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DESIGNING YOUTH EMPLOYMENT POLICIES IN EGYPT

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Abstract:

This paper aims to find effective policy options that can support the development of more attractive jobs in Egypt's private sector and lead to job creation and inclusive growth. Egypt is facing a marked "youth bulge" and therefore has a high rate of youth unemployment, particularly among the highly educated. The paper uses a discrete choice experiment (DCE) to elicit job preferences among youth, and analyzes survey data collected from engineering students at 10 universities in six cities in Egypt during the period of July through October 2013. For a comparative analysis, the survey was also conducted at eight universities in five cities in Indonesia, which is one of the nations in Asia with a Muslim-majority population that faces the same demographic issue. The findings of this research will contribute to building a foundation for designing youth employment policies in Egypt. The most obvious findings to emerge from this study are that: the public-private sector wage differentials must be narrowed; better benefits must accompany private sector employment (particularly support for continuing education, upgrading qualifications, and health insurance); and good IT infrastructure matters. Taken together, these steps could significantly contribute to an increase in the rates of a private sector employment among young Egyptian job seekers, even in the case of continued high public sector wages.

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INTRODUCTION

The design of youth employment policies has become a central issue in the effort to promote urgently-needed inclusive growth in Egypt. Developing better economic opportunities for Egypt's youth will help maintain the foundation of a country currently in the midst of a demographic transition. Namely, that demographic transition is a marked "youth bulge,"[1] and thus a country facing high unemployment among its youth and particularly among the highly educated.

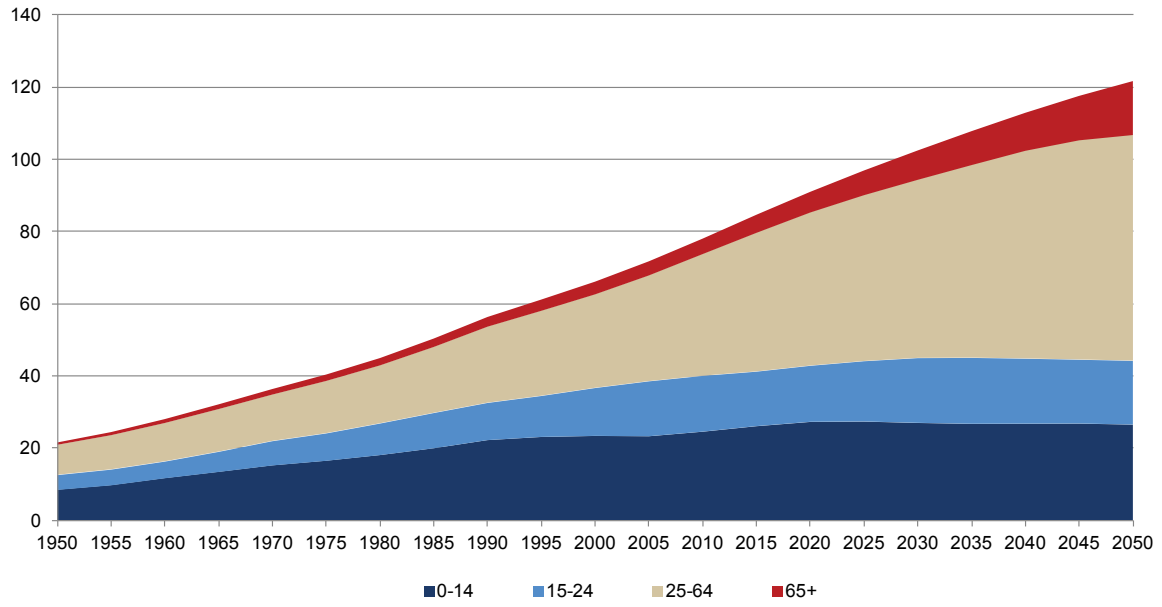
This paper focuses on job preferences among the educated youth in Egypt. The educated Egyptian youth are said to be more likely to apply for or wait for public sector jobs. Indeed, this seems to be the same in other Arab economies like Tunisia.[2] The past government-supported practice of expanding youth employment in the public sector is no longer sustainable. More and better economic opportunities for the youth population need to be generated in the private sector by encouraging youth entrepreneurship and the development of micro and small enterprises (MSEs).[3] Inclusive growth could be achieved by shifting youth job preference toward a future growing and dynamic private sector and away from the bloated public sector.

This paper uses a survey conducted in Egypt that examined factors influencing job choices and looked for possible policy options that could improve structurally distorted job preferences among Egyptian youth. In a comparative analysis, the survey was also conducted in Indonesia, which is one of the nations in Asia with a Muslim-majority population and also faces a "youth bulge."

DYNAMIC DEMOGRAPHIC TRANSITION AND SLOW ECONOMIC TRANSFORMATION IN EGYPT

A large percentage of Egypt's population is made up of its youth; in fact, over half of the country's population is under 25. According to the United Nations (UN) Population Division, the population in Egypt has nearly quadrupled from 1950 to the present, rising from 21.5 million inhabitants to stand currently at over 81.1 million. It is projected to grow by more than 50 percent over the next four decades (see Figure1). Most alarmingly, the 24 million Egyptians who are between the ages of 15 and 29 are referred to in the demographic security field as those of "fighting age" (LaGraffe, 2012).

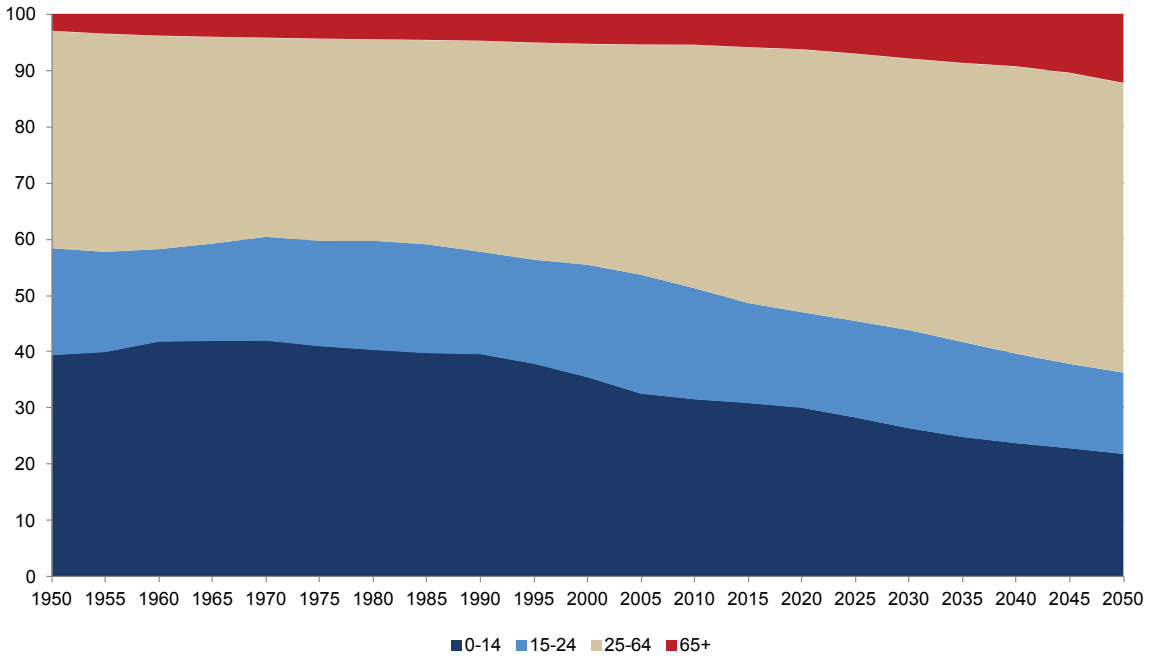
Figure 1: Population Estimates and Projections in Egypt, 1950-2050 (millions)



Source: World Population Prospects: The 2012 Revision

Egypt is currently at a stage in its demographic transition that is marked with a "youth bulge." The UN Population Division estimates and projections of the age structure in Egypt show that the proportion of people aged 15 to 24 peaked at 21 percent of the total population in 2005, and has been expected to decline after that (see Figure 2). The proportion of children under 15 has already declined significantly from 40 percent in 1990 to 31.5 percent in 2010. These declines are now reflected in the largest ever group of youths making its way into the labor market, both in absolute and relative terms (Assaad and Barsoum, 2007). The Egypt Labor Market Panel Survey indicates that the number of new entrants into the workforce has more than doubled, from about 400,000 per year in the late 1970s to about 850,000 per year in the early 2000s (Assaad 2007).

Figure 2: Population Estimates and Projections in Egypt, 1950-2050 (% of total)



Source: World Population Prospects: The 2012 Revision

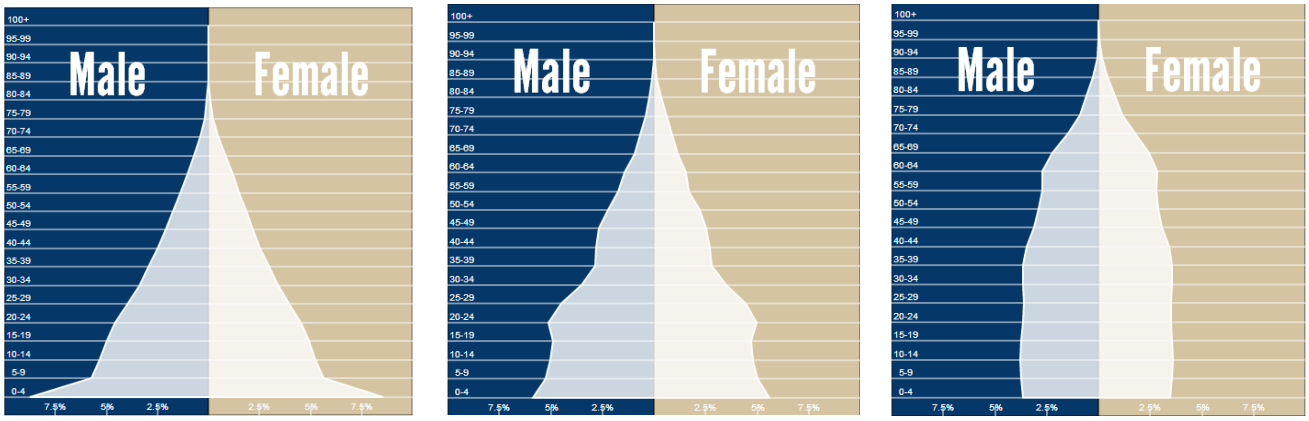
In a country with a youth bulge, the country's dependency ratio declines as the number of working-age people outpaces the number of economically dependent people (typically the very young and elderly). The population dynamics from 1950 to 2010 have changed the age structure of Egypt enormously. The population pyramids graphically illustrate the large youth cohort of people aged 15 to 24 (see Figure 3). If the increase in the number of working-age youth can contribute to productive activities in their societies, the youth bulge will become a demographic dividend or bonus. However, if a large group of youth cannot find good jobs and obtain a satisfactory income, then the youth bulge will become a demographic time bomb as the economically frustrated youth become a potential source of social and political unrest (World Bank, 2011).

Asian economies have been able to turn the youth bulge into a demographic dividend. Taking Indonesia as an example, the demographic transition of this country is illustrated in Figure 3. Egypt and Indonesia show a similar demographic transition over the decades. In terms of the share of value added to the economy, these countries have been moving from economies with a high percentage of agricultural activity toward ones with an increasingly large share of manufacturing industries (see Figure 4 (a-1) and Figure 4 (a-2)). When it comes to employment, Indonesia has been moving from having a high share of employment opportunities in agriculture toward having an increasing share of employment opportunities in both the manufacturing and service sector. This has occurred through a dynamic change in Indonesia's

economic structure. In terms of total manufacturing output in Indonesia, the share of manufacturing that is high-tech increased from 11.15 percent in 1970 to 31.21 percent in 2007. The portion of manufacturing jobs in Indonesia also rose from 10.12 percent to 18.68 percent during the same period (see ADB, 2013). However, this structure has largely stagnated in the case of Egypt (see Figure 4 (b-1) and Figure 4 (b-2)). Indeed, in Egypt, dynamic demographic transition and a slow economic transformation have fostered unemployment. The youth unemployment situations, which can be a key measure of a country's success in turning the youth bulge into a demographic dividend, will be examined in the next section.

