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Al Jabri, Nasser; Campbell, Neil; Saha, Shrabani; Khan, Safdar

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The Role of Youth Bulge on Political Instability: Cross-Country Evidence

Nasser Al-Jabri^a, Neil Campbell^{b*} and Shrabani Saha^c

^a Nasser.aljabri@mohe.gov.om, Ministry of Higher Education, Research and Innovation, Muscat, the Sultanate of Oman, PC:123, P.O. Box: 138

^b * Corresponding author: ncampbel@bond.edu.au, Bond Business School, Bond University, 14 University Dr, Robina QLD 4226, Gold Coast, Australia

^c SSaha@lincoln.ac.uk, Lincoln International Business School, University of Lincoln, Brayford Wharf E, Lincoln LN5 7AT, United Kingdom

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Abstract

This paper investigates how unemployment and democracy influence the relationship between youth bulges and political instability. A novel feature of our empirical analysis is that we examine the joint effect of labour markets and the level of democracy in the linkage between youth bulges and political instability. Using political instability data derived from the International Country Risk Guide we conduct a series of panel data analyses over one hundred countries and make use of several sub-samples for the years 1984-2019. We find that youth bulge alone enhances political instability, while high rates of unemployment further enhance its role. Interestingly, we find that moving toward democracy increases its effect upon political instability if greater percentages of youth population and unemployment persist in Organization for Economic Co-operation and Development (OECD) and Middle East and North Africa (MENA) countries.

Keywords: Youth bulge, youth unemployment, democracy, political instability, and panel data

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Abstract

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1. Introduction

There is a widespread belief that a country with a highly youthful population (a youth bulge) has a high risk of political instability.¹ History offers anecdotal evidence regarding political instability associated with youth bulges². The French Revolution in

¹ However, political instability may not actually occur. A youth bulge can either represent demographic dividends or a curse. It represents dividends where there are high quality institutions, a well-regulated labour market, good economic management, high levels of trade openness, and a good education policy (Bloom and Canning, 2004). For example, there are demographic dividends in Asian tigers countries; while, there are demographic curses in Latin America (Bloom and Williamson, 1998). Bloom et al. (1999) attribute one third to one half of the high rate of economic growth in East Asia countries to favourable demographic conditions.

² In this research a youth bulge is measured using the population in the age group 15-24 years old as a percentage of the population aged 15 years and older. Huntington (1996) suggests that a country has an

1789 has been partly attributed to a youth bulge (Urdal, 2004) as has the political instability in Turkey in the 1970s and 1980s. Furthermore, Tamil dissatisfaction in Sri Lanka turned to armed rebellion when the country experienced a youth bulge in the 1980s (American Central Intelligence Agency, 2001). Of course, these are simply particular instances; the question arises as to under what socio-economic and political conditions will there be youthful dissatisfaction such that a youth bulge will be associated with a high probability of political instability? In this paper we investigate how unemployment, and a low level of democracy influence the relationship between youth bulges and the risk of political instability. Both individual and joint effects of unemployment and democracy on political instability are examined using over one-hundred countries for the period 1984-2019.

The rest of the paper is structured as follows. The next section contains a literature review and Section 3 discusses the nexus between democracy, demography and the probability of political instability. We then move on to a data description followed by empirical strategy and the results. The final section presents conclusions and recommendations.

2. Literature review and hypothesis development

Despite the importance of the moderation effect of socio-economic and political factors on the role of youth bulge affecting political instability³ it has received limited attention in the empirical literature. Urdal (2006) is the sole study that investigates the moderation effect of youth bulge with economic growth, education level, urban growth

actual youth bulge when its population in the age group 15-24 years old, as a percentage of the total population, reaches 20 %. In our empirical analysis we use the term ‘youth bulge’ to refer to the variable defined above whether it is a high percentage or low percentage.

³ See for example Xenos and Kabamalan; (2005), Urdal (2006); Marcus et al (2009); and Barakat and Urdal (2009).

rate and the level of democracy on the onset of armed conflict using the Uppsala/PRIO data set that covers a period from 1950 to 2000. His study finds a significant positive relationship between youth bulge and the onset of armed conflict (individual effect), but no joint effect was found between youth bulge and other factors on the onset of armed conflict. The measurement of political instability and the use of the binary estimation technique could be attributed to the inability of Urdal to establish a joint effect on political instability. Niang (2012) states that measuring political instability in terms of civil war imposes restraints on empirical analysis carried out using logistic regression or other forms of binary or dichotomous dependent variable to study the relationship between youth bulge and political instability.

Using logistic regression or other forms of binary or dichotomous dependent variable have been criticized because they are not appropriate for analyzing large panel data containing many cross section and cross time observations, especially when the number of observations of civil war is relatively small in comparison with the number of observations of peace (Goldstone, 2002). Urdal (2006) examines the impact of the joint effect on alternative measures of political instability in the form of riots, demonstrations and terrorist attacks using the PANDA data set that covers a period from 1984 to 1995. It is found that their impact on political instability is stronger in countries with high levels of educational attainment measured by growth of tertiary education. However, the data set is biased because it reports incidences of political instability in countries that are of high interest within the Western agenda; also, the data set covers a short time period.

Kaphahn and Brennan (2017) point out that, the failure of researchers' political instability indices to predict the so-called Arab Spring in 2010, can be attributed to their focus on political factors that can lead to political instability and their lack of focus on

socio-economic factors such as poverty, inequality, youth unemployment and youth demographics and, in the case of Egypt, an independent military. Following the view of Kaphahn and Brennan (2017), we contend that youth unemployment, youth bulge and the level of democracy substantially increase the probability of political instability; however, we do not rule out other economic factors such as the Gini coefficient, wage level etc. The latter prospective channels are not investigated further due to poor quality of data especially in developing countries. The importance of the unemployment channel is that it stands as a barrier preventing the achievement of important life objectives such as marriage and economic independence. The Algerian armed conflict in 1992⁴ has been attributed partly to young people having trouble in finding employment, educational and housing opportunities (American Central Intelligence Agency, 2001). A crisis like this can rapidly emerge when the growth rate of the youth population outstrips the economic growth and the associated growth in employment opportunities (Lia, 2007). The Opportunity Perspective contends that an individual who experiences unemployment has a low opportunity cost of time; consequently, he is more likely to commit to direct political action (Collier, 2004). While a person with a desirable job may choose not to engage in illicit, or semi-illicit, political activity, because of a fear of losing their job; an unemployed person will not have the same inhibitions. Also, an unemployed young person is less likely to be in a position to marry and hence, without family obligations, is more likely to engage in disruptive political action⁵. Similarly, the Cohort Hypothesis states that pressure created by young jobseekers on limited employment prospects places a downward pressure on wage levels and this exacerbates the dissatisfaction associated with the imbalance between

⁴ The armed conflict between the Algerian government and various Islamic groups began in 1991 and ended in 2002.

⁵ We are grateful to an anonymous referee for making this point.

the growth rate in wealth for the socially and economically fortunate and the growth rate for the vast majority of the youth population (Macunovich, 2000). Tunisia among other countries in the MENA region experienced political instability beginning in 2010 which led to the fall of the Ben Ali regime in the so-called Arab Spring. Several factors, including unemployment, came into play contributing to the fall of the regime. The economic environment preceding the regime fall was characterised by high youth unemployment. This was a result of the failure of the regime to respond to the youth-generation demand for employment. This led to a long period of waithood – the waiting time to join the labour market after finishing schooling. Consequently, unemployed youth lacked the financial independence to achieve their dreams like starting family (Kaphahn and Brennan, 2017).

Unlike much of the literature on political instability we do not focus purely on political instability in developing countries; the paper extends its analysis to developed countries as discussed latter in methodology section. Our definition of political instability, discussed below, measures a government ability to achieve its declared plan and consequently, stay in office. Clearly an unpopular minority government in an OECD liberal democracy could well have a lot of difficulties passing legislation. Obviously here the demographics of dissatisfaction could be quite complex. Both frustrated young job seekers and elderly pensioners with falling living standards may well be among the most volatile voters⁶. Of course, there can also be volatility among middle aged voters facing the prospect of bankruptcy or long run unemployment. Ellinas (2013), in his detailed discussion of the rise of the explicitly racist (now banned)

⁶ Otjes and Krouwel (2018) note that there has been a modest rise of pensioners' parties in Europe. From their analysis in the Netherlands, they conclude that the typical voter for such parties is a lower-educated male with an antagonism to international economic and cultural integration. With the Brexit referendum there was much stronger support for Leave from older voters. Jackson-Preece (2016) notes that a majority of voters aged 49 and under voted for Remain.

Golden Dawn party in Greece, notes that there is a standard pattern throughout Europe when it comes to the typical voter that has jumped to the far right. Such a person is young, male, moderately educated and often without a job. Golden Dawn, in particular, had a destabilising effect not only through parliamentary representation, but also through the use of street-level violence and intimidation. Petrou and Kandyliis (2016) give a detailed account of how Golden Dawn activists represented themselves as vigilante heroes, rather than thugs, to rural Greek communities. That is, Golden Dawn had success in spreading the narrative that foreigners commit depraved and violent crimes and thus Golden Dawn attacks on foreigners are legitimate actions that protect the community. Embodied in this narrative is the idea of internal traitors who exacerbate the problem of the foreigners; these include corrupted politicians, media that conceals the truth and leftist apologists for foreigners.

We contend that a low level of democracy in a country, with a pronounced youth bulge, faces a high probability of political instability. This is because a lack of democracy prevents young people from pursuing their interests or seeking redress for their grievances in a peaceful manner (Goldstone, 2001). Modernization Theory and the Grievance Perspective point out that the relationship between youth bulge and political instability goes through political channels either directly or indirectly. Directly, Modernization Theory states the relationship is strengthened when the political system fails to accommodate youth civic skills developed by high levels of educational attainment (Huntington, 1968). Goldstone (2001) argues that the relationship is strengthened when the political environment is characterized by immature democratic practice and lack of protection for minorities. Gates et al. (2006) point out that pure democracy and autocracy are more stable than immature democracy. In immature democracies there is instability because the elite tries to grab power from

the executive branch of government in contrast to 'ideal' autocracies where there is a high level of power concentration. Similarly, immature democracies are less stable than ideal democracies because they do not have the required means to incentivize and motivate the public to work in good faith to maintain and develop democratic institutions. Empirically, it is confirmed by Al Shammari and Willoughby (2017) who examine the relationship between the level of democracy and political instability in the Middle East and North Africa during 1984-2014. Overall, the results confirm the findings of the past empirical studies that the more democracy in a country the less probability of political instability; however, the relationship is negative for the five Arab Spring countries and Egypt itself. The latter results are sensitive to the change in variables measurements as the authors indicate. They point out that econometric investigation of the political process required using alternative empirical specifications. Low levels of democracy can trigger political instability indirectly through its adverse impact on economic growth. Under such circumstances the Grievance Perspective predicts that the 'disenfranchised' young may rely on violence to deal with actual or perceived political and economic grievances (Gurr, 1970) as cited in (Urdal, 2004).

