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Youth bulges, poor institutional quality and missing migration opportunities - triggers of and potential counter-measures for terrorism in MENA

Rahel Schomaker*

Abstract:

During the last few decades, a convolute of economic literature has emerged which focuses on the effects of demography, in particular the existence of so-called "youth bulges", on economic growth and performance (for an overview see e.g. Bloom et al. 2001). The approach in our paper extends previous research to include potentially negative growth effects of a large share of young people in the Middle East and North Africa (MENA) not only via the "channel" of unemployment, but also through their potential as a "trigger" for political unrest and domestic terrorism, which have been identified in economic literature as important obstacles to economic growth. These phenomena are most pressing in the labor-rich countries of the region, which are often perceived as being exceptionally "terrorism-prone" and which have experienced a significant share of the region's (and the world's) terrorist attacks over the last decade.

In our paper, we will identify, theoretically and empirically, to what extent demographic factors, amongst others, matter when it comes to domestic terrorism. We will also provide some insights as to how these problems are caused, or at least substantially compounded by, the region's specific traits, such as the poor institutional framework and the lack of migration opportunities. After a theoretical outline of the negative relationship between "youth bulges" and economic development, and an outline of the role of migration as an "exit-option" in this context, we provide empirical evidence for our hypothesis that institutional quality, the absence of "youth bulges" and the existence of migration opportunities is of pivotal importance in avoiding terrorist attacks. As some of these factors – namely institutional quality and migration policies – are amendable to change through policy measures, we close our paper with policy recommendations for measures to be taken within the ongoing transformation process in the region.

Keywords: Youth Bulge, Terrorism,

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* PD Dr. Rahel Schomaker, German Research Institute for Public Administration, Speyer; rahel.schomaker@online.de

Introduction: The Youth Bulge Theory and its Operationalizations

The idea that a large proportion of young people in a society may be a cause violent conflicts is not new; several researchers already examined the question of how and to what extent the two phenomena may be linked (e.g. for early works Choucri 1974). However, the scientific discussion about this link, as well as the popular debate on this topic, only started in the 1990s. In 1995, the term *youth bulge* itself was coined by Fuller (1995) in his seminal paper on "*The Demographic backdrop to Ethnic Conflict: A Geographic Overview*", which he presented at a CIA conference.

The term "youth bulge" is used to define a situation in which the population share of the 15-24 year-olds exceeds 20 per cent and the share of the 0-14 year-olds (often also referred to as the "children bulge" and a good predictor of future youth bulges) is higher than 30 per cent. The corresponding *youth bulge theory* predicts that societies characterized by a youth bulge while simultaneously facing limited resources and, in particular, a lack of prestigious positions for "surplus" youngsters – i.e. the third, fourth, fifth etc. born children – are much more prone to social unrest and/or acting belligerent towards their neighbors than those societies without this demographic stressors.

While the idea is not entirely new – similar theories were proposed earlier by, amongst others, Moller (1968) and Bouthoul (1970), youth bulge theories have more recently become very influential in shaping U.S. foreign policy, with political scientists such as Fuller and Goldstone, another contemporary proponent, serving as contracted advisors to several branches of the U.S. Government, including the CIA. The application of youth bulge theories has been particularly common with regard to the Muslim world, which in part is indeed witnessing historically unprecedented youth bulges

Moreover, Huntington (1996) "endorsed" Fuller's theory in one of the final chapters of his extremely influential book "*The Clash of Civilizations and the Remaking of the World Order*". In Germany and Continental Europe, youth bulge theories were largely ignored in academia and politics until Heinsohn's (2003) publication "*Sons and World Power: Terror in the Rise and Fall of Nations*."

In contrast to most other youth bulge theories, Heinsohn's approach (which adopts Goldstone's (1991) notion of "young men desperate for positions" argues that it is an excess of young adult males within any given youth bulge which helps to explain most (though not nearly all) periods of internal and "exported" social unrest in human history, i.e. civil war, terrorism, imperialism (colonization) and genocide. Essentially, Heinsohn defines a youth bulge as when the ratio of adequate (i.e. prestigious and/or well-paid) positions (in companies or the public sector) to the amount of such positions demanded by succeeding sons is substantially smaller than 1.

He goes on to predict that these "surplus sons" are susceptible to all forms of "just" violence, which can result from indoctrination by political and various sorts of religious (i.e. not only Islamic) extremists. However, according to Heinsohn, widespread hunger and malnutrition, or epidemics such as AIDS, defuse the potential for violence inherent in youth bulges in large parts of Sub-Sahara Africa.

It is, therefore, important to point out that Heinsohn cautions against any mono-causal explanation of any sort of major social unrests through resort to youth bulges alone. In fact, he argues that some of history's most outrageous atrocities – e.g. Stalin's launch of a command and control economy in the Soviet Union, resulting in the mass deaths of 30 to 60 million people, and the holocaust in Hitler's Germany after the beginning of World War II in 1939 – cannot be explained as the results of youth bulges (though Russia displayed a massive youth bulge from 1897 to the years immediately before these young *Bolsheviki* staged the 1917 *October Revolution*; Germany's last youth bulge – with a 35 per cent population share – was recorded between 1919 and 1933, and gave a big boost to the *National-Socialist* movement's drive to power in 1933, but after 1939 most German soldiers were from families with less than two sons).

However, Heinsohn's main point is that youth bulges were at least an important contributing (or even enabling) factor in most outbreaks of social unrest, regardless of type. To empirically prove his hypothesis, he provides a lists of the world's largest countries (in 2003), ranked according to the absolute number of children under the age of 15. The top ten countries, in rank order, are India, China, Indonesia, Pakistan, USA, Nigeria, Brazil, Bangladesh, Mexico and Ethiopia. Seven of the top ten countries display a population share of more than thirty per cent for the 0-15 year-olds, with Ethiopia, Nigeria and Pakistan having the largest ratios (47 percent, 44 percent, and 40 percent, respectively). In contrast, Brazil, China and the USA are not characterized by a youth bulge (at 28 percent, 24 percent, and 21 percent, respectively). Finally he shows that of the 67 countries in his list which were affected by a youth bulge at some period(s) of time after 1945, 60 suffered from massive bouts of social unrest, with all major religions (except for Buddhism) and political ideologies having been involved.

