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Dedication

We dedicate this work to the late renowned Arab thinker Salameh Kaileh who has always enriched the work of AFA through many ideas, research projects and events, in addition to his remarkable intellectual contributions in the causes of the Arab people.

Content

Researchers' biographies

Toufic Haddad: Author of Palestine Ltd: Neoliberalism and Nationalism in the Occupied Territory (I.B. Tauris, 2016) and co-editor of Between the Lines: Israel, the Palestinians and the US War on Terror (Haymarket, 2007). He holds a PhD in Development Studies from the School for Oriental and African Studies (SOAS), University of London, and has worked as a journalist, editor and researcher in the Occupied Palestinian Territory since 1997.

Mohamed Sultan: an economic researcher and writer. He has a Master's degree in financial economics from Mansoura University. He co-authored a number of books including Egyptian Economy in the Twenty First Century, published by Rosa Luxemburg Foundation and al-Maraya, and The Social Cost of the War on Terror in Egypt, published by Friedrich Ebert Foundation and the Arab Forum for Alternatives, as well as policy papers including one on a proposed tax system for the Egyptian stock market published with Alternative Policy Solutions, affiliated to the American University in Cairo.

Wael Gamal: a journalist, writer, and researcher in political economy. His research focuses on political economy in Egypt, the Middle East, and North Africa, social justice, in-

equality and social disparities, and the corrosion of the middle class in the Arab region. He translated Thomas Piketty's book Capital into Arabic with Salma Hussein and is the editor of Egyptian Economy in the Twenty First Century, a book published in Arabic in 2017.

Dina Abdallah: an economic researcher at the American University in Cairo, and has a Master's degree in public policies from the same university. Her research interests include political economy, behavioral economy, and economic development. She is an expert in data collection, surveys, statistical analysis of data, and literature reviews. Her latest publications include a chapter entitled "Social sciences as a virtual alternative in higher education in Egypt" co-authored with Dr. Ragi Asaad in the book called The Changing Face of Higher Education 2018.

Jamal Ouididi: worked at the Banque nationale agricole (National Agricultural Bank), established in 1959 to study finding for industrial, touristic, and agricultural projects and is currently the general manager of La société tuniso-Italienne d›email céramique et colorants -EMACER (Tunisian-Italian Company for ceramic enamel and colorants), established in 1990. He is also a political and union activist and is the editor of several articles on development and the economy.

Arbi Hafidi: a member of the National Secretariat of Attac Maroc and member of the Comité pour l›abolition des dettes illégitimes (The Committee for the Abolition of Illegitimate Debts). Hi interests include the environment, free trade agreements, indebtedness, and women rights, all issues adopted by Attac since its sixth conference held in May 2017. In his capacity as planning inspector at the Ministry of National Education and a member of the National Education Syndicate, Hafidi is also interested in issues pertaining to the development of education.

Alternative Indicators and the Question of Managing the Politics of Inclusion and Exclusion

Toufic Haddad

The question of developing a set of alternative economic indicators is both intriguing and complex, as there is no simple way to approach it. What is an indicator after all? In addition, what makes an 'alternative indicator' alternative? Why is it important to understand the relevance of indicators when discussing free trade, economic systems and their implications on politics and society? Without clarity on these aspects, there is a danger that discussion relies upon a set of implied meanings without there being enough precision to for this discussion to be helpful.

For the purposes of this paper, it is helpful to begin by defining our components, before seeing how they have relevance in pursuit of the larger aim of developing discourse and understandings around an alternative economy, and indeed, an alternative politics and society.

An indicator is defined by the Oxford English dictionary as "a thing that indicates the state or level of something." Indicators, by definition, are forms of abstraction from the original, which attempt to capture elements related to its character and the level/ state of aspects incorporated within the original. Indicators can assume characteristics that are quantitative – in so far as they are numerical expressions of quantity. They can also be qualitative, describing a charac-

ter that is not necessarily numerically captured, but often is.

"Economic indicators" are defined as:

[F]orms of economic data, usually of macroeconomic scale, that are used by analysts to interpret current or future investment possibilities or to judge the overall health of an economy. […] Such indicators include but aren't limited to: the consumer price index (CPI), gross domestic product (GDP), unemployment figures and the price of crude oil etc.[1]

Indicators, both qualitative and quantitative, help us gain an impression of specific states or levels of economic activities and are usually incorporated in forms of statistics. When read in combination with one another, they can be used as *evidence* in building a *narrative* or story about a phenomenon and what is more generally being studied. They also create the means to compare and contrast phenomena, whether between different settings, or over different time periods.

As for the question of what makes something "alternative" - the term suggests something different from the existing, normative, ordinary, dominant or regular.

1- What is an Economic Indicator, Investopedia: https://goo.gl/kBa5cX

In the context of economics, "alternative" suggests significant differences from the dominant or even hegemonic system of economic accumulation.

The current day and age is characterized by modes of economic accumulation and production defined as *capitalist*. Of course, capitalism does not exist in a utopian theoretical manner anywhere, but is *always* embedded in a set of historically determined social relations and actors, which collectively are embedded in global processes and histories. Yet the dominant form of production and economic activity nonetheless remains capitalist in so far as it privileges the power of the market and capital in particular, over the power of labour.

Another defining feature of capitalism is that most workers within this system of accumulation must sell their labour for a fixed wage to the owners of capital in order to live. Capital thus incurs labour costs, but is able to extract and privatize the profits generated by labor through monetary market exchanges of the services or items produced by labor, with the capitalist – not the workers – getting to control profit.

Under contemporary capitalism, the indicators used to capture the defining features of normative capitalist economics

are fairly well-known and have been widely formalized by mainstream economic traditions. These include indicators around economic features related to GDP, revenue, expenses, profits… etc. In fact, on a quarterly basis, states engage in producing two main sets of economic indicators which tend to operate as the consensual indicators purporting to express the condition of a given economy and its given "health." These are the indicators of the "National Accounts," as well as the indicators known as the "Balance of Payments."

According to the European Commission, National Accounts are defined as

[A] system of accounts and balance sheets that provide a broad and integrated framework to describe an economy, whether a region, a country, or a group of countries […] For internationally comparable national accounts, this system needs to be based on common concepts, definitions, classifications and accounting rules, in order to arrive at a consistent, reliable and comparable quantitative description of an economy. National accounts provide systematic and detailed economic data useful for economic analysis to support the development and monitoring of policy-making.[2]

2- National accounts - an overview, Eurostat: https://goo.gl/5Urt4u

The second, main set of economic indicators used are known as the "Balance of Payments," or BOP. This set of indicators is:

A statement that contains the transactions made by residents of a particular country with the rest of the world for a specific time period. […] It summarizes all payments and receipts by firms, individuals, and the government. The transactions can be both factor payments and transfer payments.[3]

In addition to these sets of indicators, the World Bank compiles and monitors a wide set of other economic indicators that break down economic activity into more sectorial and specific dimensions.[4]

When these sets of mainstream economic indicators are analyzed over time, they also tell a story regarding whether economies and states are said to be getting wealthier, improving, or worsening etc. In this sense, they have a normative applicability to any context, allowing analysts to have a common statistical/ analytical foundation in their approach. Indicators are able to serve this purpose, because there is a consensual opinion within mainstream economics that these basic indicators are objectively derived criteria, and simply capture quantities in a scientific manner, without

3- Balance of Payments, Corporate Finance Institute: https://goo.gl/8a93iS
4- See World Bank indicators: https://goo.gl/Ja5S3g

the interference of subjectivity or politics. This purported unbiased nature of indicators grants them a credibility and universality, allowing their application to all contexts and settings.

Alternative economics and their respective indicators suggest something that is different from this system, yet without specifying how. “Difference” alone does not actually say very much that is helpful, in so far as we previously noted, that capitalism itself is different everywhere it exists, and demonstrates wide variations – from the US, to states like Sweden, Nigeria or China. It is thus more helpful to define what makes “alternative” indicators genuinely alternative – namely, what is it about them that fundamentally differs from capitalist economics, and correspondingly, its specific indicators. Thus, if capitalist systems are defined in terms of their privileging of markets and the dominance of capital over labour, then an alternative system must fundamentally de-prioritize the market and at the very least balance or even subvert the basic relation between capital and labour, in favor of the latter. Moreover, the distribution of profit/wealth within this system must also favor non-privatized/ socialized forms of allocation. There are many such economic traditions, from anarchist and socialist, to systems of hunter gather societies of years past.

From these ideas, a curious question emerges. How might offering an alternative approach in economic models affect the indicators used to characterize this system? Are the existing indicators or the normative approach sufficient, in their supposed objectivity? Or must something else be added or taken away from these indicators? Are indicators themselves tainted by bias, or can they actually stand up to the claim that they are scientific?

Here it is relevant to further explore normative economic indicators and to test whether they are indeed objective or not.

Perhaps the main economic indicators that capitalist states and international financial institutions like the World Bank and the IMF relate to is the indicator of Gross Domestic Product (GDP). GDP as a concept was only invented in the early part of the 20th century, particularly in the context of the economic crises that swept the western capitalist world after the crash of 1929. Economists promoted the idea that if the GDP is on the rise, it indicates economic growth and prosperity, while the opposite is also true. But what does the GDP actually calculate?

The GDP can b*e* defined as the monetary measure of the market value of all the final goods and services produced

in a period of time, often annually or quarterly. This means that if I purchase a car for US$10,000, the national GDP will increase by $US10, 000. If the person I bought the car from takes that money and purchases a television for US$500, the GDP will also go up by another US$500. This simple model expresses how GDP is quantifying only the monetarization and circulation of dollars spent on finished items, but not necessarily the creation of wealth, who benefits, or the nature of the system producing wealth… etc.

Linking GDP to a country's economic condition and prosperity should be seen as problematic when we consider a series of dilemmas: If GDP is only monitoring the gross monetarization of existing market values of all final goods and services produced, it says nothing about the quality of this wealth or the purpose for which it is used. For example, Palestine is known to have many bad roads, filled with potholes, speed bumps, and broken glass, no stoplights… etc. This infrastructural condition tends to create problems for people who drive. It also creates the need to have many car repair shops and tire stores. By the logic inherent within GDP, the more damages along the road, the more repair shops will be needed to fix the effects of those damages, the more money will be circulating, and consequently, the rise of GDP, hence prosperity!

This simple example captures the absurdity in simply deriving positive conclusions about the spending of money and economic health. Clearly there is a need for more a qualitative assessment of the structure of a given economy, that takes into consideration factors like towards what purpose the economic activity takes place, under what conditions, who is benefiting, and at who's expense.

This raises another issue that is helpful for revealing other shortcomings of mainstream indicators. The car that is purchased in our previous example, which leads to an increase in GDP by US$10,000, will produce a certain amount of pollution throughout the course of its lifetime, which includes carbon monoxide, its tire marks, the sound it produces, the wear and tear it might have on country roads, soil and water, and ultimately what would be done with the car itself , once it has reached its end of life and no longer works… etc.

But where are these factors measured or captured in GDP or mainstream economic indicators? They simply are not.

The failure of mainstream economic indicators to recognize externalities like pollution associated with the capitalist mode of production tells us a great deal. While GDP may indeed tell us about the monetary value of gross products

and services, it does not tell us about a range of other things associated with this process that are left out. This reveals the fundamentally political nature of mainstream indicators, in so far as these indicators capture certain phenomena but fail to capture others.

Who determines what is measured and what is not? What is included and what is not? What is deemed important for an economy and what is not? These questions reveal a fundamentally political nature if not of the indicators themselves, but certainly of the use of mainstream indicators, by who and towards what end.

Here it is helpful to note that indicators help to create a kind of visibility to a phenomenon, while also recalling that they play a role in creating a narrative or story. Likewise, lack of an indicator, particularly a qualitative one, often tends to suggest the invisibility of the phenomenon as well as the lack of recognition of a given narrative.

This also reveals that indicators are not scientific statistics existing in platonic isolation from the real world, but are instead profoundly associated with dominant forms of ideology, dominant forms of production, dominant "stories", hence certain interests over others – namely the interests of capital over labour.

Finally, this discussion raises the issue of the actual 'framing' of what an indicator is capturing.

Capitalist modes of production, for example, have established definitions and measurements of labor time and wages, in order to produce a given product or set of services. However, it is important to note that these indicators also have a great deal of assumptions embedded within them. For example, the existence of labor itself pre-supposes certain conditions and realities – namely, the existence of the worker him/herself, their state of health, their capacity… etc. It is not as though labor magically appears from a vacuum.

Yet the elements that go into the creation of labor power also have their costs and need to be acknowledged. For example, it is people, families and communities that engage in biological reproduction and social rearing. Women in households do a good deal of this labour. The feeding, clothing, housing and health care needs of children also need to take place if workers are eventually to be "produced," while their schooling must also be taken account of. These factors are certainly indivisible from producing the necessary workers that engage in production and economic wealth creation. However, these factors – and the costs associated

with them – are almost entirely excluded in mainstream indicators and the mainstream "story" of wealth production. Instead, they are elided and made invisible within the grand calculus of mainstream economics. Moreover, it is worth noting that their exclusion from consideration as part of economic activity allows not only for lack of recognition, but also for de facto exploitation.

Again, this speaks to the politicization of the use of indicators, shedding light on what they emphasize, what they exclude, why and at who's expense.

Alternative Indicator Development?

When seen in this light, the goal of developing an alternative economic order, and consequently alternative indicators, must be seen as a challenge that can find ways to capture and include all the factors that are excluded from the current system of indicators.

While it may still be of value to retain some mainstream economic indicators, it is important to acknowledge that all indicators are merely abstractions, capturing only specific facets of the original. They are designed to simplify, quantify, and qualify our lives for purposes of making life a little easier to manage or organize, at least in principle. This may have its merits at times but must also be recognized to have

its costs, depending on what is taking place of course. Simplifications necessarily entail omission, and the decision of what is elided and what is included is a political, not a scientific one.

Thus, when it comes to the issue of establishing alternative economic indicators, it may be helpful to keep the following in mind: There is a need to be aware that all indicators are simplifications that necessarily include and exclude and have a set of embedded assumptions and politics within them, ones that are not neutral to existing social, political, and class struggles and interests.

Alternative indicators might be developed to attempt to measure aspects that are excluded from existing indicators, and trying to develop indicators for the factors and relations that are excluded from mainstream economic indicators is certainly beneficial on several fronts.

At the same time, we must be honest about the fact that the issue of developing a set of alternative indicators is not a scientific enterprise either, but is equally tinged with its own set of politics – a politics ultimately affiliated with taking a position regarding the social, political and economic struggles at play in society and through the indicators themselves – namely the interests of the oppressed and of labor.

Moreover, if indicators are to be used in telling a story – in this case, a story about the need to develop an alternative non-capitalist or anti-capitalist mode of economic production, then it is to our advantage to stress the costs, victims, inequalities, and injustices embedded in the process of emphasizing particular aspects while overlooking others as the capitalist economic world does.

Alternatively, it is equally important to note that because moral and political positions are not issues that are absolute in all contexts, it becomes equally impossible to establish a full set of alternative economic indicators that are applicable at all times, places, and circumstances.

Indicators ultimately do not tell the story, but people and institutions do. Recognition of this fact means that people should be empowered with as many indicators as possible to tell as full a story as possible while also not being shy about siding with the oppressed, the invisible… etc. The only way to proceed is, therefore, to develop a cautious, detailed, rich assessment of phenomena, morally informed by history, analysis, and theory within a framework that recognizes the inescapability of class, class interests, and the relevant ideological and political systems.

A clearer view of the rock-bottom:
On poverty, hunger, and inflation

Mohamed Sultan

Abstract:

This paper attempts to review official measurements and provide alternative ones on the development of poverty and hunger in Egypt from July 2009 to July 2017. Alternative estimates rely on percentages and numbers of the hungry and the development of poverty[5] and hunger [6] based on a methodology that the paper proposes as a more accurate alternative to upgrade the values of poverty and hunger from one year to another and trace the development of both. The main difference between the methodology proposed by the paper and the official one is the approach used to upgrade the values of poverty and hunger, which change every two years. The paper proposes upgrading those values based on inflation rates pertaining to the poor and the hungry [7] instead of the general inflation rate on which official statistics

5- The paper uses the terms "poverty line" and "hunger line" as alternatives to Egyptian official "national poverty line" and extreme poverty line."

6- What is referred to as the "extreme poverty line" in official Egyptian statistics is not equivalent to the term of the same name used in international statistics. The international "extreme poverty line" is, in fact, equivalent to the Egyptian "national poverty light" while the Egyptian "extreme poverty line" is the closest to the international "undernourishment threshold."

7- In his study on official poverty indicators in India, Angus Deaton found that the percentage of the poor increases from 28.3% in official statistics to 31% if the poverty line is upgraded based on the poverty inflation rate rather than the general inflation rate as was the case with official measurements in India at the time. It is noteworthy that the main aspects of the methodology adopted in this paper are inspired by this study, See Angus Deaton (2008). "Price trends in India and their implications for measuring poverty." *Economic and Political Weekly* 43 (6): 43-49.

most likely depend for upgrades. Therefore, the main focus of this paper is reaching more accurate estimates on levels of inflation faced by the poor and the hungry and which differ remarkably from official inflation levels.

Introduction:

The main approach in calculating poverty lines in local or global methodologies is through determining a value or a price for the basic needs of individuals. Most numbers listed in statistics about poverty lines can in fact be described as the price an individual needs to pay in order to obtain the worst types of food, housing, clothes, healthcare, transportation, education… etc. The same applies to hunger lines, which represent the amounts of money needed to obtain the worst quality of food and the minimum quantity that keeps an individual alive without feeling hungry. Poverty and hunger rates are measures based on theoretical definitions that attempt formulating accurate, rather basic, definitions of poverty and hunger as "states." For example, these definitions answer questions like what the state of an individual is like when poor or hungry. This is followed by attempts to measure this "state" through "consumption," hence a "price." In other words, it is an attempt to decide the amount this individual needs to overcome the state of

poverty or hunger and individuals whose incomes are less than this amount will appear in statistics as poor or hungry.

What are the products consumed by the poor? The answer to this question is always predetermined even before conducting any official surveys on household expenditures. In official statistics, there is the "poverty basket" or the "minimum foods basket," which refers to the consumption that determines poverty and hunger. This means that an individual who consumes less than the contents of this basket is categorized as poor or hungry. The baskets themselves do not change as long as official definitions of poverty and hunger remain the same. What changes is the amount of money required to buy the contents of the basket and this is what official statistics attempts to find out every year or two.

