which microfinance can tackle poverty.

Poverty Trap	Description	Connections with other traps	Impact of Microfinance
Landlockedness	No direct access to sea, isolation, high transportation costs, bad neighbors	Linked to the conflict trap, as many landlocked countries fight against neighbors	Almost null, since microfinance can't reshape borders
Demographic Trap	Poors make many children, often overcoming the threshold of survival	Connected to education, since more educated women make less children	Microfinance is a pro-women instrument, and it can break this trap by empowering women and granting them education
Natural Resource Curse	Countries that have a rich soil fall victim of multinationals and bad governance	Countries fight against each other for natural resources, and bad	Negligible, since extractive industries are rich and capital intensive and corruption is very

		governance hampers any improvement.	common in developing countries
Conflict Trap	Wars destroy any chance of economic development	Linked to bad governance, landlockedness and natural resource curse	Microfinance can have a small impact by offering safe savings during risky times. In addition, microfinance can improve the overall educational level, decreasing the probability that children, having no other opportunity, embrace violence
Bad Governance	Elites that control developing countries enrich themselves by making citizens poorer	Strict connection to all poverty traps, since smart and honest politicians can be the solution to every problem	The impact is almost negligible. Microfinance can indirectly improve governance by ensuring schooling to more children.
Malnutrition	Nutrition is often below subsistence levels, leading to illnesses and low productivity	It reduces school attendance and employment. It leads to a high children mortality, which is one of the main reasons why poor women give birth to many sons.	Microloans can raise nutrition above subsistence levels. Microdeposits can be a safe harbor against income volatility

Water Shortage	it hampers the regular functioning of the human body, reducing productivity	Apart from decreasing employment, it leads to conflicts and violence	Implementing small economic activities, backed by microcredit, can soften this problem
Illiteracy	Poors do not have access to knowledge	Women with no education make more children	Microfinance can give to poors the resources needed to pay school's fees
Climate Change	Adverse weather and climate disasters destroy crops and trap household into poverty	Drought and floods can have a negative effect on nutrition and health	Microfinancial institutions can protect savings from climate disasters, and also lend money to farmers whose crop has been destroyed
Linguistic Landlockedness	Small communities are isolated from the rest of the world because they speak a minor language	It can interact and enforce geographical isolation	Null impact of microfinance
Property Trap	Poors live in houses with no legal titling, so they cannot sell or inherit them	Linked to educational trap, since illiterate poors are likely to have no real estate properties	Housing microfinance can soften the problem
Savings Trap	Poors are not able to save money because they consume their entire income to survive	Linked to education, health, employment and demography	Microfinancial institutions can lend capital to poors and protect their savings

3.2. Existing Literature

Supporters of microfinance believe that it can eradicate poverty, create employment, increase schooling rate and empower women. On the other hand, some scholars think that microfinance is harmful for the poor because it leads to overindebtedness, failing to tackle the roots of poverty.

Households are heterogeneous: some have the potential to move to a more efficient way to run their business, while others are unable to do so. As a consequence, microfinance has not a homogeneous effect on poverty, and the majority of the scholars agree on that.

Banerjee et al. (2015) collected two rounds of panel data: 104 neighborhoods in Hyderabad have been randomized so that 52, starting from 2006, received access to credit offered by Spandana, a microfinancial lender. The rest received access to credit in 2008. In order to evaluate the impact of credit, data were collected first in 2007-2008, then in 2010, when long-term effects of the program could be studied. Consumption, business creation, income and education are among the variables studied.

The results arising from 2007-8 data are that, among the treated group, households borrow more from microcredit institutions. While consumption was not affected, investments in durables increased. In addition, more businesses were started. In 2010, the average size of businesses was still small and not profitable, even though a few households gained from credit. The effects have been highly heterogeneous: those who had a business before the start of the program benefited from credit, because they have been able to switch to a more productive technology. However, on those who started their business after the program's start or that did not start a business at all, microfinance had no impact⁵⁰.

The largest microlender in Mexico is Compartamos Banco, which specifically targets women. After the bank expanded in North-Central Sonora, Angelucci et al. (2015) analyzed the impact. They made five different inferences. First, microcredit increases borrowing and does not crowd out other loans. Second, loans are used for investments and risk management. Third, microcredit increases average business size and female decision making. Fourth, there is no evidence for debt traps. Fifth, the effect is not significant or transformative⁵¹.