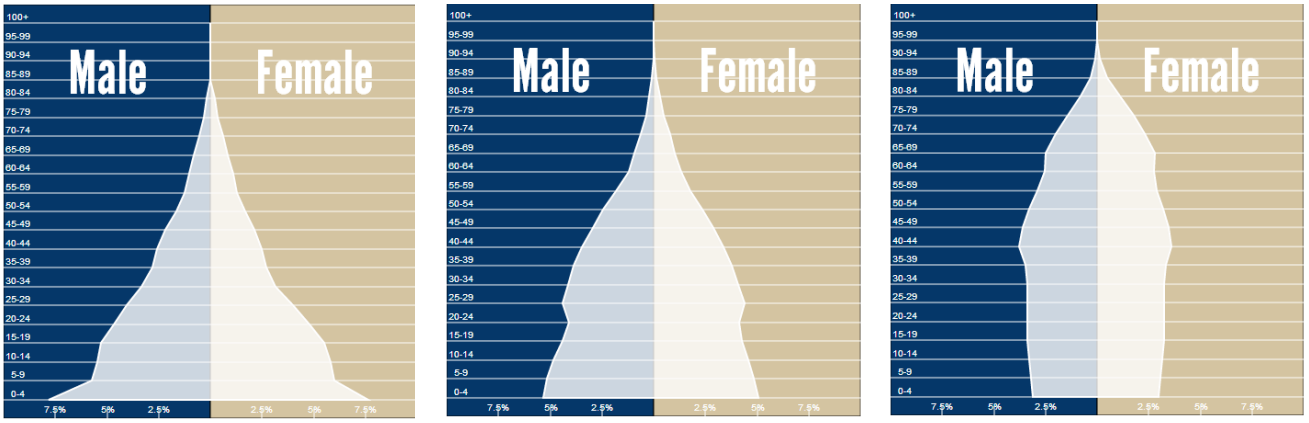
Figure 3: Demographic Transition of Egypt and Indonesia, 1950-2050

EGYPT



1950, Population 21,478,000 | 2010, Population 81,120,000 | 2050, Population 123,454,000

INDONESIA

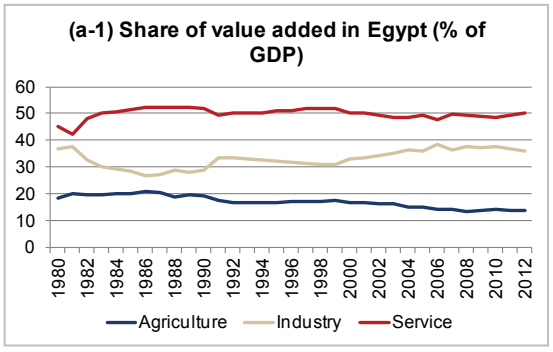


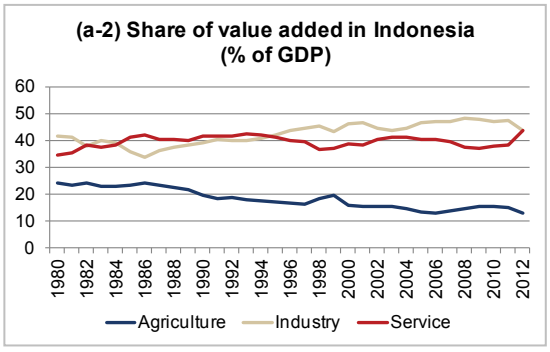
1950, Population 74,581,000 | 2010, Population 239,872,000 | 2050, Population 293,457,000

Source: United Nations, Department of Economic and Social Affairs, Population Division (2011). World Population Prospects: The 2010 Revision

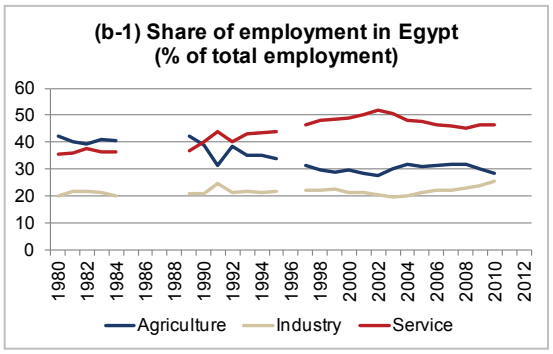
Figure 4: Economic Transformation in Egypt and Indonesia, 1980-2012

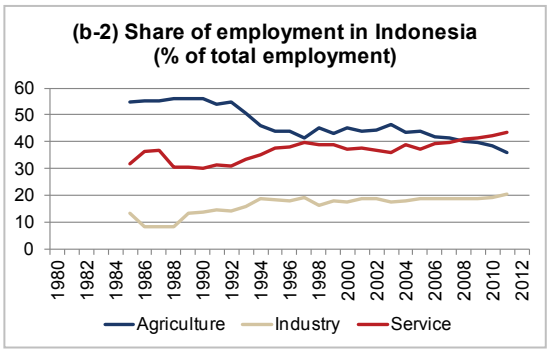
(a) Share of Value Added (% of GDP)





(b) Share of Employment (% of total employment)



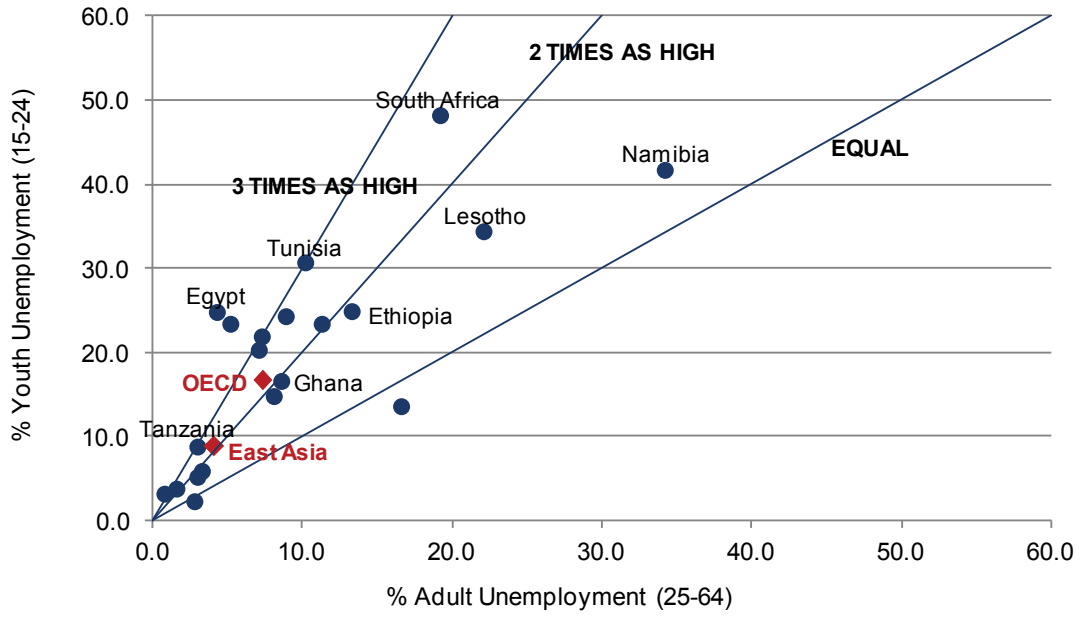


Source: World Development Indicators, World Bank

YOUTH UNEMPLOYMENT SITUATIONS IN EGYPT

The Middle East and North Africa (MENA) faces the challenge of an urgent need for job creation. In order to absorb an increasing number of unemployed youth, the region needs to at least double its employment opportunities (ILO, 2007). Among African middle-income countries, the ratio of youth-to-adult unemployment is often higher than in other parts of the world (AfDB et al., 2012). In the case of Egypt, the youth unemployment rate was 25 percent, while it was only 4 percent for adults in 2007 (see Figure 5).

Figure 5: Youth and Adult Unemployment in Egypt, 2007



Note: The years of the data used are as follows: Botswana and Ghana in 2000; Niger in 2001; Seychelles in 2002; Namibia and Sierra Leone in 2004; Madagascar, Tunisia and Zambia in 2005; Algeria, Burkina Faso, Ethiopia, Senegal, and Tanzania in 2006; Egypt in 2007; Lesotho in 2008; Morocco and South Africa in 2009; and Liberia, Mauritius, and OECD in 2010.
Source: ILO KILM, 7th Edition, 2011. http://dx.doi.org/10.1787/888932600336

Intense labor supply pressures lead to youth exclusion; a growing number of youths are relegated to marginal sources of livelihood or to the ranks of the unemployed. Labor force projections show that, despite the slowing growth of the youth population, increasing female participation rates driven by rising educational attainment will continue to exert significant pressure on the labor market until 2010, when the growth of the labor force is expected to moderate (ERF, 2004). However, unemployment and inactivity of the working-age population, particularly women, are still prevalent in MENA countries. Nearly three-

quarters of working-age women do not participate in the labor force and constitute 80 to 90 percent of MENA's inactive population (World Bank, 2013). The youth population continues to be the most disadvantaged group in terms of higher rates of unemployment, lower earnings, and limited job security and stability, with the majority of new entrants into the employment market finding jobs within the informal economy (Assaad and Barsoum, 2007).

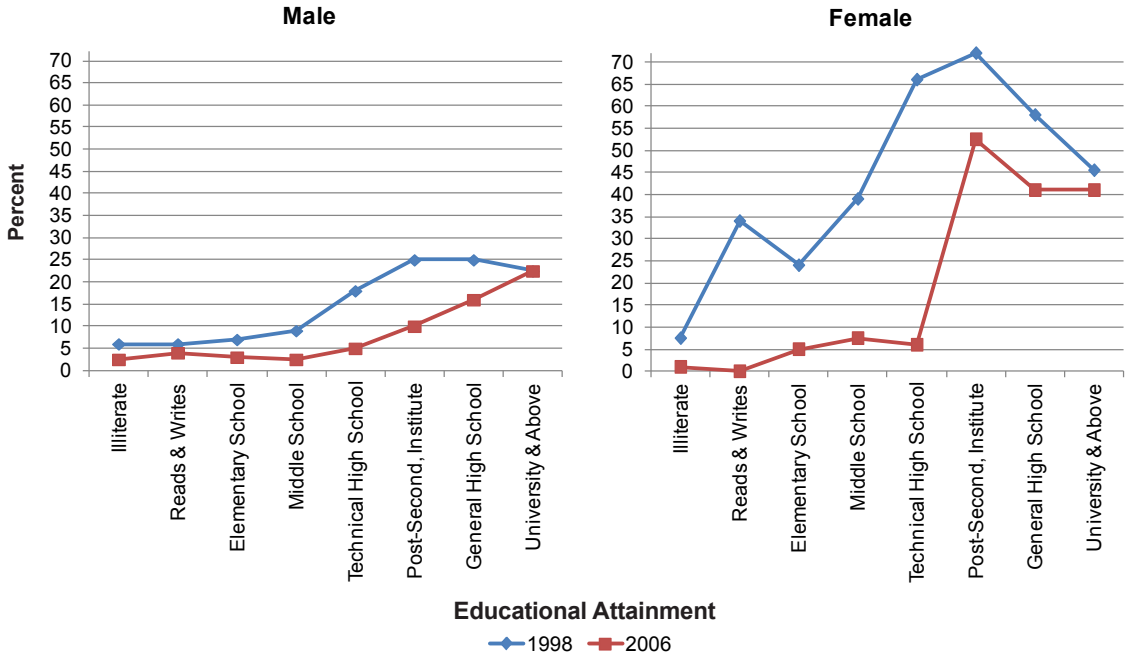
The unemployment rate is high among the youth population, especially the highly educated in Egypt. This is not a new problem. As early on as the British mandate, concerns about unemployment among the educated were central to the political debate, which was concerned with civil unrest (Williamson, 1987). As of 2010, the Egyptian unemployment rate was reportedly 9.7 percent. While overall unemployment rates were not particularly alarming, there was a concentration of unemployment among college-educated youth. Based on the Egypt Labor Force Survey 2010, the youth unemployment rate was estimated to be around 40 percent for those with tertiary education, which is much higher than the rate for those with lower educational attainments (World Bank, 2013). Close to 87 percent of the unemployed in Egypt are between the ages of 15 and 29, with unemployment among Egyptian college graduates being ten times higher than those who did not go to college (LaGraffe, 2012).

With regard to unemployment rates by educational attainment and gender, Assaad and Barsoum (2007) revealed that university graduates are the only educational group whose unemployment rates increased between 1998 and 2006, regardless of their gender (see Figure 6). Because, for many of this group, the pay rate in the private sector was still below their reservation wage,[4] they simply stopped seeking employment and were counted among the unemployed. Recently, wage gaps between public and private sectors in Egypt have been increasing due to the greater rise of public salaries. In 2011, the average public wages in Egypt were 80 percent more than those in the private sector (see Figure 7).

With regard to the unemployment rate for female technical secondary graduates, the decline results from increased discouragement and therefore increased inactivity. Assaad (2007) argues that the dramatic contraction in government hiring from 1998 to 2006 led to fewer applications for government jobs from this group of young women.

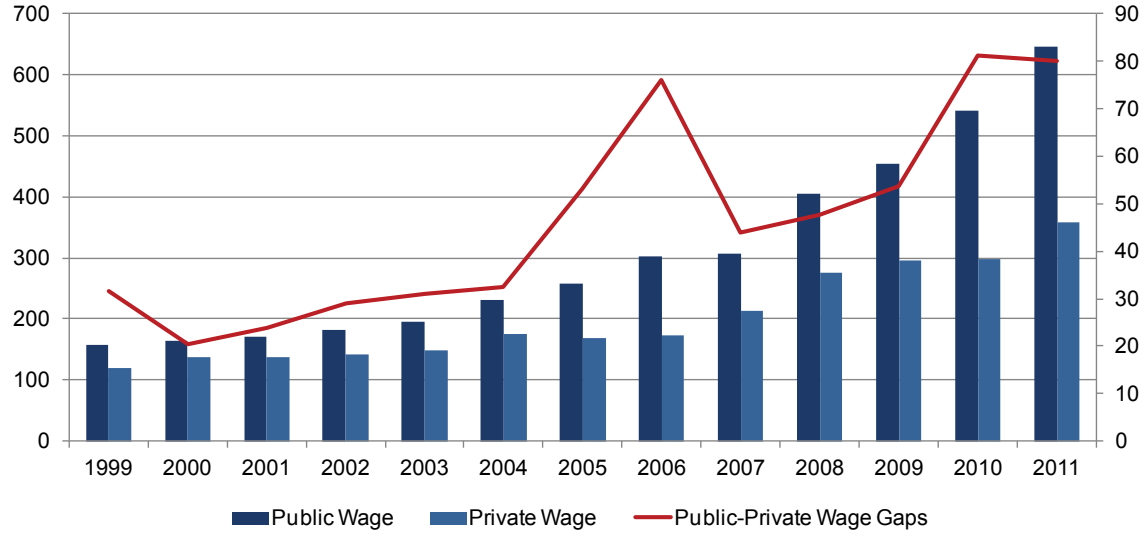
Shortcomings are revealed in both the capacity of the Egyptian economy to create sufficient demand for young labor, and in the capacity of the Egyptian education and training system to produce labor market entrants that meet the requirements of employers (ILO, 2007). Despite a growing supply of employees with secondary and tertiary diplomas, employers still face a shortage of staff with the skills and education they require (Akhtar, 2010). Assaad and Roudi-Fahimi (2007) note that the slowness of the educational systems in the region—including Egypt—to respond to increasingly market-oriented and open economies has resulted in significant mismatches between the skills demanded in the job market and those available to new entrants. Most young people in school plan to specialize in the commerce and business administration field (30 percent), the education field (12 percent) and the engineering field (11 percent). This is despite the fact that the occupational clusters associated with these fields appear already overcrowded and with limited opportunities for employment (ILO, 2007). However, the demand for low-skilled work remains high. Seventy-one percent of Egyptian job vacancies, identified in the employer's survey conducted by ILO, were for manual occupations, while 22 percent of the