When looking at poverty and hunger lines as prices, it becomes extremely easy to answer the question about what moves those lines from one year to another. The answer is the prices, the prices of goods and services used by the poor and the hungry. If the prices increase by 50% in one year, the poverty line also rises by 50% in the same interval[8]. However, defining states like poverty or hunger with

-8 There is a theory that the rise of poverty lines can differ from the rise of prices as a result of adaptation and changing expenditure patterns. This is based on

all their details through a number or a price that is unified internationally or within one country could create several complications and lead to inaccurate measurements. This is basically because the intensity of this "state" is never the same in all cases. Still, looking at poverty and hunger lines as prices can give an insight into many poverty and hunger developments on both the local and global levels and can, at the same time, be the main channel through which official methodologies in measuring poverty and hunger can be criticized. First, adopting the approach that views poverty and hunger lines as prices would be quite helpful in providing a clearer image of the rock-bottom in Egypt. **Figure (1) - Annexes**

The two lines in the above figure represent the change in the value of the official hunger line and the change in the general price index for the same interval. The word "general" poses a major problem here since the hunger line should be

the assumption that when the prices of products consumed by the poor increase, they first respond through decreasing the quantities they consume then they replace the products whose prices increase remarkably with more reasonable ones. This assumption might apply to several income levels, but definitely not to the poor and undernourished since their consumption and expenditure patterns are the least flexible and are devoid of any form of luxury. That is why it is hard to imagine that they have the choice to replace one product with another or to change their consumption behavior. However, this assumption is repeatedly used in official circles since partial separation between the movement of poverty lines and prices gives official statistics centers more freedom to identify the lines of poverty and hunger.

defined according to inflation rates pertaining to the hungry or price indices of consumers whose expenditure patterns are similar to those of the hungry. If the line of hunger is upgraded according to the general inflation rate, mistakes would most likely happen in estimating the value of the line of hunger. How big or small these mistakes are depends on the difference between the general inflation rate and the inflation rate of the hungry. It is important here to investigate whether the official line of hunger is updated according to the general inflation rate or according to a number of other different factor as official statistical entities like to promote.

The above figure compares the rise of the line of hunger and inflation during an interval that begins in July 2009 and ends in December 2015. If the rate with which the two lines rise is close, this means that the official line of hunger is updated according to general inflation rates. This can be clearly demonstrated in the interval between 2009 and 2011 where the line of hunger rose by 15.5% and the inflation rate by 15.9%, which explains why the two lines are adjacent at the beginning of the graph. The two lines grow apart after since in 2013 the line of hunger rose at a higher rate than the general inflation line and in 2015 the gap between the two widened as the line of hunger rose by almost 50% while the inflation rate rose by only 28%. The first explana-

tion of this gap between the two lines would be that the line of hunger is not only updated based on the general inflation rate but also according to other factors as claimed by official entities.

However, the result that appears in the above figure would seem less plausible if two facts are taken into consideration. First, during that interval, the general inflation rate rose by 15.9%. It is noteworthy that this percentage only covers a year and half, from January 2010 till July 2011. As for the 15.5% increase in the line of hunger, it covers an interval of two years, from July 2009 till July 2011. Therefore, there is an inflation rate for a period of six months that was not added by official statistics to the line of hunger for this interval. According to official statistics [9], the percentage of inflation for those six months is almost 6.7% and regardless of the reasons that drove official entities not to add this percentage to the line of hunger in the 2011 round if it was updated according to general inflation rate, the percentage of 6.7% almost constitutes the gap between the rise of the line of hunger and the inflation rate in the following round in 2013. This looks like the inflation rate that was overlooked in the 2011 round was added to the line of hunger in the 2013

9- Official data shows that the consumer price index for July 2009 was 93.7 for base year January 2010.

round. In other words, it can be said that the percentage of the rise in the line of hunger in the official income and expenditure survey for 2011 and 2013 is 40.60% and the percentage of the increase in the general inflation rate for the same interval is 40%. This means that the movement of the general inflation rate could explain the movements of the line of hunger by a percentage that exceeded 98% from July 2009 till July 2013 despite the gap that appears between the two lines in Figure (1).

The second fact is related to the wide gap between the movements of the two lines in the 2015 round. In October 2015, the World Bank decided to increase the value of the poverty line from USD 1.25 to 1.90 per day, that is by 52%. The percentage of the rise of the line of hunger, and also the line of poverty, in Egypt at that time was very close to 50% as if Egyptian official entities decided to make the value of poverty and hunger lines similar to global percentages regardless of local inflation rates. Several indications demonstrate that updating the line of hunger in the 2015 round was done to be in line with global estimates. One of the most obvious indications is the fact that the Central Authority for Public Mobilization and Statistics overlooked the usual timeframe it follows to conduct the periodic income and expenditure survey. Since 2008-2009, the income and expenditure sur-

vey started being conducted every two, starting in July and ending in July, instead of five years. However, this was not the case in 2015 where the survey covered two years and a half that started in July 2013 and ended in December 2015 as if the survey aimed at coinciding the percentage of the increase and its timing.

Those two facts, in addition to the numbers in the figure above, demonstrate that the Egyptian line of hunger is updated according to the general inflation rate and that this local approach was overlooked at the times of global updates. Despite the fact that the survey did not adopt a unified methodology and shifted between local and global methodologies, which resulted in inaccurate results, yet the shift towards the global approach in 2015 had a positive impact on accumulated standard deviations in the Egyptian hunger line in the years before 2015. The main reason for what this paper argues are deviations or miscalculations in the estimation of the Egyptian line of hunger is the survey's dependence on the general inflation rate in its updates since the general consumer price index is not likely to accurately identify the inflation level facing the hungry, hence is incapable of updating the line of hunger correctly.

Inflation rates for the poor and the hungry:

Calls for developing inflations rates for the poor and the hungry give the impression that these are only political or social demands, but in the context of this research this is also a technical necessity in order to know the numbers of the poor and hungry to start with. This will not be possible without looking at the inflation rates they particularly face.

According to the Central Authority for Public Mobilization and Statistics, the line of hunger is a line that demarcates a group of people whose income is not enough to satisfy their basic needs of food. Those people are restricted to one item of expenditure and that is why inflation in the prices of food is only what affects them and not general inflation that includes other expenditure items such as culture and entertainment, hotel and restaurant services, private car expenses, and other items that do not apply to the hungry. Even official statistics on inflation demonstrate that inflation rates in food are quite different and are usually higher than that in other items included in general inflation.

This difference can be easily detected in Table (1) that shows the different items in the general inflation rate, including food, and shows how the inflation rate in food is higher than in other expenditure items such as education,

housing, or transportation, therefore higher than the standard consumer price index. This table shows that if the line of hunger is updated through the official food price index, it will most likely increase much faster than when it does through the general inflation rate.

Table (1)
Consumer price index: Urban
January 2010= 100

	June 2010	June 2011	June 2012	June 2013	June 2014	June 2015	June 2016	June 2017
Total number	102.4	114.5	122.8	134.8	145.9	162.5	185.2	240.3
Food & beverages	105.9	126.0	137.6	155.0	172.6	191.4	225.1	315.8
Housing, water, electricity, gas & fuel	99.3	100.4	107.7	113.1	117.1	124.2	130.8	140.9
Healthcare	100.0	101.9	102.0	114.8	128.6	131.2	172.5	194.3
Transportation	100.6	101.7	104.5	107.3	114.2	139.2	144.2	181.6
Education	100.0	124.3	136.6	152.2	157.9	196.9	219.0	246.0
Miscellaneous goods & services	100.7	103.2	104.5	105.3	106.3	111.5	121.1	159.8

Source: Central Agency for Public Mobilization and Statistics

What makes the situation more complicated is that the food inflation rate in official statistics is still not related to the hungry. Also, the line of hunger cannot be addressed through the official food inflation rate because the food basket in the official index too needs to be fixed in order to be close to the expenditure pattern of the hungry on food.

The main problem in the official food inflation rates is that they are calculated based on an expenditure pattern similar to that of classes with medium-income and not the poor or the hungry. The following table shows official spending percentages on food in the expenditure and consumption survey for 2015. It illustrates the large difference between the officially generalized pattern and the expenditure pattern of the hungry. For example, it is not logical to assume that a hungry individual spends on meat, fish, and fruits almost 45% of his/her income, which is not enough for satisfying his/her hunger with the worst type of food to start with.

Table (2)

Spending percentages on food and beverages

The official figures

Meat	29.8%
Vegetables	13.9%
Milk, cheese, and eggs	13.7%
Grains and bread	11.2%

Oils and fats	7.9%
Fish	6.7%
Fruits	6.4%
Sugar and sugary foods	4.7%
Beverages	3.7%
Other products	2%

Source: Central Agency for Public Mobilization and Statistics, "Income, Expenditure, and Consumption Survey for 2015."

The problems that arise in the official general expenditure pattern is repeated in the expenditure pattern on food. A question arises about the food products mainly consumed by the hungry such as grains, bread, vegetables, oils, and sugary products and what if their prices increase at a higher or lower rate than products which occupy a relatively large place in the official general expenditure pattern such as meat and fish. In this case, food inflation rate in the official statistics will not reflect the inflation faced by the hungry. This gap recurs frequently in Egypt as will become obvious in the following analysis.

Before looking at the results of the consumer price index for the hungry proposed by the paper, it is important to underline the necessity of revising inflation rates used to update the lines of poverty and hunger in Egypt. Official statistics in Figure (2) suggest that the percentage of increase or decrease is very minimal, presumably 5% in the value

of the poverty line. This small percentage could increase or decrease the percentage of the hungry population by more than 20%. **Figure (2) - Annexes**

Figure (2) shows the distribution of household annual income based on the income and expenditure survey for 2015. The lines of poverty and hunger are calculated to represent their annual value per household.[10] Hungry households are those below an annual income of LE 16,000 and poor households below 26,000. The figure shows how dense the area is in the graph where the lines of poverty and hunger are situated.

According to official statistics in 2015, the percentage of the hungry is 5.3% and the poor 27.8%, which means that the extremely narrow area between the lines of hunger and poverty, which is almost LE 10,000 annually per household, contains 22.5% of Egyptians. It is possible to understand the density of the area between the two lines through comparing it to the upper area in the income distribution map. Less than 20% of households are located in the area between annual incomes of LE 55,000 and 7 million. This

10- Values of poverty and hunger lines in the graph are approximate since the number of individuals in poor and hungry families are not accurately identified in official data. That is why it is hard to change the line of poverty or hunger for an individual to one for a family. However, the difference between actual and estimated figures is unlikely to be too substantial to affect the analysis that rely on those estimates.

means that there is an area of more than LE 6.8 million occupied by a number of households less than that occupying the narrow area of LE 10,000 between hunger and poverty lines. Based on official statistics, the LE 10,000 area is the second denser in the Egyptian income distribution map and the densest is the LE 10,000 right above the poverty line and which is occupied by more than 24% of households.

Official statistics in the above figure state that if the poverty and hunger lines move slightly to the right or to the left, the numbers and percentages of the poor and hungry will differ remarkably. This is because the areas in which they will move are dense enough to make the slightest increase or decrease in their value equivalent to millions more or less in the number of the poor and the hungry. This data underlines the necessity of carefully examining inflation rates through which poverty and hunger lines are addressed in order to be able to determine the numbers of the poor and the hungry and work on reducing them.

Results of the consumer price index for the hungry:

The paper attempted to develop an index to measure the inflation rate for the hungry in the interval between July 2009 and July 2017 as a means of updating the Egyptian hunger line based on the results of this index. What distinguished

this index from the general official consumer price index is that in this one, the hungry spend 100% of their income on food[11], not 39.9% like the official index. Also, the index designed for the hungry is distinguished by two main modifications.

The first modification is related to the percentage of spending on different food items so that it would be close to the expenditure pattern of the poor and the hungry. This can be done through, for example, reducing the spending percentage on meat, fish, and fruits from 44.4% of the income spent on food as illustrated in the official index to 22% in the new index. This should be coupled by increasing the spending percentage of a number of food items such as rice, fava beans, and bread by 24.2% followed by vegetables to

11- Observations on the ground prove that even individuals below the hunger line according to both domestic and international standards do at times spend money on items other than food even if not frequently. This assumption could substantially change the methodology of calculating hunger rates on both local and international levels. For example, according to the international methodology, people who consume less than 1,800 calories per day are considered hungry. This means that the monetary value of 1,800 calories can be set as the daily international hunger line. However, because even the hungry have financial commitments other than food, they might have the monetary value of 1,800 calories, but actually consume less calories since the money is not only spent on food. It is likely that individuals in Egypt own a little more than LE 322, which is the monetary value of the official hunger line yet are incapable of buying their basic needs of food because part of income is spent on other items. Because this research does not use official methodologies to measure poverty and hunger and because there are no local or international estimates of non-food items on which the hungry spend money, the paper will assume an expenditure percentage of 100% on food since this is more representative of the expenditure pattern of the hungry than the percentage used in Egyptian official statistics.

reach 21% then meat, poultry, fish, then dairy products, cheese, and eggs as shown in Table (3) in the appendices.

The second modification is crossing out the inflation rates on subsidized goods. This modification is based on the theoretical assumption that the hungry could get products like bread, sugar, and oils with subsidized prices, which means they will not be affected by the changes of market prices. That is why inflation rates on these products were crossed out for the interval from 2009 to 2015. In other words, it is possible to say that a percentage of 10.8% of income in this index is subject to an inflation rate of 0%. In addition to taking into consideration state support, this calculation method also reduces the possibility of producing exaggerated inflation rates. The percentages crossed out of inflation rates can be considered correction coefficients that aim at avoiding exaggerated estimates that can result from relying on approximate expenditure patterns.

Some expenditure percentages in the index such as 20.9% on vegetables or 24.2% on grains and bread are approximate and not based on field surveys. The detailed pattern of the food consumption of the hungry remains quite vague whether in Egyptian or international statistics. Methodologies calculating the "prevalence of undernourishment" in

international statistics such as that used by the Food and Agriculture Organization (FAO) assume that the hungry are those whose daily consumption ranges between 1,400 and 2,100 calories per person [12] without accurately specifying the type and quantity of products from which they can get the minimum amount of calories. The same applies to Egyptian official statistics that place a monetary value on minimum expenditure on food that keeps individuals alive, which was LE 322 per month, without detailing the expenditure pattern of this segment or how this amount is distributed among different types of food. An approximate expenditure pattern, that is inflation rates produced by this approximate index, is unlikely to reflect the inflation faced by the hungry. However, the numbers produced by the new index are most likely to be closer to the inflation rates faced by the hungry than general inflation rates.

It is noteworthy that modifications were made to expenditure only. As for the prices of products and the percentages of their increase, the alternative index relied on the official prices listed in the monthly reports on the average prices of the main food products.

12- FAO, Sustainable Development Goals, Indicator 2.1.1 – Prevalence of undernourishment, Methodology:
https://unstats.un.org/sdgs/metadata/files/Metadata-02-01-01.pdf

Figure (3) shows the difference between the inflation rate for the hungry on one hand and the official general and food inflation rates on the other hand in the interval between July 2009 and July 2017, calculated through the previously mentioned methodology. **Figure (3) - Annexes**

Inflation rates for the hungry in the above figure are the result of the alternative consumer price index that was previously explained. The wide gap between inflation rates for the hungry and general inflation rates can be easily detected.

Between 2009 and 2011, inflation rates faced by the hungry, estimated at 42.2%, almost reached double the general inflation rate, calculated at 22.6%. This difference is attributed to the remarkable hike in the price of vegetables as well as grains such as rice, beans, and wheat, with an index of 208, compared to slight increases in items with the same expenditure percentages in general inflation rates such as housing expenses and healthcare, with an index of 107 for the same interval.

Looking at the numbers in the previous figure reveal that the gap between the inflation rate for the hungry and the general inflation rate is an unstable one since it keeps narrowing and widening. This instability becomes clearer if inflation rates for the hungry are compared with official food infla-

tion rates, for in most years the gap between them is small. At times, the gap shows that the inflation rate for the poor is higher than the food inflation rate as was the case from 2009 till 2013. At other times, the two are very close as was the case between 2013 and 2015. Then the food inflation rate rises remarkably over the inflation rate for the hungry as was the case in the interval between 2015 and 2015 as a result of the increase in the prices of food products which are not frequently consumed by the hungry such as meat, fish, and fruits.

This instability in the gap shows that available official indicators, whether general inflation rates or food inflation, cannot be an accurate means for identifying inflation rates for the hungry. In case the gap was quite stable between any of the official inflation rates and inflation rates for the hungry, it would be statistically easier to estimate the number of the hungry based on general inflation rates through adding or subtracting the value of the gap. However, the previous analysis does not only confirm that there is a gap, but that this gap widens at times to reach 90% and at others drops to less than 1%.

This situation increases the necessity of conducting official field surveys to develop indicators for the poor and the hun-

gry or at least make available detailed information that help in developing those indicators in a way that depends less on estimates. **Figure (4) - Annexes**

Statistics and deviations: A historical context:

Figure (4) shows the value of the official hunger line compared to the alternative one that was updated through using inflation rates for the hungry. The base year in this figure is 2009 and that is why the two lines are adjacent for that year. The wide gap between that two lines can be noticed, which means that official hunger percentages announced particularly in years 2011 and 2013 were much less than it is if the line of hunger is updated through inflation rates for the hungry. While years 2007 and 2008 are linked in the minds of economists with the global financial crisis, in economic circles focusing on food, the crisis is referred to as the 3Fs (food, fuel, and financial crisis). In 2008, global prices of food increased remarkably then increased once more in 2010-2011. **Figure (5) - Annexes**

At that time, international financial institutions such as the World Bank paid more attention to the issue of food security in the Arab region. For the World Bank[1314], the Arab region

13- World Bank,FAO,IFAD (2009a), Improving Food Security in Arab Countries (Washington, DC, World Bank)

14- World Bank, (2009b), Operations: targeted food support to vulnerable groups affected by high food prices.

has the highest percentage of food demand in the world, which increases the food crisis there especially in light of the rising prices. This proves that statistical deviations in hunger measurements in Egypt at the time must have occurred. There are also political reasons for these deviations. At a time when global prices of food were rising remarkably and fear of a food crisis echoed across the world especially in the Arab region, statistics released in Egypt sounded quite unrealistic. According to official statements, despite the international crisis and political upheaval that started in 2011, Egypt still managed to reduce the number of the hungry from 6.1% in 2008-2009 to 4.8% in 2010-2011. While these figures could seem a remarkable success, they are not logical statistically. Unfortunately, the percentage of 4.8% in 2011 was most likely the result of measurement errors rather than an actual reduction in the number of the hungry. What makes the situation more complicated is that hunger measurements in the years the followed depended on this percentage. This means that such mistakes will continue to impact future measurements[15].