Combining the political factor in the form of a low level of democracy and the economic factor, that being unemployment, should produce a substantial increase in the probability of political instability compared with simply the presence of a substantive youth bulge on its own. Past empirical research investigates the impact of the independent effect of youth bulge on the probability of political instability and reaches inconclusive results (see, for example, Marcus et al., 2008; Barakat and Urdal, 2009; Goldstone et al., 2010). The inconclusive results indicate that the relationship between the two variables is not direct but moderated by the economic and political environment. We assess the role of youth bulges on the probability of political

instability moderated by unemployment and the level of democracy as well as the joint effect between unemployment and the level of democracy in a panel data analysis covering a period from 1984 to 2019.

This study differs in its measurement of political instability compared to past empirical research, among others: Urdal (2006), Al-Shammari and Willoughby (2017) and Bricker and Foley (2013). This study measures political instability with a wider perspective using the International Country Risk Guide (ICRG) dataset prepared by the Political Risk Services group. Urdal (2006) measures it in the form of armed conflict that reveals various limitations.⁷ The measure does not reflect the current status of reality that there is a decreasing trend in state-on-state armed conflict worldwide as states have moved toward settling, or at least pursuing, their disputes using alternative⁸ means (Goldstone, 2002). The determinants of armed conflict (whether civil or state-on-state) are different from the factors that influence the role of youth bulges as a determinate of political instability, the former is driven, to a considerable extent, by religious or ethnic discrimination or other similar factors. Fearon and Laitin (2003) argue that such discrimination is the main factor behind civil war in Southeast Europe, former Soviet countries, and sub-Saharan Africa in the 1990s. Therefore, some authors such as Bricker and Foley (2013) argue that these data sets are more appropriate to study the causes of large-scale incidence like war, not other incidences of political instability – one of which is the role of youth bulge on political instability. To address this shortage in the dataset, Urdal (2006) uses another data set namely the SFTF project,

⁷ It measures political instability in the form of armed conflict using the Uppsala dataset. The data set considers an incidence to be politically unstable when there is a minimum of 25 battle related deaths per year. It classifies a conflict as severe when the death toll exceeds one thousand; otherwise, it is minor (Gleditsch et al, 2002). It has been intensively used in prior empirical research (Marcus et al., 2008).

⁸ While, of course, there are many ongoing geopolitical rivalries, these are typically not pursued by engaging in traditional state-on-state warfare. It is common for such rivalries to be pursued by backing proxies in civil wars.

originating from the PANDA at Harvard University. The SFTF project measures political instability in the form of terrorism, riots and violent demonstration (or what is termed political-social unrest). Although it measures small-scale incidences of political instability it is biased towards countries where the Western agenda prevails. For example, Sub-Saharan countries experienced 35% of total global political instability incidences from 1955 to 2003 but are not well represented by the data set (Urdal, 2006). Another drawback is that it measures the number of violent incidences but not their intensity (Neumayer, 2004). Similarly, Bricker and Foley (2013) measure political instability by constructing an index of political instability using the Heidelberg Institute data set that covers a period from 1996 to 2010. Likewise, Al-Shammari and Willoughby (2017) investigate the determinants of political instability in the MENA region using a data set from 1991 to 2014. They built a weighted conflict index calculated as the weighted occurrence of political incidences in Cross National Time Series Data. Given that their data goes up to 2014 it might be that their results are influenced by continuous political turmoil in some countries in the region in the aftermath of the Arab Spring of 2010. However, in all studies, the short time period might not be sufficient to capture the effect on political instability. Furthermore, Bricker and Foley (2013) and Urdal (2006) examine the role of youth bulge on political instability using panel data analysis (without differentiating between countries) based on the percentage of youth bulge or other criteria such as democracy. Al-Shammari and Willoughby (2017) examine only the independent effect of economic, demographic and political variables and no interaction is tested.

Second, unlike Al-Shammari and Willoughby (2017) and Urdal (2006), this study examines the independent, as well as the joint effects on political instability in sub-samples based on the percentage of youth bulge. Third, it investigates the joint

effect on the probability of political instability in the MENA region, which has received continuous international attention since the Arab Spring erupted in late 2010. Fourth, it estimates the models using Two Stages Least Squares (2SLS) to deal with possible reverse causation that runs from dependent to independent variables; this is not addressed by Urdal (2006) nor by Al-Shammari and Willoughby (2017).

Our intension is to examine how youth bulge interacts with the socioeconomic and political environment and its joint effects on political instability. In other words, while a substantive youth bulge alone can increase the probability of political instability, when it is moderated by the socioeconomic and political environment, does the degree of the effect vary with the change in the socioeconomic and political environment? (Goldstone, 2002). The theory and findings here suggest that future research needs to consider the prevailing socioeconomic and political environments to give integrated and nuanced explanations about the role of youth bulges as factors influencing the probability of political instability. The moderation effect is important because under the right socio-economic and political conditions a youth bulge can facilitate economic growth as indicated by Bloom and Canning (2004). Furthermore, some elements have more influence upon the youth bulge-political instability link (here we find that the labour market is more important than the level of democracy). This has the potential to help policy makers reduce the probability of political instability associated with a youth bulge by targeting particular areas for urgent reform. While improving democracy is axiomatically important, it is typically not going to lessen the effect of a youth bulge as a cause of political instability.

3. Unemployment, liberal and illiberal democracy as recipes for youth-based political instability: Overview

It might seem like an aberration that an increase in democracy is associated with a higher probability of political instability in the presence of a substantive youth bulge. However, many of the countries that have shifted toward democracy over recent decades have not become mature liberal democracies⁹. Rather, such countries are democracies in the sense that they conduct more-or-less free and fair elections, but the institutions associated with a liberal democracy, such as a free press and an independent judiciary, do not exist¹⁰. Thus, many of the regimes in illiberal democracies engage in electoral authoritarianism¹¹; dissent can be muzzled by imprisoning opponents on trumped up charges and eliminating critical elements within the mass media. While such regimes do not have the full arsenal of repressive measures available to traditional dictatorships, there are frequently non-state-actors who are prepared to take violent action against critics of the government¹². If such a regime was to become more democratic by pardoning some imprisoned critics and be somewhat more tolerant of street demonstrations, there is a strong probability that dissatisfied youthful protestors would be emboldened to engage in more, and not less, direct political action. Rasler (1996) regards some of the events leading up to the Iranian Revolution as an example of this phenomena. Pressure on the Shah's regime led to some major concessions to opposition forces; this was met with larger crowds on the streets demanding an Islamic

⁹ Huntington (1991) refers to the shift to democracy that took place from the 1970s onward as the third wave of democratization. While some of these countries transformed into liberal democracies, such as Portugal, others, such as the Philippines, did not develop the institutions and checks-and-balances associated with liberal democracy.

¹⁰ In Zakaria's (2004) discussion of illiberal democracy, the point is made that in the traditional liberal democracies, liberal institutions preceded representative democracy. While essentially universal male suffrage was only introduced in Britain in the late 19th Century, there was more-or-less an independent judiciary and a free press by the early 18th Century.

¹¹ The government of countries like Singapore and Russia have genuine electoral popularity, however, such governments use repressive measures to stifle dissent and cripple opposition political movements.

¹² Amnesty International (2018, p. 33) gives the example of human rights and environmental activists being subject to violence and intimidation by non-state actors in Honduras.

Republic. While the regime responded to this with repressive measures the overwhelming momentum of the Revolution was building.

The situation is different in OECD countries; here there are liberal democracies with typically well-functioning associated institutions¹³. These institutions include established political parties. These have their own history, traditions and sense of due process. While such parties contribute to parliamentary stability, the choice between two major rival parties (or groupings of parties) offering essentially similar policies, can lead to a sense of frustration and disempowerment among the young and the unemployed. This, in turn, can lead to direct action on the street and support for extremist, populist and sometimes genuinely reformist parties. In Italy unemployment has taken the youth vote away from traditional main-stream parties toward the populist Five-Star Movement and the right-wing League (Schultheis 2018). The Five-Star Movement advocated for a universal basic income and the League advocated for a flat tax (Lyman 2018). In the coalition dominated by these two parties the Five-Star Movement succeeded in introducing a minimum basic income paid to poorer citizens known as Citizens' Income (Giuffrida 2019). With a liberal democracy such as Italy shifts in the political landscape can be consistent with parliamentary democracy operating successfully to bring about reform.

4. Model, Data and Methodology

This section discusses the model, data, and methodology used to examine the proposed hypotheses in this study.

¹³ While Hungary and Poland are OECD members, there is increasing concern that they are shifting away from liberal democracy (Hutton 2018).

4.1 Model

The first objective of this paper is to examine the impact of the independent effect of youth bulges, a low level of democracy and unemployment on political instability. The second objective is to explore the channels, that is, how youth bulge affects the potential for political instability via unemployment (a socio-economic factor) and a low level of democracy (an institutional factor). For this purpose, joint effects between youth bulges and unemployment, youth bulges and the level of democracy, and youth unemployment and the level of democracy on the level of political instability are examined using the following panel data model:

$$PI_{it} = \alpha_0 + \alpha_1 (YB)_{it} + \alpha_2 (\text{LogYU})_{it} + \alpha_3 (RT)_{it} + \alpha_4 (eco)_{it} + \alpha_5 (socio)_{it} + \alpha_6 (YB * \text{LogYU}(RT))_{it} + e_{it} \quad (1)$$

where, PI is political instability; YB is youth bulge; LogYU is log of youth unemployment; RT is regime type which measures the level of democracy; Eco is economic control variables that comprise of rents from natural resources, trade openness, GDP annual growth, and inflation rate ; Socio is social control variables that comprise of gross tertiary enrolment and log of total population; YB*LogYU (RT) is interaction term between youth bulges and youth unemployment (level of democracy).