The idea that an exceptionally large share of young people or a large youth cohort size will lead to social unrest can be based on several transmission channels. One of the most prominent approaches, focusing the "supply side," is based on the assumption that this phenomenon increases the "supply of cheap rebel labor" (Urdal, 2006). Limited employment opportunities – caused by the limited absorption capacity of the labor market in the face of a sudden surplus of labor – or decreasing relative (male) wages can result if more potential workers compete for only a few jobs (Easterlin, 1987; Niang, 2010). Dissatisfaction and frustration (and the related consequences) among young people are likely to be the consequence, in particular if – compared to their parents' smaller generation –potential lifetime income is perceived to be limited. In addition, these arguments are backed by several studies in economic demography which suggest that the alternative costs of individuals who are a part of an existing youth bulge are lower in terms of "economic and social fortunes" (Urdal, 2006), compared to members of smaller cohorts.

Furthermore, younger cohorts "tend to have lower opportunity costs relative to older cohorts" (Niang, 2010). While this effect might be inverted by increasing levels of education and a resulting rise in incomes, there is some evidence that it holds at least in the short run. Following Huntington (1996), it can be argued that "young people are the protagonists of protests, instability, reform, and revolution" as they may have – due to their age and their specific circumstances of living – a natural need to change their current situation. They may

be more likely to be attracted by new ideas due to their idealism or naivety, and more willing to question those authorities they are not (yet) a part of (Urdal, 2006). In addition, as young people in most cases do not have responsibilities for their own families, they may have more time to engage in such – risky – activities (e.g. Goldstone, 1991).

The theory outlined above can be extended to include another form of violence, namely terrorism. The motivation to commit a terrorist attack, as with other forms of political violence, can be economic (poverty, unemployment, or the depression or stagnation of real wages), political (repression), or more social (lack of opportunities). Terrorism in these cases can be based on the "opportunity" of recruitment in youth bulges. Therefore the link from youth bulges to terrorism fits very well into the existing literature (Urdal, 2006).

The existing literature suggests several ways to operationalize "youth bulges", though these might be, as *Urdal* (2006) highlights, misleading in some cases. The most commonly used operationalization method, the use of the percentage of the total population under 15 years or between 15 and 24 years as a predictor for a "youth bulge" might lead to flawed findings. Therefore, the use of an indicator which shows the size of the youth cohort relative to the adult population (defined as population over the age of 15) is often seen as more appropriate, especially if one assumes that violence and social unrest comes from competition between younger and older cohorts in a society (Niang, 2010). As outlined above, much of the theoretical foundation of the "youth bulge" theory is based on the assumption that competition (or, more specifically, the quest of younger generations for the achievements of the older ones), or the fact that "youth cohorts run into institutional 'bottlenecks' because they are more numerous than previous cohorts" (Urdal, 2006), is the main cause of conflict. Following this argument, the relative share of youth to adult population could be the more appropriate indicator, as it models this competition.

However, the youth of today compete not only with today's adult population, but also with the following generation (today's children). As only a few years may remain until the next, maybe larger generation enters the labor market, further reducing job opportunities and increasing rivalry for political influence, there is high competitive pressure for today's youth, as they may have only a narrow time slot in which to receive their goals. Therefore, time-consuming reform processes may not be the optimal choice, as the potential results of these reforms will mainly benefit the next generation; thus violent behavior can be expected. Therefore, in our study, we follow the "traditional" definition of "youth bulges," a share of young people relative to total population which exceeds a critical level of 20 per cent. We use not only a share as percentage, but a dummy variable which indicates the existence of a "youth bulge".

The Root Causes of Terrorism – What do we know so far?

Several root causes, or at least "triggers", of terrorism have been theoretically identified and/or empirically tested, including micro-level explanations like the social situation or psychological disposition of an individual as well as macro-level explanations like poor institutional quality in a country, social segregation, or poverty (Fearon and Laitin, 2003; Krueger and Laitin, 2007; Niang, 2010). Furthermore, some "opportunity approaches", based

on economic theory, help to explain terrorism using given framework conditions for recruiting followers or the payoffs of membership in terrorist groups (Niang, 2010). A large and growing body of literature on this topic demonstrates the increasing importance of research on terrorism and the high demand for policy-advice on counter-terrorism strategies (e.g. Abadie, 2004; Collier et al., 2003; Krueger and Maleckova, 2003; Li and Schaub, 2004; Sayre 2009). A few factors have been identified as being of specific importance, inter alia:

- (relative) economic deprivation and poverty;
- the political or institutional environment of a country;
- political transformation processes and instability;
- identity issues and civilizational clashes;
- geographic characteristics;
- contagion effects (country to country).

The outcomes, especially of empirical studies, are not completely consistent, as studies with different designs and/or data sets have yielded different outcomes. In particular, the economic motivation for terrorism has been under theoretical and empirical review for a long time, with special attention to international terrorism. On a macro-level, most studies show only a slight correlation between economic conditions, or poverty, and the number of terrorist incidents in a country. On the micro-level, direct links between education levels, incomes, and the individual likelihood of engaging in terrorism could not be established (e.g. Abadie, 2004; Krueger and Maleckova, 2003; Krueger and Laitin, 2007). These findings are counter-intuitive, as the opportunity costs of terrorism in these cases are lower (compared to the "average", ordinary citizen), but are backed by a large number of other studies (e.g. Piazza, 2008).

There is some evidence that the political and institutional environment of a country is of importance. In particular, levels of political freedom seem to explain terrorism, as "countries in some intermediate range of political freedom are shown to be more prone to terrorism than countries with high levels of political freedom or countries with highly authoritarian regimes" (Abadie, 2004). This "inverted-U-shape-relationship" between terrorism or social unrest and democracy has been acknowledged by several scholars (e.g. Fearon and Laitin, 2003; Urdal, 2006), but might not be beyond dispute given the data and methodology used (see for details Niang, 2010).

Furthermore, some studies single out geographic or cultural factors to explain terrorism, but the range and explanatory power of this research remains limited. This is even more true regarding countries which have a Muslim majority, as Islam is often claimed to be more conducive to terrorism than other religions (for an overview of the reasoning see Fish, 2011). Thus, with regard to our research interest in the MENA region, we will include the specific research question of whether the Muslim countries are particularly prone to domestic terrorism. In addition, the outlined role of the share of young people in a society will be addressed, as in the last decade there "has been increasing popular attention on youth bulges as a possible explanation for terrorism and increased global insecurity" (Urdal, 2004).