Table (4), which is one of the results of Dina Abdallah's

15- The continuous impact of previous miscalculations also applies to the hunger line. The alternative methodology applied in the paper used the official hunger line value in 2009 as a base year, which means that any miscalculations of this value at the time will be reflected in later estimates.

paper, published in this book, presents the percentage of the hungry based on the alternative line of hunger compared to the percentage announced in official statistics in accordance with income distribution in the official expenditure and consumption survey for the years subject of the study. The table shows a different history of hunger in Egypt. Millions will be added to the hungry if a more accurate methodology is used. In 2011, the percentage of the hungry rose from 4.8% in official statistics to 9.6%, which translated into 7.6 million people, almost half of whom were not in official statistics. In 2013, the hungry reached 8.1 million, 4.4 million of which did not appear in official statistics. In 2015, which is a very important year as far as the accuracy of the alternative methodology is concerned, there was a difference of around two million people between official and alternative methodologies. However, this was one of the years in which the percentages in both were the closest compared to other years subject of the research. Table (4) shows that the official and alternative hunger lines are very close. In order to understand the significance of this closeness, it is important to examine global methodologies used to measure poverty and hunger.

Table (4)

Year	2010-2011	2012-2013	2015
Official percentage of the hungry	4.8% 3.820 million people	4.4% 3.728 million people	5.3% 4.770 million people
Alternative percentage of the hungry	9.6% 7.641 million people	9.3% 8.133 million people	7.2% 6.750 million people

Source: Dina Abdallah's paper "The accuracy of statistical samples"[16]

Will global poverty and hunger lines yield more accurate statistics?

In January 2018, the price of one liter of full-cream milk in Greater Cairo was LE 13.35 while in New York its price for the same time was USD 1.14, that is LE 20.36 according to the exchange rate at the time. For this reason, economists developed Purchasing Power Parity (PPP) index.

16- Although the Central Authority for Public Mobilization and Statistics in Egypt considers the partial sample it makes available on income representative of the complete sample, yet the paper opted for relying on correction coefficients to ensure the accuracy of the results of the partial sample or to reduce the discrepancy between the partial and complete samples. Correction coefficients were calculated through measuring the slight difference between the results of the partial and complete samples at certain points. Using correction coefficients made the percentage of the hungry based on the partial sample appear in the form of a range, from 7.2% to 9% for example, in 2015 and Table (4) shows the minimum of this range whose numbers and calculation methodology are detailed in Dina Abdallah's paper.

If the price of milk and other goods and services was the same in Cairo and New York and other cities across the world, poverty measurements would be much less complicated than they are now. In this case, the value of the global poverty line, which is USD 1.9 per day, could be applied to any other country. However, because prices across the world are relative and are not unified, the prices of goods in many countries cannot be determined by market exchange rates. That is why market exchange rates cannot be an accurate tool to convert the value of the global poverty line into a value in the local currency of a given country. What is needed is an exchange rate that when used with the price of milk in New York gives the same amount as that in Cairo and other parts of the world. This exchange rate is what economists call Purchasing Power Parity Exchange Rate and it is the result of the PPP price index.

It can be said that the PPP aims at measuring changes in the purchasing power similar to the Consumer Price Index (CPI) used to measure general inflation in Egypt. However, the CPI aims at detecting changes in the purchasing power of the Egyptian pound across time, which means comparing what goods the Egyptian pound could buy in January 2017 to what it can buy now. The CPI, therefore, compares different phases of the Egyptian pound's purchasing power. PPP,

on the other hand, examines the changes in the purchasing power of the Egyptian pounds across time and also across different countries. The methodology of the PPP facilitates both temporal and spatial comparisons so that the percentage and number of the poor in Egypt can, for example, be compared to India. This is because all those percentages were produced through one criterion, which is PPP. The question is whether the PPP can offer a better methodology than the local one used to measure poverty and hunger.

The PPP resembles in many ways local CPIs. Both feature an expenditure aspect that includes spending on food, healthcare, and education, but expenditure percentages in the PPP usually come from the national accounts of the state and not from household surveys as is the case of conventional CPIs. There is also a prices aspect, which are the same used in conventional CPIs. Through those two aspects, the PPP calculates changes in exchange rates. The similarity between PPP, which is internationally recognized to update poverty lines on the global level, and the CPI, used to update poverty lines locally, is not only in their structure, but also their level of accuracy since both have the same setbacks in calculating inflation rates for the poor and the hungry.

Angus Deaton, who received the Nobel prize in economics

in 2015, criticized traditional means of measuring poverty, inequality, and welfare. He particularly criticized official PPP indices[17][18][19]. Deaton proposed alternative indicators that he called Poverty-Weighted Purchasing Power Parity Exchange Rates (PPPP). The main modification proposed by Deaton is the same examined in this paper as far as the Egyptian consumer price index is concerned. Deaton argues that expenditure percentages in official PPP are not similar at all to the expenditure patterns of the poor. What determines the volume of expenditure percentages in national accounts could be the price of a given commodity and the quantities in which it is consumed in general, but not how much the poor in particular spend on it. That is why spending on luxury and durable goods can appear in exaggerated percentages in national goods only because their prices are high compared to consumer goods on which the poor spend almost all their money. There are many reasons that make expenditure percentages in national accounts, hence the PPP index, incongruent with the expenditure patterns of the

17- Angus Deaton and O Dupriez. 2011. "Purchasing power parity exchange rates for the global poor." *American Economic Journal: Applied* 3: 137-166

18- Angus Deaton 2010. "Price indexes, inequality, and the measurement of world poverty." *American Economic Review* 100 (1): 5-34

19- Angus Deaton. 2013. "Reshaping the world: The 2005 Round of the International Comparison Program." Measuring the size of the world economy: the framework, methodology, and results from the International Comparison Program. Washington, DC: World Bank

poor and the hungry even more than the conventional CPIs. Table (5) contains expenditure percentages in the Egyptian PPP index in the last update (2001) in effect till the present moment. **Table (5) - See appendices**[20]

Expenditure percentages in this table underline the mistakes that are bound to happen if the same indicator is used to calculate inflation rates for the poor and the hungry. For example, spending on food is estimated at 33% in this table and not 100% as is the case of the hungry or 67% as is the case of the poor [21]. In other words, if Deaton's methodology is applied on Egypt's PPP to make it closer to the expenditure pattern of the poor and the hungry, the gap revealed will be bigger than the one between the official consumer price index and that of the poor and hungry. This is because the PPP index is more deviated from the expenditure pattern of the poor and the hungry than the official consumer price index. Unlike what is commonly believed, adopting a global methodology to measure poverty and hunger can result in more accurate numbers and percentages of the poor and the hungry. The above-mentioned data show that that the periodic mechanism employed to update the pov-

20- Source: International Comparison Program (ICP). World Bank: https://goo.gl/1aLw17

21- The source of this percentage will be addressed in the section on the consumer price index for the poor.

erty line every year suffers from the same setbacks as local methodologies and are most likely more deviated from the expenditure patterns of the poor and the hungry in underdeveloped countries.

This demonstrates the necessity of conducting non-periodic updates of the poverty line such as the update conducted in 2005 from USD 1.08 to 1.25 per day then in 2015 to become 1.90. This increase in the value of the global poverty line could relatively reduce the impact of the setbacks of the periodic updates conducted through the PPP. Non-periodic updates can be considered an attempt to add inflation rates that the PPP index could not detect in the years between one update and another [22]. The more defective periodic updating mechanisms are, the more urgent the need is for non-periodic updates.

As previously mentioned, the rise in the official poverty line recorded in Egypt in 2015 was an attempt to be in line with the updated global poverty line that rose by 52%. As a result, the Egyptian poverty line rose by 50% despite the fact that the official inflation rate and the food inflation rate

22- There is a form of simplification in looking at the percentage of increase in non-periodical updates of the global poverty line and which are seen as inflation rates added to those that the Purchasing Power Parity (PPP) could not detect. This could have been accurate had the base year for PPP indicators not changed, but had they changed, which is usually the case, the inflation added by non-periodical updates is less than the percentage that appears in the updates.

did not exceed 28%, which means that an inflation rate of almost 22% was added to the Egyptian poverty line to be in line with the global update.

It can be said that the local Egyptian methodology benefited from the global update of the poverty line to add inflation rates for the poor and the hungry and which the official consumer price index could not detect and add in the years before 2015. Therefore, the point at which the Egyptian poverty line stopped in 2015 is more accurate than the point at which it would have stopped without the global update.

It is possible to review the official poverty and hunger lines calculated through the consumer price index, particularly in 2015. It is worth noting that the calculated hunger line did not take into consideration the global update that took place in 2015 as the percentage of its rise is only calculated based on the consumer price index for the hungry. However, its value in 2015 was close to and is still higher than the value of the official hunger line after the update. This means that the periodic updating mechanism does not overlook many of the inflation rates faced by the hungry across time as is the case of the CPI or the PPP. In other words, this methodology can result in less deviations than those resulting from official methodologies as it does not require frequent

non-periodic updates to set its previous deviations straight.

Figure (6) - Annexes

Of course, it is not possible to assume that the methodology proposed in this paper does not require non-periodic updates or field surveys to modify it and ensure its accuracy. However, this alternative methodology would require less non-periodic updates or more time in order for its annual deviations to require non-periodic updates or the addition of corrective inflation rates. Most importantly, the accuracy of this methodology means gaining access to more accurate statistics on the poor and the hungry in the intervals between non-periodic updates and comprehensive field surveys.

According to inflation rates for the hungry in the interval between December 2015 and July 2017, the value of the Egyptian hunger line in 2017 should be LE 509 per month without taking into consideration the rise in the value of the global poverty line in 2015. This means that this value constitutes the minimum estimate of the line of hunger according to the global or local methodology. This number means that a family of three individuals only has to have an income of more than LE 1,527 so that they are not categorized as hungry. This number is higher than the minimum wage in Egypt. It is noteworthy that according to the in-

come and expenditure survey, most families categorized as hungry are made up of 5-6 members, which means that the line of hunger will range between LE 2,550 and LE 3,055 per month. According to the Egyptian tax system, if the income of these families comes from only one or two of its members, taxes will be deducted from them as if they work in the formal economy. This means that the tax system does not take into consideration the fact that hunger lines rose so substantially so that even the incomes of individuals categorized as hungry are taxable. Note that this is this case of the hungry and not the poor, whose incomes are around 33% more.

What moves the Egyptian line of poverty?

As was the case with the line of hunger, it is important to know what moves the line of poverty and whether the two lines rise in similar percentages. Figure (6) compares the percentages of the rise of the general inflation rates and the official poverty line from July 2009 till December 2015.

Figure (7) - Annexes

Unlike the results of the official poverty line, the figure shows that the official poverty line always rises with higher rates than the general inflation rate or that the rate with which the poverty line rises is different from and not expli-

cable through the general inflation line. This separation between the two lines is an initial indication of the accuracy of official poverty statistics in Egypt, which most likely do not rely on the general inflation rate only. This separation also underlines a statistical bias in official calculations. While inflation rates for the hungry are higher than those for the poor and general inflation rates, percentages of the rise of the official poverty line are higher than those of the official hunger line in the years 2011 and 2013. The second question is whether the official poverty line rises in accordance with an inflation rate for the poor.

Consumer price index for the poor:

Similar to the previously mentioned methodology on the consumer price index for the hungry, the paper attempts to calculate a consumer price index for the poor. There are main differences, however, between the two. The first of those differences is spending on food. In this index, the poor spend 67% of their income on food and this percentage, despite not being stated directly in official income and expenditure surveys, is quite approximate for many reasons, on top of which is the fact that official Egyptian statistics are the source.

The spending of the poor on food can be deduced through

the percentage of the value of the hunger line to the percentage of the value of the poverty line in Egypt. According to the Egyptian, or rather logical, definition the poor are more privileged than the hungry or have an income that enables them to spend on items other than food. This means that their expenditure is divided between food and non-food components, the latter including housing, education, transportation, clothing, and footwear. Since minimum spending on food according to official methodology is the value of the hunger line, the percentage between the hunger line and the poverty line can accurately represent the percentage the poor spend on food. The percentage between poverty and hunger lines was 75% in 2009, 67% in 2011, 65.5% in 2013, and 66.8% in 2015. The percentage most repeated in these years was considered the percentage the poor spend on food during this interval, which is quite close to percentages concluded by global statistics[23][24] on the percentage of spending by the poor. The remaining 33% of the income are distributed among the main expenditure items in an approximate manner, as demonstrated in detail in Table (6).

23- "Food prices remain high in developing countries." FAO: https://goo.gl/2TxHQv

24- "How High Food Prices Affect the World's Poor." World Food program, September 2012: https://goo.gl/E28AJ3

Table (6) See appendices

Based on inflation rates calculated through the consumer price index for the poor, Figure (8) attempts to compare inflation rates for the poor with the percentage of the change of the official poverty line in the years between 2009 and 2015. **Figure (8) -Annexes**

Unlike wide gaps detected between inflation rates for the hungry and the percentage of the rise of the hunger line, the above figure shows that the gap between alternative inflation rates for the poor and the percentage of the rise of the official poverty line, and also the gap in 2013 between the two lines, can be attributed to the six-month difference in the base year in the 2010-2011 survey mentioned in the section about the line of hunger.

In numbers, it can be said that the gap between the two lines in the years between July 2009 and July 2013 does not exceed 2.4%. This closeness between the percentage in the rise of the two lines can be seen as an indication that updates of the official poverty line are relatively close to the inflation rates faced by the poor. Although the alternative inflation rate for the poor from July 2013 to December 2015 was 28.7%, calculation in the previous figure underlines a preference to adopt the percentage of rise in the global pov-

erty line as updated in 2015, which is 52%. This preference raises the question of how effective the consumer price index for the poor calculated in this paper is.

The possibility of developing a consumer price index for the poor:

Information released by the Central Authority for Public Mobilization and Statistics in Egypt on the price of food made it possible to develop a consumer price index for the hungry that is probably more accurate than that for the poor. The main reason for the inaccuracy of the index for the poor is lack of information on many products on which the poor spend their money. Transportation and housing could serve as good examples.

Transportation:

Official inflation rate in transportation is calculated based on a particular expenditure pattern: buying private cars including paying installments (26.8%), maintenance and operation of private cars (25.8%), and other means of transportation such as the subway, taxis, microbuses… etc. (47%) [25]. Since the latter is the only item on which the poor spend money and is represented by less than 50% of the

25- Tables 1 and 2, pages 12-14, "Income, Expenditure, and Consumption in Egypt- 2015." Volume 4.

percentage of spending on transportation in the official rate, it is likely that the inflation calculated in this index does not reflect the inflation faced by the poor in transportation.

Despite this defect in the official expenditure pattern on transportation, official information on development of the prices of public and private transportation in Egypt does not allow for the calculation of an inflation rate for the poor in this category. What is known is the recent increase in the prices of subway tickets and transportation costs following fuel price hikes in 2014, 2016, and 2018. All those changes appear in less than their values in official inflation rates because they deal with an expenditure percentage of 47% and not 100% as is more likely with the poor.

Housing:

This category contains inflation rates that are most likely much less that those faced by the poor. It is hard to modify those rates accurately for the same reasons already mentioned in the transportation category.

The percentage of rent is 6.6% of total spending on this category while spending on electricity, gas, and other bills is 16.4%. Those two items, which represent 23% of spending on housing, most likely constitute 100% of the spending of the poor on housing. Another reason that leads to question-

ing official inflation rates in this category is that the highest expenditure percentage in this category is financial leasing where price hikes are approximate, which means they are calculated based on official, and not market, estimates, of the increase in housing prices. That is why official price hikes in the housing category are much less than actual inflation rates facing the poor. This can be noticed through looking at official price hikes in this category during years where the values of electricity, water, and gas bills increase remarkably.

Table (6) attempts to compare the percentage of the rise in utility bills with official inflation rates in the housing category.

Table (6)

Year	2013/ 2014	2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018
Annual increase in electricity bills	3.8%	56.8%	4.8%	46.6%	22.4%
Annual increase in housing & maintenance	3%	6%	5.3%	7.7%	18.3%

Source: The Central Authority for Public Mobilization and Statistics, the Egyptian Initiative for Personal Rights, and the Built Environment Observatory[26]

26- Inflation information in the housing category are from the Central Authority for Public Mobilization and Statistics while price hikes in utility bills for 2017-2018 are from the Egyptian Initiative for Personal Rights and the Built Environment Observatory.

These remarks about transportation and housing underline the setbacks of the official consumer price index due to its inability to accurately detect inflation rates for the poor. This, in fact, is the setback that the consumer price index for the poor could not address due to lack of enough information about the development of transportation and housing prices for the poor. That is why it was hard to develop a consumer price index for the poor that is not affected by the biases of the official index despite modifying expenditure percentages on food and adding the slight changes in transportation and housing prices. For this reason, it is possible to say that even though official updates of poverty lines are quite close to inflation rates calculated through the alternative consumer price index for the poor, this closeness does not necessarily mean that official updates are accurate. This is because the criterion based on which this accuracy is determined, which is the consumer price index for the poor, is still defective and unable to accurately detect housing and transportation inflation rates for the poor. Despite this defect, which cannot be fixed through the available data about official poverty measurements in Egypt. This data is still more accurate than that available on hunger measurements in Egypt.

