# LABOUR FORCE LIIE TABLES FOR GUYANA 

An Occasional Working Paper
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## By

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## INTRODUCTION

### 1.1 Brief Description of Age Pattern of Work in Guyana

The age pattern of labour force participation rates among the working age population in Guyana is generally dome shape irrespective of gender as observed in many developing countries. The age specific labour force participation rates gradually rise from a low at the entry age of 15 years to a maximum point, and thereafter falling consistently to a bare minimum within the retirement age groups for both males and females (See Compendium 3-P.12) ${ }^{2}$.

The age pattern for women according to the 2012 census results does not seem to exhibit the usual undulation shown generally by women in labour force participation. This irregular pattern is traditionally due to women’s tendency of entering and withdrawing from the labour force many times during the course of their active working life. Cotter, Hermsen and Vanneman (2004) described women's age pattern of participation as double maxima pattern; noting that the likelihood that an average woman will be in the labour force varies substantially over her life; and that many of them exit the labour force when they become mothers; as such, labour force participation rates have traditionally been lower for women in their late 20s through early 40s than they were for younger women or older women.

Although female participation rate in Guyana according to the 2012 Census is two times lower than their males’ counterparts, it does not reflect the female irregular age pattern observed in many of the developing countries. This enables us to construct working life tables for the women in comparison to the men.

### 1.2 Objectives of the study

This study attempts to construct a series of labour force life tables for Guyana. The specific objectives include:

- Compute the length of active life;
- Calculate the loss of active years by mortality;
- Estimate basic indices of labour force growth, such as labour force entry and replacement rates, and rates due to losses by deaths and retirements, and other related measures; and
- Conclusions and recommendations.

[^1]
### 2.0 METHODOLOGY

### 2.1 Definition

By definition, the Working Life Expectancy (WLE) refers to the average number of years that a person is likely to spend in the labour force during his/her lifetime. It begins with a hypothetical cohort of 10,000 newborns, who are subject to age-specific mortality risks and rates of labour force accession.

### 2.2 Data Requirements

The following data are required in the computation of an abridged working life table:

- Population in five year age groups;
- Mortality life tables ${ }^{3}$; and
- Age specific labour force participation rates.


### 2.3 Basic Assumptions for the Construction of Labour Force Life Tables

The construction of the abridged working life tables follows earlier techniques developed by the United Nations (1968) ${ }^{4}$ and G.M.K. Kpedekpo (1969) ${ }^{5}$, which were based on the following assumptions:

- That all persons who enter the labour force at any time in their lives do so prior to the age at which the activity rate reaches its maximum, and no survivors retire into inactive status prior to that age;
- That the ages at which individuals retire are independent of the ages at which they enter the labour force; and
- That the rate of mortality at each age is the same for economically active and inactive persons.

[^2]
### 3.0 THE RESULTS

### 3.1 Measures of the Length of Active Life

Table 1.1 presents the numerical findings of the economically active life expectancies for Guyana and it is illustrated graphically in Figure 1.1. The expectation of inactive years for each age group was obtained as a difference between the total life expectancy in that age group and the economically active life in that same age group for each sex and both sexes combined (i.e., male's inactive years (col.4) = col. 2 minus col.3). These estimates were extracted from columns 10 to 12 of Appendices 1.1, 1.3 and 1.5 respectively and transcribed in Table 1.1 for easy reference in the comparison between male and female estimates of length of active life.

The results reflect a common pattern of working life, for instance, declining gradually with age. The differences between males and females are more noticeable in early ages and diminish gradually with increasing age, but with male's average remaining years of active work life being greater than females throughout across the ages (see Table 1.1). For example, a newly born baby boy and baby girl would expect to live for 65.44 years and 71.64 years respectively, out of which 35.84 years and 16.95 years would be spent in the labour force. This reciprocally, implies that, they would spend an average of 29.60 years and 54.68 years respectively in an inactive life. Considering both sexes combined, the findings indicates 68.15 years as total life expectancy and 26.61 years as average remaining years to be in the labour force. Also, this implies that at birth a total of 41.55 years would represent expected average inactive years for both sexes combined.

Similarly, an inactive male who has reached the working age of 15 years old in Guyana, could expect to live for 54.07 years of which 37.91 years would be spent in the labour force. For a female reaching the similar working age of 15 years old, she could expect to live for 59.69 years of which 17.70 years would be spent in the labour force.

On the whole at the official working age, the number of years spent by females in an inactive life is approximately two and half times more than their male's counterparts (i.e., 41.99 years against 16.16 years). This is an undisputable finding not only for Guyanese women, but a situation which depicts the universal interruption of female's labour force participation due to various factors such as marriage, child-bearing and rearing, etc (Table 1.1 and Figure 1.1).

For instance, Arnaud Chevalier and Tarja K. Viitanen (2001) concluded in their studies that the lack of childcare facilities limits the participation of women in the labour force ${ }^{6}$. Also, George Psacharopoulos and Zafiris Tzannatos (1989) stated that because children and work make simultaneous demands, the more time a woman spends on one, the less time is available for the other. Consequently, women's participation during the age of bearing and rearing children should be lower than those of women outside this age ${ }^{7}$.

[^3]Table 1.1: Measures of Length of Active and Inactive Life, Classified by Sex, Guyana: 2012

