Population, Labor Force and Unemployment in Addis Ababa: A Comparative Study of Two Periods

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ABSTRACT: *The objective of this study is to identify the contribution of population growth relative to activity and unemployment rates on the growth of the unemployed population in Addis Ababa between 1984 and 1994. Component analysis is used to identify the relative contributions while percentage points are used to assess the changes observed during the period. The 1984 and 1994 Population and Housing Census reports of Addis Ababa are used for the study. Unemployment rate increased by 24.9 percentage points in the decade. Even if the percentage of the unemployed population with work experience decreased by 2.6 percentage points, the absolute size of this group increased by 39,672 persons during the period. The relative percentage contribution of population growth for the increase in the labor force was 77.5 percent and that of activity rates was 22.5 percent. The relative percentage contribution of total population growth, activity rates and unemployment rates were 15.4 percent, 5.0 percent and 79.6 percent, respectively, for the overall increase in the size of the unemployed population over the decade. This implies that the major contributory factor for the growth of the unemployed population, next to the unemployment rates, was total population growth. It can be concluded from this study that 15.4 percent decline in the size of the unemployed population would be attained by controlling the growth of the total population. Among others, minimizing the difference between rural and urban areas with respect to socio-economic services will have a significant role in controlling the growth of population in urban areas due to migration. In addition, encouraging and attracting national and international investors will have a major contribution in creating new jobs for the urban unemployed population.*

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INTRODUCTION

The interrelationships between population and development can be studied through various indicators. Among others, it can be assessed through studying the effects of population growth on the size of the unemployed population, as the size of the unemployed population can be taken as an indicator of development status of a country (Todaro, 1989; Ekanem et al, 1994; Jemal, 1994).

Unemployment has been a problem of most developing countries. The unemployed population of the less developed countries grew, for example, from approximately 36.5 million in 1960 to over 54 million in 1973, an increase of 46 percent. This indicates an average annual increase of three percent, which is higher than the annual rate of employment growth during the same period (Todaro, 1989). The situation of unemployment problem has been more serious in urban than rural areas, as explained by various researchers (Todaro, 1989; Ekanem et al, 1994; Jemal, 1994).

Like other developing countries, unemployment problem is prevailing in urban areas of Ethiopia. The problem is more serious in Addis Ababa, the Primate City of the country, than other urban areas. Considering the 1984 boundary of urban Addis Ababa for both periods, the unemployment rate was 10.5 in 1984, and increased to 35.4 in 1994, a three-fold increase within a decade. The size of the unemployed population was also 49,281 in 1984, and 296,752 in 1994, six times higher than in 1984.

Several factors may contribute to the rapid growth of the unemployed population in Addis Ababa. The total population size, activity and

unemployment rates may be the proximate factors through which every underlying determinant affects unemployment (Todaro, 1989; Jemal, 1994). In relation to this, studying the relative contribution of the proximate factors to the growth of the unemployed population may have a great role in population and development planning that can address unemployment issues.
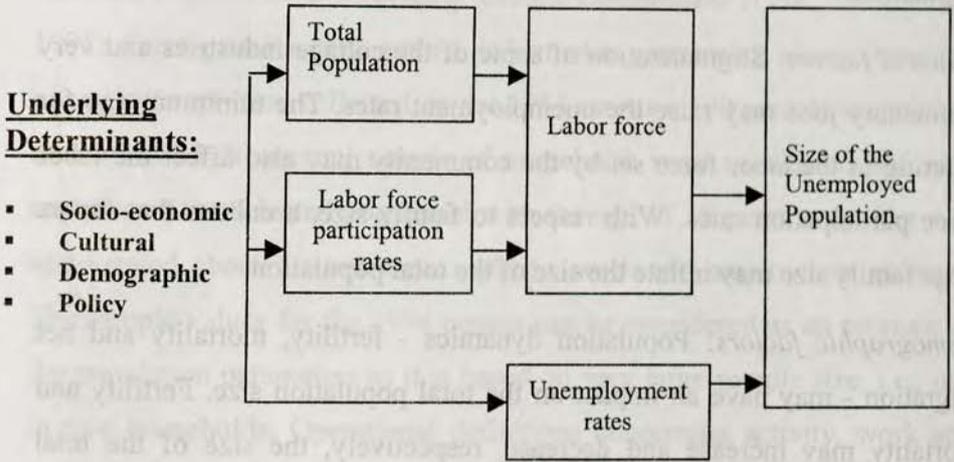
The specific objective of this paper is, therefore, to assess the changes observed between 1984 and 1994, with respect to labor force and unemployment situations in the Primate City, Addis Ababa, in which unemployment is a very serious problem. The contribution of population growth on the increase in the size of the unemployed population will be studied relative to other proximate determinants in order to forward some policy recommendations that can be used for population programs.