Violence and social unrest in general have a negative impact on the affected society, as they harm economic growth and development and result in the destruction of human and

physical capital, as well as a decrease in international trade and foreign direct investment (Abadie and Gardeazabal, 2008). This link between sound economic performance and the absence of violence and unrest, having been confirmed by many empirical studies, gives rise to the highly plausible starting hypothesis that – beyond other violent actions – domestic terrorism, too, may cause equivalent negative effects. The economic side-effects of terrorism – the destruction of human capital, the creation of a feeling of insecurity and fear amongst the population and rising uncertainty also for foreign investors – are almost the same as those from social unrest, violence and civil wars.

Terrorism is not an entirely new phenomenon, but is of increasing importance for societies and governments because of its immediate and, more importantly, indirect political and economic costs, which may be substantial. As previous studies have shown, terrorism reduces governmental stability (Gassebner et al., 2008); often hampers tourism, trade and capital flows to a country (in particular, FDI; Frey et al., 2007); may lead to rising unemployment rates (Benmelech et al., 2010); and will probably inhibit economic development in general (Abadie and Gardeazabal, 2008; Mirza and Verdier, 2008). Furthermore, on a societal level, terrorism may lead to a decrease in life satisfaction for citizens, as it is a cause of anxiety and uncertainty (Frey et al. 2007). In the long run, these consequences may lead to a vicious circle, as the very disillusionment terrorism causes may trigger a new wave of terrorism.

Therefore, the discovery of the root causes of terrorism, as well as the formulation of sound policy advice to substantially reduce the incidence of further terrorist attacks, is pivotal to reducing its negative economic impacts (Krieger and Meierrieks, 2009). In this context, a growing body of literature is addressing the question of to what extent the specific characteristics of a country or society foster terrorism. In this ongoing interdisciplinary debate, both economic and political factors have been examined as well as institutional characteristics and cultural factors.

In the relevant literature, several definitions of terrorism are used, depending on the professional research orientation. In our study, terrorism is defined in a broad sense as an alternative strategy of individuals or groups “to achieve a political outcome and not simply to inflict pain and destruction on civilian populations” (Niang, 2010). It is important to emphasize that terrorism is targeting a goal, which in most cases might be political (like regime change or secession) but can also be more economic in nature. This quest to reach a specified goal, mostly based on specific ideological or religious ideas, drives the single terrorist act, even if the “signaling effect” of terrorism should not be underestimated and is an important part of the overall strategy of terrorists and terrorist groups. Terrorism, therefore, in our study is defined “by the nature of the act, not by the identity of the perpetrators or the nature of the cause” (RAND, 2011). Thus our study’s chosen definition does not distinguish between the different causes (political, economic, religious/ideological), but focus on the act itself. This approach follows the definition of the RAND Database of Worldwide Terrorism Incidents (RDWTI), which provides a dataset of terrorism stretching across the last 40 years and is widely used for comprehensive information on international and domestic terrorism. The following characteristics define a terrorist attack in the sense used in our study as outcome variable (RAND, 2011):

- Violence or the threat of violence;
- calculated to create fear and alarm;
- intended to coerce certain actions;
- motive must include at least one more political objective;
- generally directed against civilian targets;
- can be executed by a group or an individual

This definition is suitable as it covers almost all kinds of terrorist attacks carried out within the last decades, including the relatively new phenomenon of Islamist terrorism, in particular in its international or transnational dimension. As all characteristics outlined above can be applied to Islamist terrorism, and given the specific relevance of this kind of terrorism for the Middle East and North Africa, we base our study on the RAND-characteristics.

Demography, Terrorism and Economic Growth in MENA Countries

This hypothesized link between youth bulges in the MENA region and terrorism is not new: As stated by Urdal (2004), "after September 11, 2001, youth bulges have become a popular explanation for current political instability in the Arab world and for recruitment to international terrorist networks." The geographical concentration of terrorism, or at least of a specific type of it, is unquestionable; three countries (Afghanistan, Pakistan and Israel) experienced nearly half of all terrorist attacks carried out by Islamist terrorists[1] worldwide.

Overall, during the last decade, most high-casualty terrorist attacks worldwide have been conducted by Islamist groups, which thus account for a significant amount of terrorism worldwide (Fish, 2011). As a consequence much attention has been given to Islamist terrorism and groups like al-Qaeda, which are recognized as a real danger for Western countries as well (Niang, 2010). Yet this focus might be misplaced, as most terrorist attacks – whether motivated by Islamist, nationalist or another ideology – worldwide are still national or domestic terrorism. Empirical evidence shows that very few attacks by Islamist terrorists have occurred in the western hemisphere, but rather that most of these attacks (about 62 percent) are carried out in Muslim countries (Fish, 2011).

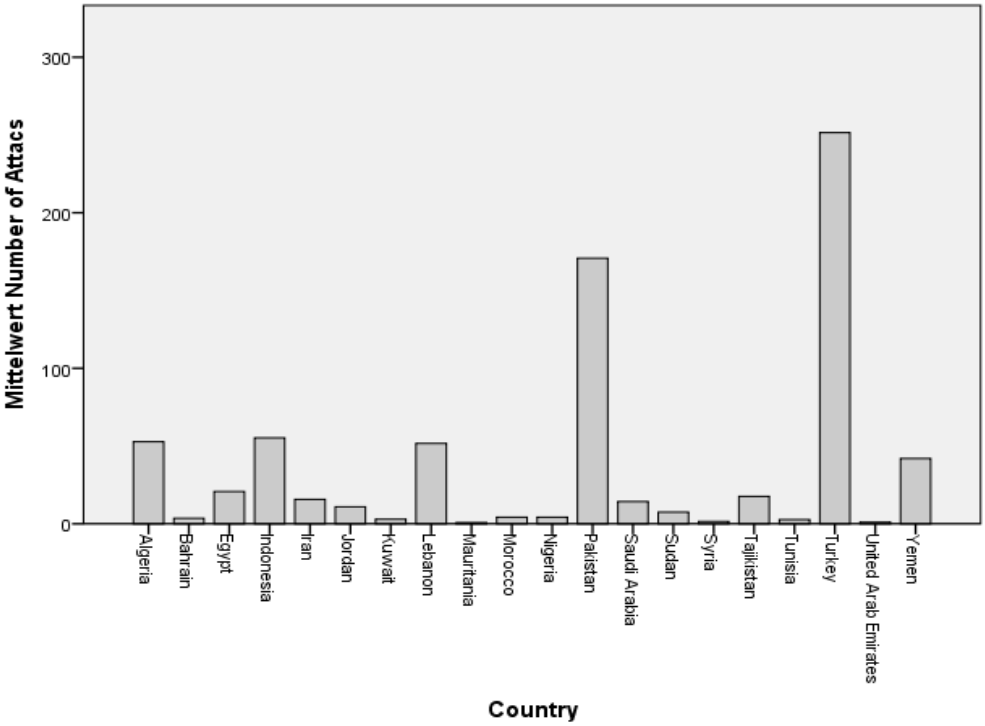
Furthermore, the motivation to become a part of an international terrorist group like al-Qaeda might differ substantially from the motivations to become a member of a domestic terrorist group as outlined above, and the targeted recruitment group therefore might not be the same. However, when a large part of the population is of Muslim belief it might increase the risk of domestic terrorism, and even if homicide rates in general are lower

[1] The term "Islamist" in this context has to be used carefully, as specific ways of thinking, following an ideology, and group membership is not always easy to identify.