| Age <br> Group | Males |  |  | Females |  |  | Both Sexes |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Expectation of Life: |  |  | Expectation of Life: |  |  | Expectation of Life: |  |  |
|  | In total years | In labour force | In inactive years | In total years | In labour force | In inactive years | In total years | In labour force | In inactive years |
|  | ( $\mathrm{e}_{0 \mathrm{x}}$ ) | ( $\mathrm{e}_{\mathrm{wx}}$ ) |  | ( $\mathrm{e}_{0 \mathrm{x}}$ ) | ( $\mathrm{e}_{\mathrm{wx}}$ ) |  | ( $\mathrm{e}_{0 \mathrm{x}}$ ) | ( $\mathrm{e}_{\mathrm{wx}}$ ) |  |
| (1) | (2) | (3) | (4)= (2)-(3) | (5) | (6) | (7) $=(5)-(6)$ | (8) | (9) | $(10)=(8)-(9)$ |
| 0-1 | 65.44 | 35.84 | 29.60 | 71.64 | 16.95 | 54.68 | 68.15 | 26.61 | 41.55 |
| 1-5 | 66.81 | 37.14 | 29.67 | 72.70 | 17.44 | 55.25 | 69.40 | 27.48 | 41.92 |
| 5-10 | 63.39 | 37.47 | 25.92 | 69.20 | 17.57 | 51.64 | 65.95 | 27.70 | 38.24 |
| 10-15 | 58.73 | 37.68 | 21.05 | 64.53 | 17.65 | 46.88 | 61.28 | 27.85 | 33.43 |
| 15-20 | 54.07 | 37.91 | 16.16 | 59.69 | 17.70 | 41.99 | 56.53 | 27.97 | 28.56 |
| 20-25 | 49.69 | 35.96 | 13.73 | 55.08 | 16.77 | 38.32 | 52.04 | 26.50 | 25.54 |
| 25-30 | 45.69 | 32.31 | 13.38 | 50.57 | 14.87 | 35.71 | 47.79 | 23.70 | 24.10 |
| 30-35 | 41.79 | 28.42 | 13.37 | 46.19 | 12.80 | 33.39 | 43.65 | 20.70 | 22.95 |
| 35-40 | 37.88 | 24.43 | 13.45 | 41.78 | 10.77 | 31.01 | 39.49 | 17.67 | 21.83 |
| 40-45 | 33.90 | 20.35 | 13.55 | 37.51 | 8.75 | 28.75 | 35.36 | 14.61 | 20.76 |
| 45-50 | 30.07 | 16.35 | 13.73 | 33.09 | 6.69 | 26.40 | 31.25 | 11.52 | 19.74 |
| 50-55 | 26.13 | 12.27 | 13.86 | 28.88 | 4.74 | 24.14 | 27.17 | 8.48 | 18.69 |
| 55-60 | 22.70 | 8.49 | 14.21 | 25.26 | 2.92 | 22.34 | 23.64 | 5.65 | 17.99 |
| 60-65 | 19.38 | 5.06 | 14.32 | 21.49 | 1.50 | 19.99 | 20.08 | 3.24 | 16.84 |
| 65-70 | 16.55 | 2.89 | 13.66 | 17.79 | 0.70 | 17.09 | 16.78 | 1.73 | 15.05 |
| 70-75 | 13.92 | 1.62 | 12.29 | 14.31 | 0.33 | 13.98 | 13.67 | 0.90 | 12.77 |
| 75-80 | 11.57 | 0.99 | 10.58 | 11.00 | 0.16 | 10.84 | 10.72 | 0.48 | 10.24 |
| 80-85 | 9.45 | 0.60 | 8.86 | 8.56 | 0.07 | 8.49 | 8.25 | 0.25 | 8.01 |
| 85+ | 7.74 | 0.47 | 7.27 | 6.00 | 0.04 | 5.96 | 5.73 | 0.15 | 5.58 |



### 3.2 Loss of Active Years by Mortality

### 3.2.1 Gross years of active life

The estimate of average remaining years of active life for survivors in the labour force at the beginning of year of age and inactive life as presented in Table 1.1 is an aggregate, since not all members of the labour force would pass those stages. Accordingly, some may die while passing through and others would survive, and exit from the labour force either by means of voluntary retirement due to exhaustion of age, and forced retirement due to employer's rules and regulation as well as inability to continue working. As such, the second intermediate variable, which is death of active persons, is presented to account for the loss of active years by mortality.

The calculation to first derive the gross years of active life is carried out in Table 1.2 by applying the age-specific activity or participation rates to the five-year age interval or number of years expected in each age group. The interval for the open age, eighty-five years and over was set at five years because an insignificant number of persons continue to work or look for work in Guyana after 90 years.

The gross active years are therefore calculated and reflected in Table 1.2, giving the number of years an individual passing through each age interval would be economically active. For instance, the gross active years for the males, 20-25 years is 4.36 years, $25-30$ years is 4.65 years, and so on up to eighty-five years and over given as 0.30 years.

The gross active years of the entire age range, 15 years upward ( 15 years and over), is derived as a summation of the gross active years across the age groups, while those 15-65 and $15-85$ were equally derived by summation. For instance, the summation of the active gross years over the whole range of ages from fifteen years upward comes to 44.95 years for Guyanese males, 19.25 years for females and 31.79 years for both sexes combined, out of a potential maximum of seventy-five years.

Refining the age range to fifteen to sixty-five years, the estimates for the total gross years yield to 41.18 years of active life of males, 18.43 years for females and 29.64 years for both sexes combined, out of a potential maximum of fifty years, if all persons were economically active from the age of fifteen to sixty-five years.

If on the other hand one considers the age range fifteen to eighty-five years, the gross years would be 44.65 years for males, 19.22 years for females and 31.66 years for both sexes combined out of a potential maximum of seventy years, again if all persons were economically active from the age of fifteen to eighty-five years (see Table 1.2).

However, our main interest is not simply the gross years of active life, but to indicate:

* the effects of mortality on the expectation of active life at birth; and
* the effects of mortality at the beginning age of entries into the labour force.

Table 1.2: Calculation of Gross Years of Active Life in Ages of Fifteen to Seventy-Nine Years and Fifteen Years and Over for Males and Females, Guyana: 2012

| Age Group | Males |  |  | Females |  | Both Sexes |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Number of years in age interval | Age specific activity rates | Average number of active years in age interval | Age specific activity rates | Average number of active years in age interval | Age specific activity rates | Average number of active years in age interval |
| (1) | (2) | (3) | (4) $=(2) *$ (3) | (5) | $(6)=(2) *(5)$ | (7) | (8) $=(2) *(7)$ |
| 15-20 | 5 | 47.87 | 2.39 | 21.00 | 1.05 | 34.51 | 1.73 |
| 20-25 | 5 | 87.23 | 4.36 | 40.92 | 2.05 | 63.66 | 3.18 |
| 25-30 | 5 | 93.07 | 4.65 | 44.81 | 2.24 | 68.20 | 3.41 |
| 30-35 | 5 | 94.23 | 4.71 | 43.89 | 2.19 | 68.46 | 3.42 |
| 35-40 | 5 | 94.45 | 4.72 | 43.85 | 2.19 | 68.69 | 3.43 |
| 40-45 | 5 | 93.48 | 4.67 | 43.73 | 2.19 | 68.74 | 3.44 |
| 45-50 | 5 | 92.22 | 4.61 | 42.03 | 2.10 | 67.03 | 3.35 |
| 50-55 | 5 | 88.87 | 4.44 | 40.21 | 2.01 | 64.68 | 3.23 |
| 55-60 | 5 | 79.38 | 3.97 | 30.65 | 1.53 | 54.14 | 2.71 |
| 60-65 | 5 | 52.86 | 2.64 | 17.48 | 0.87 | 34.65 | 1.73 |
| 65-70 | 5 | 32.39 | 1.62 | 8.45 | 0.42 | 19.93 | 1.00 |
| 70-75 | 5 | 18.00 | 0.90 | 4.04 | 0.20 | 10.53 | 0.53 |
| 75-80 | 5 | 12.34 | 0.62 | 2.35 | 0.12 | 6.73 | 0.34 |
| 80-85 | 5 | 6.62 | 0.33 | 0.97 | 0.05 | 3.34 | 0.17 |
| 85+ | 5 | 6.04 | 0.30 | 0.64 | 0.03 | 2.58 | 0.13 |
| Total potential years, 15-65 | 50 | -- | 41.18 | --- | 18.43 | --- | 29.64 |
| Total potential years, $15-85$ | 70 | -- | 44.65 | --- | 19.22 | --- | 31.66 |
| Total potential years, $15-\infty$ | 75 | -- | 44.95 | --- | 19.25 | --- | 31.79 |

Note: Age interval for 85 years and over was set at 5 because an insignificant number of persons work or look for work after 90 years in Guyana.