CONCEPTUAL FRAMEWORK

The number of people searching for work in developing countries depends primarily on the size and composition of its population, and on the labor force participation rates (Todaro, 1989; Jemal, 1994). This means, whatever determinant affects the labor force, its effect will be through population and/or labor force participation rates. The size of the unemployed population (number of people who have not been employed in a gainful work) may also depend primarily on the labour force and on the unemployment rates. In other words, labor force and unemployment rates

are considered as the proximate determinants of the size of the unemployed population.

Figure I- Conceptual Framework

As postulated in Figure 1, the underlying determinants include socio-economic, cultural, demographic and policy factors that are considered as the exogenous factors, the effect of which is only through the intermediate factors-total population, labor force participation rates and unemployment rates.

Socio-economic factors: A number of factors may be included in this category. To mention some of the major factors, school enrollment and drop out rates may decrease and increase, respectively, the levels of labor force participation and unemployment rates. A number of people graduate from grade twelve every year, the effect of which may be inflating the labor force participation and unemployment rates. The ability of the economy to create

new jobs may also affect the level of unemployment rates. If the number of job seekers out weights the number of new jobs, then the unemployment rates may increase, which in turn inflate the size of the unemployed population.

Cultural factors: Stigmatization of some of the cottage industries and very elementary jobs may raise the unemployment rates. The minimum age for entering in the labor force set by the community may also affect the labor force participation rates. With respect to family size, a culture that favors large family size may inflate the size of the total population.

Demographic factors: Population dynamics - fertility, mortality and net migration - may have an impact on the total population size. Fertility and mortality may increase and decrease, respectively, the size of the total population. While positive net migration may increase the total population of an area, migration may be considered as the major contributory factor for the total population growth in urban areas like Addis Ababa.

Policy: Entrepreneurship and population policies may have an impact on the level of the unemployment rates and total population size, respectively. Policies for the minimum age for entering the labor force may also have an impact on the labor force participation rates and unemployment rates.

To sum up, whatever determinants affect the size of the unemployed population, their impact is through the intermediate factors: total population size, labor force participation rates and unemployment rates.

DATA

The study is based on data from 1984 and 1994 Population and Housing Census reports released by the Central Statistical Authority (CSA) under the National Population and Housing Census Commission (CSA, 1987; CSA, 1995). During each census period, information concerning labour force and unemployment were collected. In the 1984 census a 100 percent sample and in the 1994 a 20 percent sample of households were considered and each member of the selected household with the age of 10 years and older was interviewed about his economic activity, work and employment statuses. The sample values for the 1994 census can be considered as an estimate of the population parameters as it is based on very large sample size, i.e., one in five households. Operational definitions concerning activity, work and employment statuses were the same for the two censuses and hence a valid comparative study can be conducted.

In addition, the study is based on the 1984 boundary in order to exclude Akaki town from the 1994 census data. The exclusion of this town in the comparative study may control the confounding factors that may arise due to boundary effect. Specifically, Weredas 26, 27 and 28 are excluded from the 1994 data, as they are new additions to Addis Ababa from the Akaki Sub-urban areas. In addition, rural areas of Addis Ababa in the 1994 census are excluded, as they were not part of the town during the 1984 census.

METHODS OF ANALYSIS

Proportions

Population proportions are used to assess various changes observed in a decade. Suppose that the number of units in the population (N) with some characteristics falling in the ith category is N_i, then the proportion of persons in the ith category can be given by $C_i = N_i / N$ (Cochran 1977: 50). The difference between the two proportions computed at different periods for the same population is, therefore, given by $(C_{i(t+1)} - C_{it})$, where t and t+1 stand for the first and the second periods, respectively. To simplify discussion, differences in proportions can be multiplied by 100, i.e., $(C_{i(t+1)} - C_{it})$ x100, which gives the percentage point difference between the two reference periods.

Component analysis

The method of component analysis suggested by the United Nations is used to assess the relative contribution of population growth, activity and unemployment rates for the growth of the unemployed population with in a decade (UN, 1971).