The coefficient α_6 captures the joint effect of youth bulges and youth unemployment (level of democracy) on the level of political instability. The partial effect of youth bulges and youth unemployment on political instability is estimated as follows:

$$\partial PI_{i,t} / \partial YB_{i,t} = \alpha_1 + \alpha_6 \text{LogYU}_{it} \quad (2)$$

Equation (2) indicates that if $\alpha_6 > 0$, a one percentage increase in youth bulge enhances the potential for political instability when youth unemployment is high. Equation (2) indicates that if $\alpha_6 > 0$, a one percentage increase in youth bulge enhances the potential for political instability when youth unemployment is high. Conversely, if $\alpha_6 < 0$ and exceeds $\alpha_1 > 0$ then a one percentage increase in youth bulge lowers political instability in a country with a greater number of youth unemployment. It is possible for unemployed youth to decide not to participate in violent or illicit activities which could cause them to be blacklisted, adversely affecting their employment prospects particularly with regard to government jobs. For a treatment of the effectiveness of government coercion see Gupta et al. (1993).

Likewise, the joint effect of a youth bulge and the level of democracy on the level of political instability is captured by the coefficient α_6 . The partial effect on political instability is estimated as follows:

$$\partial PI_{i,t} / \partial YB_{i,t} = \alpha_1 + \alpha_6 RT_{it} \quad (3)$$

In equation (3), if $\alpha_6 > 0$ a one percentage increases in youth bulge produces a stronger impact on the level of political instability when a level of democracy is high.

Similarly, the joint effect of youth unemployment and the level of democracy on the level of political instability is captured by the coefficient α_6 . The partial effect on political instability is estimated as follows:

$$\partial PI_{i,t} / \partial YU_{i,t} = \alpha_1 + \alpha_6 RT_{it} \quad (4)$$

In equation (4), if $\alpha_6 > 0$ a one percentage increases in youth unemployment produces a stronger impact on the level of political instability when a level of democracy is high.

Youth bulge is expected to have a positive relationship with the level of political instability, the more youth bulge in a country the more is the risk of political instability (Urdal, 2006). Similarly, the higher is the rate of youth unemployment the higher the risk of political instability (Bricker and Noah, 2013). A low level of democracy increases the potential of political instability (Huntington, 1968). Variables in joint effect are centered to their mean to reduce collinearity.

4.2. Data

This section discusses the influence of the focus and control variables of the study on the level of political instability and the data used in the analysis.

4.2.1. Dependent variable

This study uses a new data set that to the best of our knowledge has not been used before to capture the effect of youth bulge on political instability. The International Country Risk Guide (ICRG) dataset published by the Political Risk Service Group (PRS), is used in the analysis. Its annual report measures the financial, political and economic risk of countries worldwide since 1984. The data is constructed to assess political risk associated with political and socioeconomic environments in a country (Lambsdorff, 2007). The data set has several advantages; first, it meets the objectives of the paper to examine the factors contributing to political instability in a country. It covers a longer time period in comparison to other data sets that measure the level of political instability in the form of small and large-scale incidences, such as Conflict Barometer, which covers a period from 1992 to 2013 (and some of which are published in the German language).

The political instability is measured by aggregating a total score of internal conflict and government instability in the ICRG indices. Government instability is an assessment of a government's ability to achieve its declared program and to stay in office. It is measured in a scale of 12 as a sum of three subcomponents: government unity, legislative strength and popular support, but the subcomponents' weights are not given. Internal conflict is divided equally into three components: civil war/coup threat, terrorism/political violence and civil disorder. According to ICRG data, a high score suggests a low level of political instability, while a low score indicates that a country faces a high risk of political instability¹⁴. For ease of interpretation, the original score is rescaled so that a high score suggests a high level of political instability. However, ICGR provides only total points out of 12 assigned to each country in government instability and internal conflict but the breakdown of total points received in each sub-component are not given. The study uses an alternative measure of political instability, constructed by Saha and Yap (2013), to check for robustness.

4.2.2.Independent variable

The main independent variables considered are youth bulge, youth unemployment, and level of democracy. A high percentage of youth bulge in a country can either represent demographic dividends or a curse conditional upon socio-economic and political environments (Bloom and Canning, 2004). For example, there are demographic dividends in Asian tigers countries; while, there are demographic curses in Latin America (Bloom and Williamson, 1998). Bloom et al. (1999) attribute one third to one half of the high rate of economic growth in East Asia countries to favorable demographic conditions. The study adopts the measure of youth bulge (YB) used by

¹⁴ See www.prsgroup.com/ICRG_Methodology.aspx for details.

Urdal (2006). It measures YB as people aged 15-24 years old as a percentage of the population aged 15 years old and above. Urdal (2006) argues that the standard measure of youth bulge as the population aged 15-24 years old as a percentage of the total population¹⁵ is flawed because it fails to capture their impact on political instability because the theories on the effect of youth bulge on political instability assume that competition between young and older populations lead to political instability. This happens when there is imperfect substitutability between young and older people in the labour market. The standard definition underestimates the impact of youth bulges in countries that continue to experience high levels of fertility because the youth bulge effect is slackened by the large percentage of children under the age of 15. The data is collected from the United Nations, The World Population Prospects: the 2019 revision. Figure 1 shows the percentage of the youth bulge using both measures across regions in the world. Although, there is no general agreement on the specific minimum percentage of youth bulge that make a country more prone to political instability, Huntington (1996), suggests that it is when the percentage of youth bulge exceeds 20% to total population. According to Figure 1, all regions in the world have no risk of political instability (low level of PI) when youth bulge is operationalized using the percentage suggested by Huntington, which make Urdal's (2006) definition more appropriate.

[FIGURE 1 ABOUT HERE]

Youth unemployment substantially increases the probability of political instability; however, other economic channels are considered; but are not investigated further because of poor quality of data especially in developing countries. Unemployment can trigger political instability because it prevents youth from financial

¹⁵ The definition is adopted by Huntington (1996), Goldstone (2001), and Collier and Hoeffler (2004).

independence (Lia, 2007). Unemployment, associated with low opportunity costs of taking action, makes youth prone to commit acts causing political instability as explained by the Opportunity Perspective (Collier, 2004). Alternatively, unemployment can lead to political instability because of imbalance between the growth rate in wealth for the socially and economically fortunate and the growth rate for the vast majority of the youth population resulting from an oversupply of labour that places downward pressure on wage levels as suggested by Cohort Hypothesis (Macunovich, 2000). The relationship between youth unemployment and political instability is supported empirically (Al-Shammari and Willoughby, 2019). In this study it is expected the relationship will be found to be positive. [However, there is a possibility of an inverse effect of youth unemployment on political instability due to a threat created by the government not to employ young protesters in government jobs.](#)

Youth unemployment is defined as total youth unemployment in the age group 15-24 years old as a percentage of the total labour force. The youth unemployment across regions in the world (Figure 2) shows that Middle Africa has the highest youth unemployment, exceeding 40%; while, Eastern Asia has the lowest rate. The MENA region has one of the highest youth unemployment rates worldwide. The data is collected from World Development Indicators, the World Bank (2020). Youth unemployment data is log transformed for the analysis with the aim to improve the correlation between the variable and dependent variable (Hair et.al, 2010).

We contend that a low level of democracy in a country, with a pronounced youth bulge, faces a high probability of political instability. Democracy offers a political channel for the public to raise their demands and seek their interests as well as address their needs in peaceful manner (Goldstone, 2001). It offers institutions to accommodate civic skills associated with high levels of educational attainment as suggested by

Modernization Theory (Huntington, 1968). It offers checks and balances to prevent the consequences of malpractice on economic growth. Al-Shammari and Willoughby (2019) point out that there is a general consensus in the literature that a low level of democracy increases the risk of political instability, and their empirical results support that agreement in the case of the MENA region. Therefore, this study expects a negative relationship between the level of democracy and political instability.

[FIGURE 2 ABOUT HERE]

The data for regime type is collected from the Center of Systemic Peace (2020). They rank countries on a scale of 21, from -10 (hereditary monarchy) to +10 (consolidated democracy). In this paper the score is re-scaled from 1 to 21 where 1 indicates autocratic regime and 21 indicate fully democratic. The level of democracy across various regions in the world is shown in Figure 3. It is interesting to note that the MENA region shows the highest level of autocracy, which is consistent with many commentators, and media reports that claim the MENA region is considered as having the most autocratic regimes in the world. Similarly, all regions in Africa are mostly characterised by autocratic regimes. Oceania and Northern America are the most democratic regions in the world.

[FIGURE 3 ABOUT HERE]

4.3. Control variables

To ensure that models are unbiased and reliable some of the control variables suggested by theoretical and empirical literature as determinants of political instability are included in the models. The control variables represent economic and social factors. Economic factors include annual growth of Gross Domestic Product (GDP growth), trade openness (TO), rents from natural resources (Rents NR) and inflation rate (IR).

GDP growth is defined, as is the annual percentage growth rate of GDP at market prices based on constant local currency. However, aggregates are based on constant 2015 U.S Dollar prices. Data for economic factors are collected from the World Development Indicators, the World Bank (2020). Several empirical studies confirm the negative association between GDP annual growth and the level of political instability such as Collier and Hoeffler (2004), Fearon and Laitin (2003), Shahbaz (2013), Taydas and Peksen (2012), and Urdal (2006).

Trade openness is defined as the percentage of imports and exports to GDP. It is a measure of the economic environment that reflects the level of economic opportunities available for an individual/business in a country according to the Opportunity Perspective. Bricker and Foley (2003) find that a high level of trade openness decreases the political instability. They contend that a high level of trade openness increases the economic opportunity available to an individual so that he/she is less likely to commit acts that increase the level of political instability. Therefore, it is expected to have a negative relationship with political instability.