### 3.2.2 The influence of mortality on active life

The loss by mortality, derived as a difference between total gross years of active life and expectation of active life or "net years of active life" is reflected in Table 1.3. And, given that the expectation of active life at birth was estimated at 35.84 years for males, 16.95 years for females and 26.61 years for both sexes combined, indicate that 9.11 years, 2.30 years and 5.19 years respectively represent loss of active years due to mortality. Similarly, loss of active years by mortality at the age of entry into the labour force ( 15 years) was estimated at 7.05 years for the males, 1.55 years for females, and 3.82 years for the national total (Table 1.3).

Subsequently, these estimates imply that mortality affected males' active life at all levels, either at birth or at the age at entry into the labour force more than females (i.e., active years in all ages 15 years and over, all ages 15 and 85 years, and all ages 15 and 65 years respectively). For instance, mortality effect at birth was estimated at approximately 25.42 percent for males compared to 13.54 percent among the females, and 19.50 percent for the whole country. At the entry age into the labour force, mortality effect was estimated at 18.59 percent for males, 8.77 percent for females and 13.67 percent for the entire country (see Table 1.3 for further details).

In all cases, despite the higher longevity of women in Guyana, the estimates of gross and active life expectancies are higher for men than women (see Tables 1.2 and 1.3). These findings provide the argument that the dome-shape age pattern of women has less influence over their work-life expectancy. The shape may most probably be on account of gender differences in labour force participation in the country, where the overall participation rates for males over the years are seen to be two times higher than the rates for females (See compendium 3 -Page 12).

[^4]| Table 1.3: Summary Measures of Mortality Influence on Labour Force, Guyana: 2012 |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Indicators of mortality influence on labour force | Males |  |  | Females |  |  | Both Sexes |  |  |
|  | Active years in all ages 15 and over | Active years in all ages between 15 \& 85 | Active years in all ages between 15 \& 65 |  | Active years in all ages between 15 \& 85 | Active years in all ages between 15 $\& 65$ | Active years in all ages 15 and over |  |  |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| 1. Gross years of active life | 44.95 | 44.65 | 41.18 | 19.25 | 19.22 | 18.43 | 31.79 | 31.66 | 29.64 |
| 2. Expectation of active life at birth | 35.84 | 35.74 | 34.11 | 16.95 | 16.94 | 16.44 | 26.61 | 26.57 | 25.46 |
| 3. Loss of active years by mortality ( $\mathrm{r}_{1}-\mathrm{r}_{2}$ ) | 9.11 | 8.91 | 7.08 | 2.30 | 2.28 | 1.98 | 5.19 | 5.10 | 4.18 |
| 4. Expectation of active life at age 15 | 37.91 | 37.80 | 36.07 | 17.70 | 17.69 | 17.17 | 27.97 | 27.93 | 26.77 |
| 5. Loss of active years by mortality after age $15\left(\mathrm{r}_{1}-\mathrm{r}_{4}\right)$ | 7.05 | 6.85 | 5.11 | 1.55 | 1.53 | 1.26 | 3.82 | 3.73 | 2.87 |
| 6. Percent of active years lost due to mortality at birth (\%) | 25.42 | 24.92 | 20.74 | 13.54 | 13.43 | 12.07 | 19.50 | 19.19 | 16.41 |
| 7. Percent of active years lost due to mortality at age 15 (\%) | 18.59 | 18.12 | 14.17 | 8.77 | 8.66 | 7.35 | 13.67 | 13.37 | 10.73 |
| Note: Derived from Appendices 1.1, 1.3 and 1.5 and Table 1.2 |  |  |  |  |  |  |  |  |  |

### 3.3 Indices of Labour Force Growth

One of the major applications of the economically active life tables is to estimate the indices of labour force growth or crude rates of the labour force replenishment. This is measured by new entrants on the one hand, and its depletion by deaths and retirements on the other. These crude rates were derived by applying the age-specific rates (i.e., the age specific mortality rates, annual rates of entries and retirements from labour force) presented in Appendices 1.1, 1.3 and 1.5 to the figures for the corresponding age groups in the actual labour force and the inactive population in Table 1.4. The age specific rates in Table 1.4 in columns 5, 7 and 9 are portions of the economically active life tables which were extracted from columns 16, 18 and 20 of Appendices 1.1, 1.3 and 1.5 respectively.

The calculations are carried out in Table 1.4 and the summary results are given in Table 1.5. For example, the entry rate for males was calculated by dividing the total estimated number of net annual entries in column 8, by the total active male population in column 3, multiply by 1000. The calculations for male's entry and retirement rates and losses by deaths are illustrated as an example below:
a). Entry rate $=($ total estimated entries/total active pop $) \times 1000=(7091 / 191975) \times 1000=36.94$;
b). Retirement rate $=($ total estimated retirements/total active pop) $\times 1000=(1734 / 191975) \times 1000$ =9.03; and
c). Losses by deaths $=($ total estimated deaths/total active pop) $\times 1000=(1482 / 191975) \times 1000$ =7.72.

This procedure for males was then repeated for females and both sexes combined separately.

Disaggregating the factors of labour force growth into its component parts, the entry rate of 36.94 per 1000 accounts for male's labour force supply. On the other hand, the retirement and death rates of 9.03 and 7.72 per 1000 respectively account for the depletion factors of the male's labour force.

As a consequence, the difference between the rate of entries and the sum of the rates of retirements and losses by deaths is known as labour force replacement rate. The replacement rate, also considered to be an index of potential labour force growth or rate of annual increase, comes to 20.18 per 1000 of the male's labour force and 20.97 per 1000 of the female's labour force for Guyana in 2012. For the both sexes combined, the annual increase or replacement rate is 20.70 per 1000 labour force (see Table 1.5).