Al Amana is the largest MFI in Morocco, which in 2006-2007 opened 60 new branches in rural areas where no microcredit institutions had existed before. Crepon et al. (2011) examined the effectiveness

⁵⁰ A. Banerjee, E. Duflo, R. Glennerster, C. Kinnan, *The Miracle of Microfinance? Evidence from a Randomized Evaluation*, American Economic Journal: Applied Economics, 7(1), 22-53 (2015)

⁵¹ M. Angelucci, D. Karlan, J. Zinman, *Microcredit Impacts: Evidence from a Randomized Microcredit Program Placement Experiment by Compartamos Banco*, American Economic Journal: Applied Economics, 7(1), 151-82 (2015)

of such expansion. Each new branch has been paired with another village, which worked as control village. Their results are that access to credit increases the scale of self-employment activities, both for non-livestock agriculture and livestock activities. Agricultural sales increased by 26% with respect to the control villages. The expansion did not have any effect on non-agricultural businesses, and no shift towards new activities resulted from the analysis. The effect is different depending on whether we consider households with an existing business or households with no business. The former category borrowed 1,046 MAD from Al Amana, an amount two times higher than the number borrowed by the latter category. For what concerns business expansion, positive effects are found only on households with an existing activity. We can conclude that microfinance benefits only the development of existing activities, especially of agricultural ones, while there is no impact on consumption⁵².

Group lending seems to be an efficient mechanism. Sharma et al. (2017) found out that it reduces transaction costs more than any other model of microfinance. It does not require any intermediary between MFIs and borrower, reducing expenses. In addition, the direct link between the lender and the borrower allows to better understand the customers' needs and profiles.

With respect to frequent repayment instalments, Field and Pande (2008) suggest that switching from weekly to monthly instalments does not affect repayment capacity. What is more, rates of delinquency were not statistically different. Consequently, decreasing the frequency of repayments allows banks to save money, while facing no additional risk. Frequent payment collections may be the source of high transaction costs and interest rates. Changing the microfinancial model can enable institutions to reach a wider customer base without incurring in losses⁵³.

3.3. Women Empowerment

There exists vast literature regarding the women-friendly effects of microfinance. Gender inequality is a major obstacle to economic development, and a problem which is difficult to address, because it requires tackling existing cultural schemes as well as changing social structures.

Scholars suggest that poor women who can receive small credit feel empowered and have more freedom in decision making. Razzaque and Bidisha (2012) used econometric techniques to evaluate

⁵² B. Crepon, F. Devoto, E. Duflo, W. Parientè, *Impact of Microcredit in Rural Areas of Morocco: Evidence from a Randomized Evaluation* (2011)

⁵³ E. Field, R. Pande, *Repayment Frequency and Default in Microfinance: Evidence from India*, Journal of the European Economic Association (2010)

whether microfinance promotes women's emancipation and found out that it leads to empowerment⁵⁴. Habib and Jubb (2012), analyzing 297 interviews and focusing on women's social participation, came to the conclusion that microfinance is a strong tool for pursuing gender equality⁵⁵. Mamun (2013) interviewed a sample of 107 women borrowers who participate in a microcredit program in Bangladesh. The aim of his research was to measure the impact on health, education and asset base. He concluded that microcredit helps borrowers to pay their children's education and improves significantly health conditions⁵⁶. Chowdhury (2013) measures the impact on women's entrepreneurship. As in other studies, the author concludes that microfinance does not promote the creation of new businesses but enlarges existing ones⁵⁷.

The Bolivian Foundation for Development (FUBODE) is a good example of how credit can foster development and emancipation. Born in 1997, FUBODE targets mainly small entrepreneurs, and has become one of the leading microcredit programs. Data from 2010-2018, collected from World Bank Open Data, provide evidence of financial inclusion and women empowerment. FUBODE went from 17342 outstanding loans at the beginning of the time span to 42266 at the end (see **Figure 5**), with a significant increase in the number of female borrowers, as shown in **Figure 6**.

Figure 7 represents the evolution over time of the number of clients participating in leadership training for women, women's rights education/gender issues training, counseling/legal services for female victims of violence, or other women's empowerment services during the reporting period. The graph shows a positive trend, with a consistent growth rate over time.

Figure 8 shows the evolution of the number of clients participating in financial literacy or education, basic health/nutrition education, child and youth education, occupational health and safety in the workplace education, or other education services during the reporting period. Also in this case, the trend is positive.