Rents NR measures the rents from natural resources generated from oil, gas and forests as a percentage of GDP. According to Rent-Seeking theory, it increases the risk of political instability because oil rents and oil processing facilities are attractive targets of rebels (Smith, 2004). Alternatively, it increases the level of corruption that leads to increases in income inequality, which in turn increases the level of grievance among the public and makes them more likely to commit political instability incidents (Morrison, 2009). Thus, a positive relationship is expected between the two variables.

Inflation rate is the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services. Empirically inflation can fuel political instability because it can be associated with a fall in real wages. Al-Shammari

and Willoughby (2019) find a negative relationship between inflation rate and political instability in MENA region.

Several social factors are found to influence the level of political instability such as log of total population (LogTP) and gross tertiary enrolment (GTE). Total population represents country size (the population data is obtained from the World Development Indicators, the World Bank (2020)). A large country might create difficulties for a government to keep close tabs on areas remote from the centre. For instance, Governments in China have struggled with this problem over the centuries, but the country remained united. In contrast, Fearon and Laitin (2003) cites the example of Bangladesh (formerly the country was geographically separated and known as East Pakistan) achieving independence from Pakistan.

Gross tertiary enrolment is defined as total enrolment in tertiary education as a percentage of the eligible school-leaving age group of the population; data is obtained from the World Development Indicators, the World Bank (2020). According to the opportunity perspective, education increases an individual's opportunity cost to join a rebel movement by increasing his/her value in the labour market and expanding the prospective income-earning opportunities (Collier, 2004). The empirical research confirms that education has a negative relationship with political instability (see for example, Alesina et al. (1996), Barakat and Urdal (2009) and Collier and Hoeffler (2004)). The descriptive statistics and the correlation matrix and data definition and sources of the variables are reported in the appendix Tables A1, Table A2 and Table A3, respectively. We have checked the unit root of all variables and the results show all variables are stationary.¹⁶ A list of countries under this study is listed in appendix Table A4.

¹⁶ Unit root test results are not reported here but available from authors upon request.

4.4. Methodology

Unlike past empirical literature, this paper identifies countries' youth bulge according to the youth population, in the age bracket 15-24 years old, as a percentage of the population in the age bracket 15 years old and above. A dummy variable is created for a country being a member of the Organization of Economic and Cooperation Development (OECD). The average percentage of youth bulge over the sample period is 18.3% in OECD countries while in non-OECD countries it is 29.5%. Furthermore, the figure shows significant variation in the socio-economic and political environment among the two groups. This variation can help to capture the latent effects which are not captured by variables included in the model.

[FIGURE 4 ABOUT HERE]

The second dummy is created to capture the impact of youth bulge on political instability in the MENA region. In the aftermath of the onset of the so-called Arab Spring in late 2010, the region received significant attention by policy makers, international organizations and researchers to understand factors causing youth to commit political acts against their respective regimes in the region. Uddin et al., (2017) find political instability to be higher in Middle Eastern countries and is a deterrent to economic growth. This paper examines the independent effect of youth bulge and its joint effect moderated by unemployment and a low level of democracy on the level of political instability in the region.

With the MENA sub-sample, the aim is to find empirical evidence to explain the causes of the so-called Arab Spring in 2010. Available explanations about its causes

are anecdotal. Some of anecdotal evidence attributes its causes to the effect of oil rent on the socioeconomic and political environments in the region. Oil rents in the region speed up the process of modernization. Ross et al. (2011) argues that oil rent in the MENA region increases the level of rural-urban migration, which in turn increases pressure on the labour market that leads to increased unemployment. Oil rents increase the level of educational attainment and political awareness among youth, but institutional structures have not developed enough to accommodate such a change. Similar anecdotal explanation is given for the causes of the Iranian revolution in 1979 by Shambayati (1994). It is important to note here that not all countries within the MENA region have substantial oil rents. Morocco, Tunisia, Lebanon and Jordan all receive very limited oil rents (World Bank Group, n.d.)

There is a strand of empirical literature which suggests that oil rents have an adverse impact on institutional quality, which in turn increases the probability of political instability. O'Sullivan et al. (2011) find that poor institutional quality has substantial costs on public welfare through its adverse impact on economic growth and investment. Ross et al. (2011) focus on the negative impact of corruption on privatization projects that aim to develop the vital private sector in the MENA region. The authors indicate that the privatization process in the region, especially in low and middle economies such as Egypt, Yemen and Tunisia, is characterized by a high level of corruption, patronage and lack of motivation and continuity. Shehata (2011) argue that the factors that led to the fall of the Mubarak regime in 2011 were an increasing level of corruption and economic exclusion. As a result of a high level of corruption, economic growth achieved in the region over the past decades did not lead to increases in the level of GDP per capita. The impact of corruption on creating an economic environment where the private sector is an engine of economic growth can be observed

from the imbalance between economic growth and population growth. In the MENA region, over the period from 2000 to 2010 the average economic growth was 4.8% that does not match GDP per capita growth, which was 2.5% over the same period. The gap between these two growth rates is considered among the highest in the world, below only sub-Saharan Africa (O'Sullivan et al., 2011).

Given that there is variation in youth bulge need(s) and requirement(s) across the world, this paper examines their effect on the probability of political instability by separating the sample into OECD countries and the MENA region. Moreover, such sub-samples aim to identify if there are latent factors that influence the level of political instability in a country.

There is no general agreement on the determinants of political instability as indicated by Miljkovic and Rimal (2008). Therefore, this paper uses the empirical model used by Collier and Hoeffler (2004)¹⁷; their empirical model is revised to fit the objective of this study.

The paper estimates the models using panel 2SLS to account for a possible endogeneity issue, which is not addressed by the existing empirical research.

$$PI_{it} = \alpha_0 + \alpha_1 (YB)_{it} + \alpha_2 (\text{Log}YU)_{it} + \alpha_3 (RT)_{it} + \alpha_4 (eco)_{it} + \alpha_5 (socio)_{it} + \alpha_6 (YB * \text{Log}YU(RT))_{it} + e_{it} \quad (5)$$

The statistical test of endogeneity of explanatory variables confirms that GDP annual growth rate is endogenous. The endogeneity issue arises when one or both of the following conditions are not addressed in the model. Estimating model 4 by OLS estimation leads to inconsistent results estimators for all α_{it} if

¹⁷ Collier and Hoeffler (2002) examine the general determinants of political instability.

$$E(u) \neq 0, \text{Cov}(\alpha_{it}) \neq 0. \quad (6)$$

The undressed endogeneity issue raises doubt about whether the causation runs from independent variables to a dependent variable (Miguel et al, 2004). The method of instrumental variables provides a solution to address endogeneity problem of GDP annual growth rate. The method required finding a variable q that is not included in the model and satisfy the following conditions

$$\text{Cov}(q,u)=0, \theta \neq 0 \quad (7)$$

Put it in other words q should be like other explanatory variables in (5) exogenous and its coefficient is correlated with GDP annual growth rate, but not correlated with other explanatory variables included into the model.

A one-year lag of economic growth variable is used as an instrument given the difficulty in finding an appropriate external instrument. The statistical test confirms the validity of the instrument for GDP annual growth. This instrument is used because it is found that estimators are more robust with fewer instruments than many instruments. 2SLS has several advantages over other estimation techniques (Bollen and Stine, 1992).

Sensitivity analysis is carried out using an alternative proxy of political instability adopted from Saha and Yap (2014) and fixed effect (period effect) as an alternative estimation technique and a panel estimation technique (panel least square) is used for over one hundred countries for the period 1984-2019. The technique considers heterogeneity that may exist among cross section units individually (Gujarati, 2014). Period effect is considered rather than two ways fixed effect or cross section effect because unit effect is considered by using dummy variables. Furthermore, it is selected over cross section effect because independent variables are time variant. It is

chosen rather than random effect to account for possible correlation between independent variables and omitted variables. Saha, et. al., (2017) indicates that fixed effect absorbs the correlation between independent variables and omitted variables as long as they are time invariant. Heteroskedasticity and autocorrelation-consistent standard errors are used to reduce the effect of heteroskedasticity on the empirical results.

To test the proposed hypotheses, a panel estimation technique (panel least square) is used for over one hundred countries for the period 1984-2019. A panel estimation technique (panel least square) is expedient due to its time-invariant country heterogeneity control which cannot be done when time-series or cross-sectional data are used (Baltagi, 2008 and Wooldridge, 2009). There is a risk of obtaining biased results if this heterogeneity is not controlled (Moulton 1986, 1990). We first start employing panel least square estimation with the average values of each variable for the period 1984-2019. Following Saha and Gounder (2013) and Dawson (2003), a six-period panel (i.e., five 5-year average for 1995–2019) is estimated to deal with potential business cycle effects that are assumed to be present in annual data. We test its validity comparing the variances of parameters obtained from the random effect model using the Hausman test. The results are presented after correcting for both heteroskedasticity and serial correlation with robust standard errors.

5. Estimation results

5.1. Impact of youth bulge, unemployment and the level of democracy on political instability

This subsection analyses the independent effect of youth bulge and youth unemployment on the level of political instability, and their interaction and their impact moderated by the level of democracy.

Model 1 (Table 1) estimates the independent effect of youth bulge, youth unemployment and the level of democracy along with all control variables. The coefficient of youth bulge is positive and significant at the 1% level suggesting that an increase in the percentage of youth bulge increases the risk of political instability significantly. Likewise, youth unemployment coefficient has the expected positive sign and significance. The results reveal that unemployment among youth enhances political instability. In other words, a large youth unemployment is a big political threat to a country such as Egypt. The level of democracy as expected has a significant negative sign at the 1% level suggesting that the improvement in its level decreases the probability of political instability. Control variables are mostly significant and have expected signs. An increase in GDP annual growth, rent from natural resources and gross tertiary enrolment decreases the potential for political instability, while trade openness and inflation rate are insignificant. Whereas large population size enhances political instability significantly.

The results are consistent with the theoretical expectations that youth bulge with low opportunity cost and high level of grievance, as a result of unemployment, are more likely to engage in destabilizing political action. The relationships between youth bulge (measured on X-axis) and the level of political instability (measured on Y-axis) and youth unemployment (X-axis) and political instability (Y-axis) are shown in Figure 5 and 6, respectively¹⁸. In Figure 5 youth bulge is positively correlated with the level of

¹⁸ The average value of each variable for each country over the period is used to draw the figures.

political instability, while the relationship between youth unemployment and political instability is not obvious (Figure 6).