The main component of the alternative methodology proposed by this paper is presented in Figure (8). The figure

features three lines and not one like what is usually presented by official entities. There is a difference in the level of inflation that varies in accordance to the income level. This is a fact that cannot be overlooked any longer since without taking it into consideration, it is impossible to get an accurate view of inequality, poverty, and hunger. Sometimes the three lines get close, but this does not mean they can be reduced to one line all the time. This coincidental closeness between the lines in the figure is because at a certain moment the percentage of price hikes in all expenditure categories were quite close, which is not sustainable in all cases. The lines that are currently close will start drifting apart in a while. Therefore, if we do not have a methodology to measure inflation based on income, as is the case now, deviations will occur in several economic measurements, including poverty and hunger. **Figure (9)- Annexes**

Appendices

Table (3)

Consumer price index for the hungry

	Expenditure percentage			July 2009 to July 2011 Inflation rate (%)	July 2011 to July 2013	July 2013 to Dec 2015	Dec 2015 to July 2017
Total inflation	**100%**			**42.221**	**24.613**	**28.203**	51.44
Fruits & vegetables	**25%**			**13.976**	**9.5939**	**12.532**	9.69

		3%	Potatoes	1.3002	2.2737	0.7062	-0.87
		3.30%	Tomatoes	4.0425	-0.5676	1.914	0.1155
		1.25%	Onions	1.7988	-0.0788	0.9285	1.4875
		1%	Local garlic	0.6915	-0.2873	0.9285	1.17
		1%	Lemons, peppers & carrots	0.23	-0.003	0.23	1.57
		3%	Eggplants	0.225	3.18	-0.453	3.012
		3%	Zucchini & cabbage	0.225	0.057	2.406	0.1
		2%	Cucum-bers	1.206	1.062	1.6	-0.14
		3.30%	Beans	2.409	1.1418	1.2969	0.1914
		4.40%	Fruits	1.848	2.816	2.9744	3.0536
Grains & bread	**24.200%**			**16.628**	**3.105**	**3.974**	9.63

		10%	Rice (loose and packed)	10.24	1.34	0.4	4.82
		4%	Wheat	1.236	0.477	0.438	2.346
		8%	Fava beans	5.152	1.288	3.136	2.464
		3.20%	Bread	0	0	0	0
Meat, poultry & fish	**17.50%**			**6.6325**	**5.4775**	**4.0775**	**10.238**
			Average price				
			1 Kilo of local beef				
			1 kilo of white chicken				
			1 kilo of tilapia fish				

Milk, cheese & eggs	**16.70%**			**3.0506**	**5.0913**	**5.9072**	**7.2783**
			Average price				
		10%	Cheese & milk basket	1.59	1.48	4.46	4.27
		6.70%	Eggs	1.4606	3.6113	1.4472	3.0083
Sugar, sugary foods, oils & fats	**10.60%**			**0**	**0**	**0**	**11.235**
		4.70%	Sugar	0	0		
		5.90%	Oils & fats	0	0		6.8103
							4.425
Other food & beverages	**5.70%**			**1.938**	**1.3452**	**1.7132**	**3.3687**

Table (5)

Expenditure percentages in purchasing power parity (PPP): Egypt 2011

Table D2 DETAILED RESULT: Expenditure shares (GDP = 100)												
Expenditure shares (GDP = 100)	Gross domestic product	Actual individual consumption	Food and nonalcoholic beverages	Alcoholic beverages, tobacco, and narcotics	Clothing and footwear	Housing, water, electricity, gas and other fuels	Furnishings, household equipment and maintenance	Health	Transport	Communication	Recreation and culture	Education
(00)	(01)	(02)	(03)	(04)	(05)	(06)	(07)	(08)	(09)	(10)	(11)	(12)
Egypt, Arab Republic	100.0	79.5	33.3	2.6	4.8	10.4	3.8	7.3	4.7	2.0	2.4	5.3

Restaurants and hotels	Miscellaneous goods and services	Net purchases abroad	Individual consumption expenditure by households	Individual consumption expenditure by government	Collective consumption expenditure by government	Gross fixed capital formation	Machinery and equipment	Construction	Other products	Changes in inventories and valuables	Balance of exports and imports	Domestic absorption	Individual consumption expenditure by households without housing
(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
2.5	5.6	-5.2	75.6	4.0	7.5	16.7	7.8	8.5	0.5	0.4	-4.1	104.1	68.6

Table (6)

Consumer price index for the poor

	Expen-diture percent-age	July 2009 to July 2011 Inflation rate (%)	July 2011 to July 2013	July 2013 to Dec 2015	Dec 2015 to July 2017
Total infla-tion	**100%**	**34.079**	**21.247**	**28.731**	42.527
Food		28.27	16.48	18.9	33.9
67%					
Education				4.38	1.54
10%		2.624	2.191		

Clothing					
3%		0.744	0.321	0.474	1.068
Housing & maintenance					
13%		1.3	1.625	3.003	2.925
Healthcare		0.248	0.381	0.744	1.383
3.00%					
Transporta-tion		0.893	0.249	1.23	1.711
4.00%					

- Food inflation in this index is similar to that in the consumer price index for the hungry
- Inflation rate for this interval was calculated based on the fact that the standard number for all expenditure items was equal to the general standard number, which is 93.7 for July 2009 for base year January 2010
- Inflation in this item is calculated based on 50% of expenditure multiplied by the official inflation rate in the item while the remaining 50% are multiplied by the rise percentage in electricity, gas, and water bills with an average increase of 33.5%)

Alternative indicators to GDP:
Towards a just measurement of economic activity

Wael Gamal

Since the eruption of the global financial crises in 2007-2008, extensive efforts have been exerted to review one of the most important products of economic thought in the 20th century: The Gross Domestic Product (GDP). The crises and the inability to foresee it led to the questioning of many givens, on top of which is whether the GDP is the indicator that is capable of offering an accurate understanding of economic activity, especially that it failed to provide any signs of an imminent crisis. While the global financial crisis triggered general criticism of economic policies, special emphasis was placed on the drawbacks of the GDP as the indicator that measures the state of an economy and foresees its development and evaluates financial and economic policies and to which all economic phenomena are attributed including public debts, average personal income, total tax, public spending on education and healthcare… etc. For years, the flaws of the GDP were referred to briefly since it overlooked several aspects of the economic activity that are not subject to transactions and are not a commodity that is bought and sold in the market. However, those flaws were never analyzed thoroughly and were totally disregarded in the policy-making process.

In the aftermath of the crisis, the American and French governments attempted to formulate an alternative indicator

that is more efficient than the GDP then the efficiency of other indicators was also examined. Already existing indicators were modified while new ones were created by different international entities and by civil society in individual countries. Modified and new indicators were tested on the ground as several countries started using them to measure economic activity.

This paper examines the history and significance of the GDP, the repercussions of using it as the sole indicator, and the means of developing alternative indicators that are in line with social justice. The paper will also look into the cases in which alternatives were implemented such as Costa Rica and New Zealand and address the possibility of applying them to the Arab region. In addition, the paper will analyze different alternatives to GDP and their advantages and disadvantages.

First: Gross Domestic Product (GDP): History, significance, and crises:

"GDP is a poor measure of progress – it increases as we destroy the natural capital of the planet.

We need economic growth, but we cannot continue to measure it using GDP."

World Economic Forum[27]

A financial crises was the main reason for reviewing the efficiency of the GDP as an indicator and two major crises in the 20th century were the main reason for inventing it: the first is financial—the Great Depression in the 1930—and the second is military and political—World War Two. Following the Great Depression, American economist and statistician of Belarussian descent Simon Kuznets was assigned the mission of formulating a system that measures economic activity in the United States. After three years of working on American national statistics, he presented the first account of American gross domestic product in 1934 in a report submitted to the Congress. The report was modified until it reached its final shape in 1937: "His idea is to capture all economic production by individuals, companies, and the government in a single measure, which should rise in good times and fall in bad. GDP is born."[28] Kuznets played a major role in promoting the new indicator as well as coordinating between statisticians and government officials and shortly after the GDP became a global indicator.

27- Pooran Desai. "GDP is destroying the planet. Here is the alternative." *World Economic Forum*, May 31, 2018: https://is.gd/qxYXNq

28- Elizabeth Dickenson. "GDP: A brief history." *Foreign Policy*, Jan. 3, 2011: https://is.gd/H7EiG7

In the aftermath of Breton Woods Conference, which established the World Bank and the International Monetary Fund (IMF) and reformulated global economy, the GDP was adopted as the main tool for measuring economies on the global level .[29] The GDP became more than a statistical tool, especially when it got linked with a decline in unemployment rates, which came to be known as Okun Law. According to the law, which studies the relationship between economic growth and unemployment, there is a drop of 1% in unemployment when the GDP grows by 3% .[30] The GDP turned into the ultimate indicator of progress and the main economic evaluation tool on both national and international levels, hence it was according to the GDP that economic, as well as political, "rules of the game" were set. This was the case for different forms of capitalism and socialism, including state capitalism in the Eastern Bloc, for the GDP became more dominant than any political ideology. It was, therefore, "cross-ideological."[31] Based on GDP, the world was divided into developed and developing countries and entire alliances, such as the G7 and the G20, were forged based on it. In fact, the GDP is one of the most important determinants of state policies in modern times.

29- Ibid

30- Ryan Fuhrmann."Okun's Law: Economic Growth And Unemployment": https://is.gd/ODLxPT

31- Lorenzo Fioramonti. *The World after GDP*. London: Polity Press, 2017.

Despite this global consensus and regardless of social and political repercussions, there is no agreement on the ways of calculating the GDP, for the process of collecting statistics to calculate the GDP was not unified. In fact, GDP approaches in national accounts might differ from one country to another and at times within the same country. The calculation process usually takes place away from public opinion despite the possible consequences. In many cases, changing GDP approaches might have grave consequences. In Ghana in 2010, a change of approach raised the country from low-income to middle-income, In Greece, GDP statistics before and during the debt crisis in 2013 became the subject of a heated debate that reached accusing the person in charge of the statistics of high treason.[32]

Calculating the GDP is not the only issue, for there are major defects that result from what the calculation focuses on and what it overlooks. The GDP measures all final goods and services produced in a given country within a given time that is usually a minimum of three months. The GDP can be measured in three different ways, all of which should give the same result: production, income, and speculated expenditure [33].

32- Wael Gamal. "GDP: The most dangerous economic invention in the 20th century [Arabic]." *Assafir al-Arabi*, June, 25, 2014: https://is.gd/PE2tso

33- The GDP is usually measured through two formulas: C+I+G +(X-M) of the product and COE+R+I+P+C+T+D+N of the income.

The GDP is linked to goods that have a price and are offered in the market. This is a centralized approach that excludes a large number of economic activities from the calculation. These include everything that is instantly produced and consumed such as some agricultural products produced by farmers and goods exchanged through the barter system that is quite common in developing countries. The calculation of the GDP also excludes women's domestic work because it is not paid and the informal economy even though some countries started including it such as Italy .[34] With the challenges the world is facing as a result of climate change, it became clear that GDP overlooks the environment, the decline of natural resources, and environmental impacts of growth. The GDP was also criticized in the aftermath of the 2007-2008 global financial crisis for not revealing extremely important phenomena pertaining to gaps in income, wealth, and job opportunities, which means it does not realistically reflect people's conditions. The crises posed a number of important questions about funding and financial activities in the stock market and how they are being calculated in the national income, hence whether they are positively contributing to the GDP [35]. American journalist

34- Diane Coyle. *GDP: A brief but affectionate history*. New Jersey: Princeton University Press, 2014.

35- Ibid.

and writer Jon Gertner asserts that the GDP "has not only failed to capture the well-being of a 21st-century society but has also skewed global political objectives toward the single-minded pursuit of economic growth."[36].

In addition to all those setbacks, the GDP promotes a philosophy that positions the market as the sole reference for the creation of value in the economy. This means it equates, for example, between spending a million pounds on the manufacture of polluting cement with the same amount spent on education. Economist Diane Coyle underlines the fact that the GDP fixates on "on a snapshot of statistics," hence offering a short-term vision that goes back a few months. The GDP measures the present and hardly forecasts future possibilities. For Coyle, the GDP is "a mirror on the market," but cannot "rule our lives".[37] When the World Bank released a report on economic discrimination against women, it focused on how much women's access to the market would add to the domestic product .[38] Therefore, everything, including rights, is determined through domestic product and market value.

36- Jon Gertner. "The Rise and fall of the G.D.P." *The New York Times Magazine*, May 13, 2010: https://is.gd/E8EcRT

37- Diane Coyle. "GDP is a mirror on the markets. It must not rule our lives." *The Guardian*, Nov. 20, 2014: https://is.gd/Rki3aP

38- "Unrealized Potential: The High Cost of Gender Inequality in Earnings." World Bank. May, 30 2018: https://is.gd/mIf9Gt

As a result of the financial crisis, the World Economic Forum in Davos and the International Monetary Fund started criticizing the GDP for focusing on economic growth while overlooking growing inequality and environmental deterioration. "Adam Smith's 'invisible hand' is not working in the way we need it to work. The problem runs deep and can't be solved unless we look at the world differently."[39]

Second: Attempts at formulating alternative indicators:

Even though the global financial crisis in 2007-2008 was the reason for criticism levelled against the GDP and started a series of attempts at formulating alternative indicators, the first of alternative indicators emerged in the early 1990s: the Human Development Index (HDI) employed by the United Nations Development Program (UNDP). The index is based on the assumption that income is only one of the components of welfare, which is multidimensional, and on the fact that development is a process that should give people more choices. This index, which covers around 157 countries, falls under the category of dashboard indicators that combines different indicators together such as health, poverty, education, illiteracy… etc. Although the HDI was the only indicator that emerged in the midst of the GDP mo-

39- Pooran Desai. Op. Cit.

Geoffrey Bannister and Alexandros Mourmouras. "Welfare versus GDP: What Makes People Better Off." *IMF Blog*, March 7, 2018: https://is.gd/u01Y3z

nopoly, yet it did not manage to challenge this monopoly. The HDI is also not taken into consideration in the making of public or economic policies. The dominance of the GDP is also demonstrated in evaluating the relative weight of its components. For example, a slight change in illiteracy rates in one country could have a remarkable impact on this country's GDP position[40].

When the financial crisis erupted, initiatives to introduce a change were launched. One of the first initiatives were by then French President Nicolas Sarkozy in the form of the Commission on the Measurement of Economic Performance and Social Progress, commonly known as the Stiglitz-Sen-Fitoussi Commission after the surnames of its leaders that included Indian economist and Nobel Laureate Amartya Sen, one of the experts that developed the Human Development Index. In fact, of its 16 economists, the commission included five Nobel Laureates. In a report released in September 2009, the commission proposed a number of methodological and practical modifications and philosophical compromises that would overcome the flaws of the GDP. The commission adopted a dashboard indicator instead of the GDP as a unidimensional indicator. This dashboard included at least seven indicators: heath, education, environment, employment,

40- Jon Gertner. Op. Cit.

financial welfare, personal influence, and political engagement. The report asserted that an accurate measurement of economic activity has to start with equality and the distribution of income, consumption, and wealth .[41] The establishment of the committee coincided with the European Union's 2007 Beyond GDP Initiative that aimed at "developing indicators that are as clear and appealing as GDP, but more inclusive of environmental and social aspects of progress" .[42] In 2010, the UK announced it would include a happiness indicator while Scotland formed an alliance of several countries to work on coordinating efforts and initiatives that attempt at formulating alternative indicators.[43]

In the past few years, dozens of alternative indicators emerged as demonstrated in the table below:

41- Joseph E. Stiglitz, Amartya Sem, and Jean-Paul Fitoussi. *Mismeasuring Our Lives: Why GDP does not Add Up*. New York: The New Press, 2010.

42- "Beyond GDP: Measuring progress, true wealth, and well-being." *European Commission*: https://is.gd/zbYJiH

43- "How will we change the system?" *Wellbeing Economy Alliance*: https://is.gd/STlaAL

Table (1): Some alternative indicators to GDP[44]

Indicator	Explanation	Coverage
Index of Sustainable Economic Welfare (ISEW) and Genuine Progress Indicator (GPI)	Personal consumption expenditures weighted by income distribution, with volunteer and household work added and environmental and social costs subtracted	- 17 countries, several USA states - Initiated 1950
Genuine Savings	Level of saving after depreciation of produced capital, investments in human capital, depletion of minerals, energy, and forests, and damages from local and global air pollutants are counted for	- 140 countries - 1970- 2008
Inclusive Wealth Index	Asset wealth including built, human, and natural resources	- 20 countries - 1990-2008

44- Ida Kubiszewski. "Beyond GDP: Are there better ways to measure well-being?" *The Conversation*, Dec. 1, 2014: https://is.gd/GCVpTY

Indicator	Explanation	Coverage
Australian Unity Well- Being Index	Annual survey of various aspects of well-being and quality of life	- Australia - 2001-present
Gross National Happiness	Detailed in person survey around nine domains: psychological wellbeing, standard of living, governance, health, education, community vitality, cultural diversity, time use, and ecological diversity	- Bhutan - 2010
Happy Planet Index	A calculation based on subjective well-being multiplied by life expectancy divided by ecological footprint	- 153 countries - 3 years
OECD Better Life Index	Includes housing, income, jobs, community, education, environment, civic engagement, health, life satisfaction, safety, and work-life balance	- 36 OECD countries - 1 year

It is obvious that the above-mentioned indicators are divided into two main categories. The first is totally different from the GDP as far as calculation is concerned and the second works on introducing modifications to the GDP. For example, the Gross National Happiness belongs to the first category while the second category includes Genuine Progress Indicator and Genuine Savings. Other indicators belong to the second category such as the Green Gross Domestic Product, which links economic growth to the environmental consequences it brings about and which is subtracted from the GDP. Several countries adopted this indicator including Australia, Canada, China, Costa Rica, Indonesia, Japan, and Mexico. In 2006, the Chinese government announced that an estimated one fifth of its economic growth was lost as a result of environmental consequences, hence has to be subtracted from both the GDP and economic growth rates.[45]

It also becomes obvious that alternative indicators broaden the concept of measurable economic value and economic activity so that it is not confined to the market value of goods and so that it encompasses welfare, education, safety, work-life balance, and civic engagement. All those factors have an impact on the economy and on people's living stan-

45- "Measuring Genuine Progress Towards Global Consensus on a Headline Indicator for the New Economy." *World Resources Institute and Center for Sustainable Economy*: https://is.gd/sFNcbk

dards and provide evidence of the failure of the Washington Consensus and neoliberal visions that have dominated the world in the past few decades [46].

Third: Costa Rica and New Zealand:

This section examines two practical experiences of adopting alternative indicators to GDP: the first is the Genuine Progress Indicator in Costa Rica and the Better Life Index in New Zealand.

In the case of Costa Rica, a comprehensive policy that relies on adopting the Genuine Progress Indicator and giving up the GDP succeeded in making a small country rank first in the Happy Planet Index throughout the past few years. This transformation increased the life expectancy rate to 79.1 and raised welfare rates to come close to Scandinavian countries. Government policies based on the Genuine Progress Indicator managed to retrieve large swathes of forests subjected to desertification and not just stop their deterioration. The country adopts a generalized public services system in healthcare and education that managed to reduce poverty rates. All this was achieved with GDP per capita of only 10,000 USD .[47] Government policies might

46- Pablo Ava. "Measuring the progress of societies: Alternatives to GDP." *DOC Research Institute*, July 13, 2018: https://is.gd/b2CnU6

47- Jason Hickel. "Want to avert the apocalypse? Take lessons from Costa Rica." *The Guardian*, October 7, 2017: https://is.gd/IxXQAy

not have managed to remarkably increase the wealth and income gap, but they succeeded in demonstrating the ability of alternative indicators to guide public policies and to underline their potential to achieve more in the future.

In New Zealand, Prime Minister Jacinda Ardern announced in February 2018 that the government would measure economic success against social, cultural, and environmental performance.[48] All those factors were, therefore, included as main criteria in the 2019 budget. New Zealand aims at reducing child poverty within 10 years through adopting the Better Life Index that prioritizes individuals' welfare, including healthcare, education, skills, personal communication, social interaction, and personal safety as well as housing, employment, and work-life balance. The index currently used by the New Zealand is different from GDP in the way it includes economic, human, social, and natural capital all together.[49]

Conclusion: Applicability of alternative indicators in the Arab region:

Several factors point to the imminent replacement of the GDP as the sole indicator to measure economic activity.