We use the term for individuals or groups which claim themselves (or are identified so by others) "to act in the name of Islamic principles and the Muslim community" (Fish, 2011), but interpret the religion of Islam in a more political way. Furthermore, Islamist groups in many cases violate at least some genuine Islamic principles. This "violation" does not always mean that actions or behavior include physical violence; they can include social or psychological pressure on specific groups or individuals. The overall goal of these groups is to form a state which fits Islamic principles, based on a very orthodox interpretation of Islam in general and Islamic law specifically. Regardless, it is of pivotal importance to emphasize that while most terrorist groups formed out of people with Muslim belief are based on Islamist ideology, to no extent are all Islamists potential or real terrorists.

among Muslims, this might help to explain the terrorism situation in the Middle East and North Africa beyond the youth problem (Fish, 2011). In that context, it has to be said that the distribution of domestic terrorism among Muslim countries is very heterogeneous, as can be seen in figure 1:

Figure 1: Average Number of Attacks in Muslim Countries 1990 – 2008



Source: Author's calculation

Another point which might be of importance in this context is the fact, outlined in more detail above, that in many almost all Muslim countries, whether or not they are located in the Middle East and North Africa, political participation is low and democratic structures are weak, even if there is some significant variation (see in detail Fish, 2011; Noland and Pack, 2007). For decades, political freedom, freedom of expression and so on (measured as "Voice and Accountability (VA)") have not been adequately provided for in the Middle East and North Africa; likewise, political stability (measured as "Political Stability and the absence of Violence (PV)") is low (Kaufmann et. al., 2008).[2] The situation in other Muslim countries such as Afghanistan, Pakistan or Iran is comparable, as governance quality is poor there as well. This overall low "institutional quality" might be another trigger for terrorism in the region or Muslim countries worldwide, as there are believe to be links between democracy and social unrest and violence, as outlined above. Therefore, with the existing and predicted youth bulges in the Middle East and North Africa, as well as in other Muslim countries worldwide, "pooled" with high unemployment rates and the lack of opportunities for democratic participation for a large part of the society, the hypothesis that Muslim countries are more prone to terrorist attacks seems to be plausible.

[2] As the current uprisings and revolution processes in the Middle East and North Africa demonstrate, there is some dynamics which is likely to lead to sustainable changes in these indicators in the future.

Adjusting the "Youth Bulge" Theory

For the study we enlarged Heinsohn's approach from violence and social unrest to include terrorism. Beyond the their failure to include demographic factors as an explanation for terrorism, several studies on terrorism suffer from some (potential) shortcomings, which might not influence the outcomes of the respective studies, but seem to be important. One especially important point is that most studies focus on international terrorism, despite that it represents only a small fraction of overall terrorist activities (Abadie, 2004). Yet domestic terrorism counts for most of the worldwide attacks and, therefore, should be the focus of our attention.

Additionally, if we take youth bulges into consideration, which are a national or regional phenomenon, it is much more appropriate to choose domestic terrorism as the outcome variable. In these cases of domestic terrorist attacks the executor comes from the respective country, his/her nationality is clear, so youth bulges can be an explanatory variable. We therefore focus on domestic terrorism only, with a domestic incident being any attack without the direct involvement of a foreign entity (individual, government, and so on; RAND, 2011).

Our approach focuses on the specific "transmission channels" through which this kind of violence can be explained. The implicit assumption of our overall model of terrorism and youth bulges is that large youth cohorts are likely to experience unemployment or decreasing real wages (caused by the increased labor supply) and experience rising grievances as a consequence, especially when the individual's expectations are "raised through expansions in education" (Urdal, 2004). Furthermore, the opportunities for the individual to exert some influence on the political system and to become a part of the political elite are substantially lowered in large cohorts (Urdal, 2004). In this context the opportunity cost approach, as discussed above, as well as the "lifetime-income hypothesis" and other approaches are applied to explain why individuals decide to carry out terrorist attacks.

Furthermore, as a strong collective identity could be a necessary precondition for individuals to organize in a group (as most terrorist attacks are planned and/or carried out in a group) and become violent, other factors which ease the formation of a collective identity may be of importance when it comes to terrorism (Urdal, 2006). The current so-called "Facebook revolutions" of the Middle East and North Africa are an example, with the internet facilitating the formation of a collective identity and therefore "triggering" the uprisings. While this aspect does merit more attention in future research, we do not focus on it in our study, as micro-data on the use of the internet and the occurrence of terrorism are not available.

Extending the Scope of Our Approach – Terrorism and Migration as "Exit" and "Voice"

As anecdotal evidence shows, not all countries facing youth bulges are exceptionally prone to domestic terrorism, so some adjustments may be necessary. A factor which might mitigate the violent potential of youth bulges is the option to migrate. Emigration in this context may help to diminish some of the negative effects of youth bulges and thereby

might reduce the risk of terrorism – terrorism being understood as the "voice option" and migration as the "exit option," as introduced in Hirschman's (1970) "Exit, Voice, and Loyalty" (see e.g. Ware, 2005).

A convolute of economic literature addresses the question of how individuals react to framework conditions which do not fit their individual utility function. One of the most popular approaches to explaining the different choices is the model of "exit and voice": According to Hirschman (1970 and 1978), there are two general options for an individual to cope with their discontent with the government or the institution they belong to – they can either voice their complaints in order to change the system, or they can exit the system (if the exit costs are not prohibitive for personal, legal and/or economic reasons). This choice is a general one and may be made regardless of whether the "system" is a state or another institution.

