



Research Paper
**Egyptian Revolution:
A Demographic Structural Analysis**

Andrey V. Korotayev,^{*} Julia V. Zinkina^{**}

Abstract: *It is not surprising that Mubarak's administration "overlooked" the social explosion. Indeed, statistical data righteously claimed that the country was developing very successfully. Economic growth rates were high (even in the crisis years). Poverty and inequality levels were among the lowest in the Third World. Global food prices were rising, but the government was taking serious measures to mitigate their effect on the poorest layers of the population. Unemployment level (in per cent) was less than in many developed countries of the world and, moreover, was declining, and so were population growth rates. What would be the grounds to expect a full-scale social explosion? Of course, the administration had a sort of reliable information on the presence of certain groups of dissident "bloggers", but how could one expect that they would be able to inspire to go to the Tahrir any great masses of people? It was even more difficult to figure out that Mubarak's regime would be painfully struck by its own modernization successes of the 1980s, which led to the sharp decline of crude death rate and especially of infant and child mortality in 1975–1990. Without these successes many young Egyptians vehemently demanding Mubarak's resignation (or even death) would have been destined to die in early childhood and simply would not have survived to come out to the Tahrir Square.*

Key-words: Egypt, Arab world, Arab uprisings, revolutions, social change, regime change...

^{*} Russian State University for the Humanities.

^{**} Russian Academy of Sciences.

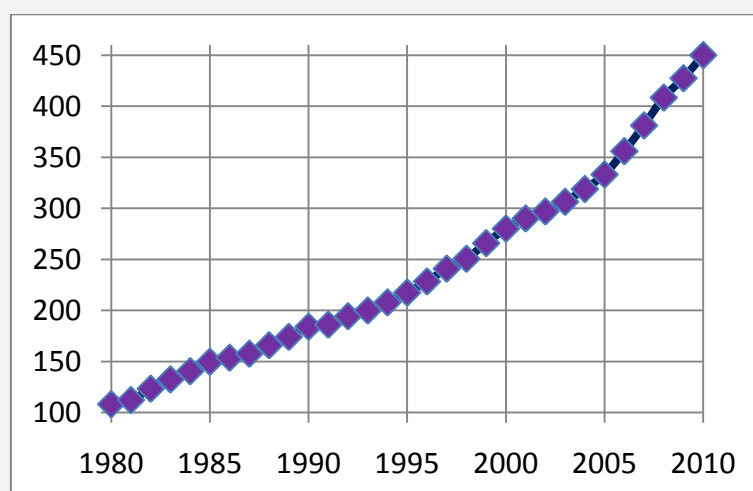
0 Introduction

Highlighting the events of Egyptian Revolution 2011, various mass-media tried to explain what had caused the riots. Most explanations followed the same pattern, blaming economic stagnation, poverty, inequality, corruption and unemployment. A typical explanation is that “Egyptians have the same complaints that drove Tunisians onto the streets: surging food prices, poverty, unemployment and authoritarian rule that smothers public protests quickly and often brutally” (see Al-Arabiya 25.01.2011, al-Lawati 14.02.2011, Stangler, Litan 12.02.2011, AFP 25.01.2011, *etc.*).

Such unanimity incited us to investigate to what extent those accusations reflected the Egyptian reality. So we decided to take each of the abovementioned “revolution causes” and to look into the actual dynamics of the relevant socioeconomic indicators in the years preceding the Egyptian revolution.

1. Economic stagnation?

Let us first consider the dynamics of the most general economic performance indicator, namely GDP, in Mubarak’s epoch (Fig. 1):



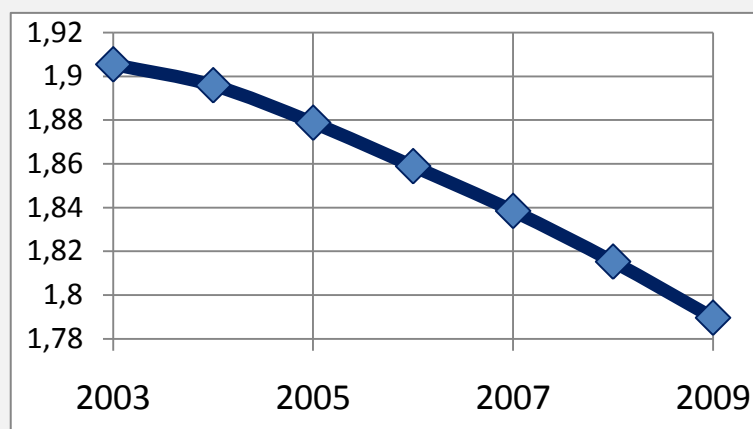
**Fig. 1. GDP production dynamics in Egypt
(blns of 2005 dollars, PPP), 1980–2010**

Source: World Bank 2011 for 1980–2009. Value for 2010 calculated on the basis of data from Boubacar *et al.* 2010.

Evidently, during Mubarak's reign (1981–2011) the Egyptian economy was developing rather dynamically. The growth by 4.5 times during 30 years was one of the best results among the Third World countries at the time (see, *e.g.*, Korotayev 2009). Economic growth rates accelerated particularly visibly after July 2004 when the new government managed to attract a group of talented economists who worked out an effective program of economic reforms. These reforms provided for a substantial acceleration of the Egyptian economic growth (Boubacar *et al.* 2010).

Regarding Fig. 1, a particular attention should be given to the fact that during the world financial-economic crisis the Egyptian GDP did not fall, but continued growing at a rather high rate. Annual economic growth rates slowed down somewhat, from 7.2% to 4.6% (though many countries would dream of achieving 4.5% rate of economic growth even in crisisless years!). Nevertheless, Egyptian government did succeed in preventing any economic collapse. In 2010 Egyptian economic growth rates increased again.

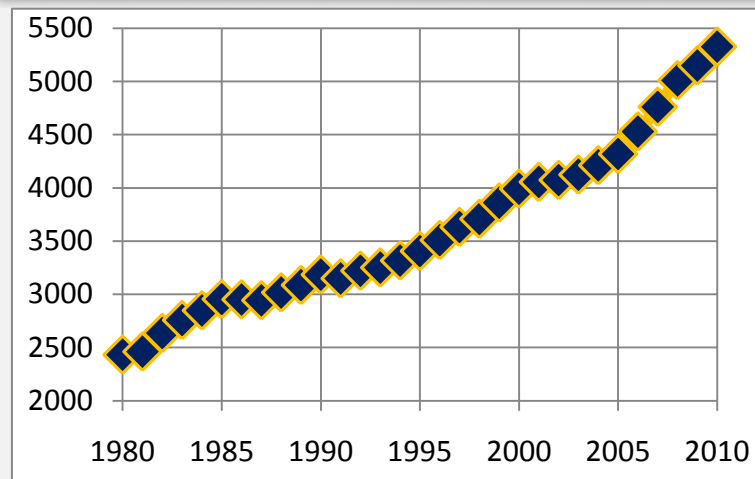
It should be noted here that population growth rates were decreasing quite stably in Egypt during the past few years (Fig. 2):



**Fig. 2. Relative population growth rates in Egypt,
% per year, 2003-2009**

Source: World Bank 2011.

It is easy to deduce that the slowdown in demographic growth further contributed to the acceleration in GDP per capita growth, and this is supported by the empirical evidence (Fig. 3):



**Fig. 3. GDP per capita production dynamics
(constant 2005 dollars, PPP), Egypt, 1980–2010.**

Source: World Bank 2011 for 1980–2009.

The value for 2010 has been calculated on the basis of data from Boubacar *et al.* 2010.

Thus, accusations of Mubarak with “thirty years in power ... during which the ruling party failed to achieve any substantial development, on the contrary, led the country to a period of uncertainty and economic stagnation ... and diminishing income” (al-Lawati 14.02.2011; see also Stangler, Litan 12.02.2011, *etc.*) do not appear to be just. The contrary will be much closer to reality, *i.e.* before Mubarak’s regime collapse Egypt was one of the most dynamically developing countries of the Third World.

Notably, new Egyptian government that came to power as a result of the revolution promised that it “would not retreat from economic reform or change the basic economic philosophy it has followed since it adopted a liberal reform programme in 2004” (Pitchford 22.02.2011), thus admitting that the economic policy of Mubarak’s administration was essentially correct.

2. Corruption?

As regards the corruption level, in the respective map by Transparency International (2010) Egypt looks as follows (Fig. 4):

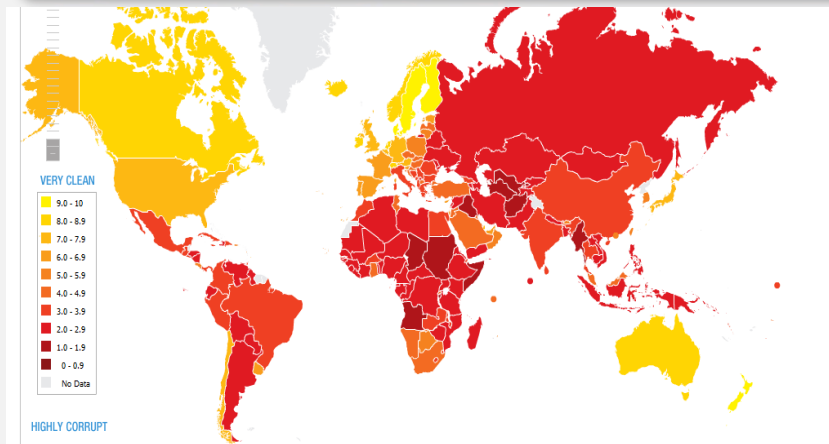


Fig. 4. Corruption Perceptions Index in the world, 2010

Source: Transparency International 2010: 2–3.

In this map the lighter the color, the lower its perceived corruption level (accordingly, the darker the higher). Clearly, the situation with Egyptian corruption is not brilliant. In comparison with most OECD countries corruption level in Egypt seems to be very high. However, the same can be attributed to almost all the Third (as well as Second) World countries, against the background of which corruption level in Egypt does not seem so high. On the whole, Egypt rates 80th in the world according to corruption level (Transparency International 2010: 8–14). In other words, there are dozens of much more corrupted countries (see Fig. 5):

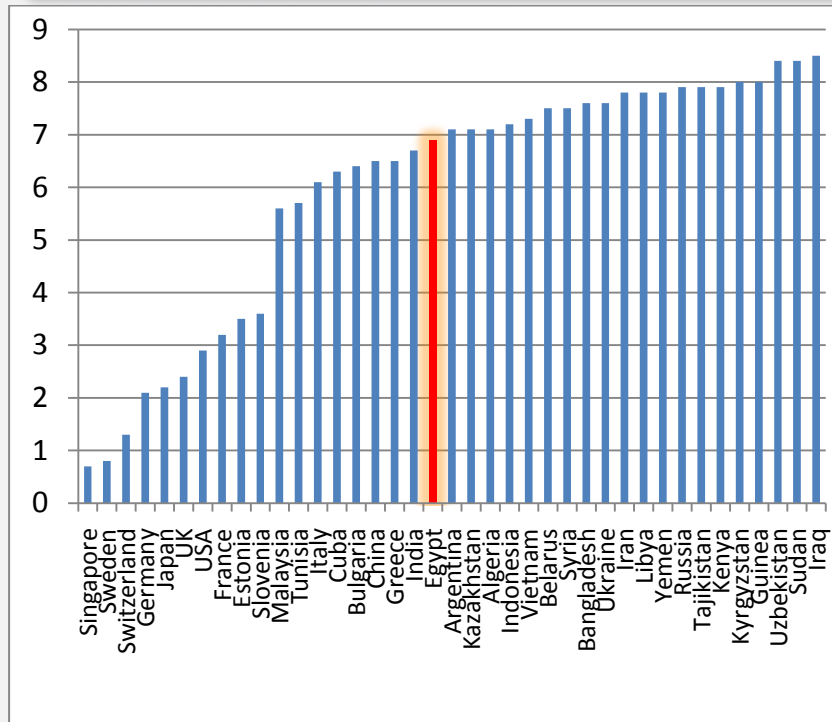


Fig. 5. Corruption Index in 2010 in some countries of the world¹

So, according to Transparency International, the level of corruption in Egypt in 2010 was quite comparable with that in Italy, Greece, China, and India; meanwhile, it was lower than in Argentina, Indonesia, Viet Nam and most post-Soviet countries (including Russia).