Figure 6: Unemployment Rates in Egypt by Educational Attainment and Gender, Age 15-29



Source: Assaad and Barsoum (2007)

Figure 7: Average Wage Gaps between Public and Private Sectors, 1999-2011 (Egyptian pounds per week)



Note: The average wage gaps between public and private sectors were computed as follows:

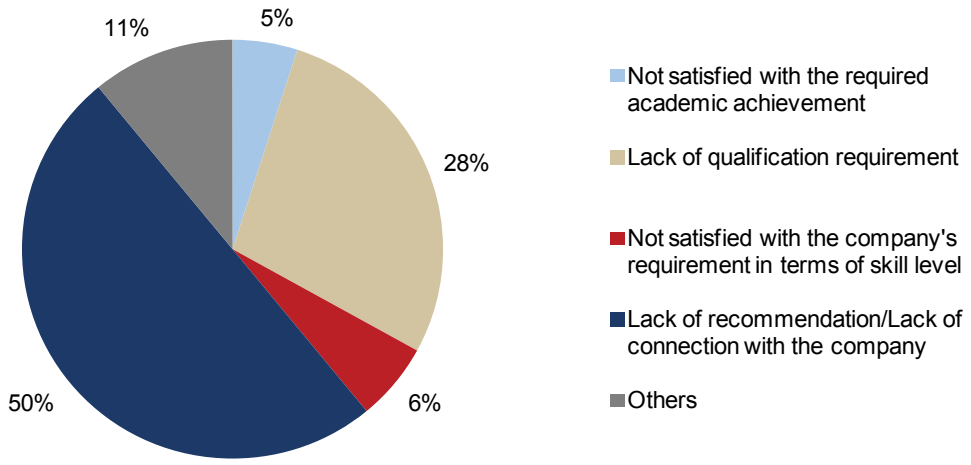
Public-Private Wage Gaps = $\left(\frac{Public\ Wage}{Private\ Wage} - 1\right) \times 100$

Source: Central Agency for Public Mobilization and Statistics (CAPMAS)

vacancies were for professional positions. The food processing industry expects strong growth in demand for labor in the near future, while other industries show no specific prospect for an increase in employment (JICA, 2012). The labor demand and supply mismatch combined with the rapidly growing number of new entrants to the labor market leads to a protracted transition from school to work for Egyptian youth.

Inadequacies in the qualification system in Egypt lead to firms hiring people through personal connections. According to the attitude survey of university students and companies conducted by the Japan International Cooperation Agency (JICA) in Cairo and Alexandria in Egypt in 2012, the highest percentage of respondents cited "lack of recommendation" as a reason for the rejection of a job applicant by companies, accounting for half of the respondents (Figure 8). "Recommendation" represents a hiring method unique to Egypt, in which a letter of recommendation, rather than the applicant's ability or aptitude is considered a priority factor by companies. This is because companies have few means to evaluate the applicant's competence in an objective manner, due to the lack of a formal and comprehensive qualification system that would otherwise demonstrate the skills and competencies of applicants. While the majority of large corporations hire people through examination and interview, MSEs still attach great importance to letters of recommendation or personal connections. As a result, a sizable number of university graduates cannot meet the qualification demand for employment regardless of their competence or skill (JICA, 2012).

Figure 8. Major Overall Reasons for Rejection of Job Applications in Egypt, 2012



Source: JICA (2012)

Young job seekers need work experience but have fewer opportunities to acquire it. The ability to cite work experience is then the most important characteristic in a successful application for a vacancy for manual/production workers and for professional/managerial employees (see Table 1). Egyptian employers face difficulties recruiting qualified workers, as the training system often fails to produce people with the skills that are required to perform the jobs. Enterprises are staffed by under-qualified workers, who often lack practical experience. But at the same time, formal training after employment is almost entirely lacking, and vocational training opportunities for jobless and unskilled Egyptians are also limited. According to the employer survey conducted by the International Labor Office (ILO) in Geneva, only 14 percent of employers reported that their employees received training during the previous year, of which 88 percent was on-the-job training. Of these employers, 50 percent reported the training was acquired on equipment at the job site, 62 percent reported the training was provided by an enterprise's staff and 98 percent indicated the training fees were provided by the enterprise.

Table 1: Most Important Factor in Hiring Egyptian Workers, 2007 (%)

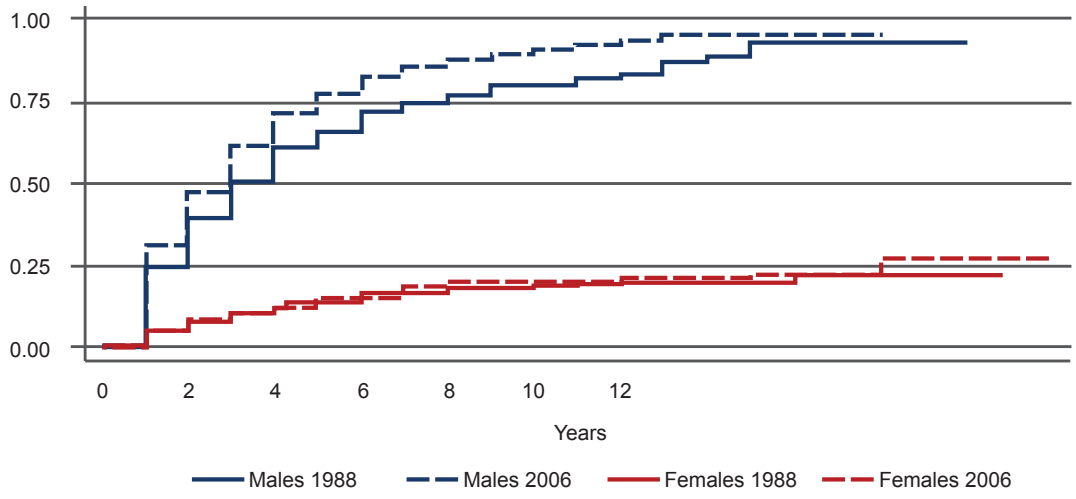
Factors	Professional Positions	Mannual Positions
Sex	23.5	68.1
Age	26.0	74.0
Education	52.5	19.1
Marital status	5.4	7.8
Previous training	5.4	23.5
Experience	74.0	85.8
Other	13.7	27.9
Number of observations	347	347

Source: International Labor Organization (2007)

School-to-work transition is more difficult for educated youth who pursue highly skilled occupations, while it is easier for their lesser educated counterparts who engage in low-skilled work, such as that in the agricultural sector. The ILO employer survey confirmed that the selection process by employers is more discerning for highly skilled jobs, which helps to explain the more difficult transition of youth who choose to stay in school longer. Unfortunately, the lingering lower demand for higher-skilled workers coincides with a situation in which more and more young people are staying in school and aspiring to go on to higher education. A recent ILO study in Egypt that examined school-to-work transition found that young Egyptian people, particularly women, face serious difficulties and challenges in finding a career job after leaving school. The study shows that only 17 percent of respondents (those between the ages of 15 and 29) had completed the transition from school to a career job, which is defined as a regular job that the worker has no immediate plans to change. One-quarter were still in transition—that is, either unemployed or not yet in a career job—and the rest had not begun their transition because they were still in school or not planning to seek work (ILO, 2007).

There are significant gender differences in school-to-work transition. A 2007 ILO survey shows that 30 percent of male respondents had completed their transition to a career job and 35 percent were still in transition. In the case of females, only 4 percent had completed their transition, 18 percent were still in transition and the majority—78 percent—were still inactive. Moreover, according to the Central Agency for Public Mobilization and Statistics (CAPMAS) in Egypt, while female school enrollment through secondary school exceeds 40 percent, a study on school-to-work transition shows that only 4 percent of females make the transition from school to career jobs as opposed to 30 percent of males in the same age group (ILO, 2007). An analysis of the 2006 Egypt Labor Market Panel Survey (ELMPS) also highlights the gendered nature of school-to-work transition. Figure 9 shows the estimated cumulative probability of an individual having obtained a first job, by year, if leaving school in the years 1998 and 2006. Put simply, Figure 9 illustrates the duration between the end of schooling and the time individuals obtain their first job in number of years. For example, in 2006, 50 percent of male graduates had found their first job within two years of leaving school, down from three years in 1998. 75 percent found jobs within five years of leaving school in 2006, whereas in 1998 it would have taken nearly eight years for that number to find jobs. The female rates of transition from school to work are much lower and do not exceed 25 percent even after 15 years. There is no perceptible improvement for women in the transition time from 1998 to 2006 (See Amer, 2006; Assaad, 2006). As for a current local labor market perception, most of the Egyptian youth, regardless of gender, expressed a greater feeling of unfairness in the conditions of the labor market for fresh gradu-

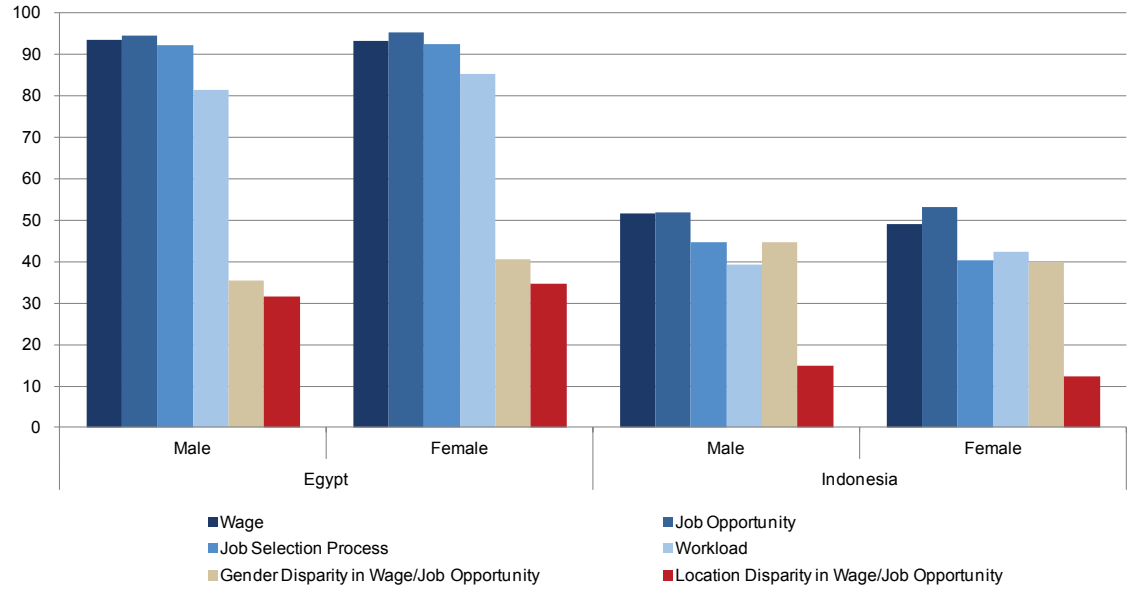
Figure 9: Estimated Cumulative Probability of Having Obtained a First Job in Egypt by Gender (%)



Source: Amer, 2006

ates such as their wage, employment opportunity, job selection process, and workload, compared with Indonesian counterparts. On the other hand, our survey revealed that in Egypt a greater proportion of female respondents than males felt a sense of unfairness based on gender disparity in wages and job opportunities. The proportion of Egyptian females who felt an unfair disparity existed was found to be similar to the proportion of females in Indonesia who felt the same (see Figure 10).

Figure 10: Youth Perceptions on Unfairness in Local Labor Market Conditions by Country and Gender (%)



Source: 2013 JICA Job Preference Survey in Egypt and Indonesia

STRUCTURALLY DISTORTED JOB PREFERENCES FOR PUBLIC SECTOR EMPLOYMENT

Despite being increasingly better educated, young Egyptian graduates had structurally distorted job preferences for public sector employment and waited in anticipation of such jobs rather than joining the private sector (Amin et al., 2012: 5-6). Assaad (2006) argues that the long-standing Egyptian government policy of guaranteeing government employment to upper secondary and university graduates had given households distorted signals about the labor market (Assaad and Barsoum, 2007). Because Egypt did not formally abolish the guarantee scheme, which had guaranteed government jobs for university graduates since the 1950s, young graduates, especially women, continued to aspire to public sector employment (ILO, 2007).

In North Africa in general, many young people want a government job. The Silatech Index[5] shows that among seven North African countries, Egypt and Tunisia have the largest proportions of youth who prefer government employment to private sector jobs or self-employment (see Figure 11). Indeed, as of 2009 in Egypt, 53 percent of young people would like a government job, because of their strong assumption that they will earn equal pay and benefits regardless of the sector. Employment with private business seemed to be less attractive to young people. This mismatch between young people's expectations and the reality of the job market has undoubtedly led to much frustration. This also causes higher youth unemployment as young people hold out for the expected public sector job instead of searching for other work in the private sector.