[FIGURES 5 AND 6 ABOUT HERE]

The independent effect of the level of democracy confirms, the past empirical research, that it is as an important stabilizing factor of the political environment. Democracy opens a channel for youth to deliver their views peacefully; consequently, it helps a government to accommodate their needs in its public agenda. The absence of such a channel, or a weak channel, can increase the probability of political instability. Figure 7 illustrates the relationship between democracy and the level political instability by measuring the level of democracy on the X-axis and the level of political instability on the Y-axis. It shows that there is a negative relationship between the two variables; the more autocratic a country is the higher the probability of political instability. The regression coefficient for the individual effect of democracy on political instability shows a negative sign (Model 7, Table 3), which is consistent and supports the above argument.

[FIGURE 7 ABOUT HERE]

Given the potential influence of the level of democracy in the role of youth bulge and unemployment as well as unemployment and youth bulge on political instability, the joint effect of youth bulge and unemployment, youth bulge and the level of democracy and the unemployment and the level of democracy are examined in models 2 to 8.

Model 2 examines three interaction terms between youth bulge and youth unemployment, youth bulge and the level of democracy and youth unemployment and the level of democracy on political instability. Interaction terms are significant at the 1% level with a positive sign for the interaction term between youth bulge and the level of democracy and between youth unemployment and the level of democracy, while the interaction term between youth bulge and unemployment has a significant negative sign at the 1% level. The results reveal that youth bulge and youth unemployment impose higher risk of political instability through their interaction with the level of democracy than the interaction between youth bulge and youth unemployment. A standard deviation increases in the percentage of youth bulge at mean score of democracy increases the potential of political instability by 28 units, whereas, increasing the unemployment percentage among youth by a standard deviation exposes a country to the risk of political instability by 17 units. [Interestingly, the negative effect of youth bulge with an increasing level of youth unemployment suggests the deterrent effect i.e., the risk of not getting jobs in future, if participate in protests against the ruling government, deters protest action.](#)

The positive sign of the interaction term of youth bulge and the level of democracy and the interaction term of youth unemployment and the level of democracy indicates that living standard is more important than the level of democracy to stabilize the political environment in a country. Increasing the level of democracy, while economic opportunities fall behind, increases the probability of political instability initiated by unemployed people and youth with low opportunity cost. The failure of an individual to find economic opportunities to satisfy his/her basic needs might motivate him/her to commit to direct political action or to response to youth bulge ultimate demands in this era. Alternatively, the failure of educational system to develop civic

skills required to raise demands peacefully through democratic institutions as indicated by the modernization theorist Huntington (1968) and supported empirically by among others (Collier and Hoeffler (2004); Barakat and Urdal (2006) and Alesina et al. (1996)).

The independent effect of youth bulge, youth unemployment and the level of democracy as well as control variables has the expected significant sign except trade openness and inflation rate that have insignificant positive sign.

[TABLE 1 ABOUT HERE]

5.2. Impact of youth bulge, unemployment and the level of democracy on political instability in OCED

In this subsection the joint effect of youth bulge and unemployment, youth bulge and the level of democracy and the joint effect of youth unemployment on political instability are examined in OCED, results are shown in Table 2.

Model 3 (Table 2) examines the joint effect of youth bulge and unemployment on political instability in OCED countries. The youth bulge through their interaction with unemployment raises the risk of political instability in OCED countries as the interaction term has a significant positive sign at 1% level and their risk higher in OCED countries than non-OCED countries. In other words, unemployment enhances youth bulge to increase the risk of political instability and the impact is higher in OECD than non-OECD countries. The interaction effect of youth unemployment (youth bulge) on political instability is higher in Chile member of OECD countries than non-OECD countries. The interaction effect of youth unemployment at mean percentage of youth bulge 17 % in Chile on political instability is 15.215. A standard deviation increases in youth unemployment at mean percentage of youth bulge enhances political instability

in Chile by 3.347 unit or 364% of a standard deviation of political instability in comparison.

The result suggests that the impact of youth bulge on political instability moderated by unemployment is important to stabilize the political environment in general; however, the variation across countries depends on the nature of political instability. In OECD countries it is expected that instability goes through frequent change in cabinet through democratic channels especially that the measure of political instability used in this paper comprises of government instability which defined as a failure of a government to achieve its declared plan. Under this scenario a high rate of unemployment has an adverse effect directly or indirectly through bringing down the wage level or increasing the crime rate etc. that collectively or individually effect a government's opportunity to stay in office for another term. The independent effect of youth bulge, youth unemployment, the level of democracy has a significant expected sign at the 1% level. Control variables generally have a significant expected sign.

Model 4 examines the joint effect of youth bulge and the level of democracy on political instability in OECD countries. OECD countries face higher risks from youth bulges than non-OECD countries but with insignificant expected positive sign. Similarly, the level of democracy is important to stabilize the political environment in OCED and non-OCED countries with significant negative sign at the level of 10% and 1% respectively and its magnitude higher in the former than the latter. The impact of youth bulge moderated by the level of democracy enhances political instability in both group of countries; however, its impact higher in OCED than non-OCED countries with a positive sign although it is insignificant.

The insignificant positive sign of the interaction term in both group of countries reveals that mature democracies like OCED countries and immature democracies or

autocratic like non-OCED countries can experience political instability triggered by youth bulge; however, political instability takes different forms between the two sub-samples. In democratic countries, incidences of political instability take forms such as riots, demonstrations and strikes; while, in non-OCED can take severe forms such as coups and political assassinations. Flanigan and Fogelman (1970) argue that there is a variation in the form of political instability incidences across regions in the world. They point out that some regions in the world are more prone to specific forms of political instability than others. They give an illustration example of Latin America and sub-Saharan Africa where former is more prone to socio-political unrest than the latter that more likely to experience civil war. Also, there is a variation in the source of political instability in the two group of countries. Its source in OCED countries is the failure of a government to protect the life, prosperity and property of its citizenry. Failing to do so can spark less lethal, small-scale incidences of political instability than in autocratic countries (Hegre, 2014). With non-OECD countries, typically they are neither consistently democratic nor fully autocratic; this might suggest that the potential source of political instability is immature democratic practices and institutions which can be seen in case of Lebanon. Hegre et al. (2001) point out that moving from autocracy to mature democracy takes a long time as both institutions and personal attitudes do not change 'overnight'. Control variables have the expected significant sign except trade openness and inflation rate.

Model 5 examines how democracy reacts in conjunction with government failure to deal with youth unemployment and its effect on political instability in OCED countries. Unemployment in OCED alike other countries increases political instability as the interaction term between youth unemployment and OCED has a positive coefficient although it is insignificant. Similarly, the joint effect of the level of

democracy and OCED has insignificant positive sign. The joint effect of youth unemployment and the level of democracy and its interaction with OCED has insignificant positive sign. In other word, unemployment moderated by the level of democracy enhances political instability in OCED and non-OCED countries. The results reveal that employment has pacifying effect on political environment and that effect is alike in democratic countries like OCED or other non-democratic countries like non-OCED countries. therefore, it is not the level of democracy that brings peace, but it is effectiveness to create employment through proposing new or amendment to laws, regulations and policies that stimulate economic growth which in turn decreases the adverse effect of unemployment on political stability. Control variables has the expected significant sign except trade openness and inflation rate.

[TABLE 2 ABOUT HERE]

5.2. Impact of youth bulge, unemployment and the level of democracy on political instability in MENA region.

This subsection examines the joint effect of youth unemployment and youth bulge, the joint effect of youth bulge and the level of democracy and the joint effect of youth unemployment and the level of democracy on political instability in MENA region, results are shown in Table 3.

Model 6 examines the joint effect of youth bulge and youth unemployment on political instability in MENA region. Youth bulge is associated with a lower potential for political instability in the MENA region as the interaction term between youth bulge and MENA has a significant negative sign. Similarly, youth unemployment is associated with a lower potential for political instability in MENA than non-MENA regions as the interaction term between MENA and youth unemployment has a negative

sign and although it is not significant. Furthermore, youth bulge, through the interaction with unemployment, enhances political instability and the probability is higher in the MENA region as the interaction term between the joint effect and MENA region has a positive sign, but it is insignificant. Unemployment in the MENA region enhances the impact of youth bulge on political instability because it prevents an individual from gaining access to some goods and services that require permanent income, like housing (Chaaban, 2013). Furthermore, in the absence of financial support, unemployed individuals fail to achieve financial independence, and hence can find themselves reliant on their extended family (Said, 1996). Control variables have the expected significant signs except trade openness and inflation rate.

Model 7 examines the impact of youth bulge on political instability in the MENA region through the interaction with the level of democracy. The independent effect of democracy has a negative sign although insignificant; however, it shows a higher risk in MENA than in non-MENA regions as the coefficient of the interaction term between MENA and democracy is negative and insignificant. In other words, a low level of democracy enhances political instability, and its impact is higher in MENA than non-MENA regions. The interaction coefficient between democracy and MENA is negative; however, the joint effect between democracy and youth bulge in MENA region turns positive as the interaction term between MENA and democracy and youth bulge has a significant and positive sign at the 5% level.

The empirical results suggest that the role of youth bulge on political instability in the MENA region is exacerbated by moving towards democracy¹⁹. It might be that not all countries in the region have favorable socioeconomic conditions in order for

¹⁹ Note that what we are referring to here is the move away from a purely authoritarian state towards an illiberal, chaotic and increasingly corrupt democracy that is ineffective at suppressing political action.

democracy to produce stability as indicated by Hegre and Nome (2010). Descriptive analysis at the country level in the MENA region shows that countries such as Qatar, Oman, Saudi Arabia and Bahrain that have the lowest score of democracy in the region are more stable than countries such as Algeria and Yemen that have higher scores in the level of democracy.

Alternatively, democracy enhances the effect of youth bulge on political instability in the MENA region because the public does not possess a culture capable of accepting political settlement of conflicts associated with democracy and to respect its outcome. For example, a political agreement supported by the United Nation and Gulf Co-operation Council to settle conflict between different domestic interest parties in Yemen since late 2010 was violated and these parties resorted to violence in order to enforce a new political agreement.