48- Laura Walters. "NZ Government to lead world in measuring success with wellbeing measures": https://is.gd/0nWDlf

49- "Beyond GDP Measuring: New Zealand's wellbeing progress." Deloitte, State of the State: New Zealand 2018: https://is.gd/Hx6Pvp

With global economy going through a phase of long-term stagnation marked by slow, if any, growth and with growing consequences of climate change and social inequality, the need for alternative indicators that would guide public policies becomes a must. This of course is not expected to be easy owing to the political nature of GDP dominance since the mid-20th century. Regarding the Arab region, a region with one of the highest inequality rates and most affected by climate change, attempts at formulating alternative indicators or modifying the GDP are almost non-existent. Even on the academic level, there is little research on the topic with the exception of one study released by the Social Justice Platform in August 2018 and which attempted to explore the possibility of applying the Genuine Progress Indicator in Egypt. The study included preliminary calculations of the Genuine Progress Indicator and compared them to GDP. The result was a gap of more than 600 billion USD (7.735 trillion Egyptian pounds according to the Genuine Progress Indicator compared to 4.106 according to the GDP) [50]. However, owing to lack of data the study affirms that its calculations are only estimations, especially that two main factors are not included: the draining of social capital and the depletion of natural resources [51].

50- "From GDP to Genuine Progress Indicator: Breaking away from neoliberalism [Arabic]." *Social Justice Platform*, August 2018: https//:is.gd/tUpe02

51- Ibid.

Problems arising from lack of data, including on national accounts that are never published complete or published years later, are closely linked to the issue of who formulates alternative indicators, how they can be presented in a scientific manner, and what the situation would be if governments are not willing to effect a change. That is why it is better to start with Green Gross Domestic Product or the Better Life Index. The first is directly based on GDP calculations like the Genuine Progress Indicator yet less complicated while the second is directly adopted by the Organization for Economic Co-operation and Development (OECD) which would contribute to providing international expertise in case the government decides to go for a different approach. However, the Genuine Progress Indicator remains more comprehensive and more clear-cut in its opposition of the neoliberal system that gives rise to inequality and fails to achieve growth even according to its own criteria. The Genuine Progress Indicator is closer to a clear understanding of the reality of economic activities and more capable of guiding public economic and social policies, ones that are more just and more efficient.

The accuracy of statistical samples:
How Egyptian society is depicted is income, expenditure, and consumption research

Dina Abdallah

Inaccuracy for security reasons:

Income and expenditure date were collected starting 1957 by the Central Authority for Public Mobilization and Statistics (CAPMAS) on irregular basis then was collected every five years between 1990-1991 and 2008-2009 and every two years in 2011, 2013, and 2015. Income and expenditure statements include a huge amount of raw data on income distribution, expenditure patterns and how both as well as poverty rates differ according to geographical location, family size, the nature of jobs, and other social characteristics of individuals and families. Therefore, those statements are a very rich source of information that can be used to study poverty, inequality, and inflation. Despite the amount of data that is collected every two years and for security reasons, CAMPAS only makes 50% of the sample data it collected after 1999 available. The available data will be referred to in this paper as the "partial sample."

Most of the studies that examine poverty and inequality in Egypt depend in their measurements and analyses on the partial sample based on the assumption that it represents the complete sample and that the data from both are extremely close as asserted by CAMPAS. Despite the fact that the differences between complete and partial samples in most

years are not remarkable, as will be demonstrated in tables (1) and (2), these seemingly slight differences might affect the accuracy of the results that aim at tracing the development of prices or poverty and hunger lines. That is why the following analysis does not only aim at underlining the differences between partial and complete samples, but also attempts to devise a correction coefficient based on the difference detected between the two samples then using this coefficient to arrive at more accurate numbers and percentages of the hungry based on the alternative poverty line proposed in Mohamed Sultan's paper "A clearer vision of the rock-bottom."

In an attempt to identify the difference between the partial and complete samples in the data of year 2015 only, it becomes clear that all indicators calculated from the partial sample using the same methodology applied by CAMPAS are different with a variable coefficient and range between 3% and 36% as demonstrated in Table (1). Based on this, it is only possible to obtain more accurate indicators if the complete sample is made available.

Table (1): Differences between poverty rates in complete and partial samples for year 2015:

Indicator	Partial sample	Complete sample	Correction coefficient
Percentage of individuals below hunger line	7.2٪	5.30%	1.36
Percentage of individuals below poverty line	23.05٪	27.80%	0.83
Percentage of poverty in families of 10 or more members	73٪	75%	0.97
Percentage of poverty in families between 8 and 9 members	67.70٪	65%	1.04
Percentage of poverty in families between 6 and 7 members	45.70٪	44%	1.04
Percentage of poverty in families between 4 and 5 members	20.70٪	20%	1.04
Percentage of poverty in families between 1 and 3 members	5.30٪	6%	0.88

If the focus in the difference between the partial and complete samples is only on the coefficient subject of research, the line of hunger, it will be obvious that it differs throughout the year as demonstrated in Table (2).

Table (2): Differences between percentage of the hungry in partial and complete samples (2010-2015):

Year	2010- 2011	2012- 2013	2015
Percentage of individuals below hunger line in complete sample	4.8%	4.4%	5.3%
Percentage of individuals below hunger line in partial sample	%4	%3.6	%7.2
Correction coefficient	1.2	1.2	0.74

Based on identified differences between the two samples, it is possible to propose correction coefficients of 1.2, 1.2. and 0.74 for years 2010-2011, 2012-2013, and 2015, respectively.

Table (3) demonstrates the percentages of individuals under the official hunger line compared to those proposed in Sultan's paper. For more accuracy in the proposed results, correction coefficients were applied to the alternative percentage of the hungry, hence leading the hunger percentage to appear as a range, as demonstrated in the last row of the table.

Table (3): Differences between individual under official and alternative hunger lines (2010-2015):

Year	2010- 2011	2012- 2013	2015
Percentage of individuals under official hunger line	4.8%	4.4%	5.3%
Percentage of individuals under alternative hunger line	%9.6	%9.3	%9.6
Percentage of individuals under hunger line after applying correction coefficient	9.6%-11.52%	9.3%-11.16%	7.29%-9.6%

Although the methodology proposed in Sultan's paper would yield percentages of poverty and hunger that are closer to reality than those stated in official data, even the numbers resulting from the alternative calculations are still less than the actual ones and even after applying the correction coefficient. This is attributed to the nature of the official complete sample itself because studies on poverty

and inequality are affected by how far the complete sample represents the Egyptian society. Below is a detailed account of what is meant by the nature of the sample.

Too rich to be held accountable, too poor to be visible:

Many economic studies tackle the accuracy of Egyptian official statistics on high-income shares .[52] These studies provide statistical evidence that high-income shares in Egypt, whether the highest 10% or 1%, are much less than the real numbers on the ground, which eventually affects inequality estimates. The contrast between inequality estimates and reality becomes obvious when official statistics of inequality come out similar to those of Scandinavian countries in the 1980s. This contradiction between statistics and reality drives researchers to look into the accuracy of income distribution data for the richer segments of society and to propose other statistical means to adjust official calculations and make them as close as possible to reality[53]. Yet regarding low-income shares, the question is whether official

52- Johan A. Mistiaen and Martin Ravallion (2003). *Survey compliance and the distribution of income*.

Anton Korinek (2006, 2007). *Excessive Dollar Borrowing in Emerging Markets Balance Sheet Effects and Macroeconomic Externalities*.

53- Anthony B. Atkinson, Thomas Piketty, and Emmanuel Saez (2011). *Top Incomes in the Long Run of History*.

Frank Cowell and Victoria-Feser (1996a and 1996b). *Poverty measurement with contaminated data: A robust approach.*

data accurately reflect the status of the poor and the hungry and whether they are thoroughly represented in the income and expenditure statement. Several studies argue that the answer is in the negative, possibly owing to the difficulty of conducting interviews with the poor because they live in remote areas or illegally across cities and in some cases have no permanent residence, which makes it more likely that their names are not on the lists of municipal authorities. Also surveys about the poor always lack information about one particular group: the homeless.

Table (4) shows that the homeless are not listed in housing surveys as well. Residents of slum areas are represented by a very small percentage (0.02%) of the total 2015 sample while the percentage of individuals living in poor areas in the same year is allegedly 2%. This example can explain why the percentage of the hungry in 2015 according to the alternative methodology appears less than that of previous years despite the fact that the rise of the hunger line was the highest amongst the years subject of the study.

Table (4): Types of Housing:

Type of housing	Number	Percentage
Country house	2085	17.39

Type of housing	Number	Percentage
Villa	22	0.18
Apartment	9125	76.12
More than one apartment	185	1.54
One or more separate room	148	1.23
One or more room in a housing unit	421	3.51
Tent, hut, cave, slum areas… etc.	2	0.02
Total	11988	100

This lack of representation fails to reflect the fact that even among the poor there are difference income levels as there is a segment that lies right under the poverty line and another that suffers from extreme poverty and is not documented in the survey. Some policy makers who attempt to effect real change might focus on channeling resources towards those closer to the poverty line, which means others below them might be overlooked. That is why it is necessary to include other calculations such as poverty gaps, meaning how far the poor are from the poverty line, in order to overcome this problem.

Income or expenditure data?

When calculating poverty indicators, CAMPAS mainly relies on expenditure rather income data even though there is also a discrepancy between the income and expenditure of an individual or a family, referred to in economics as the saving rate. This means that if the income decreases by 10%, consumption will most likely not decrease by the same percentage but rather by a lesser one, especially among low-income segments of society. However, in developing countries such as Egypt, analysts prefer using expenditure data as an indication of living standards for the following reasons:

1- In the short term, expenditure data reflect more accurately the resources owned by a family.

2- In the long term, expenditure data provide information on income on other dates both in the past and the future.

3- In poor countries, it is difficult to accurately measure incomes because of its multiple sources and the integration of large numbers into the informal sector.

Figure (10) -Annexes

However, consumption can for many reasons be a misleading indicator of welfare even after introducing modifications to consumption indicators. This is because poorer

families have lesser opportunities at saving or getting loans, which is demonstrated below by the graph that compares the total income with the total expenditure for each 20% of income levels.

The graph shows that the gap between income and consumption, which is the ability to save, only appears at the beginning of the third income level (LE 30,000 per year and more). This makes the well-to-do more capable of taking income shocks and changes in their expenditure patterns or more capable to avoid particular inflation rates through changing their expenditure patterns. The graph also underlines the fact the for the poor the income is exactly the same as the expenditure. As for income levels that are right above the poverty line, which means they are threatened with poverty, their current income might enable them to save and expenditure data alone will not be enough to examine how their expenditure patterns would respond to any changes in their income levels. This necessitates the availability of income data in order to make it possible to study the behavioral patterns of segments of society that are threatened with poverty.

The individual versus the household:

Household surveys in their conventional forms do not allow

for direct measurement of the income and consumption of each individual. In most cases, the head of the household is interviewed about the entire family and after this, per capita calculations are made. The results are more harmonious than they are in reality. Income and consumption data collected in this manner do not reflect inequality within each family since they are based on the assumption that members of the family are paid and spend the same amounts. The result is misleading conclusions that do not reflect the reality of inequality and poverty within families. In fact, one of the studies dealing with this issue revealed that relying on income and consumption data per household only to measure poverty and inequality can reduce actual percentages of both by more than 25%.

Subjective perception of poverty versus objective poverty:

The poverty indicator calculated based on the Household Income, Expenditure, and Consumption Survey (HIECS) is incapable of underlining the subjective perception of poverty, meaning poverty from the point of view of the poor. It is extremely important to know the effect of policies on the way the poor see themselves compared to how other segments of society see them. It is possible to use the Af-

ro-parameter survey for this purpose. For example, in the sixth round for year 2015, Afro-parameter stated that 20% of the survey sample said their conditions are worse or much worse than others. On the other hand, the percentage of objective poverty as calculated by HIECS for 2015 was 23.5%, which shows the difference between subjective estimates and objective calculations that rely on conventional statistics. This difference is not necessarily in favor of conventional statistics as is the case in the previous example. In most cases, subjective poverty is measured through asking individuals about an amount of money that they consider necessary to satisfy their basic needs. The subjective line of poverty can be determined based on the deduced average of an individual's share of those basic needs.

Based on the above, it is possible to reach a number of recommendations that render the process of measuring poverty and hunger more accurate through the following:

- Having access to the complete sample collected by CAMPAS in order to reach more accurate numbers through using HIECS
- Making available more accurate data on income together with consumption in order to obtain more accurate information on the poor

- More representation of the homeless poor as well as of the well-to-do in order to have more accurate measurements of poverty and inequality
- Placing more emphasis on individual income and consumption
- Measuring subjective perception of poverty to estimate the efficiency of government policies that target the poor

On poverty and inflation statistics in Tunisia

Jamal Ouididi

Introduction:

Population of Tunisia per governorate for the year 2017:

Governorates	Population
Tunis	1 069 663
Ariana	628 063
Ben Arous	677 775
Manouba	402 755
Total- Grand Tunis (Greater Tunis)	**2 778 257**
Nabeul	831 181
Zaghouan	184 258
Bizerte	585 452
	1 600 892
Béja	306 454
Jendouba	403 999
Kef	246 510
Siliana	226 998
	1 183 962
Sousse	715 744
Monastir	580 760
Mahdia	430 471
Sfax	994 271
Centre-East	**2 721 245**
Kairouan	585 860
Kasserine	452 001
Sidi Bouzid	445 478
Center-West	**1 483 339**
Gabès	391 143
Medenine	501 792

Tataouine	150 532
North West	**1 043 467**
Gafsa	347 225
Tozeur	112 327
Kebili	164 279
South West	**623 831**
Total	**11 434 994**

Demographic indicators:

Indicator	Unit	2012	2013	2014	2015	2016
Births	Per 1000 citizens	20.2	20.5	20.5	19.9	19.4
Deaths	Per 1000 citizens	5.9	5.7	5.7	5.9	5.5
Marriages	Per 1000 citizens	20.4	20.2	20.1	19.4	17.6
Population increase	Percentage	1.4	1.5	1.48	1.4	1.39
Birth indicator	Per female	2.4	2.4	2.42	2.3	2.31
Child mortality (%)	Per 1000 births	16.7	15.7	16.3	15.3	14.2

Source: National Institute of Statistics, Date: July 4, 2019

1-Line of poverty statistics:

Based on statistics released by the National Institute of Statistics for 2015 as the index reference period or the base year, it becomes clear that the number of the poor rose to

1,968,639, that is 15.2% of the total population (11.27 million in 2015) compared to 15.5% in 2010, 23.3% in 2005, and 32.4% in 2000. These statistics were released in a study entitled "Measuring poverty, inequality, and polarization between 2000 and 2010" conducted by the National Institute for Statistics in cooperation with the African Development Bank and the World Bank. In late 2011, the institute revised the concept of poverty based on an analysis of the family survey conducted in the years 2000, 2005, and 2010 and of another survey conducted between 2010 and 2011 on the budget, consumption, and the living standards of families.

The survey conducted in 2010 included a sample of 13,392 families chosen randomly. The committee that supervised the survey was comprised of Tunisian academics, government representatives, and civil society representatives. The survey modified the criteria according to which poverty is measured, hence underlining the development of poverty throughout the past decade. The survey revealed that members of a family in Tunisia would realize they are poor if their consumption goes below the poverty line identified at USD 1, 277 (1,277 Tunisian dinars) per year per person in big cities and USD 820 (820 Tunisian dinars) per year per person in rural areas. The percentage of extreme poverty

reached 4.6% in 2010, compared to 7.6% in 2005 and 12% in 2000. The survey estimated poverty line at 757 dinars per year per person in big cities and 571 dinars per year per person in rural areas. However, the National Institute for Statistics did not show that this drop in the percentage of poverty and extreme poverty does not apply to the Center West and the North West, in which poverty and extreme poverty rates rose remarkably higher than other regions during the decade covered by the survey. The rise in the gap from 49.9% in 2000 to 62.5% in 2010 confirms according to the survey that the feeling of marginalization by residents of disenfranchised regions intensified in the interval between 2000 and 2010. The survey also shows that families in which the head of household is unemployed or uneducated are more likely to become poor or extremely poor. According to the survey, modifications to the system through which poverty is measured are basically related to the welfare indicator and the identification of the line of poverty.

2-Expenditure data and poverty rates:

Table on expenditure and the percentages of poverty and extreme poverty for the year 2015:

Spending/ person (National, 2015) **3871**	Spending/ person (Municipal, 2015) **4465**	Spending/ person (non-municipal, 2015) **2585**
Spending/ household (National, 2015) **15561**	Spending/ household (Municipal, 2015) **17365**	Spending/ household (non-municipal, 2015) **11264**
Poverty rate (National, 2015) 15.2%	Poverty rate (Municipal, 2015) 10.1%	Poverty rate (non-municipal, 2015) 26%
Extreme poverty rate (National, 2015) 2.9%	Extreme poverty rate (Municipal, 2015) 1.2%	Extreme poverty rate (non-municipal, 2015) 6.6%
The poor (2015) **1.693.968**	The extremely poor (2015) **320.938**	GINI coefficient (2015) **30.9%**

Source: National Institute of Statistics

3-Inflation data:

The National Institute for Statistics periodically issues a family expenditure report depending on a reference year known as the base year. Starting January 2019, the institute started issuing the results of consumption expenditure using

2015 as a base year instead of 2010, which was the base year until the end of 2018. Also starting January 2019, the institute implemented methodological change on the occasion of changing the base year from 2010 to 2015.

3-1 Based on this, the institute documented a rise in prices upon consumption by 0.8% in January 2019, compared to the month before.

Table (1): Main changes in prices of foods and beverages:

Main products	Monthly changes	Annual changes
Fresh vegetables	7.1%	5.6%
Poultry	7.2%	9.2%
Eggs	4.5%	33.8%
Lamb	3.4%	17.0%
Cheese and dairy products	2.8%	11.8%
Beef	1.8%	15.7%
Sweets & chocolates	1.1%	11.9%
Spices	0.9%	6.3%
Dried fruits	1.0%	17.1%
Cereals	0.9%	8.4%

Main products	Monthly changes	Annual changes
Mineral water & fizzy drinks	0.7%	6.4%
Legumes	0.5%	8.1%
Food oils	-0.2%	-1.2%
Coffee	0.0%	0.0%
Fresh fruits	-0.9%	-0.2%
Fresh fish	-0.4%	2.9%

3-2 In December 2018, the percentage of the rise in the family consumption expenditure indicator was estimated at 0.5%. The institute attributes this rise to an increase in the prices of food and beverages by 2.2%, including fresh vegetables, poultry, eggs, and meat, as shown in the above table. Furniture and household items and services increased by 0.9%, which was particularly felt in cleaning supplies that increased by 1.2%, construction material by 0.7%, and electrical appliances by 0.6%. Healthcare items and services by 0.7%, mainly demonstrated through drug prices (1.1%) and medical services in the private sector (0.6%).