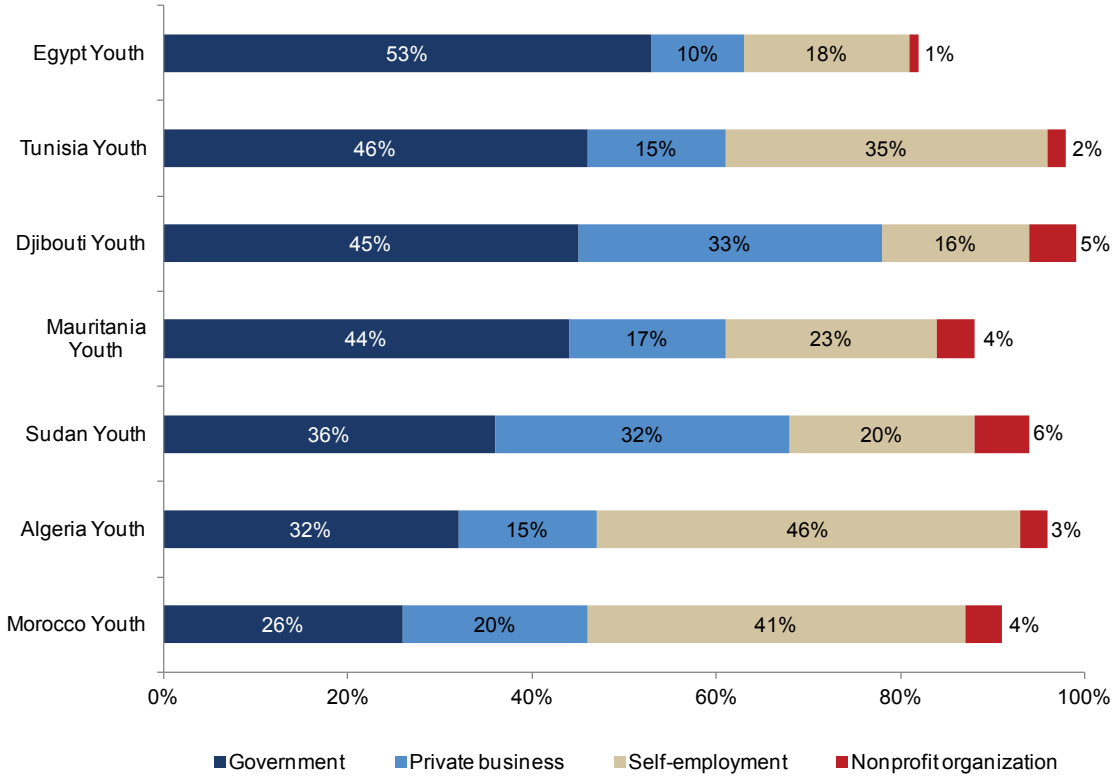
The growth of public sector employment is already very limited in North African countries. Instead of allowing a continuing focus on the public sector, efforts must be made to help young people develop realistic expectations and to create a strong private sector that is capable of offering attractive jobs (AfDB et al., 2012). With regard to public employment, there are a limited number of jobs. However, the private sector will eventually generate more job opportunities for educated youth who still lack skills and experience.

Focusing on job creation at MSEs and poverty alleviation, the Egyptian Social Fund for Development (SFD)—established in 1991 by Presidential decree No.189—has developed into a leading institution mobilizing national and international resources to invest in social development (JICA, 2011). Further generation of employment opportunities in the private sector will commence when economies become more competitive and start to attract greater foreign direct investment.

However, just creating more private sector employment opportunities cannot be a sustainable response to this employment gap, unless job preference among youth is gradually shifted away from the bloated public sector and toward private sector employment.

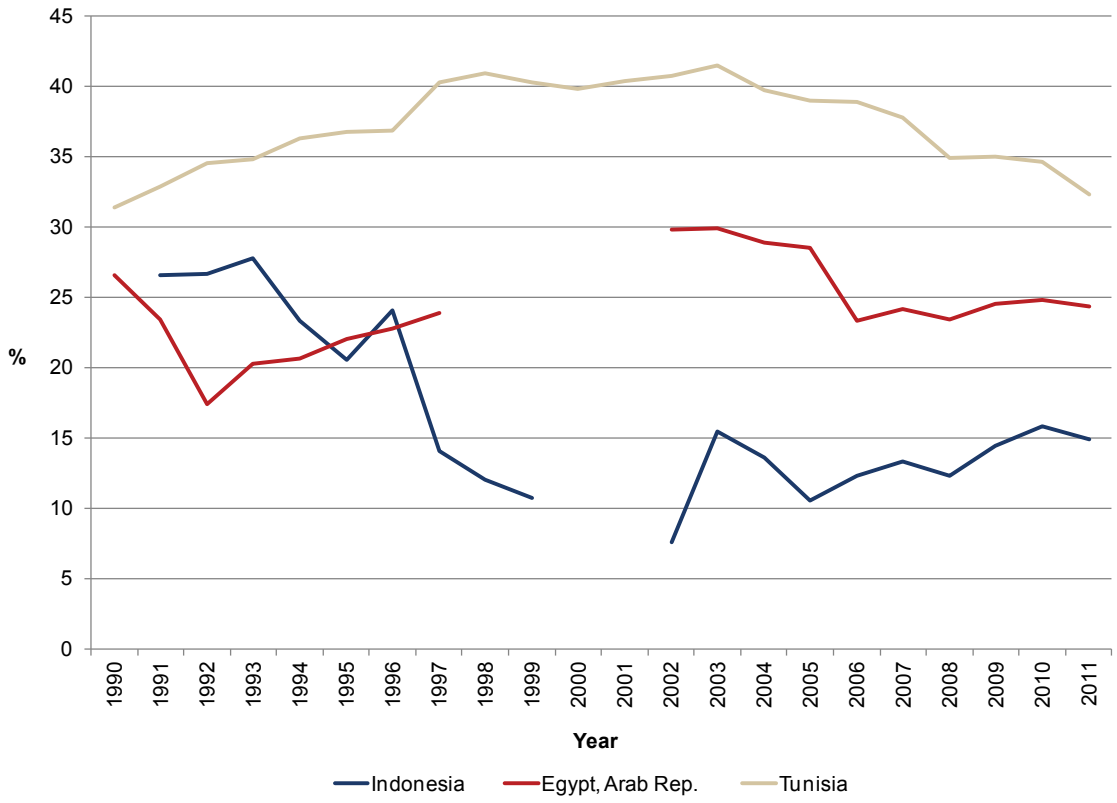
In addition, there is an urgent need for improvement in the high-cost structure of public employment. The percentage shares of wages and compensation[6] of public employees in Egypt and Tunisia have been much higher than those in Indonesia. The share in Indonesia used to be at a similar level as that in Egypt more than two decades ago (Figure 12).

Figure 11: Youth Preference of Employment Sector by Country, 2009 (% of survey respondents)



Source: Silatech (2009), based on Gallup World Poll data. http://dx.doi.org/10.1787/888932600925

Figure 12: Wages and Compensation of Public Employees in Egypt, Tunisia, and Indonesia, 1990-2011 (% of total government expenses)



Note: Compensation of employees consists of all payments in cash, as well as in kind (such as food and housing), to employees in return for services rendered, and government contributions to social insurance schemes such as social security and pensions that provide benefits to employees.
Source: World Development Indicators, World Bank

DATA

In order to examine factors that influence job choice and look for possible policy options that can improve structurally distorted job preferences among youth in Egypt, the survey responses associated with this paper were collected from engineering students at 10 universities in six cities of Egypt[7] during the period of July through October 2013. The total number of student respondents is 1,259, consisting of 891 males and 368 females, who were randomly selected from the lists of the student ID numbers. The surveyed universities in Egypt are of different types—five public universities, as well as five private universities including two private higher technological institutes and one international university—because we assume that the quality of education and curriculum differs among the institution types and this could in turn influence the students' job choices. Similarly, in the Indonesian survey, respondents were randomly chosen among engineering students at eight universities, both public and private, in five cities. There were 1,216 total survey respondents, consisting of 711 males and 505 females. The actual numbers of student respondents from each type of university in both Egypt and Indonesia are summarized in Table 2.

Table 2: Sample Size of the Student Survey in Egypt and Indonesia

	Egypt			Indonesia		
Types of University/Institute	**Both Sexes**	**Male**	**Female**	**Both Sexes**	**Male**	**Female**
Public University	625	411	214	607	314	293
Private University	634	480	154	609	397	212
(including Higher Technological Institute)	(259)	(199)	(60)	(N.A.)	(N.A.)	(N.A.)
(including International University)	(120)	(90)	(30)	(N.A.)	(N.A.)	(N.A.)
Total	1,259	891	368	1,216	711	505

Source: 2013 JICA Job Preference Survey in Egypt and Indonesia

The 2013 JICA Job Preference survey is composed of the student questionnaire and the university questionnaire. The student questionnaire asks the respondent about a wide variety of questions such as job preference, student characteristics, family characteristics, lifestyle, motivation for work, and perceptions of the local labor market, politics and risk attitude. The university questionnaire covers information required on the number of students and academic staff, and on university curricula or courses as well as the services they provide for their students.

Almost all respondents show a willingness to work after graduation regardless of their gender, except for those who pursue further education and those who are to about to get married. However, it was revealed that most students in both countries are ignorant or have an unduly pessimistic view in terms of the total unemployment rate. The unemployment rates for the total labor force and for young people were perceived by the survey respondents to be much higher than the actual rates.

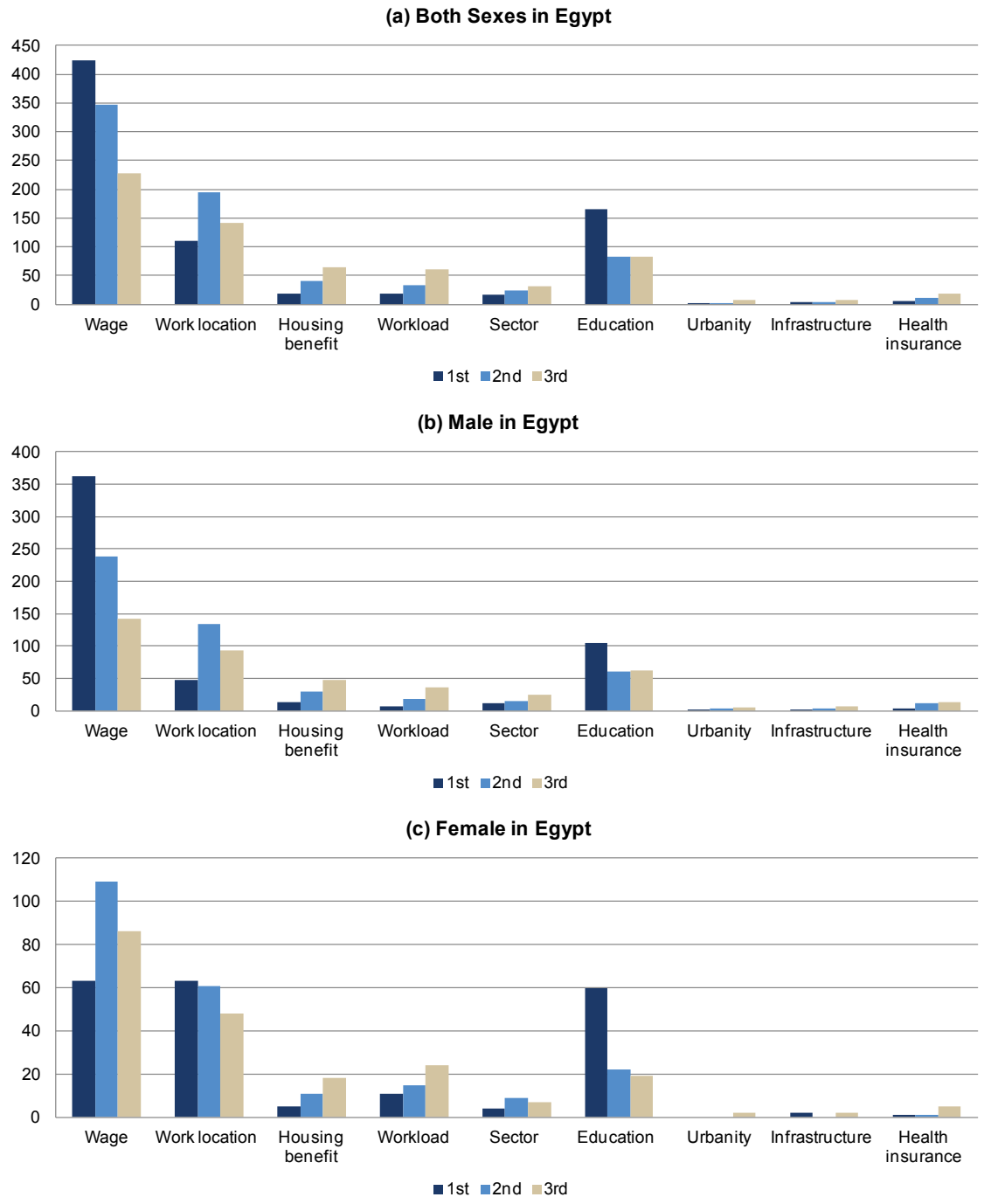
In terms of job preference, Figures 13 and 14 show the first, second, and third most important attributes influencing job choice among engineering students in Egypt and in Indonesia, respectively. It is obvious that "wage" is one of the most important attributes. Besides "wage," "education opportunities/possibility of upgrading qualifications or skills" as well as "work location" were found to be regarded as subsequently important factors. Interestingly, only Egyptian female respondents put equal importance on these three job attributes (i.e., wage, education opportunities, and work location).

Regardless of types of universities in both countries, "wage" was found to be as important as job attributes. Despite their similarity, the differing importance of some attributes was revealed to depend on students' school types (i.e., public versus private). Students in private schools tend to place more importance on wage compared to those in public schools, regardless of their country. When it comes to a country comparison, a larger share of Indonesian students answered "wage" as being the most important in contrast to their Egyptian counterparts, which shows the greater importance Egyptians place on other attributes such as access to further education, promotion possibilities, and professional environment. Moreover, contrary to other students, those in the Indonesian public university placed greater priority on "recognition from supervisor or boss" and "infrastructure," measured by internet or mobile phone connections and electricity supply, whereas relatively less priority was placed on "education opportunities/possibility of upgrading qualifications" (see Figure 15).

With regard to work locations, more than 60 percent of Egyptian students preferred to work away from their current location and this showed strong overseas employment aspiration, mainly due to the better living conditions abroad, particularly higher salaries. On the other hand, when it comes to their Indonesian counterparts, 90 percent of these had a willingness to move from their current location in order to pursue better experience, skills, and career, but their ideal destinations are diverse and eclectic, ranging from domestic cities to foreign countries and even "anywhere" (see Table 3). This can be explained by Indonesian students feeling ill at ease working overseas, particularly due to language barriers as common destinations for Indonesian emigrants are Japan, the United States, Singapore, Germany and the United Kingdom. Contrary to their Indonesian counterparts, Egyptian students show a preference for working in the Arabic-speaking countries of the Middle East such as Saudi Arabia, the United Arab Emirates and Kuwait.