Another channel that makes introducing democracy in the MENA region leads to political instability is the presence of a strong collectivist culture. An individual in the region has a powerful motivation to support his extended family or tribe members at the expense of the public interest; this is particularly the case in the Gulf countries with their strongly tribal social structure (Eickelman, 2016). Under such conditions, democracy can be a source of political instability because families or the tribe use it (through lobbying and political donations) to show their superiority over other families or tribes. Control variables have the expected significant signs.

Model 8 examines the contention that unemployment moderated by the level of democracy leads to the so-called Arab Spring in 2010 in the MENA region. The interaction effect between unemployment and the dummy variable MENA has a positive and significant coefficient at the 1% level of significance. Similarly, the interaction effect between democracy and MENA regional dummy has a positive and

significant coefficient at 1% level. The result is a bit unexpected indicating that the region, which is mostly dominated by autocracies, has seen an improvement in democracy leading to increased political instability. The finding is somehow accepted in light of continuous political turmoil in some countries in the region such as Lebanon, Tunisia, Libya and Yemen. Democratisation in the region can be a source of political instability as a result of low levels of economic development across countries in the region except for the monarchies in the Arabic Peninsula.

[TABLE 3 ABOUT HERE]

5.3. Robustness analysis

The regressions are re-estimated using panel fixed effect with 2SLS, with few exceptions the estimates confirm two-stage least square results that the joint effect of youth bulge and youth unemployment and youth bulge and democracy increase political instability in a country. This finding is robust and provides strong evidence that higher percentage of youth bulge and youth unemployment increases political instability in non-OECD countries. However, the results are not reported here due to the limited space.²⁰

Moreover, the impact of the interaction effects between youth bulge, youth unemployment and democracy on political instability are re-estimated using an alternative proxy of political instability used by Saha and Yap (2013). The results remain very similar, although the significance level changes.²¹

6. Conclusion

²⁰ The results are available upon request from authors.

²¹ The results are not reported here due to the limited space, are available upon request from authors.

The empirical results find that a strong youth bulge enhances the potential for political instability worldwide. However, it is more likely in non-OECD than in OECD countries. Interestingly, a youth bulge shows lower probability of political instability in the MENA region; contrary to the claims that a highly youthful population in the region led to the so-called Arab Spring in late 2010. The conventional positive relationship between youth bulge and political instability is in line with the findings of Urdal (2006); Bricker and Foley (2013) and Marcus et al (2009); but it is in conflict with Goldstone et al (2010) who find no relationship. Our result of a negative relationship between a youth bulge and political instability in the MENA region seems counterintuitive. However, it needs to be remembered that over much of the sample period there has been stability in the MENA region countries because of a combination of repression and buying peace with oil rents.

We do not find support for the idea that the higher the rate of youth unemployment, the stronger the impact of youth bulges on political instability in panel regression; but the joint effect is significant in OECD and not significant in the MENA region. In OECD countries given their level of democracy, political instability goes through political channels, while, in the MENA region, the absence of democratic channels escalates the risk of unemployed youth engaging in protest, that is, youth unemployment implies severe conditions of instability in countries such as Egypt, Tunisia, Yemen and Syria where the percentage of unemployment among youth is the highest in the MENA region. Other countries in the region that have comparable percentages, like Saudi Arabia, have managed to avoid political instability by taking generous fiscal measures to buy peace in the wake of the Arab Spring. It is interesting how in Saudi Arabia massive oil rents are able to buy peace, for the present, but in many other countries conflict over substantial oil rents can be destabilizing.

We do not find support for the hypothesis that the higher the level of democracy in a country, the lower the impact of youth bulge on political instability. In contrast, we find that improvement in the level of democracy enhances the effect of youth bulge on political instability in OECD countries and the MENA region and the effect is higher in the latter region. Despite the similarity of the impact of joint effects on political instability across sub-samples, there are variations in its causes and their prospective impacts. In OECD countries the failure of governments to respond to youth needs and requirements might spark small-scale incidences of political instability such as riots, demonstrations and strikes. In the MENA region, it might be that the combination of underdeveloped economic environments and social structures leaves these countries not ready to embrace democracy. While this paper does not rule out the idea that democracy can lower the impact of youth bulges on the level of political instability, it emphasizes the importance of laying down foundations for its introduction, such as education and economic development which in turn have the potential to lead to family loyalty being replaced by loyalty to the state. The results are a departure from Goldstone (2001) and the prediction of Modernization Theory (that a low level of democracy has a destabilization effect on the political environment). Empirically, our study differs from the finding of Urdal (2006) who finds an insignificant negative relationship between the joint effect and the risk of armed conflict.

We do find support for the hypothesis that the higher the level of democracy, the lower is the impact of youth unemployment on political instability in the MENA region; but, in panel regression improvement-in-the-level-of-democracy enhances the impact of youth unemployment on political instability.

Political factors can moderate the effect of a youth bulge on the level of political instability. However, we find, contrary to expectations, that the impact of a youth bulge

on the level of political instability is stronger in more democratic countries. This suggests that improving the level of democracy; while youth have desperate living conditions might directly increase the probability of political instability. Also, there may be indirect effects through increased crime rates, which make a country less attractive for investment leading to reduced employment opportunities that, in turn, heighten the level of political instability.

Unemployment can lead to instances of political instability even when there is a high level of democracy. For example, in December of 2008 widespread youth violence broke out in Greece as a response to economic depression that led to lack of employment opportunities. Similar situations can be observed in other democratic countries such as France, Spain and Italy. On the other hand, some countries that had a lower mean score for democracy and a lower rate of youth unemployment had less instability. These countries, such as Qatar and Russia, have had lower political instability than the mean score of the entire sample.

An increase in a 'youth bulge' can increase the level of political instability in a country even where the young make up a relatively small percentage of the population, when, employment prospects are bad. This can be seen from Greece, France, Spain and Italy where the percentage of young people is less than 20% of the population, but, nevertheless, the conditions for political instability exist. On the other hand, in the case of Qatar and Russia the percentage of young people exceeds 20%, however, this does not increase the level of political instability. It is when youth face current unemployment and bleak career prospects that they are more inclined to commit acts which result in political instability. Stathis Kalyvas, a political science professor at Yale University interviewed by *The New York Times* newspaper points out: "If you have a

demonstration where 10 of them start throwing stones, soon the 500 others following them will join in.” (Celestine, 2008, para16).

Policy makers need to reform labour markets. Reforming labour markets should go in parallel with reforming the educational system by making it correspond to market needs; without this, an increased level of education, can increase the level political instability because the situation arises where well-educated youth face poor prospects in terms of wages and employment as indicated by Modernization Theorist Huntington (1968). Reforming labour markets and the educational system should be part of economic reform that aims to increase economic diversification. Economic policies that aim to develop one sole economic sector put economic growth at risk; consequently, employment opportunities are also put at risk. Egypt and Tunisia are heavily dependent on the tourism sector for foreign currency and employment. The sector in these two countries contributes significantly to economic growth and employment; however, the unstable political environments in these countries, since late 2010, have had serious economic consequences for the sector (Whitman, 2015).

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Table1: The joint effect of youth bulge and youth unemployment, youth bulge and democracy and unemployment and democracy on political instability

Dependent variable: Political Instability	Model 1	Model 2
Youth Bulge	0.163*** (0.0147)	0.242*** (0.047)
Youth Unemployment	0.357*** (0.102)	1.724*** (0.373)
Youth Unemployment*Youth Bulge		-0.097*** (0.014)
Youth Unemployment*Democracy		0.055*** (0.013)
Youth Bulge*Democracy		0.009*** (0.002)
GDP_Growth	-0.204*** (0.043)	-0.206*** (0.042)
Natural Resources	-0.040*** (0.010)	-0.032*** (0.008)
Trade Openness	-0.0007 (0.001)	0.0002 (0.0009)
Inflation Rate	0.0003 (0.0005)	0.0002 (0.0005)
Democracy	-0.100*** (0.015)	-0.450*** (0.044)
Gross enrolment ratio tertiary	0.022*** (0.003)	0.020*** (0.003)
Log population	0.481*** (0.043)	0.452*** (0.042)
Constant	-3.967*** (0.886)	-3.312*** (1.142)
R-Squared	25.69%	33%
Observation	1212	1212
Estimation Method	2sls	2sls
P-value	0.000	0.000

Note: ***, ** and * denote significance at 1%, 5% and 10%, respectively. Heteroskedasticity corrected standard errors are in the parentheses.

Table2: The joint effect of youth bulge and youth unemployment, youth bulge and democracy and unemployment and democracy on political instability in OCED

Dependent variable: Political Instability	Model 3	Model 4	Model 5
Youth Bulge	0.318*** (0.043)	0.056 (0.049)	0.119*** (0.017)
Youth Unemployment	1.822*** (0.414)	0.278** (0.111)	-0.549*** (0.301)
Youth Unemployment*Youth Bulge	-0.091*** (0.018)		
Youth Unemployment*Democracy			0.013 (0.027)
Youth Bulge*Democracy		0.004 (0.003)	
GDP_Growth	-0.232*** (0.044)	-0.207*** (0.046)	-0.222*** (.044)
Natural Resources	-0.031*** (0.008)	-0.038*** (0.009)	-0.028*** (0.009)
Trade Openness	0.0005 (0.0009)	-0.0009 (0.001)	-0.0002 (0.0009)
Inflation Rate	0.0003 (0.0005)	-0.00009 (0.0004)	-0.0001 (0.0005)
Democracy	-0.048*** (0.018)	-0.146*** (0.069)	-0.055 (0.062)
Gross enrolment ratio tertiary	0.021*** (0.003)	0.024*** (0.003)	0.019*** (0.003)
Log population	0.431*** (0.041)	0.487*** (4.362)	0.444*** (0.041)
OECD	-0.959 (1.532)	6.276 (0.665)	2.985 (4.760)
Youth Unemployment*OECD	-0.957 (0.586)		0.0598 (1.915)
Youth Bulge*OECD	-0.189** (0.074)	0.056 (0.049)	
Democracy*OCED		-0.392* (0.219)	-0.499* (0.241)
Youth Bulge*Youth Unemployment*OECD	0.119*** (0.030)		
Youth Bulge* Democracy*OECD		0.011 (0.008)	
Youth Unemployment* Democracy*OECD			0.070 (0.095)
Constant	-5.442*** (1.162)	-1.832 (1.268)	-0.758 (1.042)
R-Squared	34%	29%	32%
Observation	1212	1212	1212
Estimation Method	2sls	2sls	2sls
P-value	0.00	0.00	0.00