One key question in this context is: Under what conditions one option will prevail over the other option? What determines the individual's choice? What will be the consequences for the whole system – does it react, and in which form, e.g. does the society take notice of exits by its members, and will the exit cause satisfaction or dissatisfaction for the group that remains (Hirschman, 1978)? In this scheme, *exit* and *voice* can be seen as two contrasting, but "not mutually exclusive categories" (Hirschman, 1970), as there may be other reaction options – such as, for example, doing nothing.

The scheme outlined above can be applied not only to institutions in general, but also states and/or governments. It is, therefore, suitable for our analysis of situations in which individuals participate – violently – in the system or leave it. Following Hirschman, if the exit option exists – for consumers, but in an extended model also for citizens (meaning the voting population) as well – then free competition unfolds in the market. In our specific model extension, this would imply that a regime has to react to exit as well as to voice – e.g. by adjusting policies or modifying structures. In particular, problems occur when neither exit nor voice have the "usual attention-forcing effect because the loss of revenue [… is] not a matter of the utmost gravity" (Hirschman, 1970).

Our hypothesis that the existence of a migration opportunity can reduce domestic terrorism is based on Hirschman's assumption that "the presence of the exit option can sharply reduce the probability that the voice option will be taken up widely and effectively. Exit was shown to drive out voice." If we expand that idea to participation in a country's political process inclusive also of terrorism against it or migration from it, we can – in general – assume that the option to leave the system via migration will be preferred over the option to stay in the system and become a terrorist.

This assumption is even more plausible in those cases where participation is associated with high costs, as terrorism for the individual can result in punishment, social isolation, or death (suicide terrorism or due to counter-terrorism activities). Therefore, one factor which – according to theoretical findings as well as anecdotal empirical evidence – may reduce the conflict potential related to youth bulges might be the opportunity for migration.

Migration in this context "works as a safety valve" (Urdal, 2006). If migration opportunities are "substantially restricted, developing countries that previously relied on

exporting surplus youth may experience increased pressures from youth bulges accompanied by a higher risk of political violence" (Urdal 2006). It can be hypothesized that whenever a significant part of the youth bulge can be "exported" to other countries, the risk of youth discontent, resulting in violence and terrorism, can be substantially reduced (Urdal. 2006). The restriction itself – whether due to geography, legal restrictions, or prohibitively high costs of migration - can, therefore, be seen as a trigger for terrorism.[3] This is likely to be true regardless of where these young people emigrate to – whether to more developed countries at the other end of the world or to neighboring states.

This linkage between a lack of migration opportunities and an increase in domestic terrorism can be easily modeled in several ways. One "channel", applicable to dictatorships or autocratic regimes, can be the frustration of the people. In non-democratic, autocratic regimes, the people do not have a regular option of elections; they cannot vote out the dictator, the leading political elite, or party, as elections do not take place or are subject to fraud and manipulation. In these cases the only option to change the political system and thereby the individual chances within this system is the violent one – be it through protests and revolution or terrorist attacks (Möller, 2011).

Another "channel" is the individual income situation. The individual's utility-level depends on the budget constraint, in which consumption depends on the individual income. Income can be generated in three general ways: The individual can work in the legal market (*l*) and earn a legal wage (*w*), can work in the terrorism market (*t*)[4] and earn a terrorist wage (w_t), or can migrate and work outside the country (*f*) and earn the external wage (w_f). A laborer can also divide time and labor between the terrorist labor market and the legal market, but not combine migration with working in the "internal" market, whether as a terrorist or a "legal" laborer (Wall, 2006).[5] The individual's decision whether or not to supply his or her labor to a terrorist group is based on the question of whether there is really a choice between these options. Therefore, we can assume that the individual's decision whether or not to supply their abilities in the sense of labor to a terrorist group is based upon the following constrained maximization problem whenever there is no chance to migrate and get income from this migration option (Wall, 2006).

$$\text{Max } U = [\beta C^p + \alpha(t^p)]^{\gamma p}$$

$$l, t \text{ subject to } C = wl + w_t t,\ l+t=1$$

C is consumption, t is the time devoted to terrorist activities, l is time devoted to legal work, w is the wage rate for legal work, w_t is the wage provided by the terrorist organization, and β and α are weights reflecting the individual's preferences for C and t (Wall, 2006).

[3] In the current literature, this possible link is almost completely ignored. If discussed, the inverse link is focused on: Is there a danger that terrorism will be "imported", e.g. through individuals which are coming from countries perceived as terrorism-prone.

[4] The implicit assumption here is that "terrorism" does not mean suicide terrorism, so that the wage can be earned not only in one period (the period which precedes the final attack), but in several periods.

[5] In this section, we distinguish neither whether the migration is legal or illegal, nor whether the employment in the host country is legal or illegal.

The implicit assumption here is that there is no "natural born terrorist", but that most people might be willing and able to become a terrorist under certain circumstances, e.g. specific events which influence the personal attitude towards violence, unemployment, poverty, or the lack of perspectives in general. Therefore we do not distinguish between "terrorist sympathizers" or "anti-terrorists," but assume that each individual is a "waverer" (the individual has an α-value of zero) who decides for or against terrorism depending on the alternatives. In that sense each individual is a mercenary; their decision depends on the costs and the benefits of the chosen alternative. The costs are determined by potential sanctions imposed on specific behavior, and the probability of discovery the benefits depend on the respective incomes earned.

For all cases where the migration opportunity exists, the function of the decision to become a terrorist can be modeled as:

$$Y = f (C_K, pC_{Dis}, eN_T)$$

With the costs of terrorism (C_T), costs of migration (C_M), the costs of being discovered (C_{Dis}), (punishment cost, e.g. time in prison), p likelihood that the terrorist is discovered by the state and no longer able to "work" in the terrorist market, and the expected value of the net benefit of terrorism (eN_T). The decision to become a terrorist is a subjective one and depends on the personal expectation of the benefits from the action. Therefore, terrorism will be the choice only if:

$$C_T + pC_{Dis} \leq eN_T$$

If this model holds – and migration matters – there would be several ways to decrease domestic terrorism: First, if migration is an option, or if decreased costs of migration may lead to an increased overall migration, then there is potential for reduced terrorist attacks. Such a cost reduction can be induced through changes in visa policies, a relaxation of border controls, or reducing the sanctions imposed on illegal migration. The problem in this context is, however, that migration policies are not under the full control of the domestic government, but also the subject of international agreements, so that an independent decision is likely to be impossible and, if made, will at least lead to disputes with neighboring countries. Second, an increased domestic wage level in the legal market might decrease the likelihood of individuals becoming terrorists. Thus overall economic growth, which is reflected in rising domestic real wages, can help to reduce the incidence of terrorist attacks in the long term.