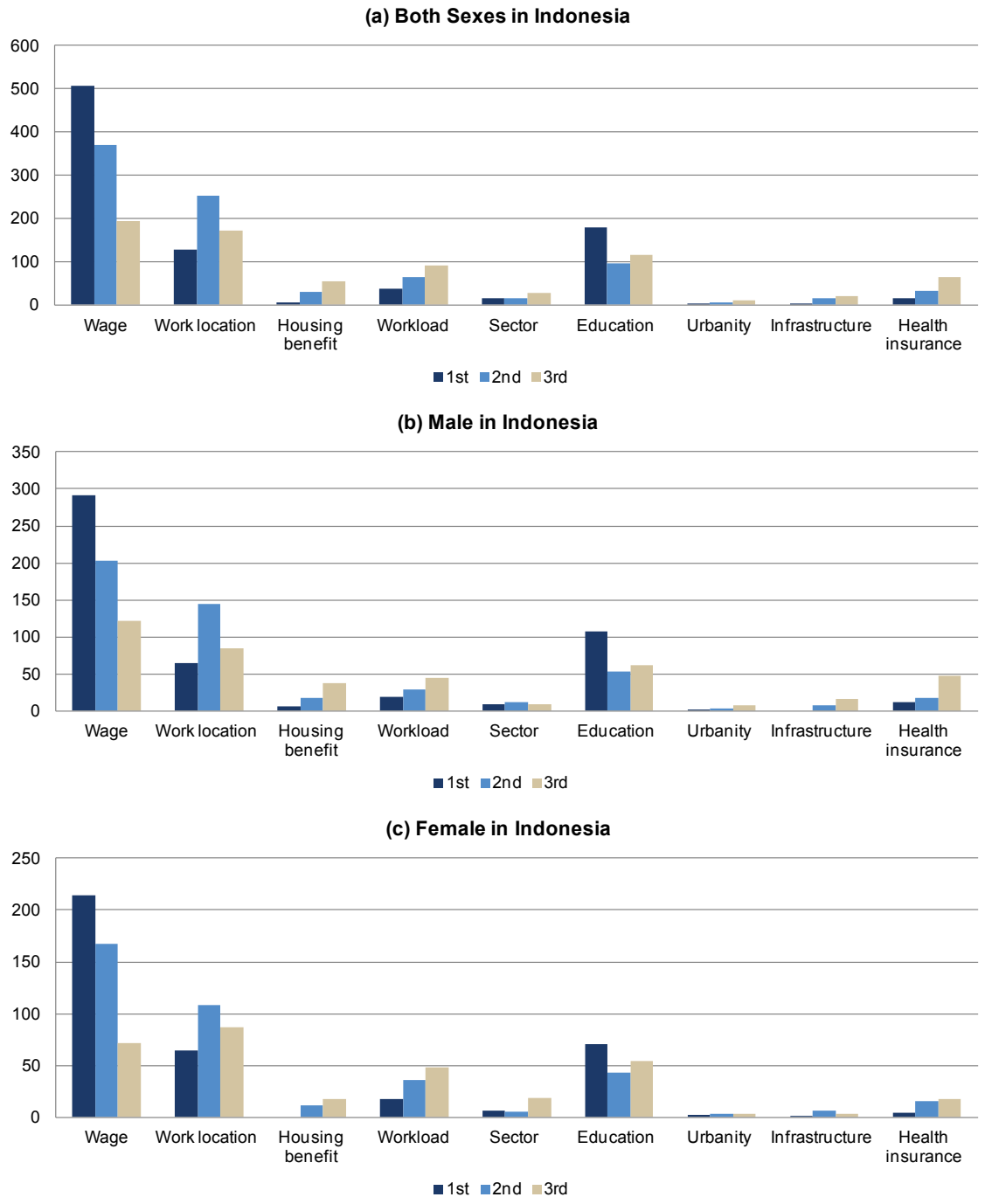
The survey found that university students in both countries do not really consider employment sector as the most important factor when they decide upon a job. As mentioned above, for job options, they put the highest priority on "wage." However, in reality, students have a general preference on the sectors they most favor for future employment that can be derived from the combination of other job attributes like wage levels, availability of social benefits, and job security. Contrary to our expectations, the survey found that Egyptian engineering students currently have a strong preference for working in the private sector as compared to their Indonesian counterparts (see Figure 16). This preference is stronger among male students. On the other hand, female respondents still show an interest in public sector jobs. Public university students tend to prefer working in the public sector, while those at private universities opt for self-employment, household enterprise, or entrepreneurship. However, each university has a different curriculum and set of courses, and therefore caution must be applied when we discuss features of students' job preferences based on types of university. In addition, the location also could influence the preference.

Figure 13: Important Attributes Influencing Job Choice Among Engineering Students in Egypt by Gender, 2013 (number of students)



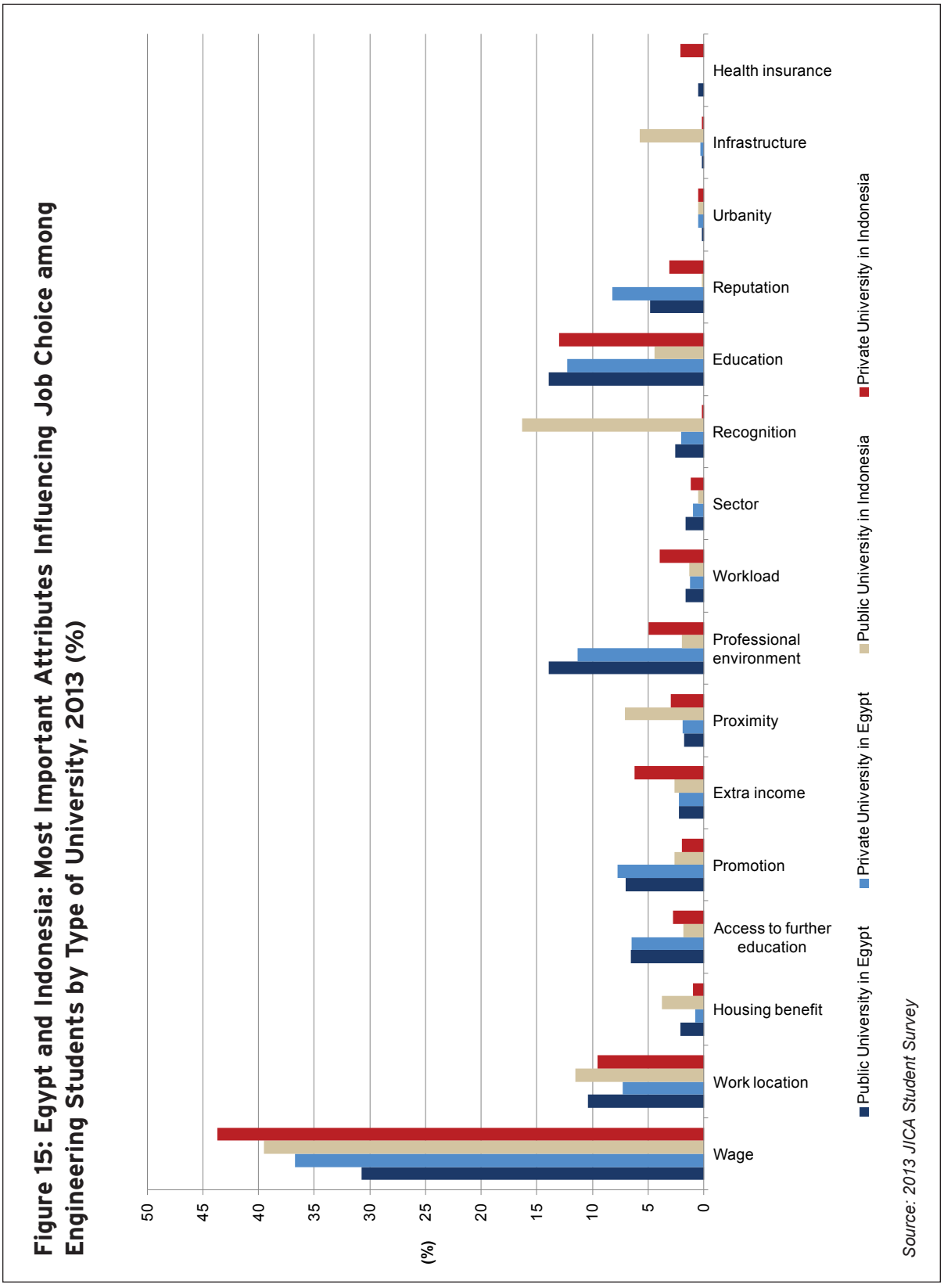
Source: 2013 JICA Student Survey

Figure 14: Important Attributes Influencing Job Choice among Engineering Students in Indonesia by Gender, 2013 (number of students)



Source: 2013 JICA Student Survey

Figure 15: Egypt and Indonesia: Most Important Attributes Influencing Job Choice among Engineering Students by Type of University, 2013 (%)

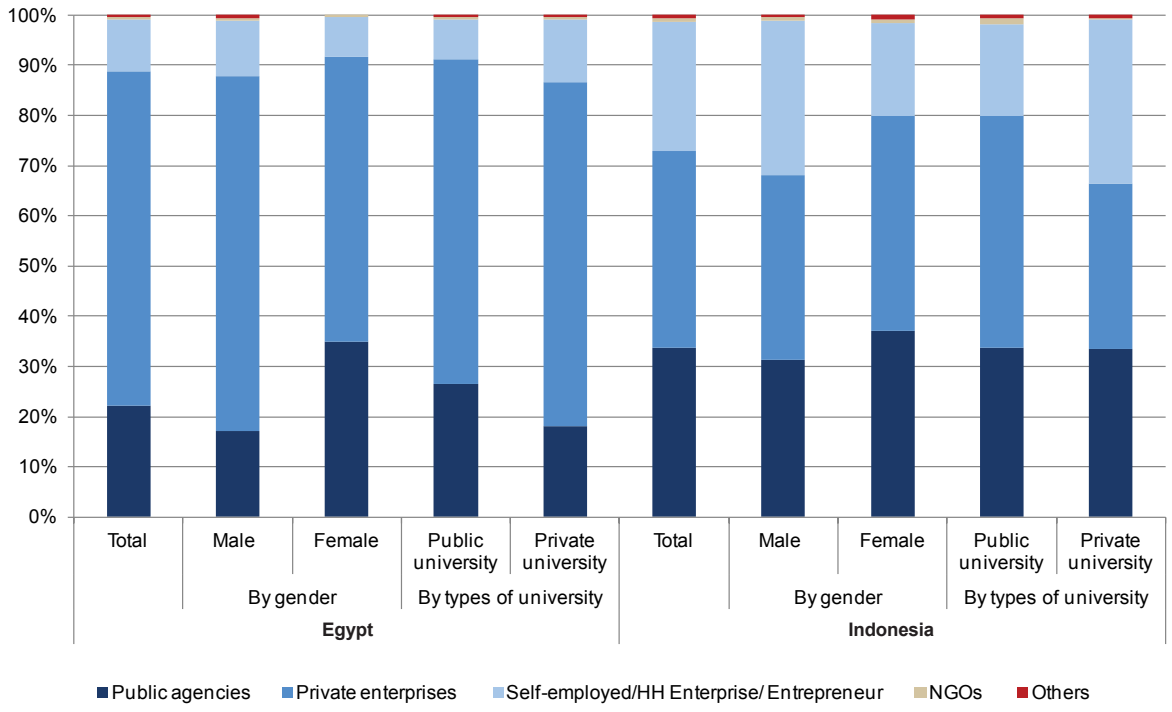


Source: 2013 JICA Student Survey

Table 3: Egypt and Indonesia: Students' Preferences for Work Location, 2013				
(a) Do you want to work away from your current location?	**Egypt**		**Indonesia**	
	Freq.	**%**	**Freq.**	**%**
Yes	762	60.5	1,109	91.2
No	497	39.5	107	8.8
Total	1,259	100	1,216	100
(b) Where do you want to work away from your current location?	**Egypt**		**Indonesia**	
	Freq.	**%**	**Freq.**	**%**
Abroad	471	61.8	350	31.6
National capital (Cairo or Jakarta)	110	14.4	79	7.1
Big cities (excluding Cairo or Jakarta)	50	6.6	246	22.2
Villages	8	1.1	14	1.3
Anywhere	123	16.1	397	35.8
Others	N.A.	N.A.	23	2.1
Total	762	100	1,109	100
(c) Why do you want to work away from your current location?	**Egypt**		**Indonesia**	
	Freq.	**%**	**Freq.**	**%**
Better living conditions	365	47.9	183	16.5
To be independent	79	10.4	95	8.6
To be near my friends/family/relatives	17	2.2	34	3.1
To pursue further education	49	6.4	35	3.2
For better experience/skills/career	157	20.6	697	62.9
For new environment	93	12.2	53	4.8
Others	1	0.1	12	1.1
No answer	1	0.1	N.A	N.A.
Total	762	100	1,109	100

Source: 2013 JICA Job Preference Survey in Egypt and Indonesia

Figure 16: Egypt and Indonesia: Students' Preference on Employment Sector by Gender and Type of University, 2013



Source: 2013 JICA Job Preference Survey in Egypt and Indonesia

In order to examine the determinants of a student's choice of employment sector, this paper uses a multinomial logit regression that takes into consideration features of students (i.e., gender, grade point average, social network aspiration, willingness to take career risks and intolerance of uncertainty and ambiguity), features of their families (i.e., parents' educational attainment and business ownership) and location (i.e., living within Greater Cairo or not for the survey in Egypt, and living within Java or not for the survey in Indonesia). Table 4 shows the marginal effect estimation results. The findings of this regression model revealed that female respondents in both countries prefer getting a job in the public sector, while Egyptian men prefer the private sector and Indonesian men are more likely to seek self-employment, household enterprise, or entrepreneurship. Location near the main labor market (Greater Cairo in Egypt, or Java in Indonesia) was found to decrease the probability of students preferring a job in the public sector. This can be explained by the fact that there is greater variety among employment opportunities in these areas. With regard to parents' educational attainment, it was found that if a student's mother completed a master's or doctoral degree, that student is significantly more likely to prefer a job in the private sector in both Egypt and Indonesia. Business ownership by any family members or relatives significantly and positively

influenced students' preference for self-employment/household enterprise/entrepreneurship. The correlation between student's attitudes toward risk and their job preferences is quite interesting. Students with the willingness to take risks in their career had a higher preference for self-employment and disliked the idea of working in the public sector. Moreover, Egyptian students who are risk averse also had a greater preference for self-employment, probably due to recent political unrest and thus uncertainty behind public sector jobs.