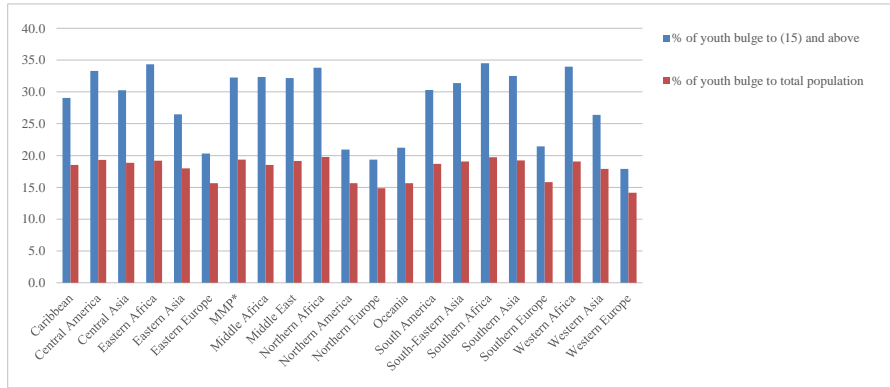
Note: ***, ** and * denote significance at 1%, 5% and 10%, respectively. Heteroskedasticity corrected standard errors are in the parentheses.

Table 3: The joint effect of youth bulge and youth unemployment, youth bulge and democracy and unemployment and democracy on political instability in MENA region

Dependent variable: Political Instability	Model 6	Model 7	Model 8
Youth Bulge	0.402*** (0.038)	0.238*** (0.046)	0.148*** (0.014)
Youth Unemployment	2.423*** (0.331)	0.632*** (0.101)	-2.356*** (0.643)
Youth Unemployment*Youth Bulge	-0.086*** (.0160)		
Youth Unemployment*Democracy			0.161*** (0.033)
Youth Bulge*Democracy		-0.002 (0.002)	
GDP_Growth	-0.185*** (0.042)	-0.196*** (0.041)	-0.218*** (0.040)
Natural Resources	-0.045*** (0.008)	-0.031*** (0.008)	-0.024** (0.010)
Trade Openness	0.001 (0.001)	0.0004 (0.0010)	-0.0001 (0.0009)
Inflation Rate	0.0003 (0.0005)	0.0004 (0.0005)	0.0005 (0.0005)
Democracy	-0.065*** (0.016)	-0.059 (0.052)	-0.497*** (0.081)
Gross enrolment ratio tertiary	0.022*** (0.003)	0.023*** (0.003)	0.018*** (0.003)
Log population	0.492*** (0.041)	0.506*** (0.042)	0.464*** (0.043)
MENA	13.442*** (4.174)	9.400*** (01.498)	-5.818*** (1.775)
Youth Unemployment*MENA	-1.784 (1.311)		1.833*** (0.709)
Youth Bulge*MENA	-0.587** (0.243)	-0.490*** (0.069)	
Democracy*MENA		-0.160 (0.143)	0.609*** (0.125)
Youth Bulge*Youth Unemployment*MENA	0.095 (0.076)		
Youth Bulge*Democracy*MENA		0.017** (0.006)	
Youth Unemployment*Democracy*MENA			-0.158*** (0.049)
Constant	-10.796*** (1.130)	-6.614*** (1.246)	3.263* (1.928)
R-Squared	35.2%	35%	31%
Observation	1212	1212	1212
Estimation Method	2sls	2sls	2sls
P-value	0.00	0.00	0.00

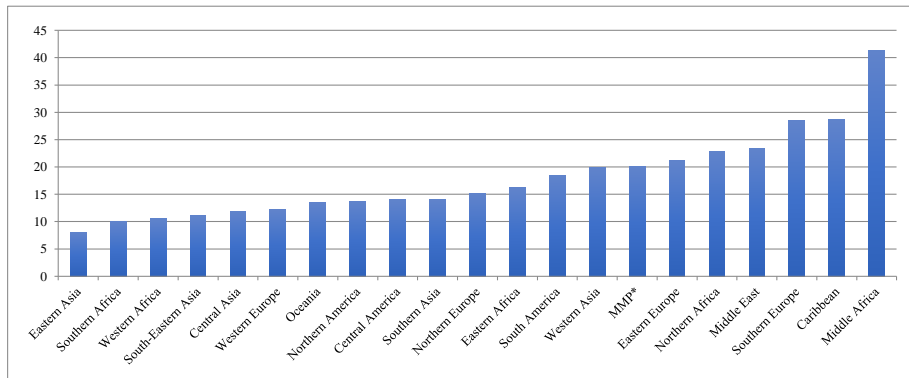
Note: ***, ** and * denote significance at 1%, 5% and 10%, respectively. Heteroskedasticity corrected standard errors are in the parentheses.

Figure 1: The percentage of youth bulge across regions in the world



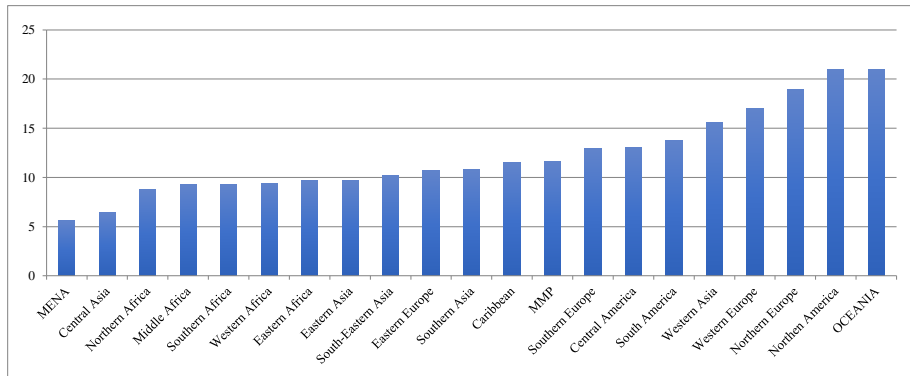
MMP in the graph stand for * Micronesia, Melanesia and Polynesia regions

Figure 2: Youth unemployment across regions in the World



MMP in the graph stand for * Micronesia, Melanesia and Polynesia regions

Figure 3: Level of democracy across regions in the World



MMP in the graph stand for * Micronesia, Melanesia and Polynesia regions

Figure 4: The performance of dependent and independent variables in OECD and Non-OECD countries