Another important index is the labour force supply and depletion factors, measured by the replacement ratio, generated from Table 1.4 and the result summarized in Table 1.5 for easy reference. The ratio is referred to as "an index of the pressure the labour market represented by demands of entering workers for jobs, in proportion to number of jobs being vacated by retirement and death" (UN 1968) ${ }^{9}$. The replacement ratio is derived by dividing the annual number of entries into the labour force by the sum of retirements and losses by death multiply by 100. It is given as:

## Replacement ratio = total estimated entries/(total estimated deaths + retirements)x100

a). Male $=7091 /(1482+1734) \times 100=220.45 \%$;
b). Female $=3316 /(385+1066) \times 100=228.49 \%$; and
c). Both sexes $=10222 /(1905+2503) \times 100=231.88 \%$

This result implies that of the population factors which influence labour force growth, deaths and retirements account for a lesser proportion; and as such, the replacement ratio is significantly high or more than twice the size of those exiting the labour force as a result of deaths and retirements in Guyana. For example, every 100 males and females leaving the labour force by deaths and retirements, they are subsequently replaced by approximately 220 and 228 new entrants, and for every 1000, by 2,205 and 2,285 new entrants, and so on respectively. For the entire country, the ratio is 232 per every 100 or 2,319 per every 1000 persons leaving the labour force due to retirements and deaths (Table 1.5).

This issue of high replacement ratio was an expected phenomenon, because the fertility rate which mainly determines the new entrants into the labour force in Guyana had been relatively constant at 2.8 per woman for almost two decades (see Compendium $4-$ Page 38$)^{10}$. And, where infant and childhood mortality rates too had simultaneously been on a decline (Compendium 4-Page 53)11, such a high rate is more likely to occur in the absence of full or hundred percent employment to presumably counteract the labour supply. Regrettably, this scenario of full employment is highly impossible to achieve in many developing countries.

[^5]Table 1.4: Estimates of Annual Losses from Labour Force by Deaths and Retirements, and Gains by Entries from Inactive Population, Classified by Sex; Guyana: 2012

| $\begin{gathered} \text { Age } \\ \text { Group } \end{gathered}$ | Population |  |  | Annual losses from labour force by death |  | Annual entries into labour force |  | Annual retirement from labour force |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Total | Labour force/active | Inactive | Rate per 1000 labour force | Estimated number | Rate per 1000 labour force | Estimated number | Rate per 1000 labour force | Estimated number |
| (1) | (2) | (3) | (4)=2-3 | (5) | (6) $=3 * 5$ | (7) | (8) $=4 * 7$ | (9) | $(10)=3 * 9$ |
|  | Males |  |  |  |  |  |  |  |  |
| 15-20 | 40787 | 19524 | 21263 | 2.41 | 47 | 259.65 | 5521 |  |  |
| 20-25 | 29871 | 26057 | 3814 | 4.25 | 111 | 356.70 | 1361 |  |  |
| 25-30 | 24380 | 22689 | 1691 | 5.16 | 117 | 103.49 | 175 |  |  |
| 30-35 | 25102 | 23655 | 1447 | 5.43 | 128 | 23.93 | 35 |  |  |
| 35-40 | 24455 | 23098 | 1357 | 5.70 | 132 |  |  | 0.79 | 18 |
| 40-45 | 23366 | 21844 | 1522 | 7.35 | 160 |  |  | 2.39 | 52 |
| 45-50 | 20842 | 19220 | 1622 | 7.50 | 144 |  |  | 4.99 | 96 |
| 50-55 | 18281 | 16246 | 2035 | 12.83 | 208 |  |  | 14.31 | 233 |
| 55-60 | 13630 | 10820 | 2810 | 15.73 | 170 |  |  | 44.68 | 483 |
| 60-65 | 10148 | 5364 | 4784 | 24.32 | 130 |  |  | 89.30 | 479 |
| 65-70 | 6444 | 2087 | 4357 | 31.44 | 66 |  |  | 108.62 | 227 |
| 70-75 | 4665 | 840 | 3825 | 43.09 | 36 |  |  | 114.94 | 97 |
| 75-80 | 2931 | 362 | 2569 | 54.80 | 20 |  |  | 92.13 | 33 |
| 80-85 | 1634 | 108 | 1526 | 82.94 | 9 |  |  | 103.51 | 11 |
| 85+ | 1043 | 63 | 980 | 51.68 | 3 |  |  | 83.81 | 5 |
| Total | 247579 | 191975 | 55604 | $\mathbf{x}$ | 1482 | X | 7091 | x | 1734 |
| Females |  |  |  |  |  |  |  |  |  |
| 15-20 | 40312 | 8465 | 31847 | 1.36 | 12 | 78.45 | 2,498 |  |  |
| 20-25 | 30967 | 12673 | 18294 | 1.88 | 24 | 40.42 | 740 |  |  |
| 25-30 | 25905 | 11607 | 14298 | 2.59 | 30 | 5.46 | 78 |  |  |
| 30-35 | 26341 | 11561 | 14780 | 2.70 | 31 |  |  | 2.18 | 25 |
| 35-40 | 25369 | 11125 | 14244 | 3.66 | 41 |  |  | 0.36 | 4 |
| 40-45 | 23130 | 10115 | 13015 | 3.31 | 34 |  |  | 4.16 | 42 |
| 45-50 | 20993 | 8823 | 12170 | 5.09 | 45 |  |  | 8.38 | 74 |
| 50-55 | 18076 | 7268 | 10808 | 10.09 | 73 |  |  | 27.92 | 203 |
| 55-60 | 14642 | 4487 | 10155 | 10.54 | 47 |  |  | 73.87 | 331 |
| 60-65 | 10755 | 1880 | 8875 | 13.34 | 25 |  |  | 127.56 | 240 |
| 65-70 | 6996 | 591 | 6405 | 19.24 | 11 |  |  | 161.04 | 95 |
| 70-75 | 5372 | 217 | 5155 | 27.56 | 6 |  |  | 154.14 | 33 |
| 75-80 | 3750 | 88 | 3662 | 52.84 | 5 |  |  | 131.70 | 12 |
| 80-85 | 2267 | 22 | 2245 | 42.97 | 1 |  |  | 217.96 | 5 |
| 85+ | 1867 | 12 | 1855 | 83.37 | 1 |  |  | 125.48 | 2 |
| Total | 256742 | 88934 | 167808 | $\mathbf{x}$ | 385 | x | 3316 | $\mathbf{x}$ | 1066 |
| Note $_{1}$ : Columns 5, 7 \& 9 from Appendices 1.1, 1.3 and 1.5. |  |  |  |  |  |  |  |  |  |
| Note 2 : Males plus females will not tally with both sexes combined due to rounding as well as application of independent rates for each. |  |  |  |  |  |  |  |  |  |
| Note 3 : "Others" and "Not Stated" Categories of the Principal Activities of the Working Age Population" were added and prorated to get the labour force population across the ages. |  |  |  |  |  |  |  |  |  |