The total change in labor force between the two census periods $(P_2A_2 - P_1A_1)$ is given by the sum of the changes in the labor force due to changes in population size $(P_2A_1 - P_1A_1)$ and activity rates $(P_2A_2 - P_2A_1)$, and it is expressed by the following formula:

$$P_2A_2 - P_1A_1 = (P_2A_1 - P_1A_1) + (P_2A_2 - P_2A_1)$$

The total change in the size of the unemployed population between the two census periods ($P_2 A_2 U_2 - P_1 A_1 U_1$) is given by the sum of the changes in the size of the unemployed population due to changes in population size ($P_2 A_1 U_1 - P_1 A_1 U_1$), activity rates ($P_2 A_2 U_1 - P_2 A_1 U_1$) and unemployment rates ($P_2 A_2 U_2 - P_2 A_2 U_1$). This can be expressed by the following formula:

$$P_2 A_2 U_2 - P_1 A_1 U_1 = (P_2 A_1 U_1 - P_1 A_1 U_1) + (P_2 A_2 U_1 - P_2 A_1 U_1) + (P_2 A_2 U_2 - P_2 A_2 U_1)$$

Where,

1 = the 1984 census and 2 = the 1994 census

P_1, P_2 = population aged 10 years and above for the year 1984 and 1994, respectively.

A_1, A_2 = Activity rates for the year 1984 and 1994, respectively.

U_1, U_2 = Unemployment rates for the year 1984 and 1994, respectively.

$P_1 A_1$ and $P_2 A_2$ = total labor force for the year 1984 and 1994, respectively.

$P_2 A_1$ = total labor force in 1994 census estimated by 1984 activity rates

$P_1 A_1 U_1$ and $P_2 A_2 U_2$ = total unemployed population in 1984 and 1994, respectively.

$P_2 A_1 U_1$ = total unemployed population in the 1994 census estimated by the 1984 activity and unemployment rates.

$P_2 A_2 U_1$ = total unemployed population in the 1994 census estimated by the 1994 activity rates and by the 1984 unemployment rates.

The relative percentage contributions can be computed by the following formulas:

$(P_2A_1 - P_1A_1)/(P_2A_2 - P_1A_1) \times 100$ = relative percentage contribution of population growth for the change in the labor force between the two periods.

$(P_2A_2 - P_2A_1)/(P_2A_2 - P_1A_1) \times 100$ = relative percentage contribution of activity rates for the change in the labor force between the two census periods.

$(P_2 A_1 U_1 - P_1 A_1U_1)/(P_2 A_2 U_2 - P_1 A_1U_1) \times 100$ = relative percentage contribution of population growth for the change in the unemployed population.

$(P_2 A_2U_1 - P_2 A_1U_1)/(P_2 A_2 U_2 - P_1 A_1U_1) \times 100$ = relative percentage contribution of activity rates for the change in the unemployed population.

$(P_2 A_2 U_2 - P_2 A_2U_1)/(P_2 A_2 U_2 - P_1 A_1U_1) \times 100$ = relative percentage contribution of unemployment rates for the change in the unemployed population.

RESULTS

Change in Proportions

Values presented in Table 1 are computed by subtracting the proportion of the 1984 from the proportion of the 1994 census times 100. These values indicate the changes in proportions observed over a decade in terms of percentage points. The negative values indicate a decrease, while the

positive values indicate an increase in the proportion of persons in that particular category.

The proportion of the total population in the age group 15-64 (the domain of the labor force) increased by 12 percentage points, while it decreased for the other groups. There is no major difference between male and female concerning changes in the proportion of the population in the three broad age groups over a decade.