⁵⁴ S. Bidisha, M. Razzaque, *Microfinance and Women Empowerment: An Econometric Investigation*, Journal of Bangladesh Studies (2012)

⁵⁵ M. Habib, C. Jubb, *Role of Microfinance in Political Empowerment of Women: Bangladesh Experience*, OIDA International Journal of Sustainable Development (2012)

⁵⁶ A. Al Mamun, *Empirical Investigation on the Impact of Microcredit on Women Empowerment in Urban Peninsular Malaysia*, The Journal of Developing Areas 48(2), 287-306 (2014)

⁵⁷ M. Chowdhury, Z. Alam, Md. Ifttekhar Arif, *Success Factors of Entrepreneurs of Small and Medium Sized Enterprises: Evidence from Bangladesh* (2013)

Figure 5



Figure 6

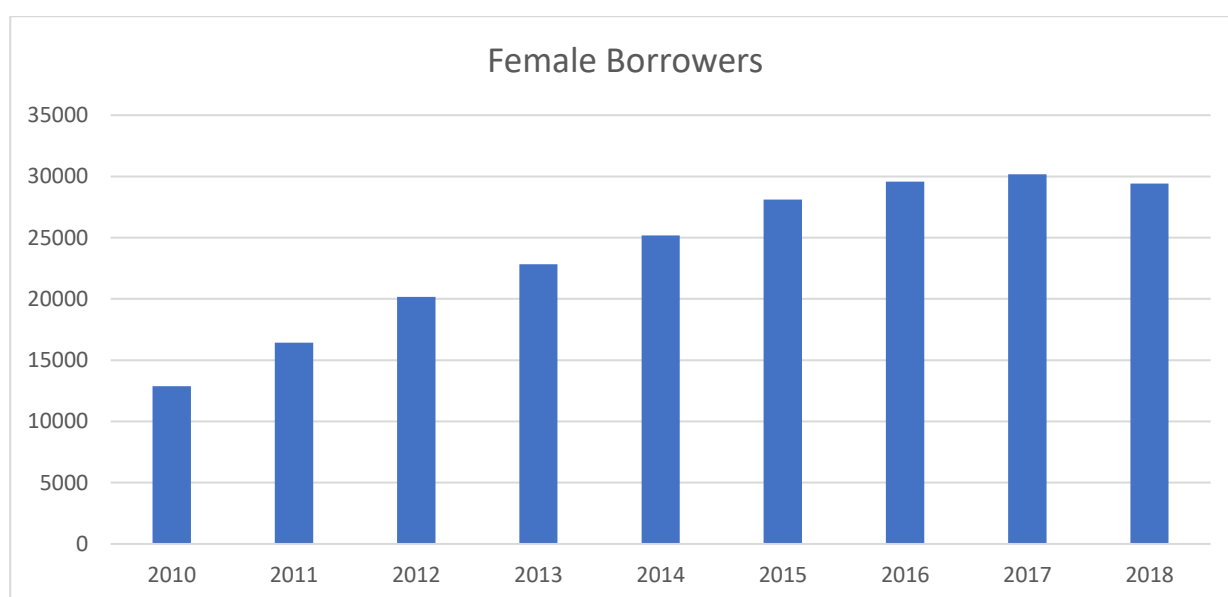


Figure 7

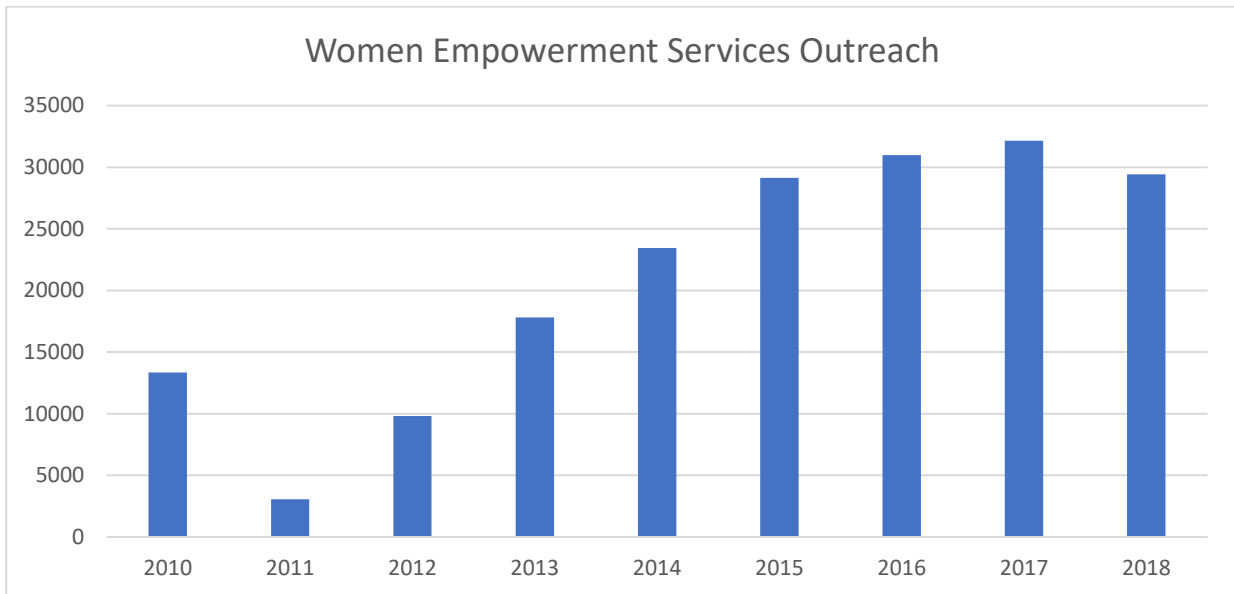
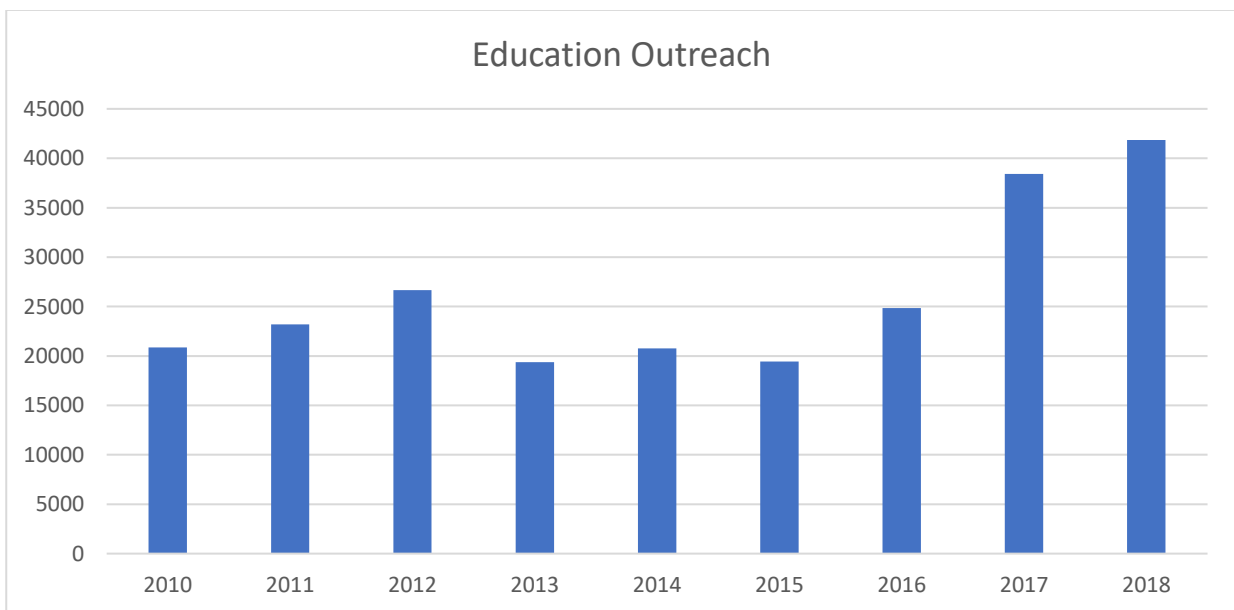


Figure 8



Conclusion

At the light of the empirical evidence found, we can draw the following conclusions.

First of all, poverty is a multi-dimensional phenomenon, whose roots consist of conflicts, bad governance, demographic growth and geography. Each factor is endogenously determined by the others, creating a vicious circle that keeps poor households trapped into poverty. As of today, part of the overall world's population earns an income below the extreme poverty threshold. Poores are mainly concentrated in developing countries such as those in Sub-Saharan Africa.

Many households still rely on informal financial markets, while others are not able to access to credit, deposits and insurance. As a result, poor entrepreneurs can't start a new business or expand an existing one, farmers struggle to improve the yield of their crop, and households are less resilient to shocks such as climate disasters and economic recessions. Since financial development is positively correlated with economic development, a wider financial inclusion can alleviate poverty in developing countries.

What about microfinance? Is it really the ultimate solution to persistent poverty? The answer seems to be no. Research shows that its effects are heterogeneous, with small or no impact on entrepreneurs that want to start a new business, and positive impact on those who already owned one. Overall, thousands of people benefit from microfinance all over the world. The number of clients that borrow from banks in developing countries is increasing year-by-year. Medium-size businesses are given the opportunity to expand and to adopt a more productive technology. Women are empowered and have more freedom of decision. The number of customers investing in education and gender equality services is increasing. Its most beneficial effects arise in the agricultural sector, where it helps to increase the number of self-employment activities. To sum up, even if microfinance is not the ultimate solution, it still is a useful ally in the fight against hunger, illiteracy and wars, and part of a wider toolbox that countries are using to alleviate poverty.

As of today, developing countries are being hit hard by the pandemic. Delivering vaccines to them is essential because the economic recession caused by coronavirus is deferring the development of these economies. Eradicating extreme poverty seemed impossible a few years ago, but thanks to science, technology and solidarity we can achieve the first of the seventeen Sustainable Development Goals.

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