| Table 1.4 Continued: Both Sexes |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| (1) | (2) | (3) | (4) $=2-3$ | (5) | (6) $=3 * 5$ | (7) | (8)=4*7 | (9) | $(10)=3 * 9$ |
| 15-20 | 81099 | 27989 | 53110 | 2.69 | 75 | 150.55 | 7996 |  |  |
| 20-25 | 60838 | 38729 | 22109 | 1.71 | 66 | 90.89 | 2009 |  |  |
| 25-30 | 50285 | 34296 | 15989 | 1.31 | 45 | 9.96 | 159 |  |  |
| 30-35 | 51443 | 35216 | 16227 | 4.08 | 144 | 1.61 | 26 |  |  |
| 35-40 | 49824 | 34222 | 15602 | 4.98 | 170 | 1.57 | 24 |  |  |
| 40-45 | 46496 | 31959 | 14537 | 7.93 | 254 | 0.46 | 7 |  |  |
| 45-50 | 41835 | 28042 | 13793 | 6.83 | 192 |  |  | 5.51 | 155 |
| 50-55 | 36357 | 23514 | 12843 | 19.12 | 450 |  |  | 12.01 | 282 |
| 55-60 | 28272 | 15307 | 12965 | 17.21 | 263 |  |  | 50.82 | 778 |
| 60-65 | 20903 | 7244 | 13659 | 16.71 | 121 |  |  | 101.07 | 732 |
| 65-70 | 13440 | 2678 | 10762 | 21.18 | 57 |  |  | 126.13 | 338 |
| 70-75 | 10037 | 1057 | 8980 | 26.02 | 28 |  |  | 137.22 | 145 |
| 75-80 | 6681 | 450 | 6231 | 51.78 | 23 |  |  | 109.15 | 49 |
| 80-85 | 3901 | 130 | 3771 | 54.04 | 7 |  |  | 155.01 | 20 |
| 85+ | 2910 | 75 | 2835 | 149.80 | 11 |  |  | 50.55 | 4 |
| Total | 504321 | 280909 | 223412 | x | 1905 | x | 10222 | x | 2503 |
| Note ${ }_{1}$ : Columns 5,7 \& 9 from Appendices 1.1, 1.3 and 1.5. |  |  |  |  |  |  |  |  |  |
| Note 2 : Males plus females will not tally with both sexes combined due to rounding as well as application of independent rates for each. |  |  |  |  |  |  |  |  |  |
| Notes : "Others" and "Not Stated"Categories of the Principal Activities of the Working Age Population" were added and prorated to get the labour force population across the ages. |  |  |  |  |  |  |  |  |  |


| Table 1.5: Labour Force Entry and Exit Rates, Replacement Rate and Ratio, Classified by Sex; <br> Guyana: 2012 |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: |
|  | Annual Crude Rate |  |  |  |
|  | Males | Females | Both Sexes |  |
| 1. Gains by entries per 1000 labour force | 36.94 | 37.29 | 36.39 |  |
| 2. Losses by retirements per 1000 labour force | 9.03 | 11.99 | 8.91 |  |
| 3. Losses by deaths per 1000 labour force | 7.72 | 4.33 | 6.78 |  |
| 4. Replacement rate per 1000 labour force $\left\{\left(\mathrm{r}_{1}\right)-\left(\mathrm{r}_{2}+\mathrm{r}_{3}\right)\right\}$ | 20.18 | 20.97 | 20.70 |  |
| 5. Replacement ratio per 100 | 220.45 | 228.49 | 231.88 |  |
| Note: Derived from Table1.4 |  |  |  |  |

### 3.4 Average Age of Entry and Exit from Labour Force

The mean age of entry and exit is an important indicator for policy formulation relating to the length of working life. It enables policy makers to set employment rate targets for the new entrants and senior citizens and ensure that the public pension system is able to meet the demands of the retired population.

The calculation is carried out by taking the net entry and retirement by age as reflected in Table 1.4, columns 8 and 10 to represent the gross figures. The result of the calculation is reflected in Table 1.6, and shows that the median age or about 50 percent of both males and females in Guyana who entered the labour force do so around age 18 years (males (18.28 years), females ( 18.35 years) and both sexes combined (18.13 years) respectively.

This finding is in line with the school enrolment pattern in Guyana, where by age eighteen (18) (Compendium 4, Page 6) ${ }^{12}$, only a very small percentage (less than 4 percent) of the school-going age children (5-24 years) attending school full time or part-time are still in school.

Although 50 percent of males and females who entered the labour force do so approximately by age 18 years, on average the males remain for about three years longer than the females. The result also shows that the male median age of retirement from the labour force is 59.28 years and females, 56.20 years.

| Table 1.6: Average Age of Entry and ExitRetirement from Labour Force by Sex, Guyana: 2012 |  |  |  |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Measure |  |  |  |  |  | Males | Females | Both Sexes |
| 1. Average age of entry into abour force (in years) | 18.28 | 18.35 | 18.13 |  |  |  |  |  |
| 2. Average age of exitretirement from labour force (in years) | 59.28 | 56.20 | 60.14 |  |  |  |  |  |
| Note: Derived from Table 1.4 |  |  |  |  |  |  |  |  |

[^6]
### 4.0 CONCLUSIONS AND RECOMMENDATIONS

Work-life expectancy represents the expected length of life spent in the labour force. It is an estimate of the average expected number of years every male and female in Guyana will work. The calculation begins with a hypothetical cohort of 10,000 births of employed males and females and both sexes combined who survived to each specific age. It provides useful indicators such as labour force replacement rate and replacement ratio, and average expected working years of entry into and exit or withdrawal from the labor force.

These measures are very useful to policy-makers, for they are used to determine changes in the labour force, expected total consumption, and output by different age groups. Social security system also uses working life table estimates to settle social security claims and benefit payments arising from occupational injury by their contributors.

Taking into consideration that the average remaining years of active life could be disrupted by periods of unemployment arising from factors such as occupational injuries, redundancies, sickness, etc., one would conclude that working life for females in Guyana is short, despite their dome shape age pattern of labour force participation and the longevity of life for females as compared to the males.

Finally, the low working life for females implies that there is a need to set clear targets to increase the participation rate of women and establish policy to delay their exit from the labour force. Apart from this, research on developing working life tables for Guyana should be prioritized because of its usefulness. In the absence of such scientific means of computing benefits, lawyers or the court system in Guyana may arrive at compensation claims arbitrarily for workers affected due to injuries or death.