Application to MENA Countries

In recent surveys, almost half of the Arab youth expressed a desire to emigrate resulting from concerns over job opportunities and education, in particular in the labor-rich countries such as Egypt (Urdal 2006; UNDP, 2002). This trend is reflected by current numbers and may become manifest in real migration rates in the future. Today, migration from the MENA region to other global regions on average exceeds migration to the MENA (Pew, 2011). Projections indicate that the MENA countries will - between 2010 and 2015 – lose an annual average of 66 people per 100,000 in the general population.

Figure 2: Migration in MENA – Middle East

	2010		2030	
	PROJECTED NET MIGRATION RATE PER 100,000	PROJECTED NET MIGRATION	PROJECTED NET MIGRATION RATE PER 100,000	PROJECTED NET MIGRATION
Syria	-508	-114,000	-31	-10,000
Jordan	-521	-34,000	0	0
Yemen	-104	-25,000	-49	-19,000
Palestinian territories	-84	-4,000	-65	-5,000
Lebanon	-58	-2,000	-82	-4,000
Oman	33	<1,000	24	<1,000
Bahrain	355	3,000	269	3,000
Qatar	637	10,000	400	8,000
Kuwait	622	19,000	454	20,000
Saudi Arabia	109	29,000	80	29,000
United Arab Emirates	808	38,000	590	39,000
Sub-Region	**-80**	**-80,000**	**42**	**62,000**

Source: Pew Research Center 2011

Figure 3: Migration in MENA - North Africa

	PROJECTED NET MIGRATION RATE PER 100,000	PROJECTED NET MIGRATION	PROJECTED NET MIGRATION RATE PER 100,000	PROJECTED NET MIGRATION
Egypt	-91	-77,000	-70	-78,000
Morocco	-225	-73,000	-126	-49,000
Algeria	-76	-27,000	-35	-16,000
Tunisia	-38	-4,000	-33	-4,000
Libya	58	4,000	46	4,000
Western Sahara	1,644	9,000	119	<1,000
Sudan	59	26,000	-22	-14,000
Sub-region	**-67**	**-142,000**	**-56**	**-156,000**

Source: Pew Research Center 2011

As can be seen from figures 2 and 3, there are relevant differences for the sub-regions and between single countries. The aforementioned trend of negative net migration is particularly relevant for the resource-poor, labor-abundant countries, with slight differences between the single countries, while the countries of the GCC gained population in the 1990s and early 2000s and are likely to continue to growth through migration (Pew, 2011). For the period from 2010 to 2030 the migration rates from the resource-poor countries are expected to decrease, but are still likely to stabilize at a high level.

Model and Empirical Analysis

Our first hypothesis is that the existence of a youth bulge in a given period of time has a significant influence on the number of attacks a state will experience within this period. Furthermore, in line with the considerations outlined above, we assume that the fact that a

country has a Muslim majority or at least a Muslim minority may result in a large number of domestic terrorist attacks.

To test the role of an existing youth bulge and other factors empirically, we use simple *negative Binomial* log models, which are more appropriate compared to other models (e.g. the *Poisson* model) due to the existing "over-dispersion"[6] in the data. The regression coefficients in this model can be interpreted as the rate of change between the independent variable and the log of expected counts of the dependent variable. These log odds are not as easy to interpret, so the relevant information in these models comes from the significance level of the variable and the direction of the sign (positive or negative effect on the dependent variable).

Additionally, all models show an overall significance at the 1 percent level for the *Omnibus-Test*, indicating that the model used (with several explaining variables) is significantly better than an alternative model without these variables. Additionally, the values of AIC and BIC for the models used indicate a strong goodness of fit.[7]

The basic model displayed below estimates the effect of a Dummy for an existing youth bulge; a Dummy for a country being a country with Muslim majority; as well as indicators for economic conditions, governance quality, and other factors on the number of attacks in a given period of time as the independent variable.

$$\log(\text{Number of Attacks}_i) = \alpha + \beta_1 x_1 + \ldots + \beta_n x_n + \varepsilon_i$$

The number of attacks in a given period of time (five-year intervals: 1986-1990, 1991-1995, 1996-2000, 2001-2005) in a country is the dependent variable. From our point of view, the decision of when to become a terrorist and when to execute an attack is incidental to a certain degree – if one becomes a terrorist on the 31st of December or on January 1st may be the consequence of random effects. Furthermore, some time is required before the decision to become a terrorist translates into an attack itself. The period of radicalization may take some time, so that annual data, which is used in most studies on that topic, may not be suitable. We try to bypass this problem by using a five-year period for the number of attacks as well as five-year averages for some of the influencing factors.

We use the existence of a so-called *children bulge* (population aged 0 to 14 years exceeds 30 per cent) in a country as a predictor of and therefore an appropriate dummy for further youth bulges, by lagging it for five years. Using the children bulge is necessary due to a lack of data for the 14 to 24 year old demographic, but the choice seems methodically appropriate – and given that we used averages for a five-year period each it is unlikely that the young population is reduced substantially due to migration or death, which would mean that the children do not reach the status of youth five years later. Only in the unlikely case that the following generation is so large that the forerunning average children bulge never becomes a youth bulge would this approach would be misleading. Given the decreasing birth

[6] Overdispersion in this context means that the variance in the data is higher than the expected variance from the model. Therefore e.g. a Poisson model, which implies the equality of mean and variance, cannot be used in the case of over-dispersion, but a negative binomial distribution is suitable (Gschlößl and Czado, 2006).

[7] As compared to other models tested (different variables, limited data set) and not used in this study.

rates over the last 50 years worldwide, this does not seem to be a problem which occurs very often and can therefore be ignored in our study. With our design we can capture the large group of young persons (under 20 years old), which is, according to the related literature, accountable for a large share of violence and therefore seems to be relevant to our study (Niang, 2010).