Table 4: Egypt and Indonesia: Determinants of employment sectors (marginal effects)

	Egypt			Indonesia		
	Public	**Private**	**Selfemp**	**Public**	**Private**	**Selfemp**
Features of students						
Female	0.1341***	-0.1253***	-0.0088	0.0841***	0.0379	-0.1220***
	(0.0202)	(0.0226)	(0.0231)	(0.0251)	(0.0538)	(0.0407)
Grade point average	0.0318*	-0.0217	-0.0101	-0.0083	0.0332	-0.0249
	(0.0186)	(0.0208)	(0.0103)	(0.0269)	(0.0348)	(0.0244)
Social network aspiration	-0.0167**	0.0082	0.0085	0.0086	-0.0030	-0.0055
	(0.0081)	(0.0115)	(0.0062)	(0.0060)	(0.0103)	(0.0089)
Willingness to take risk in career	-0.0115**	-0.0012	0.0127***	-0.0038	0.0027	0.0011
	(0.0047)	(0.0051)	(0.0029)	(0.0054)	(0.0071)	(0.0086)
Uncertainty avoidance	-0.0443	0.0175	0.0268*	-0.0073	-0.0316	0.0389
	(0.0297)	(0.0239)	(0.0141)	(0.0231)	(0.0243)	(0.0257)
Features of students' families						
Father with Bachelor	-0.0072	-0.0359	0.0431**	-0.0342	0.0756***	-0.0414
	(0.0358)	(0.0391)	(0.0210)	(0.0293)	(0.0267)	(0.0292)
Father with Master/PhD	-0.0170	-0.0093	0.0263	-0.0360	0.0589	-0.0230
	(0.0518)	(0.0473)	(0.0363)	(0.0573)	(0.0788)	(0.0710)
Mother with Bachelor	-0.0485**	0.0572*	-0.0086	0.0018	0.0578	-0.0595
	(0.0232)	(0.0308)	(0.0278)	(0.0227)	(0.0428)	(0.0432)
Mother with Master/PhD	-0.1811***	0.1478***	0.0333*	-0.0462	0.1693**	-0.1231*
	(0.0410)	(0.0555)	(0.0197)	(0.0359)	(0.0743)	(0.0651)
Business ownership	-0.0449***	-0.0155	0.0604***	-0.0999**	0.0345	0.0654
	(0.0166)	(0.0295)	(0.0234)	(0.0442)	(0.0357)	(0.0400)
Location						
Cairo	-0.0737*	0.0625	0.0112			
	(0.0444)	(0.0510)	(0.0221)			
Java				-0.1857*	0.1119	0.0738
				(0.0962)	(0.1113)	(0.0482)
N	1229	1229	1229	1113	1113	1113

*Notes: (a) * p<0.10, **p<0.05, *** p<0.01; (b) The variables used in the analysis are defined in the appendix Table A1.*

FACTORS INFLUENCING STUDENTS' JOB PREFERENCES

Table 5 shows the estimation results of regression models, explaining the extent to which each factor influences the occupational choice among engineering students in Egypt and Indonesia. The findings of these models show that most job attributes considered are significant, and therefore have an impact on the probability of choosing an alternative.

As expected, "wage" was found to significantly influence students' job choices. The effect of the wage level is more pronounced for Egyptian respondents than their Indonesian counterparts. Among those in Egypt, females identify wages as a greater priority than males, but in Indonesia there were no clear gender differences in the impact of wage on job preferences. Offering "education opportunities/possibility of upgrading qualifications" probably attracts job seekers but its impact gets smaller if they take into account overseas employment as an option. On the other hand, having the opportunities of "good IT infrastructure" and "support for health care benefits" becomes more important for Egyptian respondents given that overseas employment is considered as occupation choices. Obviously, "housing support" from employers is preferred for overseas employment opportunities, but for youth seeking jobs domestically it seems preferable to stay with parents, siblings and relatives, and therefore, they show no interest in this support. With all other things being equal, "household enterprise or self-employment" was preferred to "wage employment at public and private sectors" among students in both countries. In general, men were found to have the greater motivation to work in this sector. This preference might be explained as one of the features of engineering students, as they tend be ambitious at an early stage in their career and expect to become an entrepreneur in the near future. In terms of job preferences between public and private sectors, "wage employment at private enterprise" was significantly preferred to employment in the public sector among Egyptian men, while other students showed a modest preference for working in the public sector (though our findings show no significant difference). Uniquely to Egyptian men, the estimation result revealed that workload does not matter when choosing a job. This means that young males in Egypt are desperately anxious and desire any job, and therefore opting for a light workload does not seem to be an attractive option.

Table 5: Egypt and Indonesia: Marginal Effect and Standard Error Estimates of a Job Choice
Dependent Variable = Choice (whether select a job choice or not)

	Egypt						Indonesia					
	Total		Male		Female		Total		Male		Female	
Job attributes	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Monthly wage level												
Wage	0.0928***	0.1111***	0.0899***	0.0962***	0.0985***	0.1311***	0.0686***	0.0633***	0.0682***	0.0631***	0.0680***	0.0632***
	(0.0020)	(0.0026)	(0.0024)	(0.0032)	(0.0039)	(0.0066)	(0.0015)	(0.0017)	(0.0020)	(0.0021)	(0.0023)	(0.0028)
Non-wage attributes												
Educ	0.0648***	0.0268***	0.0625***	0.0201***	0.0693***	0.0486***	0.0612***	0.0252***	0.0609***	0.0240***	0.0602***	0.0265***
	(0.0033)	(0.0029)	(0.0038)	(0.0027)	(0.0067)	(0.0084)	(0.0029)	(0.0018)	(0.0039)	(0.0025)	(0.0042)	(0.0027)
Workload	0.0044*	0.0072***	0.0011	0.0018	0.0144***	0.0301***	0.0185***	0.0253***	0.0170***	0.0248***	0.0202***	0.0257***
	(0.0025)	(0.0028)	(0.0027)	(0.0026)	(0.0054)	(0.0080)	(0.0024)	(0.0020)	(0.0034)	(0.0026)	(0.0034)	(0.0029)
House	-0.0151***	0.0444***	-0.0128***	0.0384***	-0.0213***	0.0522***	-0.0282***	0.0264***	-0.0285***	0.0267***	-0.0275***	0.0258***
	(0.0026)	(0.0033)	(0.0028)	(0.0033)	(0.0057)	(0.0084)	(0.0027)	(0.0019)	(0.0038)	(0.0026)	(0.0038)	(0.0029)
Infra	0.0549***	0.0745***	0.0480***	0.0620***	0.0742***	0.0997***	0.0767***	0.0767***	0.0776***	0.0723***	0.0743***	0.0817***
	(0.0029)	(0.0037)	(0.0031)	(0.0038)	(0.0066)	(0.0083)	(0.0031)	(0.0034)	(0.0042)	(0.0042)	(0.0047)	(0.0058)
Health	0.0545***	0.0610***	0.0507***	0.0523***	0.0643***	0.0739***	0.0753***	0.0654***	0.0754***	0.0672***	0.0737***	0.0628***
	(0.0029)	(0.0033)	(0.0032)	(0.0034)	(0.0061)	(0.0079)	(0.0031)	(0.0028)	(0.0041)	(0.0037)	(0.0047)	(0.0043)
Sector (Base category: Public)												
Private	0.0089**		0.0139***		-0.0071		-0.0047		-0.0063		-0.0022	
	(0.0040)		(0.0044)		(0.0088)		(0.0039)		(0.0055)		(0.0053)	
Selfemp	0.0261***		0.0277***		0.0202*		0.0424***		0.0486***		0.0344***	
	(0.0048)		(0.0053)		(0.0103)		(0.0047)		(0.0066)		(0.0063)	
Location (Base category: Incairo/Injava)												
Outcairo		-0.0387***		-0.0301***		-0.0600***						
		(0.0039)		(0.0037)		(0.0105)						
Overseas		-0.0670***		-0.0521***		-0.1053***		-0.0522***		-0.0543***		-0.0495***
		(0.0052)		(0.0050)		(0.0132)		(0.0047)		(0.0064)		(0.0069)
Outjava								-0.0354***		-0.0320***		-0.0398***
								(0.0034)		(0.0045)		(0.0053)
Const	-0.0264***	-0.0258***	-0.0202***	0.0006	-0.0444***	-0.1349***	-0.0283***	0.0136***	-0.0193***	0.0232***	-0.0388***	0.0014
	(0.0046)	(0.0047)	(0.0050)	(0.0039)	(0.0103)	(0.0154)	(0.0044)	(0.0033)	(0.0059)	(0.0045)	(0.0063)	(0.0049)
N	30,216	30,216	21,384	21,384	8,832	8,832	28,944	28,944	17,016	17,016	11,928	11,928

*Notes: (a) * p<0.10, **p<0.05, *** p<0.01; (b) The variables used in the analysis are defined in the appendix Tables A2 and A3.*

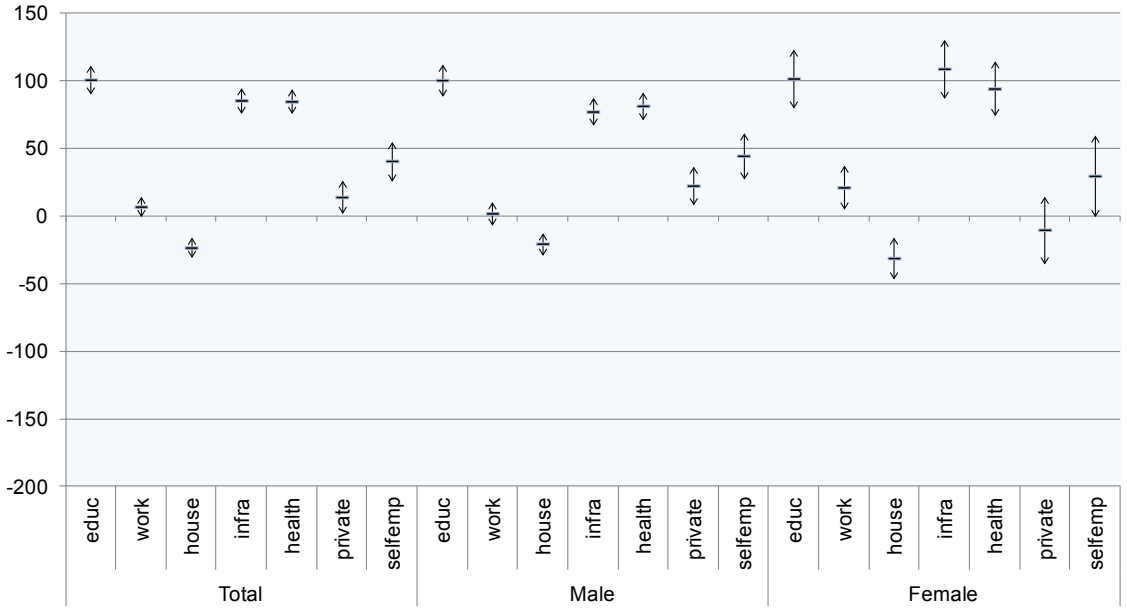
WILLINGNESS TO PAY (OR RECEIVE LOWER WAGES)

Figures 17 and 18 show the extent to which young respondents are willing to pay (WTP) or receive lower wages in exchange for receiving a better attribute of a job, based on the estimation results shown in Table 5. Figure 17 considers a set of job choices with the combinations of job attributes including sectors of employment, whereas Figure 18 instead takes into account work locations. Our findings revealed that with educational support during a contract, a good IT infrastructure, and support for medical insurance, the respondents in both countries are willing to give up a part of their wage for a job. The WTP estimates for these job attributes (measured in U.S. dollars) were found to be less important among Egyptian students than Indonesian counterparts, which results partly from the differences in the monthly wage levels between Egypt and Indonesia. If a work location was extended overseas, offering support for a decent dwelling also becomes an attractive option for them, while they then gave lower priority to educational support (though it is still positive and significant).

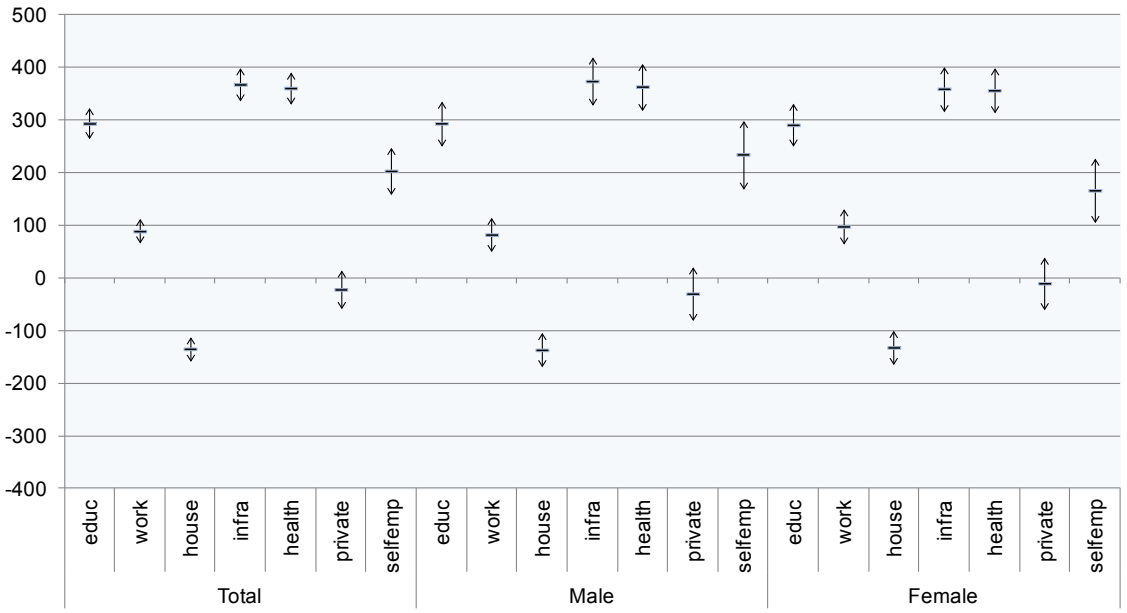
In this study, comparing men with women showed that there was a gender difference in the importance of job attributes, as measured by the WTP estimates. The findings from Figure 17 reveal that compared to their male counterparts, Egyptian female students attach a higher value to a light workload, good IT infrastructure, and support for health insurance, but they put less value on private sector employment. In terms of gender differences between Indonesian students, it was found that male respondents give greater weight to household enterprise or self-employment than female respondents. There is no gender difference in the WTP estimates for other job attributes used in the analysis between Indonesian male and female respondents. Moreover, Figure 18 also showed that in addition to light workload and good IT infrastructure, educational support was valued more among Egyptian female students. On the other hand, Egyptian female students are less likely to value overseas employment. In terms of the WTP estimates, Figure 18 also revealed that Indonesian male and female respondents had the similar results. But Indonesian females placed greater value on good IT infrastructure once overseas employment was taken into account as one of the job attributes.