### 5.0 APPENDIX TABLES

| Appendix 1.1: Abridged Table of Economically Active Life, Male Population of Guyana: 2012 |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Age interval | Age specific activity rates (\%) |  | Survivors at age $\mathbf{x}$ of $\mathbf{1 0 , 0 0 0}$ born alive |  | Stationary population in age interval |  | Cumulated stationary population in age $\mathrm{x}-\infty$ |  | Average remaining life time at beginning of age group years of: |  |  |
|  | In age interval | At beginning of age (x) | Total $\left(l_{x}\right)$ | Economically active | $\begin{aligned} & \text { Total } \\ & \left(5 \mathbf{L}_{x}\right) \end{aligned}$ | Economically active | Total (Tx) | Economically active ( $\mathrm{T}_{\mathrm{wx}}$ ) | Total years $\mathbf{e}_{\mathrm{x}}$ | Economically active years ( $\mathrm{e}_{\mathrm{wx}}$ ) | Inactive years |
| (1) | (2) | $(3)=\left(1_{5}+1_{6}\right) / 2$ | (4) | (5) = (4)* 3 ) | (6) | (7) $=(6)^{*}(2)$ | (8) | (9) | $(10)=(8) \div(4)$ | $(11)=(9) \div(4)$ | (12)=(10)-(11) |
| 0-1 | 0 | 0 | 10000 | 0 | 9700 | 0 | 654434 | 358428 | 65.44 | 35.84 | 29.60 |
| 1-5 | 0 | 0 | 9650 | 0 | 38393 | 0 | 644734 | 358428 | 66.81 | 37.14 | 29.67 |
| 5-10 | 0 | 0 | 9565 | 0 | 47695 | 0 | 606341 | 358428 | 63.39 | 37.47 | 25.92 |
| 10-15 | 0 | 0 | 9512 | 0 | 47420 | 0 | 558646 | 358428 | 58.73 | 37.68 | 21.05 |
| 15-20 | 47.87 | 0 | 9455 | 0 | 47024 | 22510 | 511226 | 358428 | 54.07 | 37.91 | 16.16 |
| 20-25 | 87.23 | 67.55 | 9343 | 6311 | 46254 | 40348 | 464202 | 335918 | 49.69 | 35.96 | 13.73 |
| 25-30 | 93.07 | 90.15 | 9148 | 8246 | 45179 | 42046 | 417948 | 295570 | 45.69 | 32.31 | 13.38 |
| 30-35 | 94.23 | 93.65 | 8920 | 8354 | 44004 | 41467 | 372769 | 253524 | 41.79 | 28.42 | 13.37 |
| 35-40 | 94.45 | 94.34 | 8680 | 8189 | 42801 | 40426 | 328765 | 212057 | 37.88 | 24.43 | 13.45 |
| 40-45 | 93.48 | 93.97 | 8435 | 7927 | 41429 | 38729 | 285963 | 171632 | 33.90 | 20.35 | 13.55 |
| 45-50 | 92.22 | 92.85 | 8131 | 7550 | 39934 | 36825 | 244535 | 132902 | 30.07 | 16.35 | 13.73 |
| 50-55 | 88.87 | 90.54 | 7830 | 7090 | 37986 | 33758 | 204601 | 96077 | 26.13 | 12.27 | 13.86 |
| 55-60 | 79.38 | 84.12 | 7339 | 6174 | 35337 | 28050 | 166614 | 62319 | 22.70 | 8.49 | 14.21 |
| 60-65 | 52.86 | 66.12 | 6774 | 4479 | 32003 | 16916 | 131277 | 34268 | 19.38 | 5.06 | 14.32 |
| 65-70 | 32.39 | 42.62 | 5999 | 2557 | 27869 | 9027 | 99275 | 17352 | 16.55 | 2.89 | 13.66 |
| 70-75 | 18.00 | 25.20 | 5131 | 1293 | 23259 | 4187 | 71406 | 8326 | 13.92 | 1.62 | 12.29 |
| 75-80 | 12.34 | 15.17 | 4160 | 631 | 18303 | 2259 | 48146 | 4138 | 11.57 | 0.99 | 10.58 |
| 80-85 | 6.62 | 9.48 | 3156 | 299 | 13227 | 876 | 29843 | 1880 | 9.45 | 0.60 | 8.86 |
| 85+ | 6.04 | 6.33 | 2148 | 136 | 16616 | 1004 | 16616 | 1004 | 7.74 | 0.47 | 7.27 |
| Note (1): Columns 4, 6, 8 and 10 were extracted from Male Life Tables for Guyana. |  |  |  |  |  |  |  |  |  |  |  |
| Note (2): Computations for columns 15, 17 and 19 were done in Appendix 1.2, and col.(14) = Successive difference of col.(5). |  |  |  |  |  |  |  |  |  |  |  |
| Note (3): The labour force population was adjusted by prorating the "Others" and "Not Stated" categories of the principal activities of the working age population before calculating the age specific activity rates used in the estimation. |  |  |  |  |  |  |  |  |  |  |  |


| Appendix 1.1: Continued: Males |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Age interval | Average active years per active survivors of age $x$ | Component of Annual Change in Number of Economically Active Persons During Age Interval |  |  |  |  |  |  |
|  |  | Net increase | Death of active persons |  | Net entries into economically active |  | Net retirements into inactive status |  |
|  |  | (-) | Number | $\begin{array}{\|c\|} \hline \text { Rate per } \\ \text { 1000 } \\ \text { active } \\ \hline \end{array}$ | Number | $\begin{gathered} \text { Rate per } \\ \text { 1000 } \\ \text { active } \\ \hline \end{gathered}$ | Number | Rate per 1000 active |
| (1) | (13) | (14) | (15) | $\begin{gathered} \hline(16) \\ =(15) \div(7) \end{gathered}$ | (17) | $\begin{gathered} \mathbf{( 1 8 )}= \\ (17 \div(6-7) \end{gathered}$ | (19) | $(20)=(19) \div(7)$ |
| O-1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1-5 | O | O | O | O | O | O | O | O |
| 5-10 | 0 | 0 | 0 | 0 | O | 0 | O | O |
| 10-15 | O | O | 0 | 0 | O | 0 | O | O |
| 15-20 | 43.01 | 6311 | 54 | 2.41 | 6365 | 259.65 | 0 | 0 |
| 20-25 | 38.66 | 1936 | 171 | 4.25 | 2107 | 356.70 | 0 | 0 |
| 25-30 | 34.43 | 107 | 217 | 5.16 | 324 | 103.49 | 0 | 0 |
| 30-35 | 30.24 | -165 | 225 | 5.43 | 61 | 23.93 | 0 | 0 |
| 35-40 | 25.90 | -262 | 230 | 5.70 |  |  | 32 | 0.79 |
| 40-45 | 21.65 | -377 | 285 | 7.35 |  |  | 92 | 2.39 |
| 45-50 | 17.60 | -460 | 276 | 7.50 |  |  | 184 | 4.99 |
| 50-55 | 13.55 | -916 | 433 | 12.83 |  |  | 483 | 14.31 |
| 55-60 | 10.09 | -1695 | 441 | 15.73 |  |  | 1253 | 44.68 |
| 60-65 | 7.65 | -1922 | 411 | 24.32 |  |  | 1511 | 89.30 |
| 65-70 | 6.79 | -1264 | 284 | 31.44 |  |  | 980 | 108.62 |
| 70-75 | 6.44 | -662 | 180 | 43.09 |  |  | 481 | 114.94 |
| 75-80 | 6.56 | -332 | 124 | 54.80 |  |  | 208 | 92.13 |
| 80-85 | 6.28 | -299 | 73 | 82.94 |  |  | 91 | 103.51 |
| 85+ | 7.38 | -136 | 52 | 51.68 |  |  | 84 | 83.81 |