On the whole, it is obvious that if the Egyptian level of corruption was a sufficient cause for sociopolitical uprisings, revolutions should be currently blazing in most countries of Asia, Africa, Latin America, and Eastern Europe.

3. Unemployment?

The dynamics of unemployment in Egypt in the past 20 years looked as follows (Fig. 6):

¹ The index is based on Corruption Perceptions Index (Transparency International 2010: 8–14.) and is obtained by extracting the basic index out of 10.

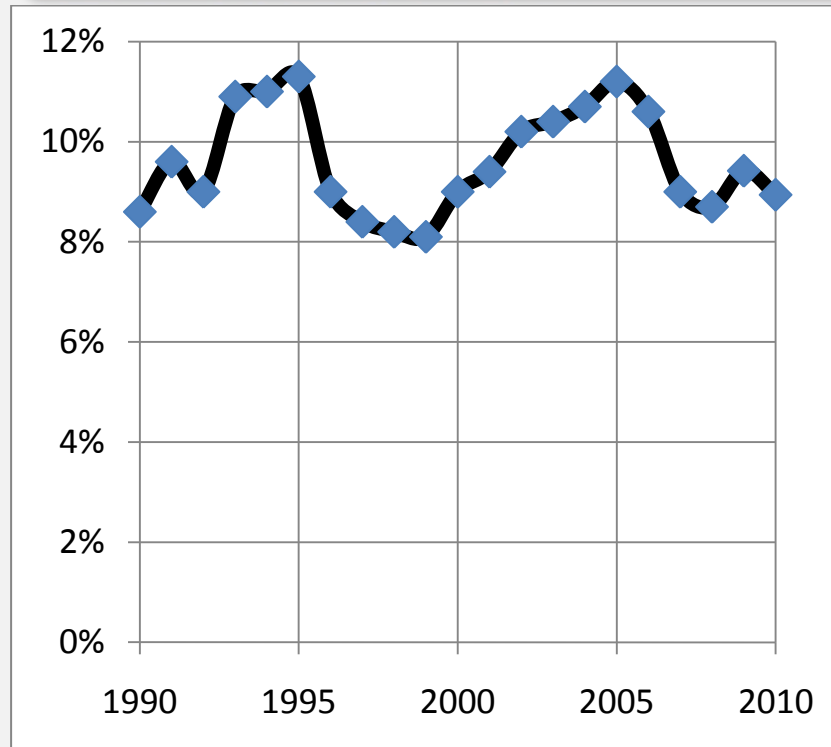


Fig. 6. Unemployment level in Egypt, %, 1990–2010

Sources: World Bank 2011. CAPMAS 2010: 31 (data for the second quarter of 2009); Abd al-Rahman 2010: 4 (data for the third quarter of 2010).

Thus, in the past 20 years Egyptian unemployment was fluctuating at a rather high level (8–12%). However, after the launch of economic reforms in the mid-2000s it started to decrease in a rather stable manner. Predictably, there was some increase (though not so pronounced as in most other countries) in unemployment level as a result of the global financial-economic crisis, but in 2010 unemployment went down again.

Just before the revolution the unemployment level in Egypt in comparison with other countries of the world looked as follows (see Fig. 7):

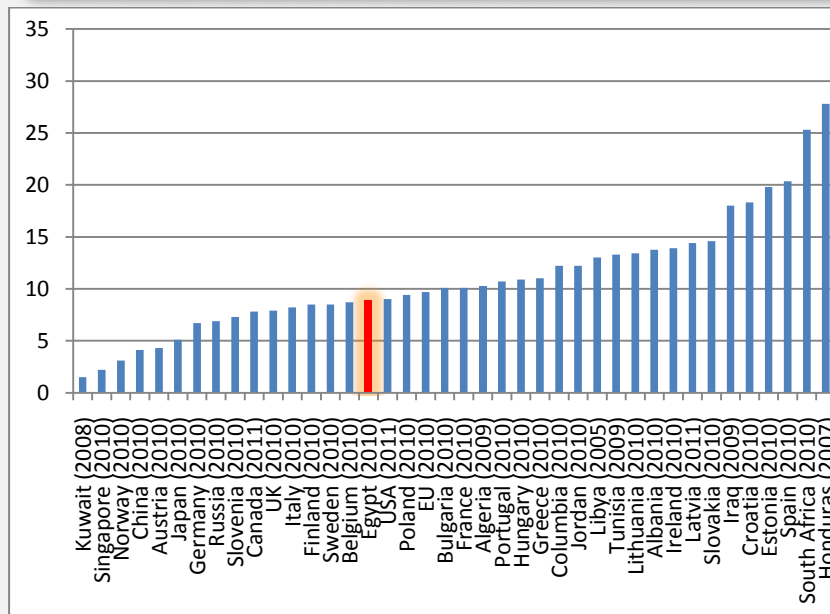


Fig. 7. Unemployment level in some countries, %, 2010²

As we see, unemployment level in pre-revolutionary Egypt could not be called “extremely low”, but against the global background Egypt compared rather well. Its unemployment level was less than in the USA, the EU, France, Poland, Turkey, Ireland, almost twice lower than in Latvia and Spain, *etc.*

² Data on Iraq are given for 2009, data on Mauritania and Afghanistan are given for 2008. Sources: Egypt: Abd al-Rahman 2010: 4 (data for 3rd quarter of 2010). Russia: Federal State Statistics Agency. Employment and Unemployment. (data for December 2010). URL: http://www.gks.ru/bgd/regl/b10_01/IssWWW.exe/Stg/d12/3-2.htm. Switzerland: State Secretariat for Economic Affairs. *Gradual Economic Recovery – Increased Risks for 2011*. Bern, 08.06.2010. URL: <http://www.seco.admin.ch/aktuell/00277/01164/01980/index.html?lang=en&msg-id=33511>. China: Xinhua News Agency. China's unemployment down to 4.1% at end of Q3. *English.xinhuanet.com* 2010-10-22. URL: http://news.xinhuanet.com/english2010/china/2010-10/22/c_13570193.htm. Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, EU, Finland, Greece, Hungary, Ireland, Italy, Japan, Lithuania, Norway, Poland, Portugal, Slovenia, Sweden, Turkey, UK, USA: European Commission. *Eurostat. Your key to European statistics*. Brussels: European Commission, 2011. URL: <http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&language=en&pcode=teilm020&tableSelection=1&plugin=1> (data for September–December 2010). Afghanistan, Albania, Bosnia, Columbia, Croatia, Iraq, Jordan, Mauritania, Singapore, South Africa, Tunisia: Central Intelligence Agency. *The World Factbook. Country Comparison: unemployment rate*. Washington, DC: CIA, 2011. URL: <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2129rank.html>.

4. Inequality?

Gini index is most frequently used for measuring the level of economic inequality. After 1991 Egypt had the following dynamics of this index (Fig. 8):

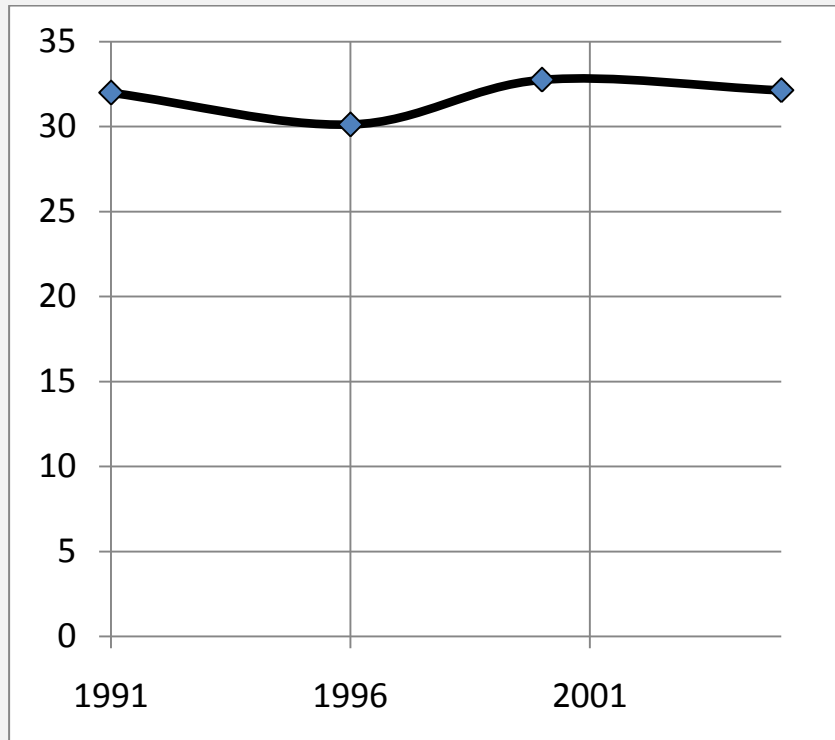
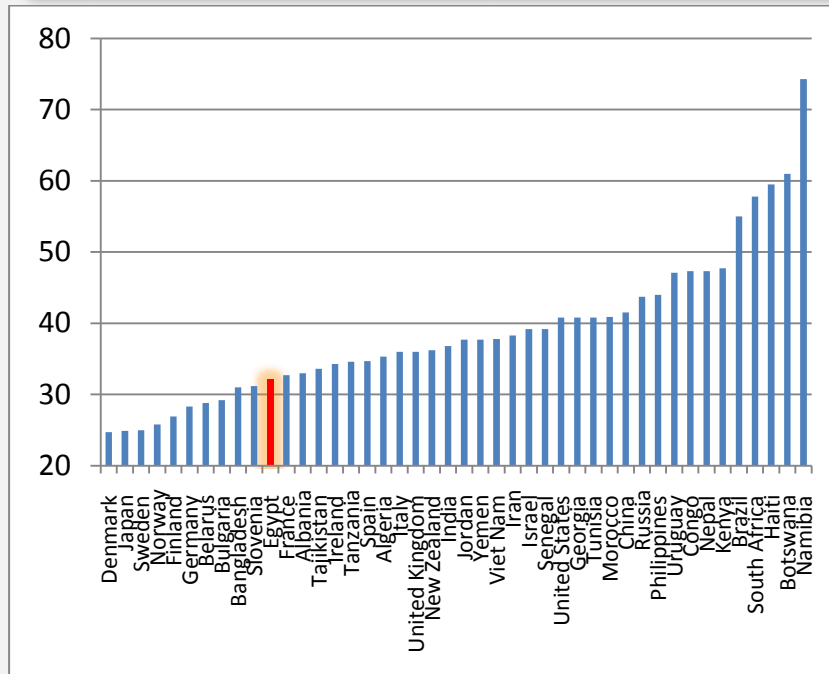


Fig. 8. Economic inequality (Gini index) in Egypt, 1990–2005

Source: World Bank 2011.