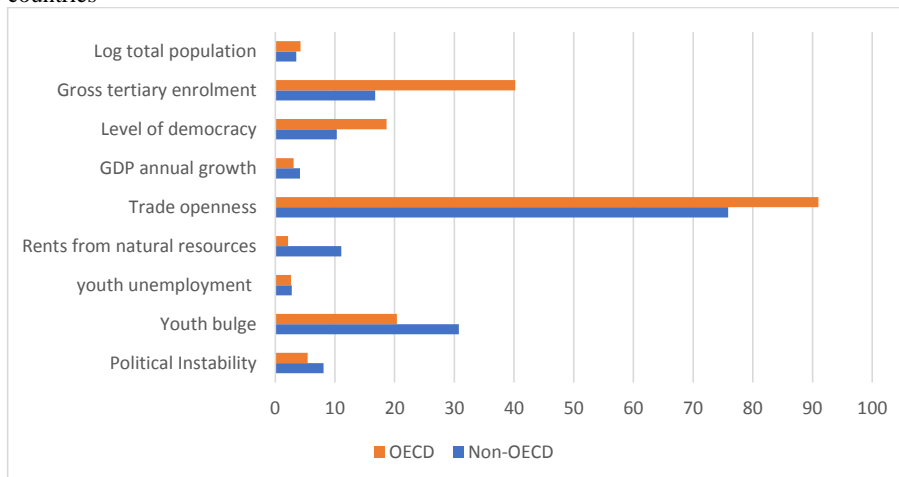


Figure 5: The relationship between youth bulge and political instability

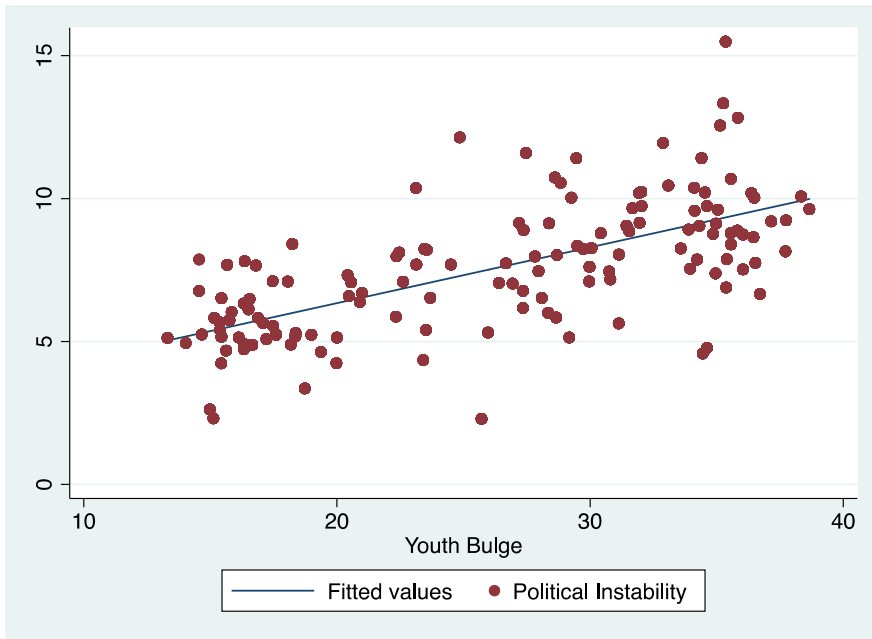


Figure 6: The relationship between youth unemployment and political instability

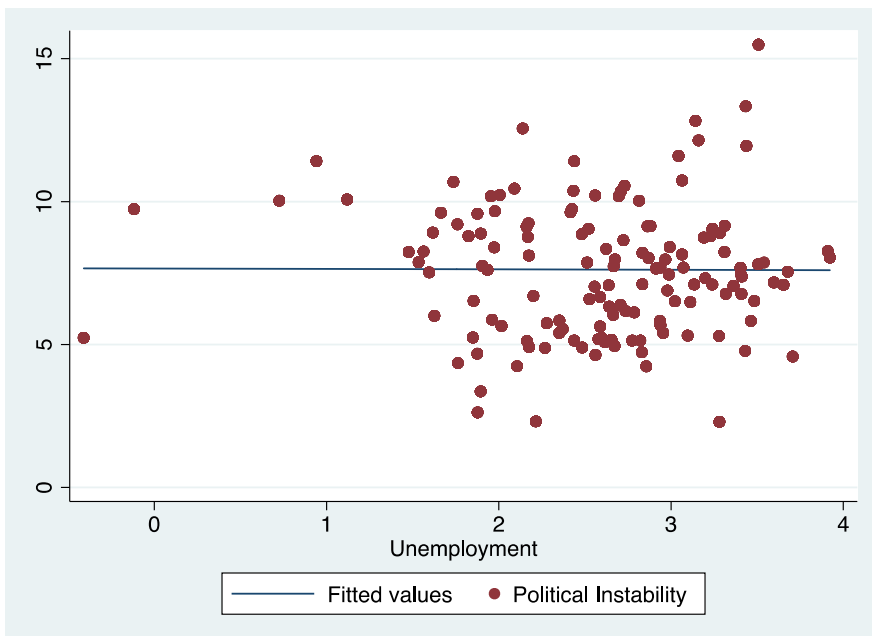
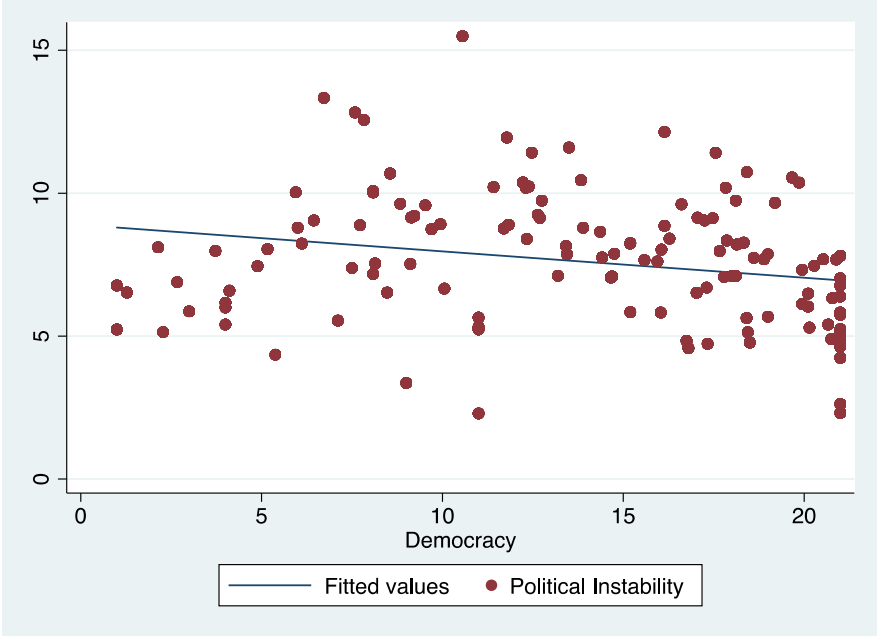


Figure 7: The relationship between the level of democracy and the level of political instability



Appendix

Table A1: Descriptive Statistics

	PI	YU	YB	Rents	TO	RT	GTE	Log T _{pop}	GDP growth
Mean	7.581	18.352	28.321	9.734	73.125	12.733	26.741	3.765	3.692
Median	6.833	16.500	30.419	3.396	64.555	11.000	21.274	3.809	3.867
Max	24	70.9	42.403	100.367	411.035	21.000	117.891	6.133	149.973
Min	0.500	0.700	11.637	0.000	0.309	1.000	0.000	1.792	-62.077
Obs.	3819	1954	4872	4966	3185	5866	3252	4872	5141

Table A2: Correlation Matrix

	PI	YB	YU	RT	GDP	NTR	TO	GTE	TOP	Tolerance	VIF
PI	1										
YB	0.455	1								0.454	2.201
YU	0.145	0.065	1							0.941	1.062
RT	-0.254	-0.579	-0.076	1						0.492	2.034
GDP	-0.026	0.281	0.001	-0.157	1					0.698	1.433
NTR	0.123	0.423	0.137	-0.565	0.134	1				0.616	1.623
TO	-0.041	0.051	-0.127	-0.106	-0.033	-0.007	1			0.952	1.051
GTE	-0.251	-0.604	0.175	0.401	-0.180	-0.220	-0.074	1		0.585	1.710
TOP	0.401	0.211	0.074	-0.134	-0.057	0.144	0.030	-0.023	1	0.770	1.299

Table A3: Data definition and sources

Variable	Definition	Data Source
Political instability	The political instability is measured by aggregating a total score in a scale of 12 of internal conflict and government instability. Government instability is an assessment of a government's ability to achieve its declared program and to stay in office. It is measured as a sum of three subcomponents: government unity, legislative strength and popular support. Similarly, Internal conflict is divided equally into three components: civil war/coup threat, terrorism/political violence and civil disorder. Subcomponent weights of each component are not given. For ease of interpretation, the original score is rescaled so that a high score suggests a high level of political instability.	The International Country Risk Guide, Political Risk Services, The PRS Group, Inc. http://www.prsgroup.com/
Youth bulge	Population aged 15-24 years old as a percentage of the population aged 15 years old and above	United Nations, Department of Economic and Social Affairs, Population Division (2019). <i>World Population Prospects 2019, Online Edition</i> . Rev. https://population.un.org/wpp/Download/Standard/Population/
Youth unemployment	Total youth unemployment in the age group 15-24 years old as a percentage of the total labour force	World Development Indicators Washington, D.C.: World Bank Group. https://data.worldbank.org/indicator/SL.UEM.1524.ZS
Regime type	The data for regime type is collected from Marshall et al. (2014). They rank countries on a scale of 21, from -10 (hereditary monarchy) to +10 (consolidated democracy). In this paper the score is re-scaled from 1 to 21 where 1 indicates autocratic regime and 21 indicate fully democratic regime.	Center of Systemic Peace. Polity IV Project: Political Regime Characteristics and Transitions 1800–2019. Available online: http://www.systemicpeace.org/nsrdata.html (accessed on 20 April 2022).
GDP growth	The annual percentage growth rate of GDP at market prices are based on constant local currency. However, aggregates are based on constant 2015 U.S Dollar prices.	World Bank (2020) World Development Indicators. https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG
Trade openness	The percentage of imports and exports to GDP	World Bank (2020) World Development Indicators. https://data.worldbank.org/indicator/NE.TRD.GNFS.ZS
Natural resources rents	Rents from natural resources generated from oil, gas and forests as a percentage of GDP	World Bank (2020) World Development Indicators. https://data.worldbank.org/indicator/NY.GDP.TOTL.RT.ZS
Inflation rate	Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The Laspeyres formula is generally used.	World Bank (2020) World Development Indicators. https://data.worldbank.org/indicator/NY.GDP.TOTL.RT.ZS
Total population	Total population	World Bank (2020) World Development Indicators
Gross tertiary enrolment	Total enrolment in tertiary education as a percentage of the eligible school-leaving age group of the population	World Bank (2020) World Development Indicators. https://data.worldbank.org/indicator/SE.TER.ENRR

Table A4: Countries included in the analysis

Albania, Algeria, Angola, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahamas, Bahrain, Bangladesh, Belarus, Belgium, Bolivia, Botswana, Brazil, Brunei, Bulgaria, Burkina Faso, Cameroon, Canada, Chile, China, Colombia, Congo, Congo, DR, Costa Rica, Cote d'Ivoire, Croatia, Cuba, Cyprus, Czech Republic, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Ethiopia, Finland, France, Gabon, Gambia, Germany, Ghana, Greece, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Iran, Iraq, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, Latvia, Lebanon, Liberia, Libya, Lithuania, Luxembourg, Madagascar, Malawi, Malaysia, Mali, Malta, Mexico, Moldova, Mongolia, Morocco, Mozambique, Myanmar, Namibia, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Qatar, Romania, Russia, Saudi Arabia, Senegal, Serbia & Montenegro, Sierra Leone, Singapore, Slovakia, Slovenia, Somalia, South Africa, South Korea, Spain, Sri Lanka, Sudan, Suriname, Sweden, Switzerland, Syria, Taiwan, Tanzania, Thailand, Togo, Trinidad & Tobago, Tunisia, Turkey, UAE, Uganda, Ukraine, United Kingdom, United States, Uruguay, Venezuela, Vietnam, Yemen, Zambia, Zimbabwe

Table A5: Summary of the findings

Findings	Summary
1	In 2sls panel data, the independent effect of youth bulge and youth unemployment enhances political instability, more youth bulge or more youth unemployment increases political instability in a country. Similarly, the risk of political instability increases at a low level of democracy.
2	In 2sls panel data, the joint effect of youth unemployment and youth bulge has an unexpected negative sign. The joint effect of youth bulge and the level of democracy and the joint effect of youth unemployment and the level of democracy enhances political instability as both interactions have a significant positive sign.
3	The youth bulge through the interaction with unemployment raises the risk of political instability in OCED countries and the risk is higher in OCED countries than non-OCED countries.
4	The impact of youth bulge moderated by the level of democracy enhances political instability in OCED and non-OCED countries; however, its impact is higher in OCED than non-OCED countries.
5	Unemployment moderated by the level of democracy enhances political instability in OCED and non-OCED countries.
6	Youth bulge, through the interaction with unemployment, enhances the probability of political instability in MENA region and the probability is higher in MENA region than non-MENA region.
7	The joint effect between democracy and youth bulge in MENA region enhances political instability.
8	The result does not find a relationship between the interaction term of youth unemployment and democracy in MENA region.