[^7]Appendix 1.2: Calculation of Component of Change in Numbers of Economically Active Survivors During 5 Years Age Intervals, and Annual Losses by Deaths and Retirements and Gains by Entries from Inactive Population: Males, Guyana: 2012

| Age Interval | Survivors at age $x$ of $\mathbf{1 0 , 0 0 0}$ born alive |  | Stationary population in age interval |  | Increase (+) or decrease (-) of economically active survivors during age intervals | Death of economically active persons during age interval |  |  | Net entries into economic activity $(+)$ or net retirement (-) during age intervals |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Total $\left(l_{\mathbf{x}}\right)$ | Economi cally active | $\begin{aligned} & \text { Total } \\ & \left(5 L_{x}\right) \end{aligned}$ |  |  | Mortality rate 1000 nMx | First estimate of deaths | Adjusted estimates of deaths | $\begin{array}{\|c} \hline \text { Entries } \\ \text { or } \\ \text { retireme } \\ \text { nt rate } \end{array}$ | First estimates entries or retirements | Adjusted estimates entries or retirements |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | $(8)=(7) *(5)$ | (9) | (10) | (11) | (12) |
| 15-20 | 9455 | 0 | 47024 | 22510 | 6311 | 2.40 | 54 | 54 | 67.55 | 6353 | 6365 |
| 20-25 | 9343 | 6311 | 46254 | 40348 | 1936 | 4.21 | 170 | 171 | 22.60 | 2090 | 2107 |
| 25-30 | 9148 | 8246 | 45179 | 42046 | 107 | 5.04 | 212 | 217 | 3.50 | 316 | 324 |
| 30-35 | 8920 | 8354 | 44004 | 41467 | -165 | 5.45 | 226 | 225 | 0.69 | 61 | 61 |
| 35-40 | 8680 | 8189 | 42801 | 40426 | -262 | 5.72 | 231 | 230 | -0.37 | -32 | -32 |
| 40-45 | 8435 | 7927 | 41429 | 38729 | -377 | 7.35 | 285 | 285 | -1.12 | -93 | -92 |
| 45-50 | 8131 | 7550 | 39934 | 36825 | -460 | 7.52 | 277 | 276 | -2.31 | -184 | -184 |
| 50-55 | 7830 | 7090 | 37986 | 33758 | -916 | 12.95 | 437 | 433 | -6.42 | -488 | -483 |
| 55-60 | 7339 | 6174 | 35337 | 28050 | -1695 | 15.97 | 448 | 441 | -18.01 | -1273 | -1253 |
| 60-65 | 6774 | 4479 | 32003 | 16916 | -1922 | 24.21 | 410 | 411 | -23.50 | -1504 | -1511 |
| 65-70 | 5999 | 2557 | 27869 | 9027 | -1264 | 31.15 | 281 | 284 | -17.43 | -971 | -980 |
| 70-75 | 5131 | 1293 | 23259 | 4187 | -662 | 41.75 | 175 | 180 | -10.02 | -466 | -481 |
| 75-80 | 4160 | 631 | 18303 | 2259 | -332 | 54.85 | 124 | 124 | -5.69 | -208 | -208 |
| 80-84 | 3156 | 299 | 13227 | 876 | -163 | 76.25 | 67 | 73 | -3.15 | -83 | -91 |
| 85+ | 2148 | 136 | 16616 | 1004 | -136 | 129.26 | 130 | 52 | -6.33 | -210 | -84 |

Appendix 1.3: Abridged Table of Economically Active Life, Female Population of Guyana: 2012

| Age interval | Age specific activity rates(\%) |  | Survivors at age $x$ of 10,000 born alive |  | Stationary population in age interval |  | Cumulated stationary population in age $x-\infty$ |  | Average remaining life time at beginning of age group years of: |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | In age interval | At beginning of age ( x ) | Total $\left(l_{\mathbf{x}}\right)$ | Economicall y active | $\begin{aligned} & \text { Total } \\ & \left(5 L_{x}\right) \end{aligned}$ | Economicall y active | Total <br> (Tx) | Economicall y active ( $\mathrm{T}_{\mathrm{wx}}$ ) | Total years $\mathbf{e}_{\mathbf{x}}$ | Economicall y active years | Inactive years |
| (1) | (2) | $\begin{gathered} (3)= \\ \left(1_{5}+l_{6}\right) / 2 \end{gathered}$ | (4) | $(5)=(4) *(3)$ | (6) | $(7)=(6) *(2)$ | (8) | (9) | $\begin{aligned} & (10)= \\ & (8) \div(4) \end{aligned}$ | $\begin{aligned} & (11)= \\ & (9) \div(4) \end{aligned}$ | $\begin{gathered} (12)=(10)- \\ (11) \end{gathered}$ |
| 0-1 | 0 | 0 | 10000 | 0 | 9758 | 0 | 716374 | 169549 | 71.64 | 16.95 | 54.68 |
| 1-5 | 0 | 0 | 9720 | 0 | 38707 | 0 | 706617 | 169549 | 72.70 | 17.44 | 55.25 |
| 5-10 | 0 | 0 | 9651 | 0 | 48138 | 0 | 667910 | 169549 | 69.20 | 17.57 | 51.64 |
| 10-15 | 0 | 0 | 9604 | 0 | 47958 | 0 | 619772 | 169549 | 64.53 | 17.65 | 46.88 |
| 15-20 | 21.00 | 0 | 9579 | 0 | 47751 | 10027 | 571814 | 169549 | 59.69 | 17.70 | 41.99 |
| 20-25 | 40.92 | 30.96 | 9514 | 2946 | 47361 | 19382 | 524062 | 159523 | 55.08 | 16.77 | 38.32 |
| 25-30 | 44.81 | 42.87 | 9426 | 4040 | 46839 | 20987 | 476701 | 140141 | 50.57 | 14.87 | 35.71 |
| 30-35 | 43.89 | 44.35 | 9306 | 4127 | 46230 | 20290 | 429863 | 119154 | 46.19 | 12.80 | 33.39 |
| 35-40 | 43.85 | 43.87 | 9182 | 4028 | 45499 | 19952 | 383633 | 98864 | 41.78 | 10.77 | 31.01 |
| 40-45 | 43.73 | 43.79 | 9015 | 3948 | 44714 | 19555 | 338134 | 78911 | 37.51 | 8.75 | 28.75 |
| 45-50 | 42.03 | 42.88 | 8867 | 3802 | 43825 | 18418 | 293420 | 59357 | 33.09 | 6.69 | 26.40 |
| 50-55 | 40.21 | 41.12 | 8643 | 3554 | 42195 | 16965 | 249595 | 40939 | 28.88 | 4.74 | 24.14 |
| 55-60 | 30.65 | 35.43 | 8212 | 2909 | 40015 | 12263 | 207400 | 23973 | 25.26 | 2.92 | 22.34 |
| 60-65 | 17.48 | 24.06 | 7789 | 1874 | 37737 | 6596 | 167385 | 11710 | 21.49 | 1.50 | 19.99 |
| 65-70 | 8.45 | 12.96 | 7287 | 945 | 34853 | 2945 | 129648 | 5114 | 17.79 | 0.70 | 17.09 |
| 70-75 | 4.04 | 6.25 | 6625 | 414 | 31157 | 1260 | 94794 | 2170 | 14.31 | 0.33 | 13.98 |
| 75-80 | 2.35 | 3.20 | 5785 | 185 | 25667 | 603 | 63637 | 910 | 11.00 | 0.16 | 10.84 |
| 80-85 | 0.97 | 1.66 | 4438 | 74 | 19036 | 185 | 37970 | 307 | 8.56 | 0.07 | 8.49 |
| 85+ | 0.64 | 0.81 | 3154 | 25 | 18934 | 122 | 18934 | 122 | 6.00 | 0.04 | 5.96 |