3-3 The National Institute for Statistics recorded a 7.1% decline in the inflation rate in family consumption expenditure for January 2019, compared with 7.5% in December 2018.

Household consumer index rate					
Year 2015					
Final results for January 2019 (Source: National Institute for Statistics)					
Groups	**%**	**Jan. 2019**	**Jan. 2019**	**Jan. 2019**	**1-month rate**
		Dec. 2018	**Dec. 2018**	**Jan. 2018**	**2018/2019**
Food & beverages	26.2	2.2	2.2	7.1	7.1
Tobacco & alcoholic beverages	2.8	0.0	0.0	0.3	0,3
Clothing & footwear	7.4	0.3	0.3	9.4	9.4
Housing & energy	19.0	0.3	0.3	5.2	5.2
Furniture & appli-ances	5.9	0.9	0.9	0.9	0.9
Healthcare	5.8	0.7	0.7	4.6	4.6
Transportation	12.7	0.0	0.0	10,2	10.2
Telecommunications	4.6	0.0	0.0	0.1	0.1

Culture& entertainment	2.1	0.6	0.6	6.2	6,2
Education	3.2	0.0	0.0	7.3	7.3
Hotels& restaurants	4.6	0.5	0.5	8.6	8.6
Other goods & services	5.6	0.9	0.9	10.9	10.9
General indicator	100	0.8	0.8	7.1	7.1

Total minus energy	92.5	0.9	0.9	7.1	7.1
Total minus energy & food	66.3	0.4	0,4	7.1	7.1
Total minus clothing	92.6	0.9	0.9	6.9	6.9
Total minus tobacco & alcoholic beverages	97.2	0.8	0.8	7.3	7.3
Results for past years					
Jan. 2018		1.2	1.2	6.6	6.6
Jan. 2017		0.7	0.7	4.7	4.7
Results for months of year	2019				
Month		Monthly change	Change by December	Annual slope	Change in accumulation of months
January		7,1	7,1	0,8	0,8

According to the institute, this decline in the inflation rate is attributed to a drop in the impact on increases recorded in January 2018, when the new 2018 Finance Law was put into effect and led to an increase in the value-added tax (VAT) from 18% to 19%, 12% to 13%, and 6% to 7%, that is a 1% rise in each of the installments applied throughout the country. It is noteworthy that the National Institute for Statistics started its analysis through comparing the inflation rate in January 2019 with that of December 2018 then went back to January 2018 in an attempt to explain the drop in inflation rate in January 2019 through assuming that 2018 saw the start of the implementation of VAT increases whereas 2019 did not see any similar increase. The institute did not also mention the impact of remarkable increases in energy prices (electricity and natural gas) authorized by the government in mid-2018. This increase reached 13% for domestic consumption and 46% for corporate consumption, which led to an increase in the prices of the products of energy-intensive industries such construction material, healthcare items, and food.

3-4 Prices of food rose rapidly in January 2019 from 0.6% in the previous month to 7.1% throughout the year. Prices of meat increased by 13.3%, dairy products and eggs by 11.8%, vegetables by 6.3%, fish by 4.6%, and processed food products by 5.5%.

3-5 Prices of transportation increased by 10.2% compared to January 2018. The institute attributed that to the increase in car prices by 11.4%, car expenses such as spare parts and fuel by 10%, and transportation services by 8.8%.

3-6 According to the institute, the implicit inflation rate for January 2019, that is minus energy and food, was estimated at 7.1%, compared to 7.9% in December 2018. The institute also stated that that the prices of unpriced goods rose by 8.3%, compared to 5.1% for priced goods, taking into consideration that the annual sliding scale for unpriced foodstuffs reached 6.8%, compared to 2.3% for priced foodstuffs.

4-Methodological modifications for base year 2015:

Upon introducing those modifications, detailed in the table below, the National Institute for Statistics stated that the consumer price index is one of the most important economic indicators since it is basically used for determining the adequate economic, financial, and social policies as well as a reference in wage adjustments. The institute also noted that the consumer price index is measured through tracing the development of the cost of a particular package, or a market basket, of goods and services with fixed specifications and quality purchased by Tunisian households. It is

noteworthy that the consumer price index in Tunisia was reviewed eight times since independence in 1956. After shifting to 2015 as the base year, the weighted average of each item in the expenditure list was identified and so was geographical coverage as of that year.

4-1 Weighted average:

The National Institute for Statistics confirmed that weighted averages are determined through the national survey, conducted every five years, of household expenditure and consumption for 2015. According to the institute, the weighted average of food and beverages dropped from 28.1% to 26.2%. On the other hand, the weighted average of housing and utilities rose from 17% to 19%, which was particularly demonstrated in the rise of the weighted average of rent from 10% to 12%. Table (2) shows the weighted averages of base years 2010 and 2015.

Table (2): weighted averages for bases years 2010 and 2015:

Categories	Base year 2015	Base 2010
Food & beverages	26.2%	28.1%
Tobacco & alcoholic beverages	2.8%	2.9%
Clothing & footwear	7.4%	8.4%
Housing & utilities	19.0%	17.0%
Furniture & electric appliances	5.9%	6.8%

Categories	Base year 2015	Base 2010
Healthcare	5.8%	5.6%
Transportation	12.7%	12.1%
Telecommunications	4.6%	5.6%
Culture & entertainment	2.1%	2.0%
Education	3.2%	2.4%
Restaurants & hotels	4.6%	4.3%
Other goods & services	5.6%	4.9%
Total	**100%**	**100%**

4-2 Market basket of consumer goods and services:

The National Institute for Statistics announced that the market basket of consumer goods and services was revised through adding new items and authorizing the addition of more. However, the institute did not provide a list of the items added compared to 2010. This lack of transparency puts the credibility of the review process into question.

Table (3): Number of products and services in the market basket of base year 2015:

Categories	Number of products	Number of Varieties
Food & beverages	165	1458
Alcoholic beverages & tobacco	13	89
Clothing & footwear	116	1041
Housing & utilities	27	216
Furniture & appliances	149	765

Categories	Number of products	Number of Varieties
Healthcare	27	309
Transportation	56	297
Telecommunications	11	69
Culture & entertainment	62	294
Education	5	129
Restaurants & hotels	26	156
Other goods & services	63	351
Total	**720**	**5174**

4-3 Sales outlets:

As part of its plan to expand geographical coverage, the National Institute for Statistics announced adding sale outlets to the indicator used to measure poverty. The addition of new items to the market basket also necessitated the addition of more outlets. According to the institute, sale outlets increased from 3,452 in 2010 to 4,280 in 2015, distributed based on table (4) below, also issued by the institute.

Table (4): Sample of sale outlets numbers for base years 2010 and 2015:

Type of sales outlets	Base year 2015	Base year 2010
Large stores	178	125
Municipal markets	85	88
Stores, bakeries, & cafés	195	205
Clothing stores	393	382

Type of sales outlets	Base year 2015	Base year 2010
Specialized stores (furniture, electric appliances, spare parts, construction material… etc.)	392	373
Service stores (public & private)	1695	1485
Other stores	1122	992
Weekly markets	22	22
Total	**4082**	**3672**

The table above demonstrates that outlets added in base year 2015 are 410, compared to 2010. However, the institute did not provide an account of the geographical distribution of those outlets whether across the country or in neighborhoods in big and medium cities.

Below are additional tables:

Household consumer price index

Base year: 2015

Monthly changes: January/ December

Source: National Institute of Statistics

Categories & sub-categories	2016	2017	2018	2019
Food & beverages	0.1	1.4	1.1	2.2
Foodstuffs	0.1	1.5	1.0	2.3
Bread & grains	0.1	0.5	1.4	0.4
Meat	-0.8	-0.6	0.8	4.4
Fish	0.8	1.6	1.2	-0.3
Milk, dairy products & eggs	0.0	0.5	2.1	2.8
Cooking oil	0.8	2.1	0.7	-0.1
Fruits& dried fruits	4.2	-2.9	3.5	-0.6
Vegetables	-1.6	7.9	-1.4	4.9
Sugar, sweets, chocolate… etc.	0.1	0.7	2.0	0.5
Beverages	1.1	0.5	1.8	0.6
Coffee & tea	0.1	0.0	3.3	0.4
Mineral water, fizzy drinks, juice	1.5	0.7	1.2	0.7
Alcoholic beverages & tobacco	0.1	0.0	0.2	0.0
Alcoholic beverages	1.8	0.0	3.3	0.6
Tobacco & cigarettes	0.0	0.0	0.0	0.0
Clothing & footwear	0.9	0.4	-0.3	0.3
Clothing basics	0.6	0.3	-0.3	0.5
Fabrics	1.0	0.4	-0.1	0.9
Clothes	0.6	0.3	-0.3	0.4
Accessories	0.4	0.4	0.0	0.7
Footwear	1.7	0.5	-0.4	-0.1
Housing & utilities	0.4	1.5	0.7	0.3

Categories & sub-categories	2016	2017	2018	2019
Rent	0.6	1.4	0.5	0.4
Maintenance	0.0	0.3	4.0	0.6
Potable water	0.3	0.0	0.0	0.0
Electricity, gas & fuel	0.0	2.9	0.6	0.0
Furniture & household supplies	0.3	0.2	1.3	0.9
Furniture	0.2	0.3	1.5	0.7
Curtains& linen	0.3	0.6	0.2	0.7
Electrical appliances	0.2	0.2	1.1	0.6
Kitchen utensils	0.4	0.1	0.8	0.6
Cleaning tools & supplies	0.3	0.3	1.4	0.8
Material & services for maintenance	0.3	0.2	1.6	1.5
Healthcare	0.3	0.0	1.1	0.7
Pharmaceuticals	0.2	0.0	1.1	1.1
Medical care	0.7	0.0	1.6	0.6
Hospital care	0.0	0.0	0.0	0.0
Transportation	0.0	0.0	2.7	0.0
Cars	0.0	0.1	4.0	0.1
Car expenses	-1.0	0.1	3.0	0.2
Public & private transportation services	1.6	-0.2	0.4	-0.6
Telecommunications	0.0	0.1	0.9	0.0
Post service	0.0	33.8	0.0	0.0
Telecommunication devices	-0.3	-0.1	1.3	-0.2
Telecommunication services	0.0	0.0	0.9	0.0
Culture & entertainment	0.2	-0.3	2.1	0.6
Audio, visual & media devices	-0.1	-0.3	3.5	0.4
Other entertainment devices	-0.4	-0.1	1.6	0.7

Categories & sub-categories	2016	2017	2018	2019
Cultural & entertainment activities	0.2	0.4	0.7	0.2
Cultural & entertainment services	0.6	-0.9	0.2	0.1
Newspapers, magazines & books	0.4	0.1	3.1	3.3
Education	0.5	0.1	0.9	0.0
Elementary & preparatory education	0.0	0.0	0.2	0.0
High school education	0.0	0.0	0.4	0.0
Stationary	1.7	0.0	0.9	0.1
Textbooks	0.0	0.0	0.0	0.0
Private tutoring	0.9	0.3	2.0	0.0
Hotels & restaurants	0.1	0.2	1.3	0.5
Restaurants & coffee houses	0.2	0.2	1.4	0.9
Hotels	-0.7	0.7	0.3	-2.8
Other items & services	1.1	0.3	2.3	0.9
Personal care	0.1	0.4	2.6	1.2
Personal items	0.5	0.3	1.0	0.6
Insurance	6.7	0.0	1.8	0.0
Financial services	0.0	0.0	0.0	0.0
Total	0.3	0.7	1.2	0.8

Household consumer price index
Base year: 2015
Annual sliding scale: January/ January

Categories & sub-categories	2016	2017	2018	2019	Weighted average
Food & beverages	1.4	4.9	7.5	7.1	26.2%
Foodstuffs	1.1	5.0	7.7	7.2	24.3%
Bread & grains	1.7	1.8	4.0	4.3	3.8%
Meat	-3.1	-0.9	10.5	13.3	5.5%
Fish	3.9	9.0	7.5	4.6	1.0%
Milk, dairy products & eggs	0.6	1.1	4.6	11.8	4.0%
Cooking oil	6.1	10.2	16.6	-0.2	2.0%
Fruits& dried fruits	4.9	4.5	16.0	1.8	2.3%
Vegetables	0.3	17.0	2.0	6.3	4.2%
Sugar, sweets, chocolate… etc.	3.3	2.7	5.1	6.1	0.8%
Beverages	5.8	4.4	5.3	6.6	2.0%
Coffee & tea	5.5	0.3	6.7	7.0	0.6%
Mineral water, fizzy drinks, juice	6.0	6.2	4.7	6.4	1.4%
Alcoholic beverages & tobacco	0.7	-0.9	12.5	0.3	2.8%
Alcoholic beverages	9.0	-10.9	5.9	4.7	0.2%
Tobacco & cigarettes	0.0	0.0	13.1	0.0	2.6%
Clothing & footwear	7.5	6.7	5.9	9.4	7.4%
Clothing basics	7.5	6.5	6.7	9.2	5.2%
Fabrics	4.0	2.5	4.9	9.6	0.2%
Clothes	7.2	6.7	6.9	9.2	4.6%

Categories & sub-categories	2016	2017	2018	2019	Weighted average
Accessories	13.2	6.9	6.2	9.6	0.2%
Footwear	7.4	7.2	4.2	9.8	2.2%
Housing & utilities	4.9	6.2	3.9	5.2	19.0%
Rent	7.1	6.6	4.1	4.7	12.1%
Maintenance	2.3	2.2	14.6	11.3	1.5%
Potable water	3.2	15.8	0.0	3.9	1.5%
Electricity, gas & fuel	0.1	2.9	0.7	5.0	4.0%
Furniture & household supplies	5.4	4.0	6.8	9.0	5.9%
Furniture	6.8	3.6	5.9	7.9	1.2%
Curtains& linen	6.3	7.1	6.1	9.3	0.4%
Electrical appliances	4.1	3.3	6.1	8.2	1.8%
Kitchen utensils	6.3	6.0	7.4	9.6	0.4%
Cleaning tools & supplies	5.2	4.4	11.3	9.5	0.3%
Material & services for maintenance	5.4	3.9	7.4	10.1	2.0%
Healthcare	2.9	2.4	5.1	4.6	5.8%
Pharmaceuticals	2.3	1.8	4.1	5.3	2.8%
Medical care	5.1	4.4	8.8	5.5	2.0%
Hospital care	0.0	0.0	0.0	0.0	0.9%
Transportation	1.4	4.6	8.8	10.2	12.7%
Cars	1.1	11.6	14.6	11.4	3.6%
Car expenses	1.1	2.1	9.4	10.0	5.8%
Public & private transportation services	2.4	1.4	0.9	8.8	3.3%
Telecommunications	-3.5	0.5	2.6	0.1	4.6%

Categories & sub-categories	2016	2017	2018	2019	Weighted average
Post service	0.0	33.8	0.0	0.0	0.0%
Telecommunication devices	-7.5	3.1	5.6	0.8	0.5%
Telecommunication services	-3.0	0.0	2.3	0.0	4.1%
Culture & entertainment	2.4	0.4	7.0	6.2	2.1%
Audio, visual & media devices	-3.0	-4.4	8.6	7.4	1.0%
Other entertainment devices	6.1	3.5	11.4	6.5	0.0%
Cultural & entertainment activities	6.2	3.5	5.9	5.1	0.4%
Cultural & entertainment services	11.2	8.2	5.1	4.3	0.4%
Newspapers, magazines & books	5.0	-0.1	5.8	6.9	0.2%
Education	8.2	7.4	7.5	7.3	3.2%
Elementary & preparatory education	7.3	5.3	6.7	6.4	0.8%
High school education	8.9	9.6	8.5	9.9	0.7%
Stationary	2.9	14.4	12.7	9.1	0.6%
Textbooks	2.8	0.0	0.0	0.0	0.2%
Private tutoring	13.4	4.7	5.5	6.0	0.9%
Hotels & restaurants	7.3	4.4	8.1	8.6	4.6%
Restaurants & coffee houses	7.8	4.8	8.6	7.8	4.1%
Hotels	3.6	1.7	3.4	15.7	0.5%

Categories & sub-categories	2016	2017	2018	2019	**Weighted average**
Other items & services	6.6	4.5	8.0	10.9	5.6%
Personal care	4.7	5.3	8.2	13.1	4.2%
Personal items	9.5	6.9	8.5	11.3	0.4%
Insurance	15.6	0.0	9.1	0.0	0.8%
Financial services	6.7	2.3	0.0	7.5	0.2%
Total	3.4	4.7	6.6	7.1	100,0%

Household consumer price index according to the pricing system
Base year: 2015
January final results

Categories	%	Indicator	Indicator	Jan 2019	Jan. 2019	Jan 2019	1-month rate
		Dec 2018	Jan 2019	Dec 2018	Dec 2018	Jan 2018	2018/2019
Unpriced goods	73.5%	124.7	125.9	1.0	1.0	8.0	8.0
Priced goods	26.5%	110.6	111.0	0.4	0.4	4.4	4.4
Total	100.0%	121.0	122.0	0.8	0.8	7.1	7.1
Food products	26.2%	119.7	122.3	2.2	2.2	7.1	7.1

Categories	%	Indicator Dec 2018	Indicator Jan 2019	Jan 2019 Dec 2018	Jan. 2019 Dec 2018	Jan 2019 Jan 2018	1-month rate 2018/2019
Unpriced	21.0%	123.7	126.6	2.3	2.3	8.2	8.2
Priced	5.2%	103.4	105.0	1.5	1.5	2.3	2.3
Non-food product	73.8%	121.5	121.9	0.4	0.4	7.1	7.1
Unpriced	52.5%	125.1	125.7	0.5	0.5	7.9	7.9
Priced	21.2%	112.4	112.5	0.1	0.1	4.9	4.9

Official poverty indicators in Morocco: How are they calculated?

Arbi Hafidi

Introduction:

According to the 2018 edition of the World Bank's series Poverty and Shared Prosperity entitled "Piecing Together the Poverty Puzzle"[54], 763 million people are living in extreme poverty with less that USD 1.9 a day. According to Oxfam, one eighth of the world's population lives under poverty line [55] and food produced is not enough for the population of the entire planet and while the number of the poor is huge, more than 500 million people are categorized as obese [56]. Meanwhile, one in every four children suffer from stunted growth according to the World Food Program. As it becomes obvious from those examples and from all information on poverty and nutrition, lack of food is not related to scarcity, but rather to production and consumption modes. Food poverty is one of the worst forms of poverty. That is why access to food, measured through the Food Security Index, was considered the main tool through which it is possible to know the numbers of poor and hungry people. However, the UN developed new criteria to measure poverty and introduced in 2008 the Multidimensional Poverty Index that takes into consideration a number of factors

54- World Bank report: https://goo.gl/3fZyw3
55- "La situation alimentaire dans le monde." Oxfam: https://goo.gl/obQvY5
56- "L'obésité dans le monde": https://goo.gl/Bn9TVY

to determine poverty. It is important to measure poverty through all forms of deprivations through which an individual's living standard can be determined, yet this makes calculating the number of the poor and the hungry more complicated and in most cases their numbers come out less than they are in reality.