Thus, inequality index in Egypt was fluctuating around 30–33 points. Let us view how this compared against the global background (Fig. 9).

Obviously, economic inequality in Egypt can be regarded high only by Scandinavian standards. Compared with the rest of the world, Egyptian economic inequality was very moderate. Out of 145 countries represented in the last Human Development Report Egypt rated 120th. (Klugman 2010: 152 – 155). Thus, UNDP observed a lower rate of inequality only in 23 countries, while 119 countries had higher inequality than Egypt, including France, Ireland, Spain, and India, to say nothing of Georgia, USA, China, Russia, and Mexico.



**Fig. 9. Gini index (economic inequality level)
in the world, 2000–2010**

Source: Klugman 2010: 152–155.³

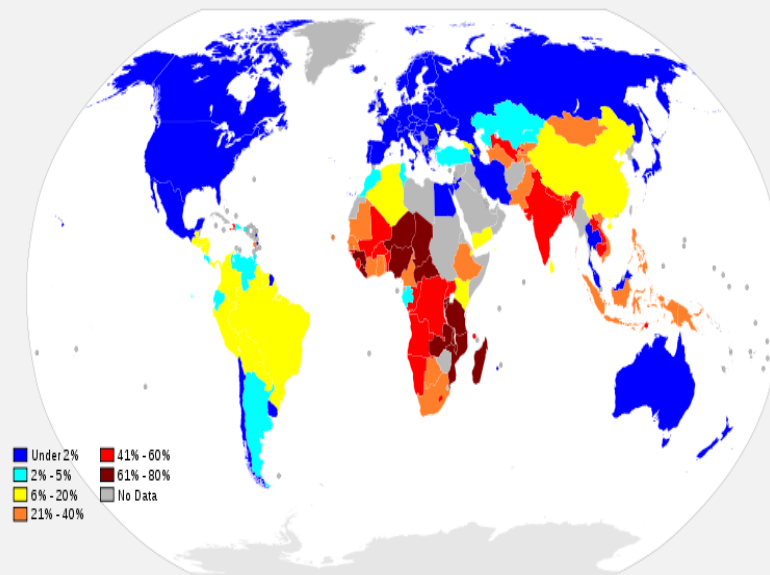
Low level of economic inequality inherent to Egypt is connected with a very specific character of Egyptian poverty which, by the way, is most frequently called among the causes of Egyptian revolution.

5. Poverty?

Some acrimonious Egyptian poverty is most frequently mentioned among the causes of the Egyptian revolution. The common notion is that 40% of Egyptians live below \$2 a day income poverty line. Remarkably, nobody mentions the Egyptian level of extreme poverty, *i.e.* proportion of people living below \$1 a day income poverty line⁴. This omission is not surprising at all, as Egypt is among the best performing countries in the world according to this indicator (see Figs 10 and 11):

³ This UNDP issue presents the values of Gini index for the latest year available in the interval 2000–2010.

⁴ More exactly, on \$1.25 a day (in purchasing power parity), which is the currently adopted level of extreme poverty (see, *e.g.*, Klugman 2010: 161–163).



**Fig. 10. Percent of people living below
\$1.25 a day income poverty line, 2000–2008⁵**

In this map Egypt is marked with the same color as, say, Sweden, France, the USA, or Australia, which indicates an almost full eradication of extreme poverty in Egypt. Meanwhile, for dozens of countries the extreme poverty still remains an acute problem (see Fig. 11).

Thus, according to 2005–2008 data there were 13.4% living below the extreme poverty line in Georgia, 15.9% in China, 21.5% in Tajikistan and Viet Nam, 22.6% in the Philippines, 26.2% in South Africa, 29.4% in Indonesia, 41.6% in India, 49.6% in Bangladesh, 54.9% in Haiti, 70.1% in Guinea, 83.7% in Liberia (Klugman 2010: 161–163).

⁵Source:

http://en.wikipedia.org/wiki/File:Percentage_population_living_on_less_than_1_dollar_day_2007-2008.png. The map data have been checked for reliability on the basis of (Klugman 2010: 161–163) and found full confirmation.

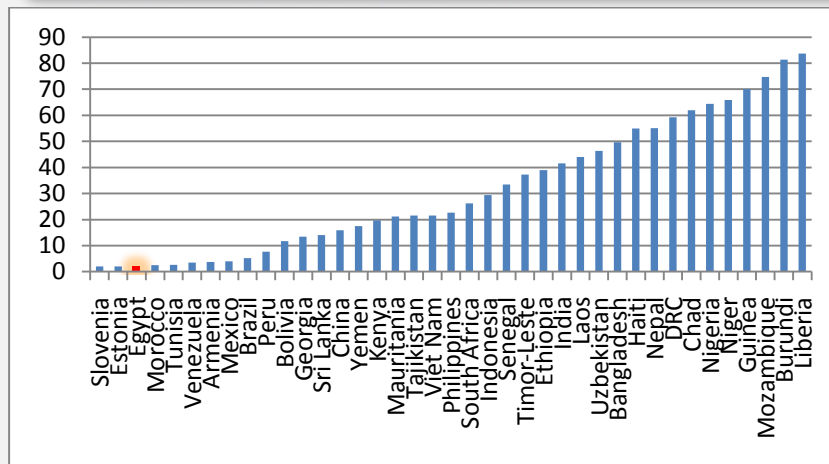


Fig. 11. Proportion of population living below \$1.25 a day income poverty line in some countries, %, data for 2000–2008

Source: Klugman 2010: 161 – 163.

The dynamics of the extreme poverty level in Egypt after 1991 had the following shape (see Fig. 12):

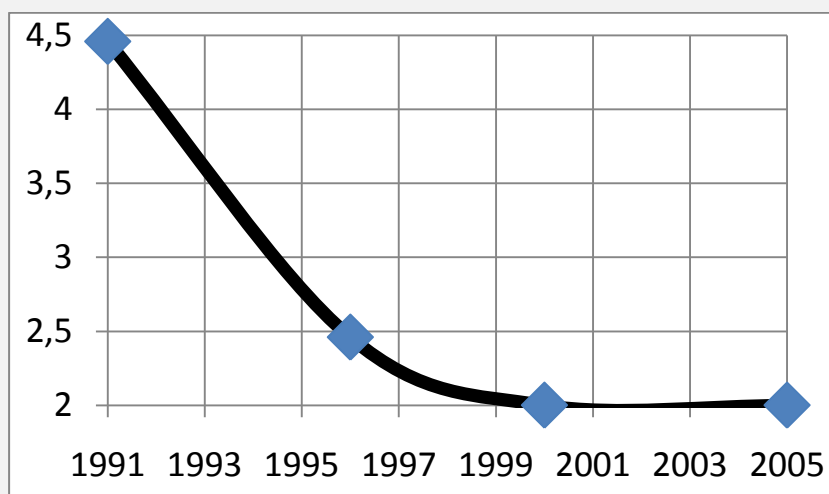


Fig. 12. Share of population living below \$1.25 a day income poverty line in Egypt, %, 1991-2005

Source: World Bank 2011.

Let us note that 2% (more exactly, less than 2%) is the minimum level of the extreme poverty recorded by UNDP. Thus, during his stay in power Mubarak managed to eradicate almost completely the extreme poverty in Egypt. Indeed, as we have already mentioned, on the eve of the

Revolution as regards this indicator Egypt belonged to the group of the best performing countries of the world.

The situation with more moderate poverty (the share of population living below \$2 a day⁶ income poverty line) in Egypt is not so brilliant (see Fig. 13):

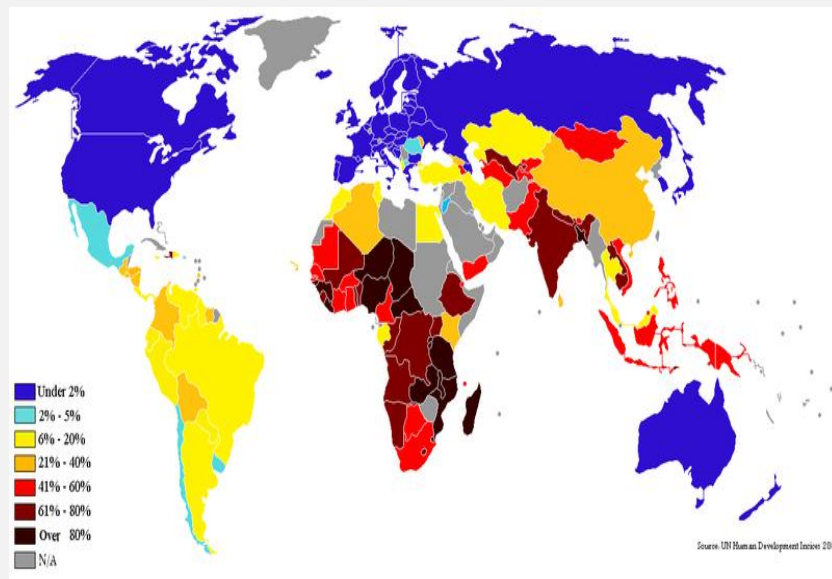


Fig. 13. Share of population living below \$2 a day income poverty line, 2000–2007 data⁷

As we see, Egypt is not among the most well-to-do countries in this respect, as about 20%⁸ of Egyptians live on less than \$2 (but on more than \$1.25) a day. Meanwhile, against the background of other Third World countries the situation with poverty in Egypt is not at all desperate. According to this indicator, Egypt rather belongs to the most successful Third World countries (see Fig. 14):

⁶ In purchasing power parity.

⁷ Source:

[http://en.wikipedia.org/wiki/File:Percentage_population_living_on_less_than_\\$2_per_day_2009.png](http://en.wikipedia.org/wiki/File:Percentage_population_living_on_less_than_$2_per_day_2009.png). The data presented in this map have been checked for reliability on the basis of Klugman (2009: 176–178) and found full confirmation.

⁸ But nothing close to 40% of the population that many media sources claimed.