Table 1: Change in Percentage Points Between the 1984 and 1994 Census Results

Categories	Male	Female	Total
Population Size			
0-14 Years	-12.6	-10.5	-11.5
15-64 Years	12.8	11.2	12.0
65+ Years	-0.2	-0.7	-0.4
Activity rates	4.7	10.3	7.8
Unemployment rates	22.7	27.5	24.9
Unemployed population with work experience	0.47	-6.23	-2.64
(Change in absolute number)	(30,234)	(9,438)	(39,672)
Employment Status			
Employer	0.79	0.63	0.28
Self-employed	2.18	2.82	2.36
Government Employed	-8.81	0.37	-5.56
Private Employed	5.93	-2.99	2.83
Member of Cooperative	-0.60	-0.64	-0.61
Unpaid Family worker	1.14	1.48	1.27
Others	-0.64	-0.42	-0.56
Unemployed Population by Educational Level			
Illiterate	-6.92	-1.39	-4.21
Non-regular	-4.27	-0.51	-2.36
Grade 1-3	-10.73	-11.21	-10.98
Grade 4-6	-0.60	0.83	0.16
Grade 7-8	6.52	6.00	6.29
Grade 9-11	3.91	3.03	3.50
Grade 12 completed	8.30	1.19	4.67
Beyond Grade 12	3.78	2.07	2.94
Inactive Population:			
Student	-1.37	2.34	1.54
Home Makers	-0.08	-0.55	-1.00
Disabled	0.63	0.32	0.44
Pensioners	1.19	3.87	3.08
Prostitutes	-	-5.51	-3.64
Others	-0.35	-0.49	-0.41

The proportion of persons in the labor force increased over a decade by eight percentage points, while the number of people who are unemployed increased by 25 percentage points between the two periods. An

improvement was observed among the female population with respect to their activity status when compared with the male population (ten versus five percentage points). The proportion of unemployed persons increased by 28 percentage points for females, and by 23 percentage points for males during the period.
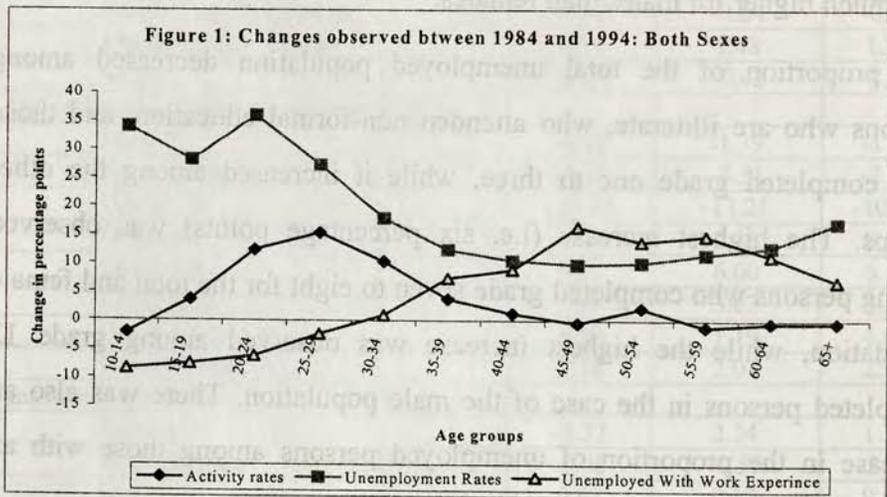
While the proportion of the total unemployed population with work experience decreased by three percent, a significant increase in absolute number (by 39,672) was observed. The proportion of the unemployed population with work experience increased for males, while it decreased for females during the period. With respect to absolute number, the increase was much higher for males than females.

The proportion of the total unemployed population decreased among persons who are illiterate, who attended non-formal education, and those who completed grade one to three, while it increased among the other groups. The highest increase (i.e. six percentage points) was observed among persons who completed grade seven to eight for the total and female population, while the highest increase was observed among grade 12 completed persons in the case of the male population. There was also an increase in the proportion of unemployed persons among those with an educational level beyond grade 12.

The percentage of persons employed in government organizations and those who are members of cooperatives decreased between the two census periods, while the percentage increased in the other categories of employment status for the total and male population. The percentage of

female population employed in the government sector increased by less than one percentage point, while it decreased by three percentage points in the private sector over the decade.

For the total, the percentage of persons who are not in the labor force (inactive population) due to school enrollment, disability and retirement increased over the decade, while the percentage decreased for the other categories. The highest increase in proportion was due to retirement: 3.1 percentage points for the total, 1.2 percentage points for male and 3.9 percentage points for female. Inactivity due to prostitution decreased by 5.5 percentage points between the two periods.

Figure 1: Changes observed btween 1984 and 1994: Both Sexes

Change in Proportions by Age Groups

Changes in activity rates, unemployment rates and percentage of the unemployed with work experience by age group are presented in Figure 1. A decrease in the activity rate was observed in the age group 10-14, 45-49

and ages 55 years and older, while an increase was observed in all other age groups. The change in the activity rates increased with age group up to that of 25-29 and declined afterwards.