In Morocco, measurement of poverty used to be income-based, but the Haut Commissariat au Plan (Higher Planning Commission) started in 2008 to formulate a multidimensional approach to analyze poverty, fragility, and social inequality and which relies on the Poverty and Human Development initiative developed by Oxford University. This approach measures multidimensional poverty based on a number of needs that include education, healthcare, access to water, electricity, sewage, and telecommunications, and housing conditions. The table below lists the most important factors against which multidimensional poverty can be measured:

Dimension	Factors	Deprivation indicators
Education	Schooling for children	If in a family one child of school age (6-14) does not attend school
	Schooling for adults	If none of the family members who are 15 years old or more attended school for five years
Health	Disability	If one family member is unable to perform one of the following functions: seeing, hearing, walking, memory, self-care, and communication
	Child mortality	If one child of less than 12 months in a family died
Living conditions	Potable water	If the family has no access to potable water
	Electricity	If the family has no access to electricity
	Sanitation	If the family does not have a private bathroom or sanitary means of sewage
	Flooring	If the floor of the house is made up of sand or dust
	Cooking	If the family uses wood, coal, or fertilizers for cooking
	Asset possession	If the family does not own a car, a tractor, or truck and is at least two of the following items are lacking: TV, telephone, radio, motorcycle, bike, fridge

This paper will examine poverty in Morocco based on official statistics that will be analyzed, critiqued, and used for final conclusions.

First: Official poverty statistics in Morocco:

Poverty happens when the minority owns and controls resources and production tools while millions are deprived and exploited. This applies to all countries across the world with the continuation and prevalence of the private ownership system. The success of this system, coupled with a weak popular response, led to the commodification of all aspects of life including food. This is the case in Morocco in which land and natural resources are controlled by the few [57]. That is why poverty in Morocco follows the same pattern as other countries suffering from the same problem,

According to the Higher Planning Commission, the official entity in charge of population statistics, the number of the poor in Morocco in 2014 was estimated at 11.7% of the population, that is around 4,212,000 people. Statistics issued by the commission showed that the percentage of financial poverty dropped in 2014 to 4.8%, compared to 15.3% in 2001 while the percentage of multidimensional poverty dropped from 24.5% to 6%. However, general conditions

57- Arbi Hafidi. "Dam policy in Morocco: Supporting land grabbing and serving industrial capital [Arabic]." *Attac Maroc*.

in Morocco do not demonstrate this progress especially that the government continues to abide by the policies of international financial and trade organizations and to commit to the repayment of illegitimate debts [58] that exceeded 80% of the Gross Domestic Product (GDP). This led to a decline in job opportunities, the expansion of the informal sector, and wage freezes in addition to the suspension of negotiations between the state and syndicates since April 2011. All these factors have a negative impact on workers and their working conditions. The minimum wage is estimated at 2,369 dirhams in the industry sector and 1,812 in the agriculture sector, that is USD 248 and USD 190, respectively. Those numbers put into question the accuracy of official statistics or at least the accuracy of the calculations that produced them.

The commission also uses general indicators to determine the number of the poor, which leads to reducing their actual numbers in statistics. For example, to calculate food inflation, all types of food are part of the formula including ones that are not consumed by the poor. Also, the criteria used to measure access to education, healthcare, utilities, and housing are too broad to give accurate results. For example, if a village has one water faucet, all residents are considered

58- National secretariat of *Attac Maroc*: https://goo.gl/o1waiV

to have access to water regardless of how potable it is and how many villagers can use it. The results, therefore, are misleading and the numbers inaccurate. This is demonstrated in the following table that traces inflation rates between 2007 and 2011:

Years	2007	2008	2009	2010	2011
Inflation rate	2.5	3.7	1	0.9	0.9

Source: The Higher Planning Commission

The commission defines inflation as an increase in the general price level of different products. According to the numbers above, inflation rates kept dropping starting 2009 till 2011, yet reality demonstrates that the price of consumer products, especially food, kept increasing nonstop, which casts doubt on official numbers that state otherwise.

In the same context, the below table traces the development of prices based on production in 2007-2011:

Type of product	2011	2010	2009	2008	2007
Food products	115.9	114.4	113.0	111.9	104.5
1-Food products and non-alcoholic beverages 2-Alcoholic beverages, tobacco… etc.	116.3	114.7	113.3	112.3	104.6

Non-food products	108.3	108.3	108.2	104.6	102.1
3-Clothes and footwear	104.8	104.2	103.4	102.4	101.1
4-Housing, water, gas, electricity, and other combustibles	106.0	104.3	103.8	102.8	101.0
5-Furniture, household management	104.8	104.3	103.8	103.0	102.1
6-Health	107.1	106.2	105.4	103.4	101.9
7-Transportation	103.1	102.8	101.9	101.0	100.7
8-Communication	103.1	103.2	103.2	103.0	101.2
9-Culture and entertainment	85.5	90.4	91.4	95.7	97.2
10-Education	96.4	97.1	97.8	98.4	99.0
11-Resturants and hotels	119.7	115.0	110.5	104.8	101.5
12-Various products and services	111.1	109.2	106.6	104.7	101.8
General	109.2	107.0	105.2	103.1	100.9

Source: The Higher Planning Commission, annual report on prices upon consumption for 2011.

The Higher Planning Commission does not issue detailed numbers of inflation rates in different types of food and only provides general rates on food inflation, which does not yield accurate data about the development in the number of the poor. The food products slot includes all types of food and this is not accurate since consumption in not

the same across different classes. It would have been more logical to determine the percentage of each food group depending on the class that consumes it. This way, it would be possible to get a general inflation rate as well as detailed indicators for each social class based on the food it consumes.

Ahmed Lahlimi Alami, director of the Higher planning Commission, said on the occasion of releasing the results of National Research on Consumption for 2014 that the share of food consumption expenses in a family budget between 2001 and 2014 changed from 41% to 37% on the national level. This percentage remains at 47.3% in rural areas and 33.3% in urban areas ranging between 50% and 10% in lower income families and 26%-10% in more well-to-do families. This statement gives the impression that the poor spend more on food and less on other needs while the more well-to-do spend more on travel, entertainment… etc. This could be explained as a choice linked to lifestyle, but the director said nothing about the amounts of money spent by each social class on food and the type of food it consumes. He failed to mention that the poor spend money for survival without taking into consideration the type of food and its nutritional value. It is worth noting that the majority of the poor are not aware of the nutritional aspect to start with. As for the well-to-do, they do spend less money on food

in terms of percentage of their total spending, yet in terms of amounts they definitely spend much more than the poor. Add to this the fact that food consumed by the well-to-do is more expensive and most likely more nutritious.

The director's numbers are based on an average personal income of 19,000 dirhams per year. This means that a family of at least five people has to have an average monthly income of 7,917 dirhams while currently the minimum wage in the industry sector is 2,869 dirhams and in the agriculture sector 1,583 [59]. In addition, the informal sector has been expanding and unemployment rate is almost 10% of the active population. All this means that those numbers, if they are calculated correctly, are unrealistic and overlook several significant facts.

Second: Area- based poverty:

In addition to high poverty rates across the country, gaps are detected in a number of aspects as demonstrated by official entities.

59- The average number of children per family is 2.9. See the report by the Higher Planning Commission: "Pauvreté et prospérité partagée au Maroc du troisième millénaire 2001 – 2014"

The gap between urban and rural areas:

Years	Area	Percentage of relative poverty	Percentage of financial fragility	Percentage of multidimensional poverty
2001	Urban	7.6	16.6	8.9
	Rural	25.1	30.5	24.5
	National	15.3	22.8	24.5
2007	Urban	4.9	12.7	2.3
	Rural	14.4	23.6	9.8
	National	8.9	17.4	9.8
2014	Urban	1.6	7.9	1.3
	Rural	9.5	19.4	6
	National	4.8	12.5	6

Source: Ministry of Economy and Finance, a study on social disparities, October 2018

The gap between regions: **Fig (11) - Annexes**

Those gaps remained consistent from 2004 till 2014, which was demonstrated by the Gini Coefficient that remained stable for since 1998 till 2004 it was 0.395.

The gap in healthcare and education: **Fig (12) - Annexes**

Schooling rates are quite low and in 2004, they did not exceed 5.64, taking into consideration that elementary education is six years.

As for health care, the following graph underlines the gap between the rich and the poor.

The gap in employment (rates in %): **Fig (13) - Supplement**

Third: On Alternative indicators:

Official numbers are neither accurate nor objective across the globe. Despite claims of adopting scientific methodologies, calculations are dominated by the main political and economic players and this explains why a particular phenomenon can be underestimated or overestimated based on the criteria chosen by those only aim at protecting their interests. For example, if we say that an individual categorized as poor has a daily income of less than 1.9 USD, it is hard to accurately calculate the number of the poor in different countries. It could have been more practical to address a set of items that constitute minimum nutrition and categorize those who have no access to them as poor regardless of where across the world they live and regardless of the prices of those items. It is also possible to argue that those whose working hours exceed eight per day are categorized as poor and so on.

Statistical indicators that address poverty are subject to the global balance of power so that when the poor organize in

strong alliances that could threaten the interests of the rich, indicators come out in favor of the poor and vice versa. That is why indicators are not just numbers, but they are always attached to political considerations and it is difficult to think of alternative indicators that are separated from the unions of the poor and their struggle and level of awareness. However, we could start with exposing the inaccuracy of official numbers and underlining the contradictions they present while adding other indicators that can measure poverty away from the criteria of international financial and trade organizations.

Fourth: Conclusion:

Regardless of how poverty indicators are calculated, it is important to highlight the fact that food poverty is a social phenomenon that is basically linked to the unfair distribution of wealth. That is why in order to face the negative impacts of the capitalist system, on top of which are hunger and malnutrition, it is important to not only make sure calculations are accurate, but also to take positive steps towards reducing the numbers of the poor. This can be done through fair distribution of wealth and increasing public spending on social services such as education and healthcare. These demands are undoubtedly in conflict with the consumerist nature of modern societies which make profit their topmost priority even if at the expense of millions of people.

Structural studies as a research approach in the Arab region

Mohamed Sultan

Most studies and research papers in the field of economics examine some relation, a relation between two or more variables. Examples include the relation between austerity measures and growing inequality and between exchange rates and price hikes or poverty levels. This also applied to examining the development of inequality in a given country within a given time since this means looking at the relation between inequality and a particular time in the history of that country since time is in itself a variable that encompasses most other variables which impact the level of inequality. In general, it can be said that the common approach employed in social sciences is one that tries to link a change in something to a change in other things. This is referred to as relational research. Another approach is called structural research, which means examining the structures of information and methodologies that produce economic variables. The pattern if expenditure is an example of one of the central structures that inform many economic variables.

Within the network of complex economic variables, several terms include the word "real" such as real gross domestic product, real per capita gross domestic product, real interest rates, real wage growth rate, and others. The word "real" is used in economic terms when adjustments are introduced to the nominal value so that inflation rates are taken into

account. Inflation is a crucial factor in the analysis of different economic variables as well as in the calculation of poverty and hunger rates. Inflation rates are, therefore, considered a vital structure for many economic variables and inflation calculations themselves have an intricate structure on which they depend such as the expenditure patterns of families and individuals. This means that a change in an individual's daily spending pattern would impact all common aspects of economic knowledge. This is because general and abstract economic terms such as real interest rate, gross domestic product growth, or even the calculation of poverty rates depend for the most part on the accuracy of official calculations of daily activities such as the amounts citizens spend on food in relation to the utility bills they pay.

It is not possible to trust the results of examining relations between economic variables without verifying the accuracy of the intricate structure that informs those variables, an argument that is supported by quantitative evidence throughout this book. The following table highlights the challenges facing relational studies based on official data.

Year	2010-2011	2012-2013	2015
Official hunger rates	4.8% (3.820 million people)	4.4% (3.728 million people)	5.3% (4.770 million people)
Alternative hunger rates	9.6% (7.641 million people)	9.3% (8.133 million people)	7.2% (6.750 million people)

Source: Dina Abdallah's paper "On the accuracy of statistical samples," published in this book.

Hunger rates in official statistics are substantially different from those calculated through the alternative methodology and in many cases the latter can amount to the double. Official statistics about the development of hunger and poverty rates are also likely to be inaccurate. According to Egyptian official statistics, the percentage of hunger dropped from 6.2% of the population in 2009 to 4.8% in 2011 then kept dropping in 2013 and rose again in 2015. This development is entirely different from that identified through the alternative methodology used in this book. According to this methodology, the percentage of hunger rose from 2009 to 2011 and rose again in 2013. Even when official statistics

claimed hunger increased in 2015, it was actually the other way around according to the alternative methodology.

These substantial differences between official and alternative methodologies in the estimation of the percentages of hunger and their development pose several questions about the accuracy of analysis based on relational studies that link any variable or economic policy to the percentage of hunger and its development. These questions not only pertain to the accuracy of the studies, but also to the studies' ability to reach accurate conclusions upon which effective policies can be designed in the absence of alternative studies that examine the intricate structures and measurement methodologies that produce economic variables.

Despite the importance of structural studies in the Arab region, several research challenges stand in the way of implementing them on a large scale. One of the most significant challenges is that official calculations of economic variables in the Arab region are extremely centralized and central statistical entities do not provide the detailed data that would allow for implementing alternative methodologies or revising the accuracy of the statistical samples that informed this data. In many cases, available official data is enough to unravel the inaccuracy of statistics, yet the de-

tailed data required to review those statistics is not available. The most prominent example is the study by Piketty et al. (2015, 2018).[60] about the inaccuracy of official statistics about inequality in income distribution and top-income shares in the Middle East. The study revealed that inequality values identified in official statistics in the Arab region are suspiciously small.

For example, the inverted pareto coefficient value in Egypt was 1.5, which means that the level of inequality is extremely low that it corresponds to the extremely egalitarian Scandinavian countries and this did not mean currently, but at a time when the distribution system was even fairer than it is now. Therefore, according to official statistics, inequality level in Egypt in 2000 is equal to that in Finland, Norway, and Sweden in the 1980s and less that the inequality level in the same countries at the present time. The study attempted to bridge this obvious gap in official statistics through the afore-mentioned structural methodology and estimates informed by comparison with countries outside the region. It was revealed in the first study in 2015 that based on the

60- Facundo Alvaredo, Lydia Assouad, & Thomas Piketty. "Measuring top income and inequality in the Middle East: Data limitations and illustration with the case of Egypt." ERF, 2015

Facundo Alvaredo, Lydia Assouad, & Thomas Piketty. "Measuring inequality in the Middle East 1990-2016: The World's Most Unequal Region?" Review of Income and Wealth. 10.1111/roiw.12385. 2018

highest scenario, the top-income share could amount to 32% of the Egyptian national income instead of the 27% in official statistics. Following the release of more detailed data by the Lebanese Tax Association on the top-income share in Lebanon, the study revisited earlier estimates to evaluate top-income share in Egypt at 46% of Egyptian national income.

This study offers a clear example of the crisis through which structural studies is going in the Arab region owing to lack of detailed data. The difference between estimates provided in the two studies is basically due to the release of data that is not closely linked to the Egyptian case or most countries in the region except for Lebanon. This difference underlines two issues: first, the inaccuracy of official income and expenditure data used to determine top-income shares so that the release of new data can change the percentage from 27% to 46%; second, both studies rely on estimation statistics to the extent that one piece of information that is not closely linked to most countries subject of the research can increase the estimates in all those countries by more than 50% of the results reached in the first study.

Relying on estimation makes structural studies seem inaccurate as well and sometimes they actually stop at question-

ing official statistics without attempting to issue alternative ones. It is quite easy for state economists and policy makers to dismiss statistics based on estimation. That is why it is necessary to examine the crisis through which this type of studies go and to offer solutions through papers published in this book and written by the author in addition to Arbi Hafidi (Morocco), Jamal Ouididi (Tunisia), and Dina Abdallah (Egypt).

A wide gap exists between papers on the three countries regarding how far each of them achieves the final goal, which is arriving at hunger and poverty rates that are more accurate than official ones. The papers on the Egyptian case are the closest to that final goal than the ones on Tunisia and Morocco while the one on Tunisia was closer than the one in Morocco. This gap even appears within the same country. In the case of Egypt, the section on hunger was closer to the final goal than the one on poverty. The main factor that determined how close or far a paper was from the final goal is the availability of detailed data on expenditure patterns of the poor or the hungry and on the development of the prices of goods these segments of society spend their money on.

In the section on hunger in the Egyptian case, detailed data on the expenditure pattern of the hungry and the prices of

goods they pay for was more available, which led to reducing the role played by estimation. This data includes how the hungry distribute their income on food such as for example how much they spend on vegetables compared to legumes and so on. Spending on non-food products was, on the other hand, subject to arbitrary estimation as the study presumed that they do not spend money on that item at all, hence relying on official statistics in this regard. This estimation was far from realistic yet it was much safer in the light of the absence of any local or international data on the expenditure of the hungry on non-food commodities.

In the section on poverty, there was little information on some of the goods/services on which the poor spend such rents and utility bills and the same applied to changes in public transportation fares. That is why the study was unable to produce growth rates for the poor with the same accuracy as the hungry. Hence, the study stopped at questioning the accuracy of official growth rates for the poor and did not move to alternative estimates on the numbers and percentages of the poor.

The same problem is seen in the Tunisian case where the paper underlined several contradictions. According to official statistics, poverty line in Tunisia rose from 1,206 dinars

in 2010 to 1,706 in 2015, that is by 41.4%. In light of this increase in the poverty line value, in order for the percentage of the poor in 2015 to remain the same as 2010, that is 20.5% of the population, incomes close to poverty line have to increase by the same percentage of the poverty line itself, that is 41.4%. Yet according to official statistics, even as the poverty line rose by 41.4%, the percentage of the poor dropped from 20.5% to 15.2% of the population. This does not only mean that average incomes close to the poverty line increased by more than 41%, but also that 5.3% of the old poor from 2010 had their incomes increase by at least 60% in order to go above the poverty line even as the value of the poverty line increased. This 60% is based on the theoretical assumption that the average incomes of the 5.3% of the old poor who managed to rise above the poverty line in 2015 is distributed in the upper half of the distance between the national poverty line and the abject poverty line in 2010. This means that their incomes fall in the 942.5-1,206-dinar category. Due to lack of actual data on the income distribution of this echelon, it is presumed that distribution is equal within the above-mentioned economic distance. According to this assumption, rising above the poverty line is conditioned upon a minimum average increase in their income of 61.6% from 2010 to 2015.