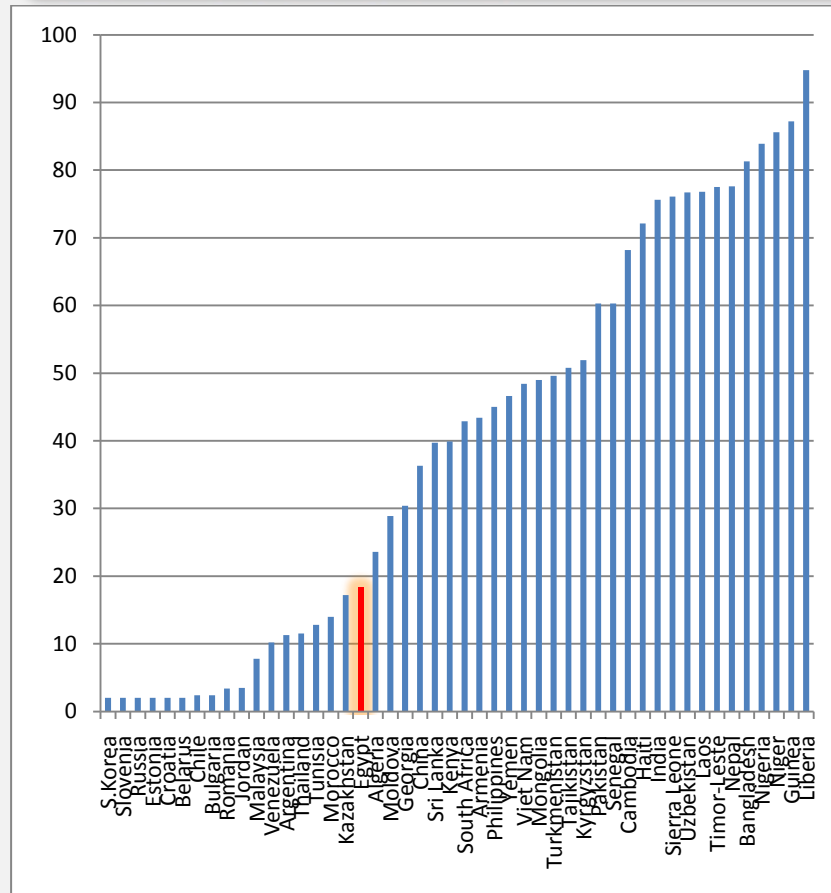


Fig. 14. Proportion of population living below \$2 a day income poverty line, %, 2000–2007

Source: Klugman 2009: 176–178.

Indeed, on the eve of the Revolution about 20% of the Egyptian population lived on less than \$2 a day compared with 36.3% in China, 42.9% in South Africa, 43.4% in Armenia, 45% in the Philippines, 48.4% in Viet Nam. In a considerable number of countries more than a half of the population live under \$2 poverty line: 50.8% in Tajikistan, 60.3% in Pakistan, 72.1% in Haiti, 75.6% in India, 81.3% in Bangladesh, 87.2% in Guinea, and 94.8% in Liberia.

When talking about the poverty level in Egypt it appears reasonable to scrutinize one more image (Fig. 15):



**Fig. 15. Wikipedia illustration to poverty
as a major cause of the 2011 Egyptian Revolution⁹**

This photo is called *A poor Cairo neighborhood*. However, in Wikipedia this photo is very small, but if you take a closer look at it in a larger scale, “Egyptian poverty” appears to be a very specific thing. “Poor neighborhood” abounds in satellite dishes, while the Arabic signboard at the left bottom corner shows the direction to the nearest computer and software center.

This is very far from what the real abject poverty looks like. Let us review photos which we took in the slums of Nairobi, Kenya. It is far not the worst Sub-Saharan country in terms of poverty, as not a half, but “only” one-fifth of Kenyans live on \$1.25 a day (Klugman 2010: 161–163). Still, these photos (see Fig. 16) (taken in 2008 and 2009 together with Darya Khaltourina) vividly illustrate the difference between the extreme poverty of the Third World (living on less than \$1.25 a day) and moderate (not desperate!) Egyptian poverty.

⁹ Source:

http://en.wikipedia.org/wiki/Egypt_Revolution_of_2011#Economic_challenges.



Fig. 16. What real Third World poverty looks like: slums of Nairobi, Kenya (2008-09)

BBC and CNN news reports covering the events of the 2011 Egyptian Revolution frequently featured some Egyptians complaining that after buying all the necessary food for their families they had no money left to pay the electricity bills. News reporters felt natural sympathy for those Egyptians, and so do we. Still, it is necessary to account for the fact that the truly poor Third World people would never make such complaints as they simply do not have electricity installed in their places of living to pay for.

Still, poverty problems were not irrelevant to triggering the 2011 Egyptian Revolution. Why?

A brilliant paper by Egyptian economists Gamal Siam and Hanady Mostafa Abdel Radi showed that the recent dynamics of Egyptian poverty bore a seemingly paradoxical character. At the peak of the world economic boom in 2007 and early 2008 when Egypt reached 25-year-record annual economic growth rates of 7.2%, the proportion of Egyptians living below \$2 a day poverty line increased significantly from 17.8% to 23%. On the contrary, global financial-economic crisis of 2008–2009 was accompanied not only by economic growth rates slowdown, but also by a visible decrease in the proportion of Egyptians living on less than \$2 a day – from 23% to 19.5% (Siam , Abdel Rady 2010).

Paradoxical as it may seem, the answer appears to be most logical and obvious as soon as you know it (though not a single economist whom we asked managed to deduce it). Indeed, a characteristic feature (and product) of economic booms (especially the latest one) is the blowing of price bubbles. On the verge of global financial-economic crisis start there were a lot of such bubbles; Russians best remember the oil price bubble (especially its burst). However, along with the oil price bubble there were lots of others, including copper bubble, nickel bubble, phosphate bubble, *etc.* Basic food commodities were not an exception, as wheat, rice, maize and other food price bubbles started growing. This was a painful strike to all the poor in the world who spend a major part of their household income on buying food. Egypt strongly depends on food imports¹⁰, so poor Egyptians felt the price growth very perceptibly. The \$2 a day income poverty line is calculated by the UN accounting for purchasing power parity (PPP); as a result, several millions of Egyptians found themselves below this poverty line.

Global financial-economic crisis was accompanied by bubble bursts (the only major “survivor” was the gold price bubble [Akayev *et al.* 2010]). Food price bubbles were not an exception; prices for many food commodities fell significantly during the crisis. As a result, despite some slowdown in economic growth rates the poor people of Egypt rather benefited from the crisis, and about three millions of poor Egyptian managed to come above the poverty line¹¹.

¹⁰ Thus, Egypt imports about 60% of its consumed wheat, being one of the leading global importers of this crop (see, *e.g.*, Abdel Aziz, el-Talawi 30.06.2010).

¹¹ However, it should be noted that though the food prices fell considerably during the crisis, still they did not reach their pre-bubble level, remaining significantly higher. As a result, the proportion of Egyptians living on less than \$2 a day decreased in the second half of 2008 – first half of 2009, but did not return to the level of 2007 (Siam, Abdel Rady 2010).

However, global economic post-crisis recovery led to the blowing of new price bubbles in the world food market almost reaching or even exceeding the peak levels of 2008. Basing on the model by Gamal Siam and Hanady Mostafa Abdel Radi, we have to expect that the proportion of Egyptians living below the \$2 a day income poverty line should have reached the 2008 level by the start of the Egyptian Revolution (see Figs 17–20):

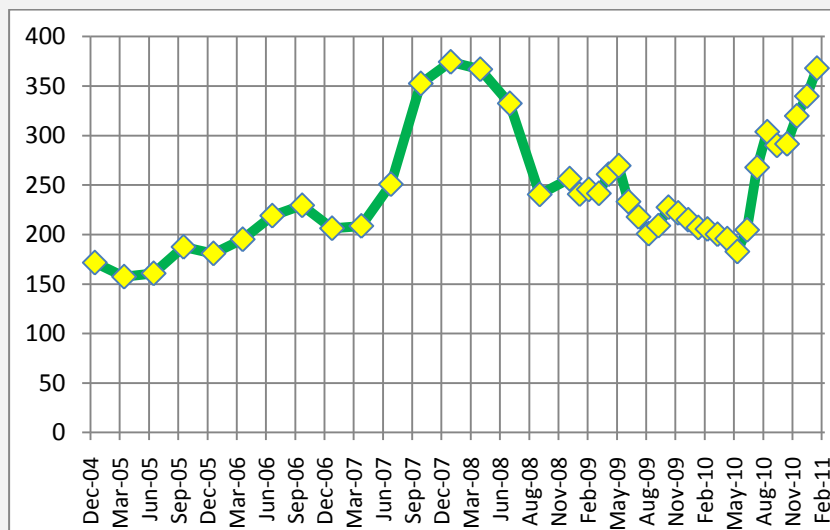


Fig. 17. World wheat prices, \$/ton, 2005-2011

Source: IMF 2011.

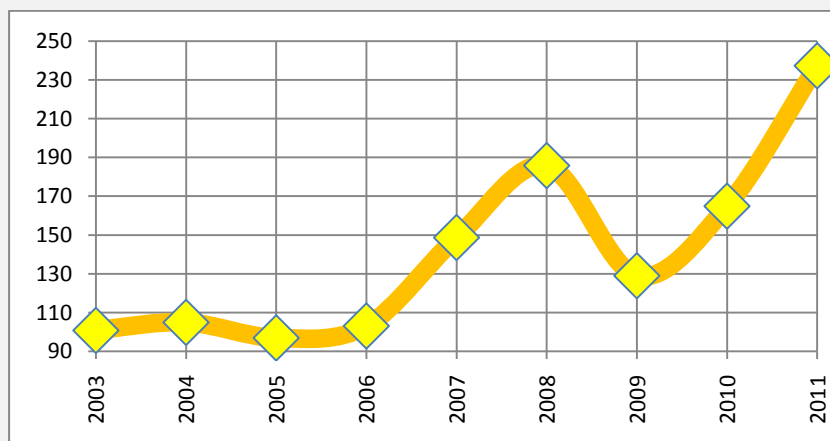


Fig. 18. World cooking oil prices (FAO price index, 2002–2004 = 100, deflated), 2003–2011

Source: FAO 2011a.

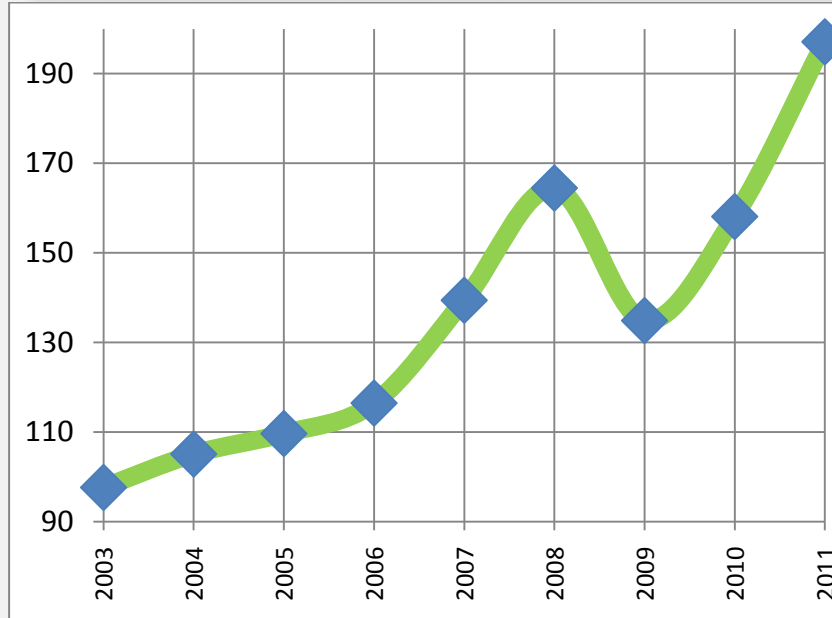


Fig. 19. FAO food price index (2002–2004 = 100, deflated), 2003–2011
Source: FAO 2011a.