As explained by the positive values of changes in percentage points, an increase in the unemployment rates is observed in all age groups in the decade. The highest percentage point difference is observed in the age group 20-24 followed by the age group 10-14. Changes in the unemployment rate decrease with age groups between 20-24 and 35-39, stable between 40-44 and 50-54, and show an increasing pattern afterwards.

With regard to the unemployed population with work experience, the changes in percentage points were negative between the age groups 10-14 and 25-29, and positive in all other age groups. This implies that a decrease in the proportion of unemployed population with work experience was observed between the age groups 10-14 and 25-29, while an increase was observed in the age groups 30-34 and above. But, it does not mean that the number of persons unemployed with work experience decreases between the age groups 10-14 and 25-29; on the contrary, the absolute number of persons unemployed with work experience increased over the decade in almost all age groups (CSA 1987, CSA 1995). Change in percentage points increases with age up to the age group 45-49 and decreases afterwards.

Relative Contributions

Contribution of population growth and activity rates for the total change in the size of the labor force over the decade is presented in Table 2. Out of the total increase in the size of the active population between 1984 and 1994,

77.5 percent is the contribution of population growth relative to a 22.5 percent increase due to the change in the activity rates. The impact of population growth relative to activity rates is 89.5 percent and 63.8 percent for male and female populations, respectively; and that means 25.7 percentage points higher in males than in females.

Table 2: Percentage contribution of population growth and changes in activity rates for the total change in the labor force population

Sex	Total labor force			Percentage contribution of population growth	Percentage contribution of activity rates	Total change in labor force population
	1984ᵃ	1994ᵃ	1994ᵇ			
1	2	3	4	5=(4-2)/(3-2) x100	6=(3-4)/(3-2) x100	7=(3-2)/(3-2) x100
Male	29,5437	492,451	471,799	89.5	10.5	100
Female	174,018	345,335	283,256	63.8	36.2	100
Total	469,455	837,786	755,056	77.5	22.5	100

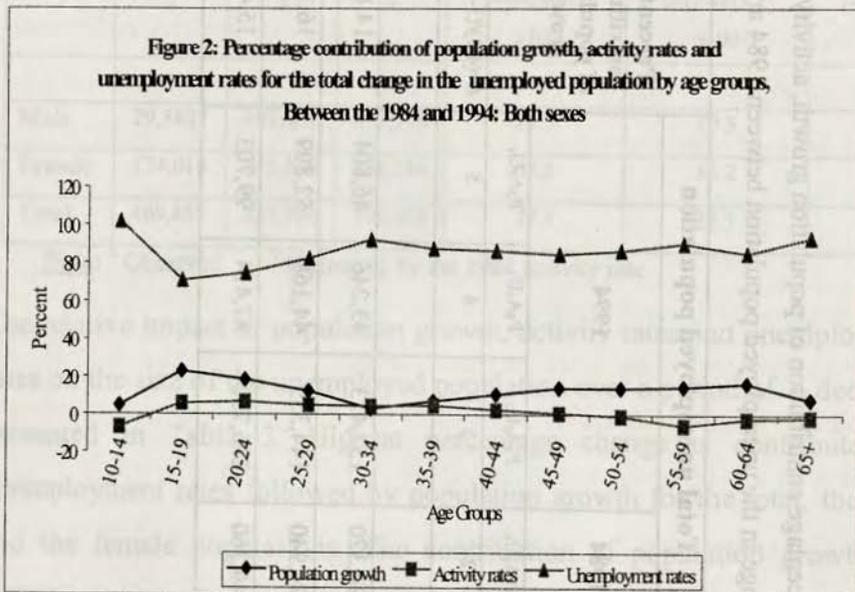**Note:** ᵃ Observed ᵇ Estimated by the 1984 activity rate

The relative impact of population growth, activity rates and unemployment rates on the size of the unemployed population over a period of a decade is presented in Table 3. Highest percentage change is contributed by unemployment rates followed by population growth for the total, the male and the female populations. The contribution of population growth and activity rates are higher among female than male populations, a difference of 1.3 and 4.5 percentage points, respectively. Unemployment rate contributed 5.8 percentage points higher for male than female populations.