The increase rate in the income of the segment that rose above the poverty line as assumed by official statistics is extremely high compared to the increase rate in the average general spending of families and which increased during the same interval by only 37.7%. This is also the case if the 60% is compared with the increase rate of the average incomes of families. This contradiction poses several questions on the accuracy of official statistics on income distribution in Tunisia and the methodology used in measuring the increase in the number of the hungry and the poor there. These questions are similar to the ones raised in the paper on Morocco.

In the case of Morocco, the paper reveals that according to the official methodology used by the Higher Planning Commission, the multidimensional poverty criterion depends on social indicators that are formed and altered in the long term. This means that the improvement or deterioration of these indicators takes a longer time than in measurement criteria of monetary poverty that is linked to income. Looking at multidimensional poverty indicators separately will underline this contradiction in official data. For example, the improvement of the educational state of families, measured by the enrolment of children and adults in schools, usually needs more time than the improvement of income. In oth-

er words, the improvement of the education and health of poor households is a long-term result of the improvement in their income, which means that monetary poverty indicators have to improve faster and larger than multidimensional poverty indicators. Official statistics in Morocco indicate otherwise. The same applies to housing conditions, whose improvement is linked to two major factors: the improvement of the household income and the improvement of state spending on infrastructure and public services. Since official statistics state that the improvement rate of household incomes is less than that of multidimensional poverty and since state spending on infrastructure and public services did not increase remarkably, those statistics on multidimensional poverty in Morocco remain questionable.

Regarding questions on the methodology of measuring monetary poverty in Morocco, official statistics reveal that the inflation rate of goods consumed by the poor such as food and non-alcoholic beverages is in many cases higher than general information rates. For example, in 2008 the general inflation rate reached 3.7% although inflation in food and non-alcoholic beverages was 7.8%, almost the double. Similarly, in 2011 the general inflation rate was estimated at 0.9% while the inflation rate in food was 1.39% and this is likely to be same until 2014. If the value of the

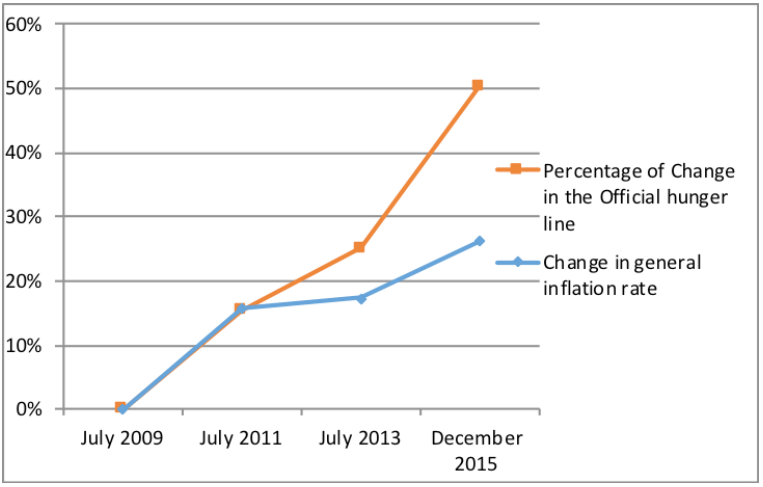
monetary poverty line is upgraded based on general inflation rates, changes in this value are not likely to reflect the inflation both the poor and the hungry face.

If the papers on Egypt, Tunisia, and Morocco are evaluated based on the alternative statistics they provided on poverty and hunger, it will be obvious that those papers raise questions more than find answers, with the exception of the section on hunger in the Egyptian case. However, the questions raised in those papers determine future research fields as each question left unanswered by any of the papers constitutes an identification on an area that needs more extensive research. This is one of the ways through which structural studies can manage to produce alternative economic variables and indicators. If the questions in those papers are translated into recommendations for future studies in the three countries, it becomes obvious that expenditure patterns of different segments of society including the poor and the hungry constitute the field that needs a great deal of development owing to lack of detailed and accurate data. This shortcoming can be overcome through medium-range field surveys that can be carried out by independent research centers and civil society organizations. This should also apply to tracing the development of the prices of goods and services across a given interval. Expenditure patterns

and price development are among the most significant research fields in terms of producing accurate measurements of several economic variables. In fact, this should be the focus of structural studies in the Arab region at the moment. Only then would it be possible to produce more answers than questions.

Annexes

Figure (1) What moves the poverty line in Egypt?*



Source: The Central Authority for Public Mobilization and Statistics

* All data included in this paper about inflation rates and expenditure percentages are from the Egyptian Central Authority for Public Mobilization and Statistics (CAMPAS) unless otherwise is stated.

Figure (2)

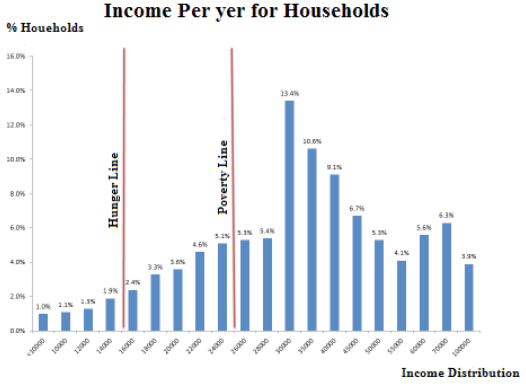
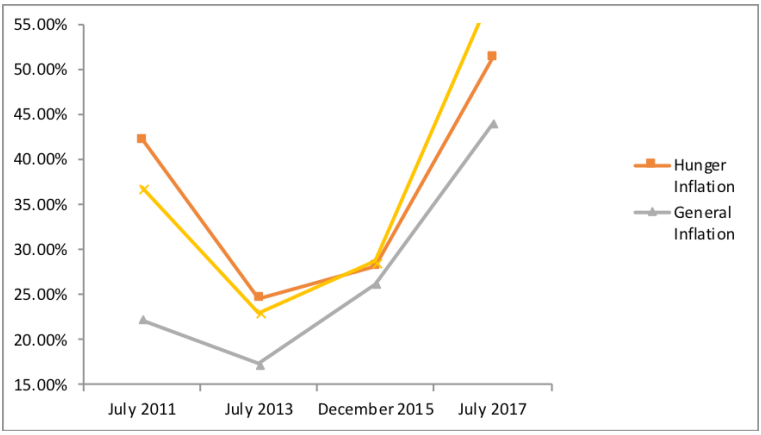


Figure (3)



Source: Central Authority for Public Mobilization and Statistics

Figure (4)
The monetary values of the official and alternative hunger line
(In Egyptian pounds)

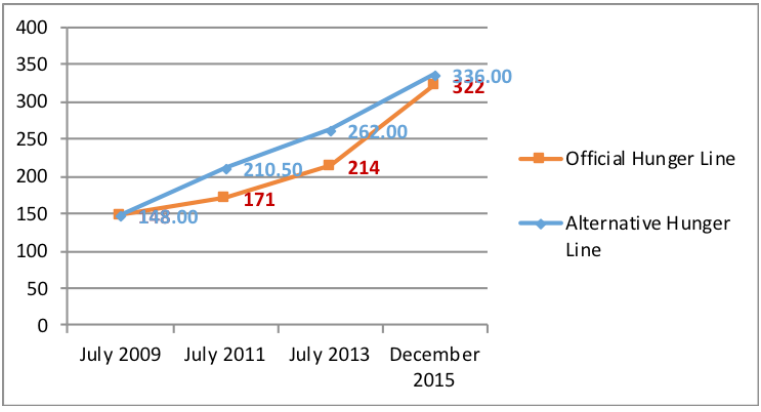
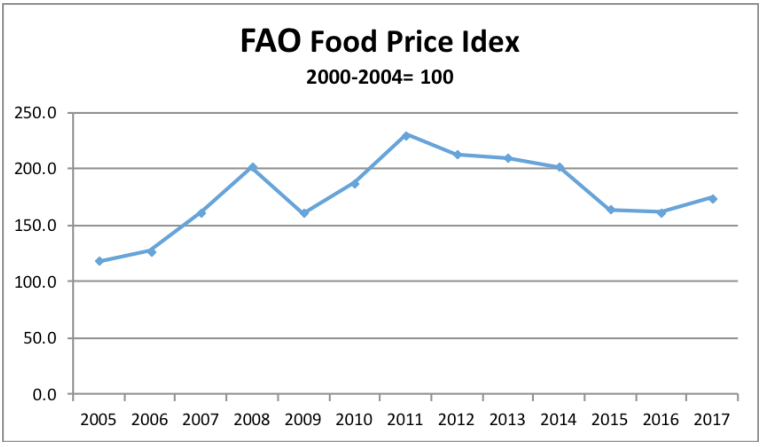


Figure (5)
Global food prices according to the Food and Agriculture Organization (FAO)



Source: http://www.fao.org/worldfoodsituation/foodpricesindex/en/

Figure (6)
The monetary value of the official and alternative hunger lines (in Egyptian pounds)

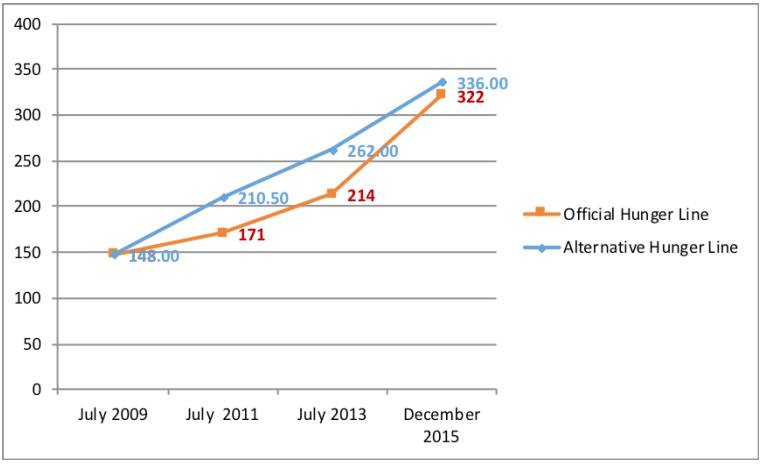


Figure (7)
Change in the official poverty line against general inflation rate

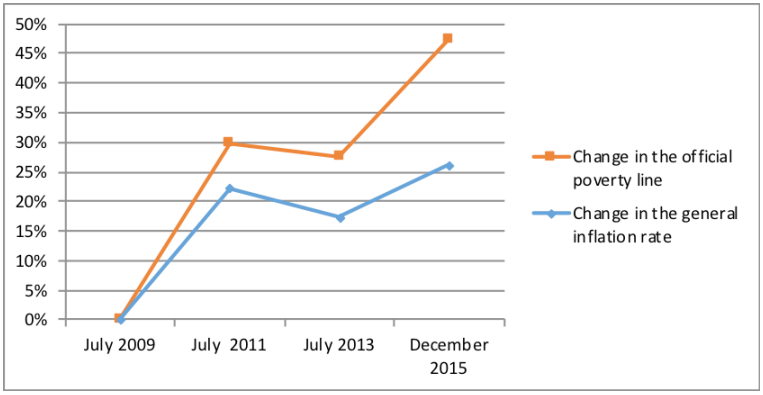


Figure (8)
Official and alternative inflation rates for the poor

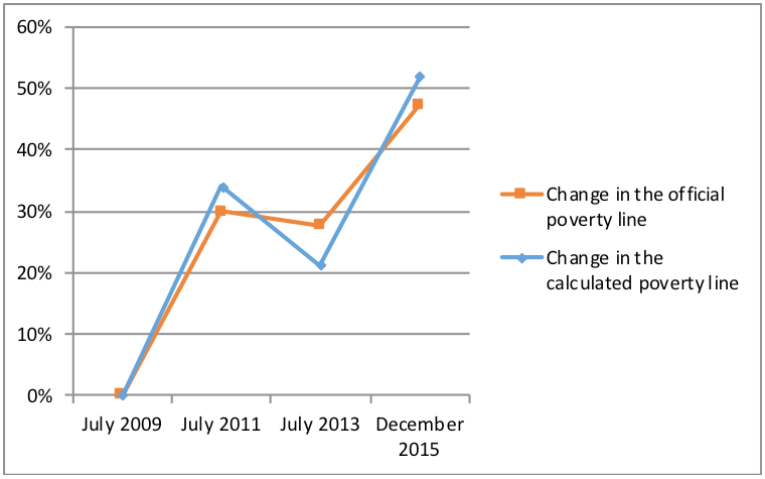


Figure (9)- Supplement
General inflation rates and inflation for the poor and the hungry

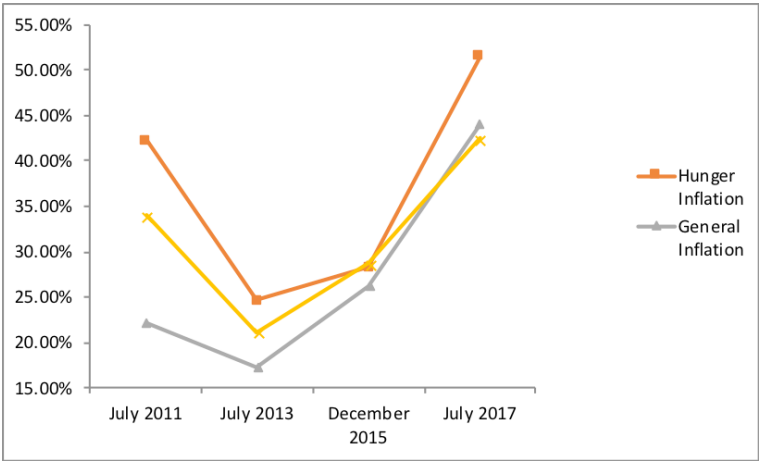


Figure (10)

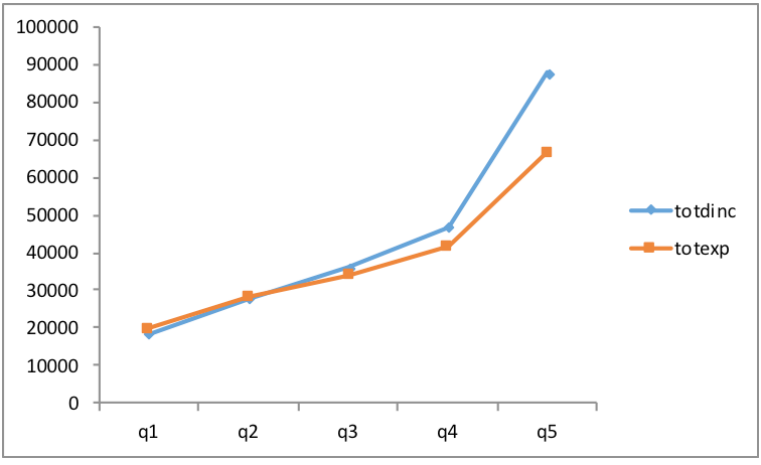
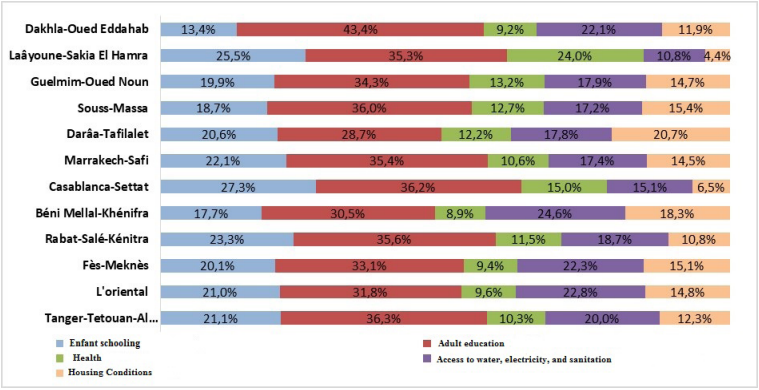


Figure (11)



Source: Higher Planning Commission, population statistics in 2004 and 2014

Figure (12)

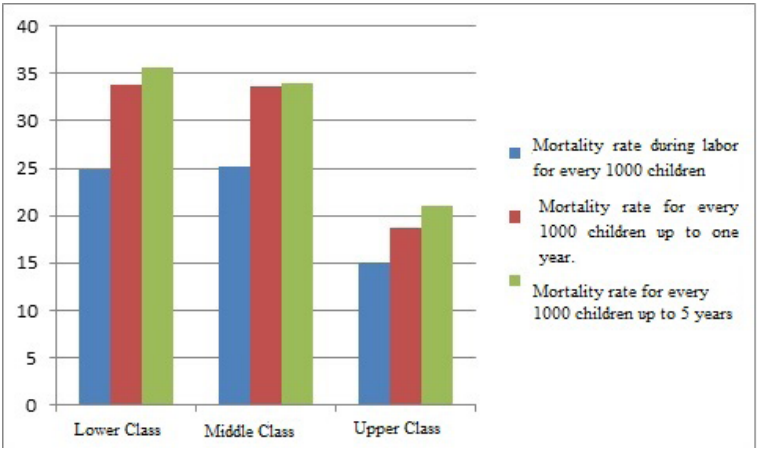
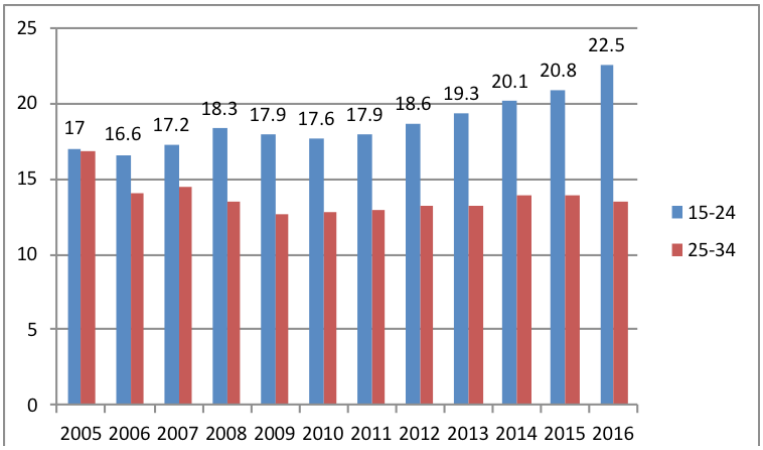


Figure (13)


25
20
15
10
5
0
17
16.6
17.2
18.3
17.9
17.6
17.9
18.6
19.3
20.1
20.8
22.5
2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016
15-24
25-34