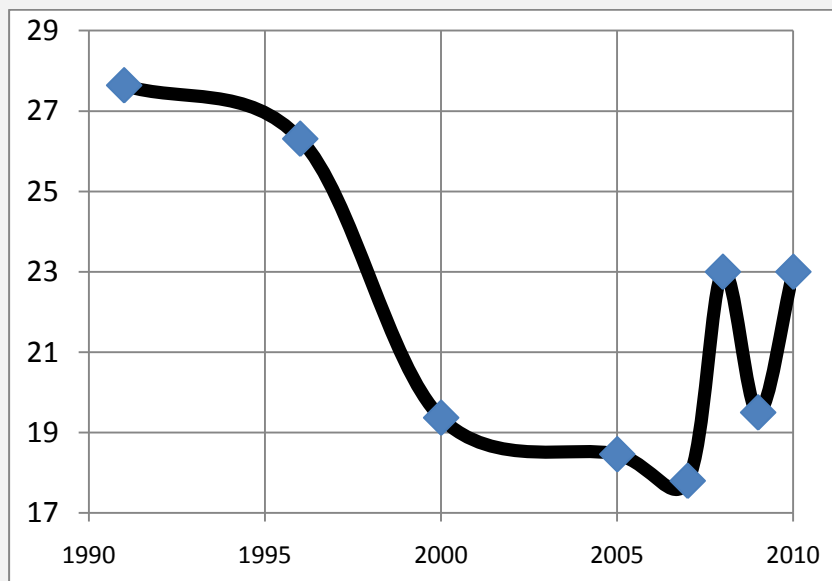


Fig. 20. Proportion of population living below \$2 a day income poverty line, Egypt, %, 1991-2010¹²

¹² Sources: World Bank 2011 (1991–2005); Siam, Abdel Rady 2010 (2007–2009); for 2010 we use our own estimates based on the model developed by Siam and Abdel Radi.

Did this food price dynamics and the respective dynamics of Egyptian poverty headcount have some influence on destabilization of Egyptian sociopolitical system? Definitely, it did. Indeed, though both in spring 2008 and in January 2011 Egypt remained one of the most well-to-do Third World countries in terms of poverty, the fast growth of the world food prices (taken that Egypt highly depends on food imports) led to a fast growth in the number of Egyptians living below the internationally recognized poverty line. In both cases more than three millions of Egyptians fell below the poverty line during a short period (several months).

In spring 2008 the protests against food price growth surged in Egypt. The central event was the strike of spinning and weaving factory workers in the industrial city of al-Mahalla al-Kubra which started on the 6th of April, 2008. The worker's dissent was aimed first and foremost at the decrease of living standards caused by food price growth. Egyptian bloggers supporting the strikers launched a Facebook group called «April 6 Youth Movement». It is known that this movement played a crucial role in the Egyptian Revolution 2011. Still more important was social self-organization through Facebook which was first successfully tried in spring 2008 by this youth movement and proved its efficiency in 2011 events.

Incidentally, Fig. 21 indicates that some external influence seems to have also taken place.

We can see that the emblem of the Egyptian "April 6" youth movement is astonishingly similar with the ones of some other youth movements which played an exceptionally important role in organizing the "color revolutions", such as Serbian "Otpor!" and Georgian "Kmara!", which led Mikheil Saakashvili to power. Interestingly, "Kmara" is translated from Georgian as "Enough", the same as Egyptian "Kifaya!" (predecessor of "April 6" movement) is translated from Arabic.



Fig. 21. Emblems of some youth movements:
top left – Egyptian youth movement «April 6»¹³;
top right – Serbian youth movement «Otpor!»¹⁴;
bottom left – Georgian youth movement «Kmara!»¹⁵;
bottom right – Russian youth movement «Oborona»¹⁶.

In late 2010 – early 2011 food prices again reached the same critical level which was observed in spring 2008, and, in our view, this certainly made a contribution to political destabilization in Egypt in January 2011.

Still it is fairly obvious that food price increase is hardly to be recognized as the main cause for the Egyptian events. Indeed, it was a global rather than local phenomenon, and it struck painfully all the poor throughout the Third World, including, say, Latin America, where no wave of revolutions was triggered.

¹³ Source: http://en.wikipedia.org/wiki/File:April_6_Youth_Movement.jpg.

¹⁴ Source: <http://en.wikipedia.org/wiki/File:Otpor.png>.

¹⁵ Source: http://en.wikipedia.org/wiki/File:Flag_of_Kmara.png.

¹⁶ Source: http://ru.wikipedia.org/wiki/Файл:Логотип_Обороны.jpg.

We should also keep in mind that the poor in Egypt were hit by the world food prices rather weaker than in most other Third World countries, since Mubarak's administration took very serious measures to protect them through the system of subsidies.

Currently, the system of food subsidies in Egypt is divided into two types. The first type is subsidizing the *baladi* bread. Since 1989 the government has kept the price for this type of bread at 5 piastres (1 cent!) per loaf (weighing 130 gram). This type of subsidy is universal, *i.e.* any inhabitant of Egypt has the right to buy 20 loaves of *baladi* bread every day at a low (subsidized) price in the state cooperative stores (El-Fiqi 2008). The second type of subsidies is ration cards. They allow families to purchase every month a certain amount of some basic food commodities (such as sugar, cooking oil, *etc.*) at a subsidized price.

In the period of rapid growth in world food prices, including wheat prices, Mubarak's regime made heroic (and successful!) efforts to preserve the price of *baladi* bread at the same level. Accordingly, even in the midst of crisis, any Egyptian could still buy 20 loaves (130 grams each) of subsidized bread a day for 1 pound (about 20 cents) – more than 2 kg of bread! So, even for those who live on less than \$2 per day starvation was out of question in such a situation. But what then caused the massive protests in the spring of 2008?

Actually, at that time *baladi* bread subsidy system in Egypt began to work with more and more fails as the bakeries did not use much of the state-subsidized flour for making bread, but re-sold it in the black market, where a sack of flour costs 100 times more than the state price. Accordingly, the bakeries produced significantly less *baladi* bread, which led to huge queues and strong discontent of the poor.

To soothe the strikers the Egyptian administration took several measures, in particular, public sector workers were promised wage increase by 30%. Also several important changes were made to the subsidy system. So, it was decided that the *baladi* bread should not be sold in bakeries, but in special shops (separation of production and retail sales in order to reduce queues). The list of products subsidized through ration cards was amended (unpopular products were removed) (AARDO 2010: 159). However, the most important change was that the government significantly increased the number of beneficiaries of subsidies (from 39.5 million to 63 million people), as the system has been expanded also to the Egyptians who were born in 1989–2005 (AARDO 2010: 159).

Enhanced number of ration card beneficiaries led to a substantial increase in government spending on subsidies. Thus, in 2008/09 fiscal year food subsidizing cost the government a total of LE 21.5 billion¹⁷ (of which 16 billion for *baladi* bread), compared with 10 billion in 2007/08 (AARDO 2010: 159). Expenditures on food subsidies accounted for 1.4% GDP in 2005 and for 1.8% in 2008 (Adams, Valstar, Wiles 2010: 1).

Thus, at the beginning of a new round of world food price increase 100% of the Egyptian people were provided with cheap subsidized bread and nearly 80% had ration cards and bought sugar, butter, and rice at subsidized prices. Interestingly, at the same time, according to Egyptian Demographic and Health Survey (conducted in 2008) 40% of Egyptian women and 18% of men were overweight because of overeating (Egypt Ministry of Health 2009). Accordingly, it is hardly reasonable to state that insufficient subsidies put a significant portion of the population on the brink of starvation (for the dynamics of per capita food consumption in Egypt see Fig. 22 below).

Nevertheless, though the Egyptian system of subsidies mitigated the strike blown by global food price rises to the poor (Adams, Valstar, Wiles 2010: 33), it could not outdo its effect completely. Indeed, the system does not cover all necessary food commodities. Besides, the average Egyptian family having a ration card bought at a subsidized price about 60% of its consumed sugar, 73% of oil and 40% of rice (El Nakeeb 2009). The rest of these goods the family had to buy at market prices (that are, of course, much higher than the subsidized ones).

6. Structural-demographic factors of the 2011 Egyptian Revolution

Let us first regard the long-term dynamics of per capita calorie intake in Egypt (Fig. 22):

¹⁷ About \$4 billion.

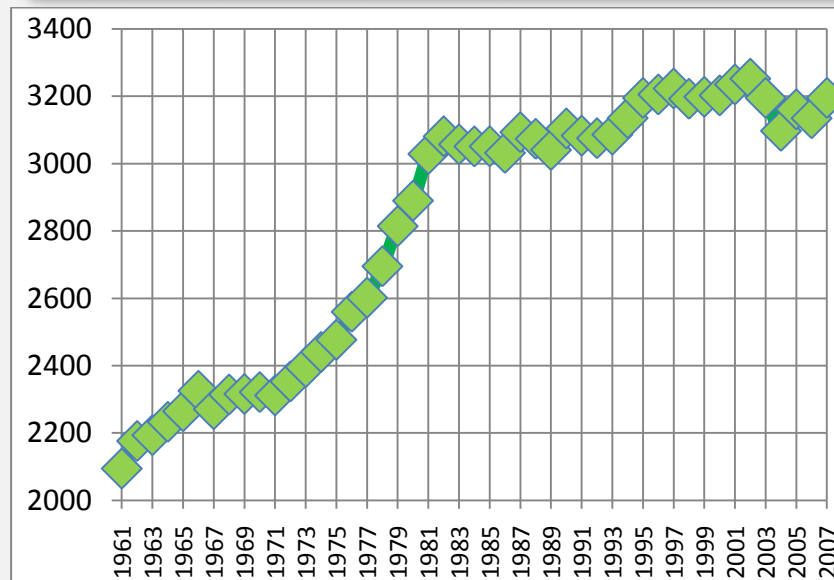


Fig. 22. Dynamics of per capita calorie intake in Egypt, 1961–2007, kcal/capita/day

Source: FAO 2011b.