Table 3: Percentage contribution of population growth, activity rates and unemployment rates on the total change in the unemployed population between 1984 and 1994

Sex	Total unemployed population				Percentage contribution of population growth	Percentage contribution of activity rates	Percentage contribution of unemployment rates	Total percentage change in the unemployed population
	1984	1994						
	$P_1A_1U_1$	$P_2A_2U_2$	$P_2A_1U_1$	$P_2A_2U_1$				
1	2	3	4	5	6=(4-2)/(3-2)x100	7=(5-4)/(3-2)x100	8=(3-5)/(3-2)x100	9=(3-2)/(3-2)x100
Male	24,320	152,413	43,246	46,804	14.8	2.8	82.4	100.0
Female	24,940	144,339	44,168	52,899	16.1	7.3	76.6	100.0
Total	49,260	296,752	87,414	99,703	15.4	5.0	79.6	100.0

Relative Contributions and Age Groups

The relative impact of population growth, activity rates and unemployment rates on the growth of the size of the unemployed population by age groups are presented in Figure 2. The impact of unemployment rate was much higher than the impact of population growth and activity rates in all age groups. Population growth has a strong impact next to unemployment rates in all age groups, except in the age group 30-34 at which its impact is lighter than the impact of activity rates. The relative percentage contribution of activity rates declined over the decade in the age groups 10-14, and 55 and older age groups.

Figure 2: Percentage contribution of population growth, activity rates and unemployment rates for the total change in the unemployed population by age groups, Between the 1984 and 1994: Both sexes

DISCUSSION AND CONCLUSION

The distribution of the total population of Addis shows a slight change over the decade. A decrease in the percentage of the youth and the elder population is observed between 1984 and 1994. This may contribute to a decline in the age dependency ratio, and affect the size of the labor force.

The overall increase in the activity rates by about eight percentage points over the decade may have many implications that demand further investigations. The higher percentage point increase among females than males needs further research work. The highest percentage point increase is observed in the age group 25-29, which may be mainly due to the reason that many students join the labor force after the completion of secondary school in this age group.

The study shows an increase in unemployment rate and hence an increase in the size of the unemployed population over the decade. The female unemployment rate increased more than that of male by just five percentage points. The possible reason for this may be that the rate of job creation in the economy may be very much slower than the rate of increase in the labor force, which needs further economic survey. Every year, a great number of students graduate from secondary schools, many of whom join the category of the population called "first time job seekers" or "unemployed without work experience" (CSA 1985, CSA 1995). If the economy is not able to create adequate jobs that can absorb this group of population, then the size of the unemployed population is going to be inflated by such an amount of job seekers. The increase in the unemployment rate is much higher in the

age group 20-24 for both sexes, which may be due to the reason that many grade twelve graduates are in this age group.

The proportion of unemployed persons who completed grade four and above increased over the decade. Particularly, the increase in the percentage of the unemployed among persons who attended education beyond grade twelve needs further investigation and policy consideration. Even if a decrease in the percentage of the unemployed population with work experiences was observed, the size increased by a noticeable amount, and it was more pronounced among the male population. Maximum increase in the proportion of this group was observed in the age group 45-49. If there was no job displacement in the period, the size of the unemployed population with work experiences in 1994 is expected to stay as it was in 1984 or to decline. But rather than declining, the size increased by a significant amount. This demands further investigation to identify contributory factors for the increase in the unemployed population with work experiences during the period.

Among the total employed population, the proportion of employers, self-employed and private employees increased while the proportion of employees in the government sector declined during the period. The proportion of the female population employed in the government sector increased, while the population of females employed in the private sector decreased during the period. Being homemakers and prostitution as reasons for inactivity decreased over the decade. In contrast, the percentage of

persons not in the labor force due to disability and pension increased in the period. The prime reasons for such differentials need further investigations.

To conclude, it can be deduced from this study that the major factor for the growth of the labor force relative to activity rates is population growth. The impact of population growth on the increase in the size of the labor force is higher for males than females. On the other hand, population growth is the second major contributory factor, next to the unemployment rate, for the growth of the unemployed population. Its impact is higher for females than males, which needs further investigation.

It is also understood from this study that a 15.4 percent decline would be attained in the size of the unemployed population by controlling the growth of the total population. Thus, reducing the unemployed population by a sizeable amount is possible by affecting the underlying factors that have strong impact on the growth of population. Thus, programs with the objective of controlling population growth, and creating new jobs in urban areas have to be encouraged. Minimizing the push factors (inadequate socio-economic services) in rural areas will have a significant role in controlling the growth of population in urban areas due to migration. In addition, timely response by the government for the national and international investors will have a paramount role in creating new jobs for the unemployed persons in urban areas, particularly in Addis Ababa, the capital of the country.

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