Figure 17: Egypt and Indonesia: WTP Estimates and 95% Confidence Intervals for Job Attributes including Sectors

(a) Engineering students in Egypt (in U.S. dollars)



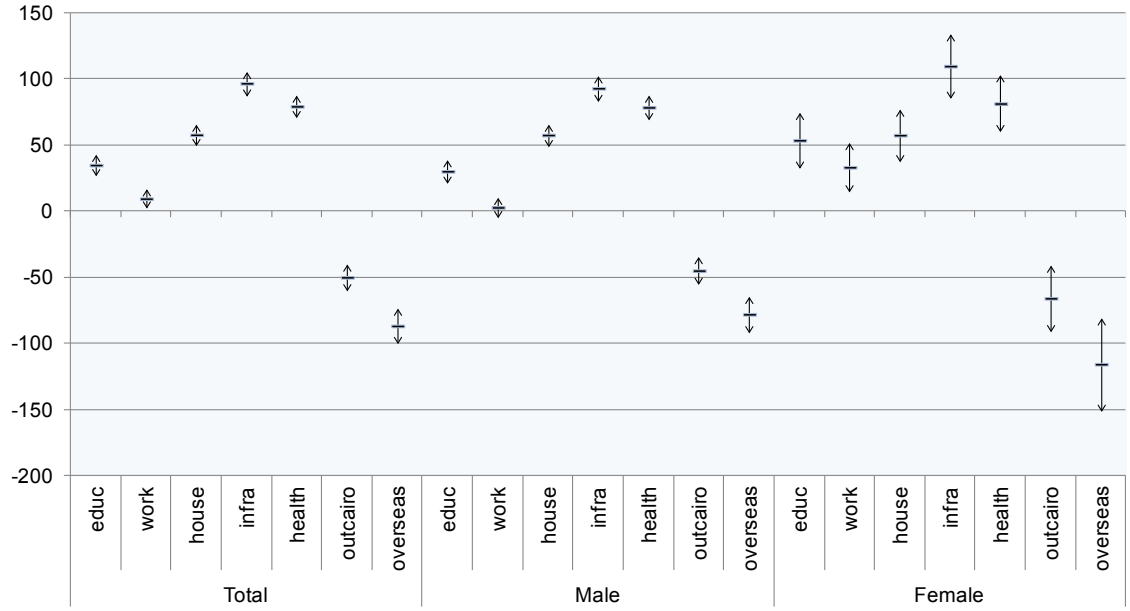
(b) Engineering students in Indonesia (in U.S. dollars)



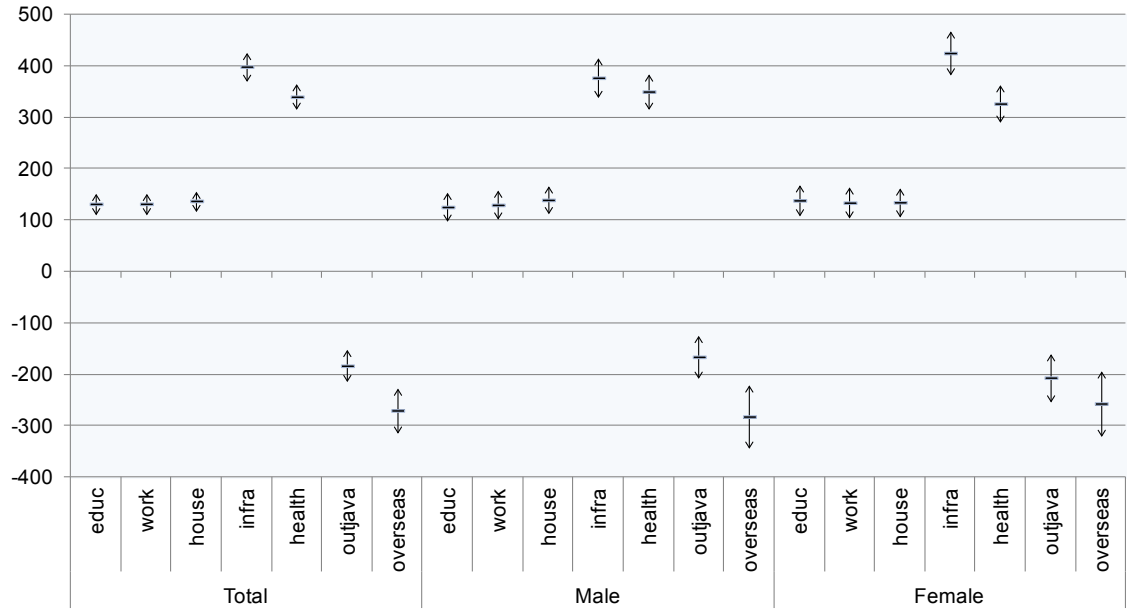
Notes: (a) The average exchange rates in the second quarter of 2013 were 6.938 Egyptian Pounds per U.S. dollar and 10664 Indonesia Rupiah per U.S. dollar (see IMF, 2013); (b) The variables used in the analysis are defined in the appendix Tables A2 and A3.

Figure 18: Egypt and Indonesia: WTP Estimates and 95% Confidence Intervals for Job Attributes including Work Locations

(a) Engineering students in Egypt (in U.S. dollars)



(b) Engineering students in Indonesia (in U.S. dollars)



Notes: (a) The average exchange rates in the second quarter of 2013 were 6.938 Egyptian Pounds per U.S. dollar and 10664 Indonesia Rupiah per U.S. dollar (see IMF, 2013); (b) The variables used in the analysis are defined in the appendix Tables A2 and A3.

POLICY OPTIONS TO CHANGE STUDENTS' JOB PREFERENCES

In order to improve the potentially biased labor supply situation in Egypt—which has resulted mainly from the prolonged, structurally distorted job preferences between public and private sectors (particularly among youth)—the impact of possible policy options will be examined under two hypothetical scenarios: narrowing sector wage gaps and offering better conditions of job attributes.

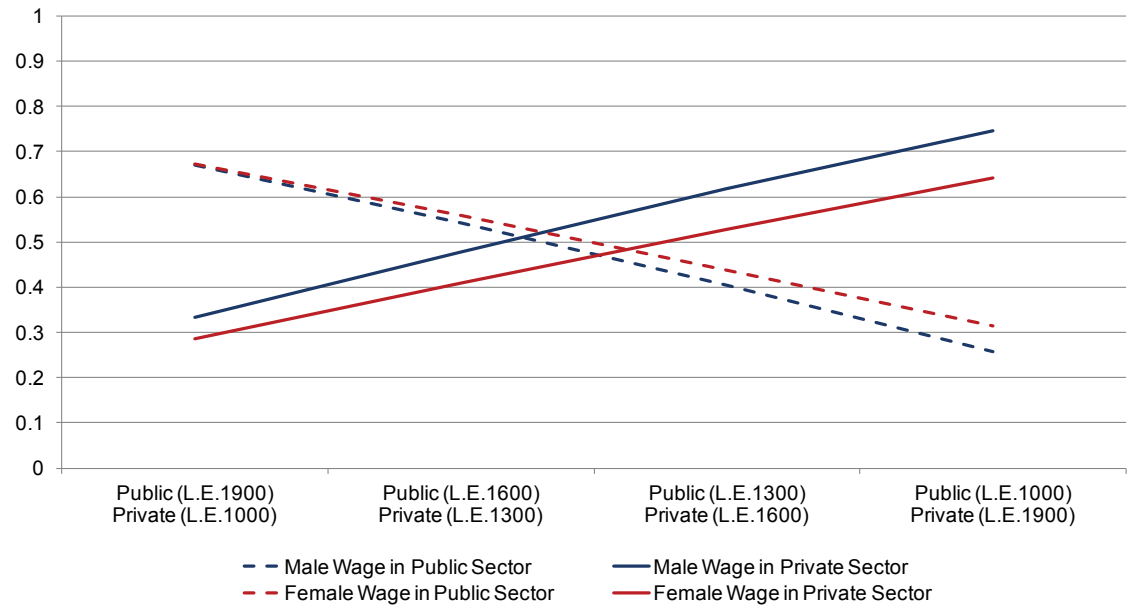
Narrowing Sector Wage Gaps

Figure 19 shows the varying probabilities of taking a job in the public and private sectors in Egypt under the different scenarios of sector wage differences. If the public sector monthly wage is 90 percent higher (i.e., 1900 Egyptian pounds or the equivalent of $274) than in the private sector (i.e., 1000 Egyptian pounds or the equivalent of $144), the probability of taking the public sector job is around 0.67 (or 67 percent) among both males and females, which is more than double the probability of taking a private sector job. However, if the wage gap falls to only 300 Egyptian pounds (or the equivalent of $43), the gaps in the probabilities of taking the jobs between public and private sectors narrow to 0.064 (or 6.4 percentage points) for males and 0.15 (or 15 percentage points) for females, meaning that its policy impact can be greater among males. The findings of this study also denote that a 30 percent increase in private sector wages raises the probability of Egyptian males taking such a job by 0.14 (or 14 percentage points) and raises the probability of Egyptian females taking such a job by 0.12 (or 12 percentage points). Thus, in the context of the future development of the private sector in Egypt, narrowing the wage gaps between public and private sectors really matters. These findings may help us to understand the reason policymakers need to observe local wage settings.

Offering Better Social Benefits and IT Infrastructure

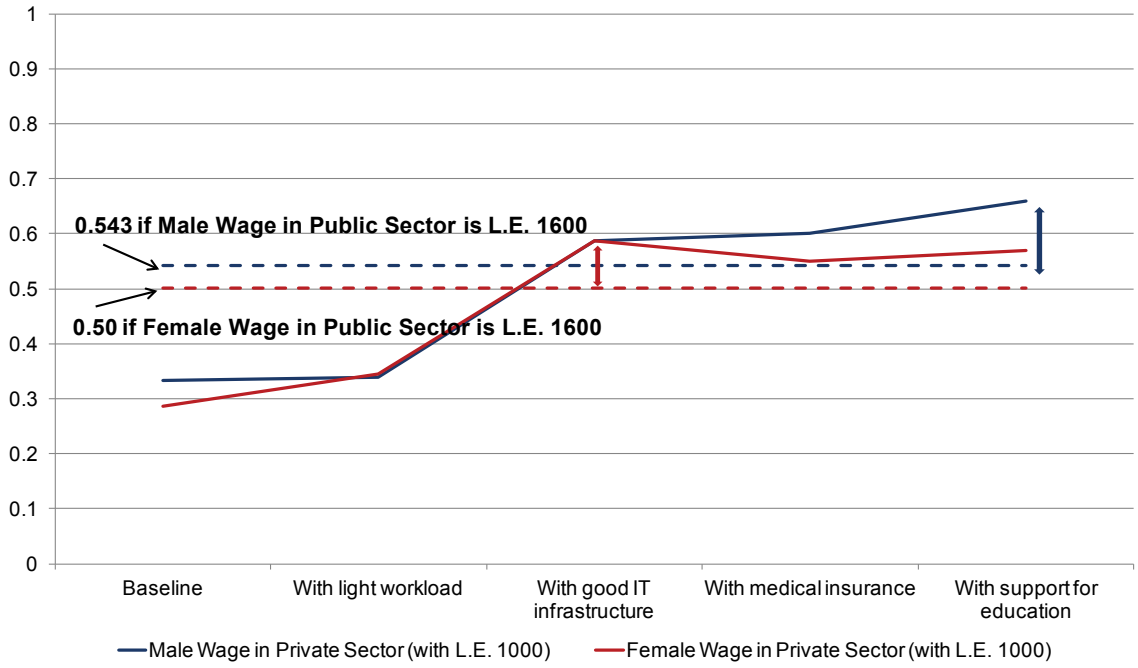
An improvement in non-wage job attributes can also make private sector jobs more attractive than those in the public sector. As an example, here we imagine that an Egyptian student has the opportunity of taking a public sector job with a monthly wage of 1600 Egyptian pounds (the equivalent of $231). The probability of taking such a job is 0.54 (or 54 percent) among males and 0.50 (or 50 percent) among females in our survey in Egypt. With the wage level of 1000 Egyptian pounds and all other things being equal, their probability of taking a job in the private sector was, on average, 0.334 (or 33.4 percent) for males and 0.285 (or 28.5 percent) for females. Even if a private enterprise offers a light workload, the probability of it being chosen over a public sector job increased by 0.06 (or 6 percentage points) among females, but little for males. Still, the students prefer public sector employment. However, offering better social benefits and IT infrastructure significantly contributes to an increase in job uptake rates. Our findings revealed that these offers could raise the uptake rate of a private sector job the most among males with educational support by 0.326 (or 32.6 percentage points), and its rate among females with good IT infrastructure by 0.30 (or 30 percentage points). Health insurance support also significantly increases its uptake by around 0.26 (or 26 percentage points), regardless of gender (see Figure 20).

Figure 19: Egypt: Probabilities of Taking a Job in the Public and Private Sectors by Wage Gap (with all else equal), 2013



Note: The abbreviation L.E. stands for livre égyptienne (French for Egyptian pound).

Figure 20: Egypt: Probabilities of Taking a Job in the Private Sector if one of the Attributes of a Private Sector Job Improves (with all else equal), 2013



Note: The abbreviation L.E. stands for livre égyptienne (French for Egyptian pound).