It should be noted that the WHO¹⁸-recommended rate of per capita food consumption is 2300–2400 kcal per capita per day (see, *e.g.*, Naiken 2002). Thus, in Egypt in the early 1960s malnutrition was quite real, and per capita food consumption was lower than the WHO recommended standards. By the mid-1960s Egypt came to this level but until 1974 could not exceed it. After 1973 per capita food consumption rocketed up sharply, surpassing the threshold of 3000 kcal in 1982 (one year after the death of Sadat) and never falling below this level. After that, the majority of Egyptians encountered the problem of overeating rather than malnutrition. All this should be associated with Sadat's administration launching rather successful economic reforms in 1974 (the so-called *Infitah*).

Thus, we can say that in the 1970s – 1980s Egypt managed to escape the so-called Malthusian trap. Recall that the Malthusian trap¹⁹ is a rather typical for pre-industrial societies situation when the growth of output (as it is accompanied by a faster demographic growth) does not lead in the long-range perspective to the increase in per capita output and the improvement of living conditions of the majority of population that

¹⁸ The World Health Organization of the United Nations.

¹⁹ In terms of non-linear dynamics it can also be called a *low-level equilibrium attractor* (see Nelson 1956).

remains close to the bare survival level. In complex pre-industrial societies the Malthusian trap was one of the main generators of severe political upheavals (up to the state breakdowns) (see, *e.g.*, Korotayev, Malkov, Khaltourina 2006; Korotayev, Khaltourina 2006; Turchin, Korotayev 2006; Turchin, Nefedov 2009; Turchin 2003; Turchin 2005; Artzrouni, Komlos 1985; Kögel, Prskawetz 2001; Komlos, Artzrouni 1990; Steinmann, Prskawetz, Feichtinger 1998; Wood 1998).

However, we have shown that the escape from the Malthusian trap somewhat paradoxically (a social explosion comes amid long-term trends of improving material conditions of life for most people) can also be systematically (and quite naturally) accompanied by serious social and political upheavals (of which many modern revolutions serve as examples). We have called this phenomenon “a trap at the escape from the trap” (Korotayev *et al.* 2010, 2011). The 2011 Egyptian Revolution can well be considered as an example of this phenomenon (with some rather specific features).

Let us first answer a really simple question: What impact could the escape from the Malthusian trap have on life expectancy and mortality? Naturally, when undernourished people solve the problem of starvation and start eating enough, their life expectancy increases and the death rate of the population decreases. This was observed in all the known cases of the escape from the Malthusian trap, and Egypt was no exception (see Figs 23 and 24):

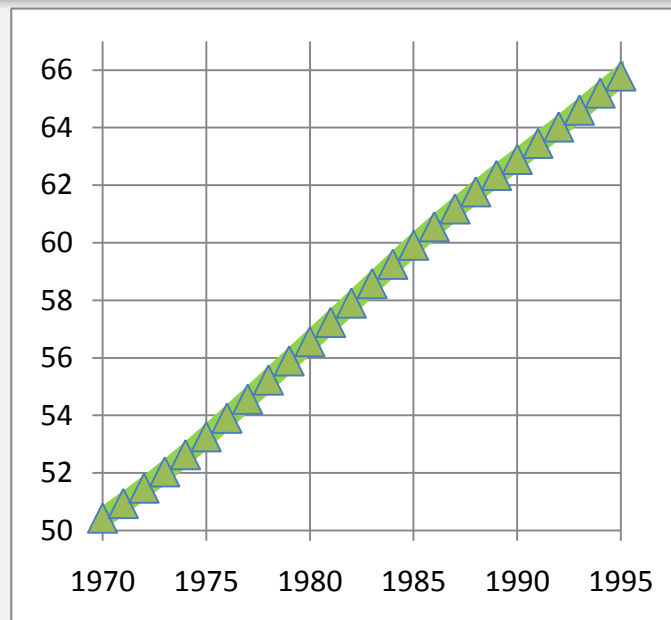


Fig. 23. Life expectancy in Egypt, years, 1970-1995

Source: World Bank 2011.

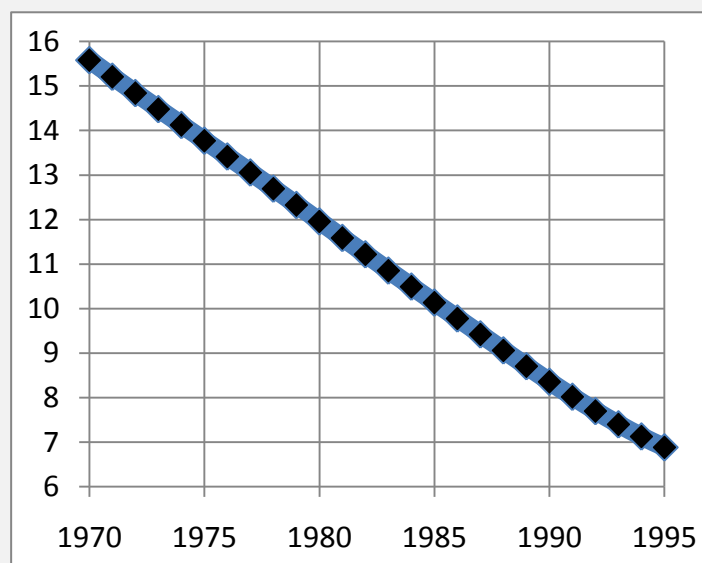


Fig. 24. Crude death rate per 1000 population, Egypt, 1970–1995

Source: World Bank 2011.

Thus, the Egyptian escape from the Malthusian trap was accompanied by impetuous life expectancy growth, while death rate decreased nearly twice (!) in just 20 years (1970–1990).

In full accordance with the theory of demographic transition (see, *e.g.*, Chesnais 1992; Korotayev, Malkov, Khaltourina 2006) decrease of birth rates followed with a usual remarkable lag (Fig. 25):

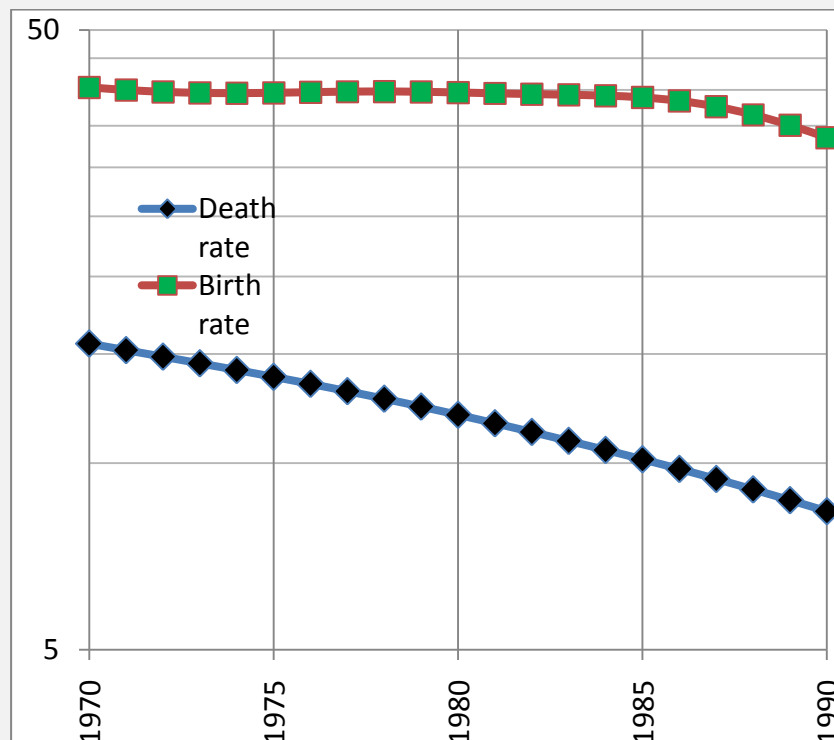


Fig. 25. Crude birth and death rates per 1000 in Egypt, 1970–1990, logarithmic scale

Source: World Bank 2011.

Mubarak's administration was well aware of the threat hidden in the growing gap between declining death rate and stably high birth rate, and almost since the beginning of Mubarak's reign (1981) it started taking measures aimed at bringing down the birth rate (see, *e.g.*, Fargues 1997: 117–118). However, only in the second half of the 1980s the government managed to develop a really efficient program of such measures. This program was performed by the Egyptian government in collaboration with USAID program aimed at wide-scale introduction and distribution of family planning (Moreland 2006). Religious leaders (from al-Azhar *sbeikhs* to local *imams*) were involved in the program to

disseminate (in their *fatwas* and sermons) the idea that family planning was not adverse to *al-Qur'an*; on the contrary, it is good, as having less children makes it easier for the parents to give them a happy childhood and good education (Ali 1997). This strategy proved essentially effective, as during 5 years (1988–1992) total fertility rate in Egypt fell from 5 to 4 children per woman.

However, until the second half of the 1980s the gap between birth and death rates was increasing. As a result, population growth in Egypt in the 1970 and 1980s acquired explosion-like shape (Fig. 26) and started to decline significantly only in the late 1980s.

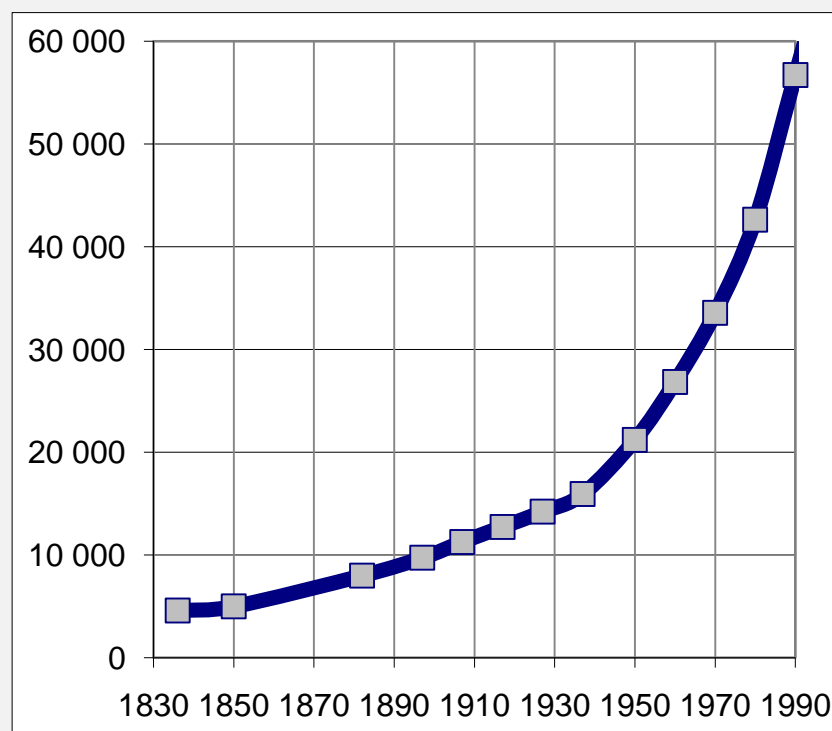


Fig. 26. Population of Egypt, thousands, 1836–1990²⁰

Naturally, such a rapid population growth is bound to create serious structural strains in any system. However, it was not the only force contributing to the emergence of structural strains.

Let us view the curve of absolute growth rates of Egyptian population (see Fig. 27):

²⁰ The sources for this diagram are described in Korotayev, Khaltourina 2006.