As independent variables/predictors, we used indicators for economic growth and political stability (averages for five-year periods each) and included several Dummies:

- Average GDP per capita, lagged by 5 years
- Average GDP growth
- Average political stability (Polity 2)
- Dummy variable for "Muslim Majority"
- Dummy variable for "Muslim Minority (larger than 5 per cent of population)"
- Dummy variable for "Youth Bulge" (population aged 0 to 14 years exceeds 30 per cent), lagged by 5 years
- Dummy "State Failure Problems"

As mentioned above, the topical literature suggests a broad variety of factors which can contribute to explaining the incidence of (domestic) terrorism. As previous studies used annual data, we tested for the average GDP per capita for a five-year period, lagged by five years, as well as the average GDP growth in a five-year period. Despite that several studies came to the conclusion that economic conditions may not be so important, there are, theoretically, some indications that economic conditions might matter. On the one hand, wealthy countries can redistribute resources better in order to smooth out dissatisfaction (Henderson and Singer 2000). On the other hand, raising incomes increase the opportunity costs of potential terrorists, as their possible earnings in the regular economy will likely become higher in the future (de Soysa, 2002; see for details Urdal, 2004).

Economic well-being is estimated as the average GDP per capita over the five-year period before the period of observation. The data for average GDP per capita as well as for the average GDP growth comes from the World Bank "World Development Indicators"; population data is collected from this source, too. Data for average political stability and for the construction of the Dummy for "State Failure Problems" (Polity 2) is collected from a modification of the Polity IV project by Marshall and Jaggers (2000), with values ranging from -10 (most autocratic) to 10 (most democratic). Dummy variables for Muslim majority as well as for Muslim minority (larger than 5 per cent of the population) are constructed with data from the World Bank.

In addition, several indicators and Dummy variables are used to test the effects of the "exit-effect" of migration, or of a lack of migration opportunities on domestic terrorism: we included a Dummy to indicate the general openness of a country for labor migration; the Dummy "Migrant Worker Convention" indicates if a country has signed this international convention to protect migrant worker's rights and to ease their work conditions. This dummy does not capture whether outward (labor) migration is possible or easy for a specific

case, but has been included to test if a country is generally open to inward labor migration. The implicit assumption is that a country which signed the convention and which therefore has to fulfill specific obligations towards its inward migrants is more likely to view migration and migrants as important and positive and that it will thus not actively hamper the outward migration of its own people.

The Dummy "Missing Migration Opportunity" indicates whether or not there is an easy migration opportunity for the population of a specific country. This Dummy takes the value 1 if there is no legal migration opportunity, or if this opportunity is correlated to prohibitively high costs, and the value 0 if a – legal and easy – migration opportunity exists. So, for example, if a country became a member of the *Commonwealth of Nations*[8] before the year 1971, or is still linked closely to Great Britain, then its citizens fall under specific permissive regulations regarding living and working – the right to abode – in Great Britain. For countries who meet these requirements the Dummy becomes 0. Furthermore, if a country has signed a bi- or multilateral agreement on labor migration with one or more foreign countries, e.g., allowing the domestic population to work elsewhere, the Dummy is classified as being 0. Additionally, this Dummy captures the effect of a country having an active anti-migration policy, e.g. in the form of migration restrictions such as requirements for an exit visa to leave the county.

To capture effects which amplify each other, or only occur if other conditions are fulfilled simultaneously, interaction terms are inserted in the regression model. In line with the theoretical considerations, of particular importance is the interaction of the restriction of "voice" and "exit" at the same time, and the existence of a "youth bulge" and a "Muslim majority." The results of several regression models used (samples for world and Muslim countries only) are displayed in tables 1 and 2.

[8] The *Commonwealth of Nations* is a political association of independent states, most of them being former colonies of Great Britain. As a consequence, in British immigration law a number of specific regulations existed or still exists which guarantee citizens of *Commonwealth* members specific rights to live and work in Great Britain or apply for British citizenship, easing emigration from their home-countries for those groups of people.

Table 1: Model Outcomes - Youth Bulge, Terrorism, and Migration

Parameter	*i*	*ii*	*iii°*
	Exp(B)		
Intercept	**55,259***	**55,48***	**36,460***
Average Polity2	**1,079***	**1,079***	**1,080***
Average GDP per capita growth annual	**1,095***	**1,095***	**1,076***
Average GDP per capita (const 2000 $; 5 year lag)			**1,000*****
Dummy State Failure Problem Set=0	**,172***	**,173***	**,080***
Dummy Missing Migration Opportunity=0	**3,804***	**3,805***	
Interaction Muslim Youth Bulge=0	**,330*****	**,330*****	
Dummy Youth Bulge 5year lag=0	**1,143**	**1,142**	
Dummy Youth Bulge10year lag=0			**1,278**
Dummy Muslim Minority 5% or higher=0			**2,697***
Dummy Muslim Majority=0	**2,994*****	**2,995*****	**,716***
Dummy Migrant Worker Convention=0			**,843**
Interaction Youth Bulge Missing Migration=0	**,182***	**,183***	
Interaction State Failure Youth Bulge Missing Migration=0	**1,014**	**.**	
Number of Observations: 357 (i, ii)/°265 (iii)			
Indicates significance at the 1 per cent level, *** 10 per cent level			
Negative Binomial Regression			

Source: Author's calculation

Table 2: Model Outcomes - Youth Bulge, Terrorism, and Migration in Muslim Countries

Parameter	*Exp(B)*
Intercept	**509,903***
AveragePolity2	**1,127***
Average GDP per capita growth annual	**1,070**
DummyStateFailureProblemSet=0	**,698**
DummyMissingMigrationOpportunity=0	**,677**
InteractionMuslimYouthBulge=0	**,330*** **
DummyYouthBulge5year lag=0	**,140***
InteractionStateFailureYouthBulgeMissingMigration=0	**,346**
Number of Observations: 75 (Muslim countries only)	
**** Indicates significance at the 1 per cent level, *** 10 per cent level*** ***Negative Binomial Regression***	

Source: Author's calculation

Discussion and Concluding Remarks

We found that, in line with the existing literature, a number of independent variables have a significant influence on the number of terrorist attacks in a given period of time: we found statistically significant evidence that Muslim countries experience, on average, more domestic terrorism, a fact which implies some lessons for the MENA countries, in particular when linked to other results of our empirical studies. While the average GDP has no influence on the number of attacks, average GDP growth has a positive and statistically significant influence on the incidence of terrorism. These (counterintuitive) results underpin previous studies (e.g. Krueger and Maleckova, 2003).