CONCLUSION

This paper attempted to examine the factors that influence job choice among youth in Egypt. It sought effective policy options to support the development of more attractive private sector employment opportunities in Egypt: this, as stated in the introduction, is in the context of high youth unemployment rates, particularly among the highly educated, driven by a demographic youth bulge. The most obvious findings to emerge from this study are that: the public-private sector wage differentials must be narrowed; better benefits must accompany private sector employment (particularly support for continuing education, upgrading qualifications, and health insurance); and good IT infrastructure matters. Taken together, these steps could significantly contribute to an increase in the rates of a private sector employment among young Egyptian job seekers, even in the case of continued high public sector wages. However, these findings are still limited among engineering students. Further investigation and experimentation into youth in general is strongly recommended.

APPENDIX: METHODOLOGY

In order to elicit job preferences among youth, a discrete choice experiment (DCE) was used for this research. It allowed researchers to uncover how youth value selected attributes of employment by asking them to state their choice over different hypothetical alternatives. Although DCEs have been most frequently applied in health-economics research in high-income countries, there are several recent research projects using DCEs to elicit the employment preferences of highly-skilled workers, especially health workers in several developing countries (see Hanson and Jack, 2007 for Ethiopia; Kolstad, 2011 and Hole and Kolstad, 2011 for Tanzania; Kruk et al., 2010 for Ghana; Rockers et al., 2012 for Uganda; Pagaiya et al., 2011 for Thailand; Rao, 2012 for India; and Blaauw et al., 2010 for Kenya, South Africa, and Thailand).

DCE has its theoretical foundation in random utility theory and relies on the assumptions of economic rationality and utility maximization (Hall et al. 2004). In stating a job preference, each job seeker is assumed to choose the alternative that yields his or her highest individual benefit, known as utility. Moreover, the utility yielded by an alternative is assumed to depend on the utilities associated with its composing attributes and attribute levels (Lancaster, 1966). In sum, the utility of an individual is assumed to be a function of its attributes and the basis of the logit model is the concept of this utility maximization (Mangham et al., 2009). If decision maker n faces a choice among J alternative jobs, the personal utility of a job alternative, U_{nj} , can be expressed as follows:

$$U_{nj} = \alpha_{wage} wage_{nj} + \beta_x' x_{nj} + \varepsilon_{nj}$$

where α_{wage} and β_x are, respectively, the coefficients for the wage and sets of other attributes of the employment x such as employment sector, location, workload, wage, non-monetary benefits, and education and education opportunities/possibilities of upgrading qualifications. The estimated coefficients can only give information about the direction and significance of the effect of changing the levels of one attribute with other things being equal.

Within the context of employment issues, inclusion of a wage factor allows us to estimate the monetary value of attributes of a job—that is, how much wage a respondent would be willing to give up to have an improvement in other aspects of the job. This can be estimated as the ratio of the value of the coefficient of interest to the negative of the cost attribute, that is, wage in this analysis.

In order to derive some policy options affecting the shift of job preference among youth in Egypt, the estimation results were used to calculate willingness to pay (WTP) and policy impact measures. The WTP measures were calculated on the basis of the regression results. In this context, the WTP to get a higher level of a particular job attribute was measured as the willingness to sacrifice wages in order to achieve a higher level of the attribute. As the wage variable is continuous, the WTP for attribute x is given by the following equation:

$$WTP(x) = -\frac{\partial U/\partial x}{\partial U/\partial wage} = -\frac{\beta_x}{\alpha_{wage}}$$

where β_x is the coefficient of attribute x from the regression. This WTP measure was calculated for all wage levels.

This research further investigated the impact of policy changing one of the attributes. This policy impact can be understood as a change in uptake rates of the baseline job. The change in the uptake rates is defined by:

$$\Delta \text{ Uptake Rates} = P_{policy} - P_{base}, \; i \neq k$$

where P_{base} is the baseline job and P_{policy} is the job with improvement in one of the attributes. The results derived from these estimates will enable policy makers to achieve better labor market situations for young people with limited financial and human resources.

For the empirical estimation, two regression models were used. First, the paper modeled job preference among youth when they had options of choosing a sector of employment such as wage employment in the public sector, wage employment at a private enterprise, and household enterprise/self-employment, under the assumption of fixed work location. For the DCE, each respondent was presented with 12 job choice questions with the different combinations of job attributes including employment sectors. The DCE was carefully designed to fulfill the good properties (i.e., orthogonality, level balance, and minimum overlap).[10] The probability a respondent selects a specified job is modeled. The probability of choosing a given job is determined by the indirect utility. Here it is assumed that this is linear and additive and of the form. This can be expressed by the following regression model:

$$V = \alpha_{wage} wage + \beta_1 educ + \beta_2 workload + \beta_3 house + \beta_4 infra + \beta_5 health + \beta_6 private + \beta_7 selfemp + + \beta_8 const + \varepsilon$$

where V is the utility derived from a given job, ε refers to the error term, and all other variables are defined as follows: wage; education opportunities/possibility of upgrading qualifications; workload; housing benefit; infrastructure; health insurance; and sector of employment. Given the binary choices presented to individuals, the conditional logit model was used to analyze the data.

The second estimation model instead focused on a choice of work location such as working within Greater Cairo (or within Java), outside Greater Cairo (or outside Java), and overseas. Each respondent was presented with additional 12 job choice questions with the different combinations of job attributes including work location, instead of employment sectors. Similar to the first model, the second regression model can be given by:

$$V = \alpha_{wage} wage + \beta_1 educ + \beta_2 workload + \beta_3 house + \beta_4 infra + \beta_5 health + \beta_6 outcairo (or\ \beta_6 outjava) + \beta_7 overseas + \beta_8 const + \varepsilon$$

where V is the utility derived from a given job, ε refers to the error term, and all other variables are defined as follows: wage; education opportunities/possibility of upgrading qualifications; workload; housing benefit; infrastructure; health insurance; and work location. Given the binary choices presented to individuals, the conditional logit model was used to analyze the data as the data are stacked with each option within a choice on a different row of the datasets. The definition of the attributes and their levels used in the analyses for Egyptian and Indonesian students are shown in Table A2 and Table A3, respectively.

Table A1: Variable definition used for Table 4	
	Description
Employment sectors	
Public	=1 if a student wants to work the most at public agencies (e.g. government/state-owned company);=0 otherwise.
Private	=1 if a student wants to work the most at private enterprises;=0 otherwise.
Selfemp	=1 if a student wants to work the most for self-employed/household enterprise/entrepreneurship;=0 otherwise.
Features of students	
Female	=1 if a student is female;=0 if male.
Grade point average	A categorical variable of grade point average (GPA), ranging from 1 to 5 (=1 if GPA is less than 1.0, =2 if between 1.0 and 1.9, =3 if between 2.0 and 2.9, =4 if between 3.0 and 3.4, and =5 if between 3.5 and 4.0).
Social network aspiration	Numbers of friends in the main SNS account (e.g. Facebook and twitter etc.) as a proxy variable of social network aspiration, ranging from 1 to 8 (=1 if the number of friends is less than 10 people, =2 if between 10 and 50, =3 if between 51 and 100, =4 if between 101 and 200, =5 if between 201 and 500, =6 if between 501 and 1000, =7 if between 1001 and 2000, and =8 if more than 2000).
Willingness to take risk in career	Students' attitude to risk in career, ranging from 0 (if not at all willing to take risks) to 10 (if very willing to take risks).
Uncertainty avoidance	=1 if a student does not generally prefer uncertainty;=0 if he/she prefers an option under uncertainty.
Features of students' families	
Father with Bachelor	=1 if a student's father completed the Bachelor degree;=0 otherwise.
Father with Master/PhD	=1 if a student's father completed the Master/PhD degree;=0 otherwise.
Mother with Bachelor	=1 if a student's mother completed the Bachelor degree;=0 otherwise.
Mother with Master/PhD	=1 if a student's mother completed the Master/PhD degree;=0 otherwise.
Business ownership	=1 if a student's parents/relatives own business;=0 otherwise.
Location	
Cairo	=1 if the surveyed universities are located within Greater Cairo;=0 otherwise.
Java	=1 if the surveyed universities are located within Java;=0 otherwise.

Table A2: Attribute Types and Levels Used in the Analysis for Egyptian Students

(1) Attribute types and levels for first regression model (including sector of employment)

Variable labels	educ	workload	house	infra	health	wage	sector
Attribute types	Education opportunities/ posssibility of upgrading qualifications	Workload requirements	Housing benefit	IT infrastructure	Medical insurance	Monthly wage level	Sector of employment
Level 1 (=0)	No support for any education opportunities is provided.	Barely enough time to complete duties. Three hours of extra work per day.	No housing benefit is provided.	Unreliable Internet/Mobile connection, electricity	No medical insurance support is provided.	L.E. 1000	Wage employment at public sector agency
Level 2 (=1)	Support for education opportunities/ possibility of upgrading qualifications is offered during contract.	Nearly enough time to complete duties. One hour of extra work per day.	Support for decent dwelling is provided.	Good Internet/ Mobile connection, electricity	Support for medical insurance covering employees and their dependents is provided.	L.E. 1300	Wage employment at private enterprise
Level 3 (=2)						L.E. 1600	Household enterprise/Self employment
Level 4 (=3)						L.E. 1900	

(2) Attribute types and levels for second regression model (including work location)

Variable labels	educ	workload	house	infra	health	wage	location
Attribute types	Education opportunities/ posssibility of upgrading qualifications	Workload requirements	Housing benefit	IT infrastructure	Medical insurance	Monthly wage level	Work location
Level 1 (=0)	No support for any education opportunities is provided.	Barely enough time to complete duties. Three hours of extra work per day.	No housing benefit is provided.	Unreliable Internet/Mobile connection, electricity	No medical insurance support is provided.	L.E. 1000	Within Greater Cairo in Egypt
Level 2 (=1)	Support for education opportunities/ possibility of upgrading qualifications is offered during contract.	Nearly enough time to complete duties. One hour of extra work per day.	Support for decent dwelling is provided.	Good Internet/ Mobile connection, electricity	Support for medical insurance covering employees and their dependents is provided.	L.E. 1300	Outside Greater Cairo in Egypt
Level 3 (=2)						L.E. 1600	Overseas
Level 4 (=3)						L.E. 1900	

Table A3: Attribute Types and Levels Used in the Analysis for Indonesian Students

(1) Attribute Types and Levels for First Regression Model (including sector of employment)

Variable labels	educ	workload	house	infra	health	wage	sector
Attribute types	Education opportunities/ posssibility of upgrading qualifications	Workload requirements	Housing benefit	IT infrastructure	Medical insurance	Monthly wage level	Sector of employment
Level 1 (=0)	No support for any education opportunities is provided.	Barely enough time to complete duties. Three hours of extra work per day.	No housing benefit is provided.	Unreliable Internet/Mobile connection, electricity	No medical insurance support is provided.	Rp. 3,500,000	Wage employment at public sector agency
Level 2 (=1)	Support for education opportunities/ possibility of upgrading qualifications is offered during contract.	Nearly enough time to complete duties. One hour of extra work per day.	Support for decent dwelling is provided.	Good Internet/ Mobile connection, electricity	Support for medical insurance covering employees and their dependents is provided.	Rp. 5,000,000	Wage employment at private enterprise
Level 3 (=2)						Rp. 6,500,000	Household enterprise/Self employment
Level 4 (=3)						Rp. 8,000,000	

(2) Attribute Types and Levels for Second Regression Model (including work location)

Variable labels	educ	workload	house	infra	health	wage	location
Attribute types	Education opportunities/ posssibility of upgrading qualifications	Workload requirements	Housing benefit	IT infrastructure	Medical insurance	Monthly wage level	Work location
Level 1 (=0)	No support for any education opportunities is provided.	Barely enough time to complete duties. Three hours of extra work per day.	No housing benefit is provided.	Unreliable Internet/Mobile connection, electricity	No medical insurance support is provided.	Rp. 3,500,000	Within Jave in Indonesia
Level 2 (=1)	Support for education opportunities/ possibility of upgrading qualifications is offered during contract.	Nearly enough time to complete duties. One hour of extra work per day.	Support for decent dwelling is provided.	Good Internet/ Mobile connection, electricity	Support for medical insurance covering employees and their dependents is provided.	Rp. 5,000,000	Outside Java in Indonesia
Level 3 (=2)						Rp. 6,500,000	Overseas
Level 4 (=3)						Rp. 8,000,000	

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ENDNOTES

1. A youth bulge is a period in which "the age group of youth is far more numerous than for all other age groups combined" (Fuller, 2003: 2).
2. See Boughzala (2013).
3. See Ghanem (2013).
4. The reservation wage is defined as the minimum wage rate at which a worker would accept a job.
5. This is Gallup's first comprehensive poll of youth in the Arab economies in 2009.
6. Compensation of employees consists of all payments in cash, as well as in kind (such as food and housing), to employees in return for services rendered, and government contributions to social insurance schemes such as social security and pensions that provide benefits to employees.
7. Together with El-Zanaty & Associates, the JICA-RI conducted the survey at 10 universities in Egypt. Their locations are as follows: Cairo University (Giza); El-Shorouk Academy (Cairo); Faculty of Engineering in Ain Shams University (Cairo); Faculty of Engineering in Mansoura University (Mansoura); Faculty of Engineering in Matareya Helwan University (Cairo); Higher Institute for Engineering and Technology in New Damietta (Damietta); Higher Technology Institute in 10th of Ramadan City (6th of October); Minia University (Minya); Modern University (Cairo); and British University in Egypt (Cairo).
8. Together with the Demographic Institute, Faculty of Economics at University of Indonesia (LD-FEUI), eight universities were surveyed in Indonesia. The locations are as follows: University North Sumatra (Medan); Medan Institute of Technology (Medan); University of Indonesia (Jakarta); Bandung Institute of Technology (Bandung); Parahyangan University (Bandung); Ahmad Dahlan University (Yogyakarta); Hassanudin University (Makassar); and Atmajaya University (Makassar).
9. The average exchange rate in the second quarter of 2013 was 6.938 Egyptian Pounds per U.S. dollar (see IMF, 2013).
10. For more details, see WHO (2012).

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