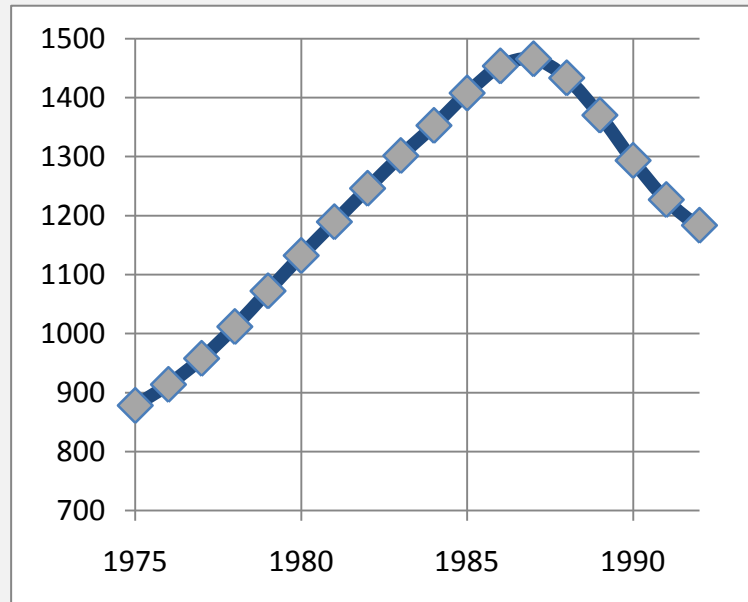


Fig. 27. Dynamics of absolute population growth rates, Egypt, 1975–1992 (thousands of people per year)²¹

As we see, the absolute population growth rates reached their maximum in 1985–1989. Extracting 1985–1989 out of 2010 we obtain 21–25, which is the age of the numerous generation of young Egyptians who came out to the Tahrir Square in Cairo in January 2011.

Let us move to the next question – how could the escape from the Malthusian trap influence the infant and child mortality. Children are most vulnerable to malnutrition, so they benefit most when it is eradicated; besides, in a modernizing country escaping from the Malthusian trap the health system usually develops rapidly, contributing to the decline of infant and child mortality in a very significant way. This can be seen in all cases of the escape from the Malthusian trap, including Egypt (see Fig. 28):

²¹ Calculated on the basis of the World Bank (2011) data.

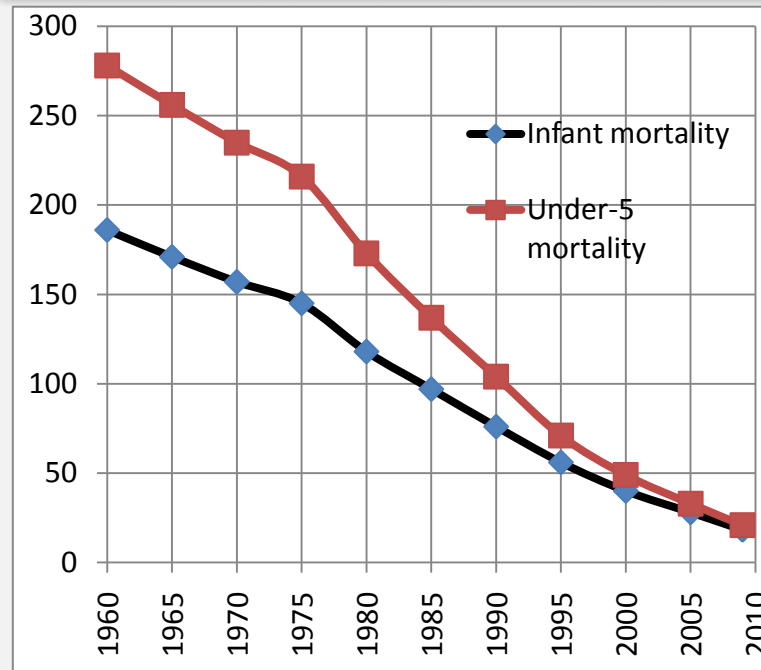


Fig. 28. Infant (per 1000 live births) and child (per 1000 under-5 children) mortality in Egypt in 1970–1995

Source: World Bank 2011.

Thus, while crude death rate decreased twice during 1975–1995, infant and under-5 child mortality declined thrice during the same period.

Thus, at the first phase of demographic transition (that tends to coincide with the escape from the Malthusian trap) death rate declines dramatically (Вишнеvский 1976, 2005; Chesnais 1992; Korotayev, Malkov, Khaltourina 2006a), the greatest decline occurring in infant and under-5 mortality, while birth rates still remain high. Thus, out of 6–7 children born by a woman, 5–6 children survive up to reproductive age, not 2 or 3 as earlier. This leads not only to the demographic explosion, but also to the formation of the “youth bulge”, as the generation of children turns out to be much larger in number than their parents’ generation. This is exactly what happened in Egypt (see Fig. 29):



Fig. 29. Egyptian “youth bulge”. Dynamics of the proportion of youth cohort (aged 20-24) in the Egyptian population, 1990-2010 (with forecast till 2020)²²

Jack Goldstone notes that «the rapid growth of youth can undermine existing political coalitions, creating instability. Large youth cohorts are often drawn to new ideas and heterodox religions, challenging older forms of authority. In addition, because most young people have fewer responsibilities for families and careers, they are relatively easily mobilized for social or political conflicts. Youth have played a prominent role in political violence throughout recorded history, and the existence of a “youth bulge” (an unusually high proportion of youths 15 to 24 relative to the total adult population) has historically been associated with times of political crisis. Most major revolutions ... [including] most twentieth-century revolutions in developing countries—have occurred where exceptionally large youth bulges were present» (Goldstone 2002: 11–12).

Let us now view the dynamics of the number of Egyptians aged 20–24 (see Fig. 30):

²² Calculated on the bases of the data from the *UN Population Division Database* (UN Population Division 2011). The calculations have been made by Justislav Bogevolnov.

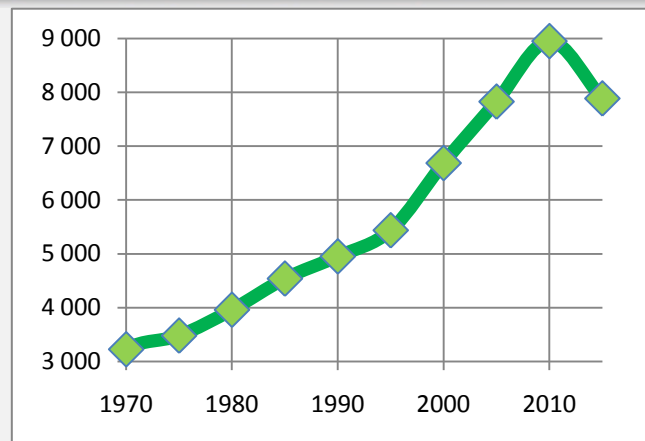


Fig. 30. Number of Egyptian youths aged 20-24, thousands, with forecast till 2015²³

In absolute numbers the growth of this cohort is really astonishing, as it almost doubled during 15 years. Namely this cohort enters the labor market in more or less developed societies (including Egypt), so even for a fast-growing economy it was virtually impossible to create millions of workplaces necessary to absorb the young labor force.

As we have seen above, at the beginning of the 2011 Egyptian Revolution the unemployment level in Egypt was about 9% which was not very high according to global standards. However, the most important circumstance (caused just by the “youth bulge”) is that about half of all the Egyptian unemployed belonged to the 20–24 age cohort (Al-jihaz... 2010)! Total number of the unemployed on the eve of the Egyptian Revolution was about 2.5 million (Abd al-Rahman 2010: 4). Accordingly, on the eve of the Revolution Egypt had about one million of unemployed young people aged 20–24 who made up the main striking force of the Revolution.

It is not surprising that Mubarak’s administration “overlooked” the social explosion. Indeed, statistical data righteously claimed that the country was developing very successfully. Economic growth rates were high (even in the crisis years). Poverty and inequality levels were among the lowest in the Third World. Global food prices were rising, but the government was taking serious measures to mitigate their effect on the poorest layers of the population. Unemployment level (in per cent) was less than in many developed countries of the world and, moreover, was

²³ Calculated on the bases of the data from the *UN Population Division Database* (UN Population Division 2011). The calculations have been made by Justislav Bogevolnov.

declining, and so were population growth rates. What would be the grounds to expect a full-scale social explosion? Of course, the administration had a sort of reliable information on the presence of certain groups of dissident “bloggers”, but how could one expect that they would be able to inspire to go to the Tahrir any great masses of people?

It was even more difficult to figure out that Mubarak’s regime would be painfully struck by its own modernization successes of the 1980s, which led to the sharp decline of crude death rate and especially of infant and child mortality in 1975–1990. Without these successes many young Egyptians vehemently demanding Mubarak’s resignation (or even death) would have been destined to die in early childhood and simply would not have survived to come out to the Tahrir Square. The rate of unemployment in Egypt stayed almost unchanged, but the number of the young doubled. This means that the absolute number of the unemployed young people also increased at least twice (this, incidentally, indicates how risky this could sometimes be to rely on percentages rather than absolute numbers).

Moreover, the investigation carried out at the end of 2010 by the Egyptian Central Agency for Public Mobilization and Statistics discovered that at the eve of the Revolution more than 43% of the Egyptian unemployed had university degrees (Al-jihaz... 2010)! Thus, the impact force of the 2011 Egyptian Revolution was not only young, but also very highly educated. We suppose that this circumstance stipulated the relative “non-bloodiness” of the revolution, *i.e.* a relatively small number of victims. Indeed, though the scale of the events was truly colossal and millions of people were involved for weeks, only 300 were killed (mostly by the security forces and criminal elements employed by the security forces, but not by the protesters). Let us remember that during the “bread riots” of 1977 (when low-educated Egyptian urban youth was the main striking force) 800 people were killed just during two days (see, *e.g.*, Hirst 1977). In this regard the 2011 Egyptian Revolution was closer to the youth uprisings of 1968 type – and “velvet revolutions” – in Europe and North America of the past decades than to violent and bloody (involving dozens and hundreds thousands [if not millions] of the deathtoll) Third World civil wars.

However, the Egyptian Revolution 2011 would hardly have acquired its scale if its protest base had been limited to unemployed highly-educated youth. The youths were supported by millions of Egyptians (of various age, occupation, and education level) who found themselves below the poverty line as a result of world food price growth (despite all the serious

countermeasures undertaken by Mubarak's administration). Namely this combination created the socially explosive material necessary for the revolution.

However, these were necessary but not sufficient conditions for the Egyptian social explosion. Not only some explosive material, but also some spark was needed. So let us recollect some other factors, without which the revolution might not have happened. First of all, some protesters' complaints were justified. Thus, the decades of the State of Emergency created the situation of uncontrolled activity of security forces which led to massive usage of tortures against those opposed to the regime. We should also keep in mind the diffusion of the Internet, which supplied Egyptian educated youths with unprecedentedly powerful means of self-organization, as well as the Arabic satellite channels and their talented journalists who translated exceptionally vivid images of people uprisings to all countries of the Arab world. We also share a widespread opinion that the Egyptian events would hardly have been possible if the revolution in Tunisia had not been so fast and bloodless, if it had not created the feeling that changes of power in Arab countries could be fast and non-violent.