As we found no general empirical evidence that there is a significant difference between the number of attacks in countries which are experiencing a youth bulge and countries with other demographic developments, the fact that most MENA countries, in particular the labor-rich ones, have large youth cohorts does not alone make them especially vulnerable to domestic terrorism. As expected from the "New Institutional Economics" (NIE), the quality of institutions matter when it comes to terrorism, as the number of attacks is likely to increase by a significant multiple when the institutional quality is exceptionally low, i.e. when state-failure is manifest (Dummy). Additionally, and seemingly counter-intuitive at the first sight, for each point increase in overall institutional quality, indicated by the average "Polity2" score, the number of attacks increases slightly, but at a statistically significant level. This

outcome suggests an inverted "U-shape" for this relationship, with attacks being high in a condition of state failure and when the institutional quality is exceptionally high, in free political systems as democracies – the chances to create a terrorist group or to carry out an attack may be higher in democracies due to a lower level of state control and less suppression (see for effects of political freedom on terrorism e.g. Abadie, 2004 and 2006; Bandyopadhyay and Younas, 2009). Additionally, missing migration opportunities in combination with the existence of a youth bulge have a statistically significant effect on the number of attacks in a country

Furthermore, there is another factor which is of particular relevance for the labor-rich and relatively less developed countries in MENA: As our empirical findings demonstrate, the lack of easy migration opportunity, e.g. due to prohibitively high migration costs or a lack of – legal and/or illegal – migration options, does not increase the incident rate of terrorism in general (compared to the reference group), but it does increase terrorism incidences for countries with a Muslim majority (figure 4).

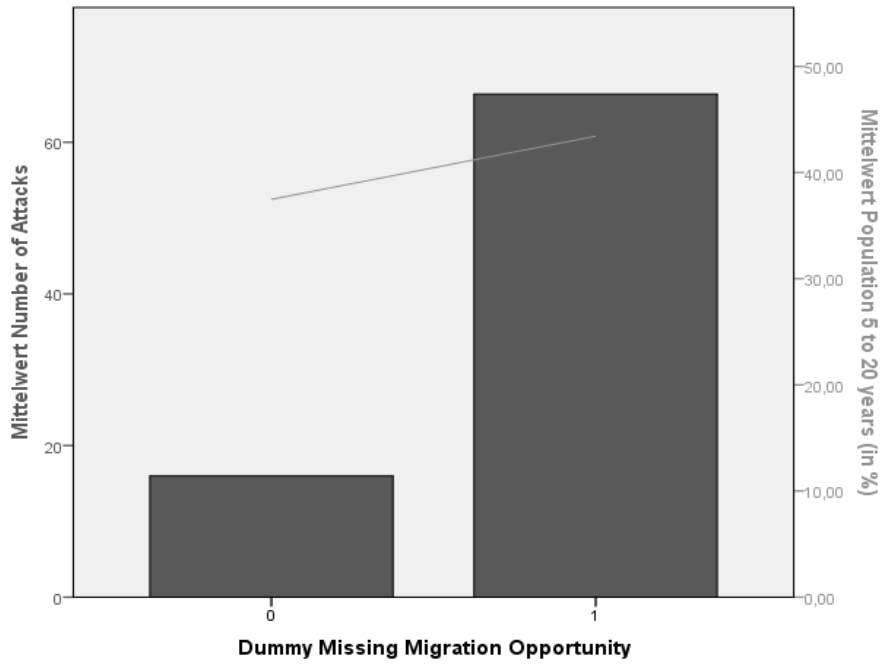
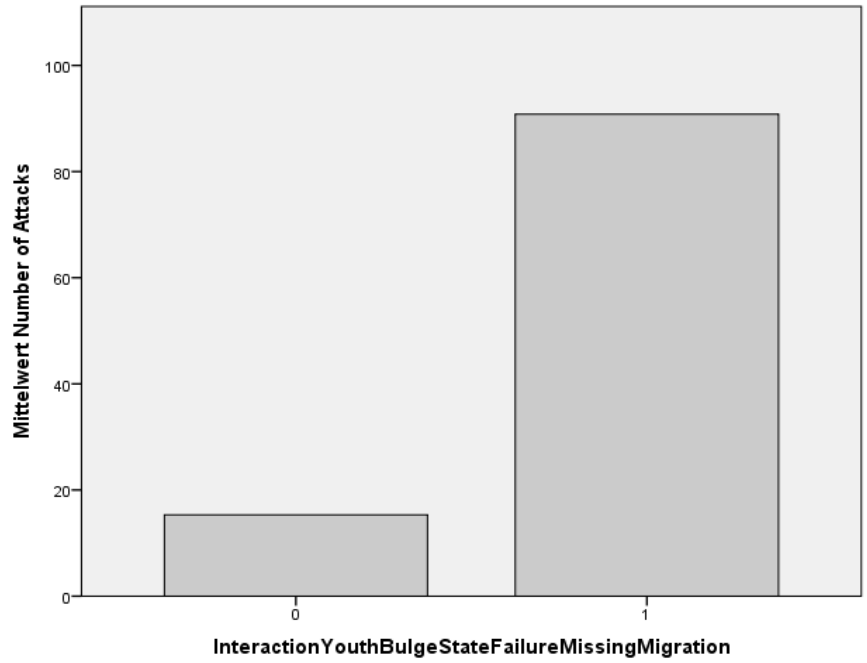


Figure 4: Links between Migration and Terrorism in the Muslim World

Source: Author's calculation

While a statistically significant increase of domestic terrorism (interaction term) cannot be observed for countries worldwide which experience all factors at the same time – missing migration opportunities, state failure and a youth bulge -, for the Muslim countries there is a significant impact; the number of attacks increases when all these factors are in place (figure 5).

Figure 5: Links between Migration, Youth Bulges, and Terrorism in the Muslim World



Source: Author's calculation

Given that for most MENA countries, in particular all labor-rich MENA countries, all three factors are indeed present, a high vulnerability to domestic terrorism pre-exists. With regard to the negative impact of terrorism on the economy and the society of the affected country, as discussed above, effective counter-terrorism policies may thus be necessary for better economic performance. So, regarding the policy options available to these countries, what can be done to reduce those obstacles for further growth? Regarding youth bulges, no short-term policy option exists – but one may not be necessary, as the long-term birth rates are decreasing anyway, meaning that these youth bulges are likely to disappear within the next 30 years in most countries. Therefore, reforming the institutional framework, improving the poor institutional quality, and generating migration opportunities, e.g. through bi- or multilateral labor-migration agreements, are the only short-term options available to the governments of the affected countries themselves, but also in their interaction with regional and international partners. To reach these results, far-reaching reforms and transformations in the affected MENA countries seem to be necessary preconditions – transitions processes which are currently unfolding in the so-called "Arab Spring"…

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