Thus, we would maintain that the Egyptian Revolution was not possible without certain objective pre-requisites, but still it was not inevitable. Indeed, the "youth bulge" in Egypt was bound to start decreasing rapidly (annually weakening the pressure on the labor market). The program of economic reforms allowed to expect Egypt to reach the level of economic miracle growth rates (about 10% annually) just within 3 or 4 forthcoming years. All this (together with the political liberalization expected from Gamal Mubarak) was bound to dissolve the social "explosive material" in the forthcoming years.

References

Abd al-Rahman S.F. (ed.). (2010). *Nashrat Suq al-`amal al-misriyy. Nashrah rub` sanawiyyah. I III-2010*, al-Qahirah: Wizarat al-qiwa al-`amilah wa-l-hijrah.

Abdel Aziz N., el-Talawi A. (30.06.2010). Egypt among world's largest wheat importers. Al-Masri al-Youm. Retrieved on the 10th of February, 2011 from <http://www.almasryalyoum.com/en/news/egypt-among-worlds-largest-wheat-importers>.

Adams R.H., Valstar A., Wiles P. (2010). Evaluation Report of Egypt Country Programme 10450.0 (2007-2011) "Enabling Livelihoods, Nutrition and Food Security". World Food Program, Office of Evaluation.

AFP. (25.01.2011). Egypt braces for nationwide protests. Retrieved on the 8th of February, 2011 from <http://www.france24.com/en/20110125-egypt-braces-nationwide-protests>.

Afro-Asian Rural Development Organization (AARDO). (2010). Report of the 32nd RECA Seminar on Food Security – Global Trends and Perspective. Tokyo, Japan, 12–25 July 2010.

Akayev A., Fomin A., Tsirel S., Korotayev A. (2010). Log-Periodic Oscillation Analysis Forecasts the Burst of the "Gold Bubble" in April – June 2011. Structure and Dynamics, vol. 4/3: 1–11. URL: <http://www.escholarship.org/uc/item/7qk9z9kz>.

Al-Arabiya. (25.01.2011). Three people killed in demonstrations. Thousands of protesters take to the streets in Egypt. Retrieved on the 10th of February, 2011 from <http://www.alarabiya.net/articles/2011/01/25/134920.html>.

Al-jihaz al-markaziyy li-l-ta'bi'ah al-'ammah wa-l-ihsa'. (2010). Bahth al-qiwa al-'amilah li-l-rub' al-thalith (yulyu/aghustus/sibtimbir), al-Qahirah: Al-jihaz al-markaziyy li-l-ta'bi'ah al-'amah wa-l-ihsa'. URL: <http://www.capmas.gov.eg/news.aspx?nid=491>.

Ali K.A. (1997). Modernization and Family Planning Programs in Egypt. Middle East Report, No. 205, 40–44.

Artzrouni M., Komlos J. (1985). Population Growth through History and the Escape from the Malthusian Trap: A Homeostatic Simulation Model. Genus, vol. 41/3–4, 21–39.

Boubacar S., Herrera S., Yamouri N., Devictor X. (2010). Egypt Country Brief, Washington, DC: World Bank. Retrieved on the 16th of February 2011 from http://siteresources.worldbank.org/INTEGYPT/Resources/EGYPT-Web_brief-2010-AM.pdf.

Central Agency for Public Mobilization and Statistics (CAPMAS). (2010a). Egypt in Figures 2010, Cairo: CAPMAS.

CAPMAS. (2010b). Al-jihaz al-markaziyy li-l-ta'bi'ah al-'ammah wa-l-ihsa'. Bahth al-qiwa al-'amilah li-l-rub' al-thalith (yulyu/aghustus/sibtimbir), al-Qahirah: Al-jihaz al-markaziyy li-l-ta'bi'ah al-'amah wa-l-ihsa'. Retrieved on the 15th of February, 2011 from <http://www.capmas.gov.eg/news.aspx?nid=491>.

Chesnais J. C. (1992). The Demographic Transition: Stages, Patterns, and Economic Implications, Oxford: Clarendon Press.

Egypt Ministry of Health, National Population Council, El-Zanaty and Associates, and ORC Macro. (2009). Egypt Demographic and Health Survey (EDHS) – 2008, Cairo: Egypt Ministry of Health.

FAO (Food and Agriculture Organization of the United Nation). (2011a). FAO annual real food price indices. Retrieved on the 17th of February 2011 from http://typo3.fao.org/fileadmin/templates/worldfood/Reports_and_docs/Food_price_indices_data_deflated.xls.

FAO (Food and Agriculture Organization of the United Nation). (2011b). FAOSTAT. Food and Agriculture Organization Statistics. URL: <http://faostat.fao.org/>.

Fargues P. (1997). State Policies and the Birth Rate in Egypt: From Socialism to Liberalism. *Population and Development Review*, vol. 23/1, 115–138.

El-Fiqi M. (2008). Mission: get bread. *Al-Ahram Weekly On-line* No 888 (13-19.03.2008). Retrieved on the 15th of January 2011 from <http://weekly.ahram.org.eg/2008/888/ec1.htm>.

Goldstone J. (2002). Population and Security: How Demographic Change Can Lead to Violent Conflict. *Journal of International Affairs*, vol. 56/1, 3–22.

Hirst D. (1977). How High Life and Scandal Rocked Sadat. *MERIP Reports*, vol. 54, 19–20.

IMF. 2011. Primary Commodity Prices. Monthly Data. Retrieved on the 15th of February 2011 from <http://www.imf.org/external/np/res/commmod/index.asp>.

Klugman J. (ed.). (2009). *Overcoming Barriers: Human Mobility and Development*. Human Development Report 2009. 20th Anniversary Edition, New York, NY: The UNDP Human Development Report Office/Palgrave Macmillan.

Klugman J. (ed.). (2010). *The Real Wealth of Nations: Pathways to Human Development*. Human Development Report 2010. 20th Anniversary Edition, New York, NY: The UNDP Human Development Report Office/Palgrave Macmillan.

Kögel T., Prskawetz A. (2001). Agricultural Productivity Growth and Escape from the Malthusian Trap. *Journal of Economic Growth*, vol. 6, 337–357.

Komlos J., Artzrouni M. (1990). Mathematical Investigations of the Escape from the Malthusian Trap. *Mathematical Population Studies*, vol. 2, 269–287.

Korotayev A. (2009). Compact Mathematical Models of the World System Development and Their Applicability to the Development of Local Solutions in Third World Countries, in *Systemic Development: Local Solutions in a Global Environment*, edited by J. Sheffield, Litchfield Park, AZ: ISCE Publishing, pp. 103–116.

Korotayev A., Khaltourina D. (2006). *Introduction to Social Macrodynamics: Secular Cycles and Millennial Trends in Africa*, Moscow: KomKniga/URSS.

Korotayev A., Malkov A., Khaltourina D. (2006). *Introduction to Social Macrodynamics: Secular Cycles and Millennial Trends*, Moscow: KomKniga/URSS.

Korotayev A., Khaltourina D., Malkov A., Bogevolnov J., Kobzeva S., Zinkina J. (2010). *Mathematical Modeling and Forecast of World and Regional Development*, Moscow: URSS Publishers (in Russian).

Korotayev A., Zinkina J., Kobzeva S., Bogevolnov J., Khaltourina D., Malkov A. (2011). A trap at the escape from the trap? Some Demographic Structural Factors of Political Instability in Modern Africa. *Forecast for 2012–2050*. *Entelequia. Revista Interdisciplinar* 14 (forthcoming).

al Lawati H. A. R. (14.02.2011). Egypt, what lies ahead? *Oman Daily Observer*. Retrieved on the 23rd of February, 2011 from <http://main.omanobserver.om/node/40459>.

Moreland S. (2006). *Egypt's Population Program: Assessing 25 Years of Family Planning*. USAID.

Naiken L. (2002). *FAO Methodology for Estimating the Prevalence of Undernourishment*. Paper Presented at International Scientific Symposium on Measurement and Assessment of Food Deprivation and Undernutrition, Rome, Italy. Retrieved on the 15th of January, 2011 from www.fao.org.

El Nakeeb A.M. (2009). *Egyptian Food Subsidy System Structure, performance and future perspective*. Paper presented at World Bank “Social Protection Responses to the Three Waves of Crisis: Finance, Food, and Fuel” South-South Learning Forum, 15–18 June 2009, Cairo.

Nelson R. R. (1956). A theory of the low level equilibrium trap in underdeveloped economies. *American Economic Review*, vol. 46, 894–908.

Pitchford R. (22.02.2011). Egypt plans stimulus package after blow to growth. Retrieved on the 23rd of February, 2011 from <http://www.reuters.com/article/2011/02/22/egypt-finance-idUSLDE71L2GP20110222>.

Siam G., Abdel Rady H.M. (2010). The Impact of the Global Food Crisis and the Economic Crisis on Poverty in Egypt. Paper presented at Inauguration Conference for Launching the Working Paper Series of the Information and Decision Support Center of the Egyptian Cabinet of Ministers (Cairo, March 28, 2010).

Stangler D., Litan R.E. (12.02.2011). In Egypt, Will an Economic Revolution Follow? Retrieved on the 20th of February, 2011 from <http://www.inc.com/articles/201102/egypt-entrepreneurial-revolution.html>.

Steinmann G., Prskawetz A., Feichtinger G. (1998). A Model on the Escape from the Malthusian Trap. *Journal of Population Economics*, vol. 11, 535–550.

Transparency International. (2010). *Corruption Perceptions Index 2010*. Berlin: Transparency International.

Turchin P. (2003). *Historical Dynamics: Why States Rise and Fall*. Princeton, NJ: Princeton University Press.

Turchin P. (2005). Dynamical Feedbacks between Population Growth and Sociopolitical Instability in Agrarian States. *Structure and Dynamics*, vol. 1.

Turchin P., Korotayev A. (2006). Population Density and Warfare: A Reconsideration. *Social Evolution & History*, vol. 5/2, 121–158.

Turchin P., Nefedov S. (2009). *Secular Cycles*, Princeton, NJ: Princeton University Press.

UN Population Division. (2011). United Nations. [Department of Economic and Social Affairs](http://www.un.org/esa/population). Population Division Database. Retrieved on the 17th of February, 2011 from <http://www.un.org/esa/population>.

World Bank. (2011). *World Development Indicators Online*. Washington, DC: World Bank. Retrieved on the 15th of February, 2011 from <http://data.worldbank.org/indicator>.

Wood J.W. (1998). A Theory of Preindustrial Population Dynamics: Demography, Economy, and Well-Being in Malthusian Systems. *Current Anthropology*, vol. 39, 99–135.



Middle East Studies Online Journal- ISSN 2100-0610- Issue n°5, Volume 2 (2011)
دراسات الشرق الأوسط، مجلة فكرية محكمة، العدد الخامس، المجلد الثاني، 2011، Volume 2, N°5, Etudes du Moyen-Orient