Note (1): Columns 4, 6, 8 and 10 were extracted from Female Life Tables for Guyana.
Note (2): Computations for columns 15, 17 and 19 were done in Appendix 1.4, and col.(14) = Successive difference of col.(5).
Note (3): The labour force population was adjusted by prorating the "Others" and "Not Stated" categories of the principal activities of the working age population before
calculating the age specific activity rates used the estimation.

| Appendix 1.3: Continued - Females |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Age interval | Average active years per active survivors of age $x$ | Component of Annual Change in Number of Economically Active Persons During Age Interval |  |  |  |  |  |  |
|  |  | Net increase | Death of a | ive persons | Net en economic | ries into lly activity | Net reti inact | ements into e status |
|  |  | decrease (-) | Number | Rate per 1000 active | Number | Rate per 1000 active | Number | Rate per 1000 active |
| (1) | (13) | (14) | (15) | $\begin{gathered} (16) \\ =(15) \div(7) \end{gathered}$ | (17) | $\begin{gathered} (18)= \\ (17 \div(6-7) \end{gathered}$ | (19) | $(20)=(19) \div(7)$ |
| 0-1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1-5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5-10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15-20 | 42.84 | 2946 | 14 | 1.36 | 2959 | 78.45 | 0 | 0 |
| 20-25 | 38.22 | 1095 | 36 | 1.88 | 1131 | 40.42 | 0 | 0 |
| 25-30 | 33.55 | 87 | 54 | 2.59 | 141 | 5.46 | 0 | 0 |
| 30-35 | 28.87 | -99 | 55 | 2.70 |  |  | 44 | 2.18 |
| 35-40 | 24.54 | -80 | 73 | 3.66 |  |  | 7 | 0.36 |
| 40-45 | 19.99 | -146 | 65 | 3.31 |  |  | 81 | 4.16 |
| 45-50 | 15.61 | -248 | 94 | 5.09 |  |  | 154 | 8.38 |
| 50-55 | 11.52 | -645 | 171 | 10.09 |  |  | 474 | 27.92 |
| 55-60 | 8.24 | -1,035 | 129 | 10.54 |  |  | 906 | 73.87 |
| 60-65 | 6.25 | -929 | 88 | 13.34 |  |  | 841 | 127.56 |
| 65-70 | 5.41 | -531 | 57 | 19.24 |  |  | 474 | 161.04 |
| 70-75 | 5.24 | -229 | 35 | 27.56 |  |  | 194 | 154.14 |
| 75-80 | 4.92 | -111 | 32 | 52.84 |  |  | 79 | 131.70 |
| 80-85 | 4.16 | -74 | 8 | 42.97 |  |  | 40 | 217.96 |
| 85+ | 4.79 | -25 | 10 | 83.37 |  |  | 15 | 125.48 |
| Note (1): Columns 4, 6, 8 and 10 were extracted from Male Life Tables for Guyana. |  |  |  |  |  |  |  |  |
| Note (2): Computations for columns 15, 17 and 19 were done in Appendix 1.4, and col.(14) = Successive difference of col.(5). |  |  |  |  |  |  |  |  |


| Appendix 1.4: Calculation of Component of Change in Numbers of Economically Active Survivors During 5 Years Age Intervals, and Annual Losses by Deaths and Retirements and Gains by Entries from Inactive Population: Females, Guyana: 2012 |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AgeInterval | Survivors at age x of $\mathbf{1 0 , 0 0 0}$ born alive |  | Stationary population in age interval |  | Increase (+) or decrease (-) of economically active survivors during age intervals | Death of economically active persons during age interval |  |  | Net entries into economic activity $(+)$ of net retirement (-) during age intervals |  |  |
|  | Total $\left(l_{\mathbf{x}}\right.$ | $\begin{array}{\|c} \text { Economi } \\ \text { cally } \\ \text { active } \end{array}$ | $\begin{aligned} & \text { Total } \\ & \left(5 \mathrm{~L}_{\mathrm{x}}\right) \end{aligned}$ | Economi cally active |  | Mortality rate 1000 nMx | First estimate of de aths | Adjusted estimates of deaths | Entries or retirement rate | First estimates entries or retirements | Adjusted estimates entries or retirements |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | $(8)=(7) *(5)$ | (9) | (10) | (11) | (12) |
| 15-20 | 9579 | 0 | 47751 | 10027 | 2946 | 1.36 | 14 | 14 | 30.96 | 2957 | 2959 |
| 20-25 | 9514 | 2946 | 47361 | 19382 | 1095 | 1.87 | 36 | 36 | 11.90 | 1128 | 1131 |
| 25-30 | 9426 | 4040 | 46839 | 20987 | 87 | 2.55 | 53 | 54 | 1.48 | 139 | 141 |
| 30-35 | 9306 | 4127 | 46230 | 20290 | -99 | 2.69 | 55 | 55 | -0.48 | -44 | -44 |
| 35-40 | 9182 | 4028 | 45499 | 19952 | -80 | 3.66 | 73 | 73 | -0.08 | -7 | -7 |
| 40-45 | 9015 | 3948 | 44714 | 19555 | -146 | 3.33 | 65 | 65 | -0.91 | -82 | -81 |
| 45-50 | 8867 | 3802 | 43825 | 18418 | -248 | 5.09 | 94 | 94 | -1.76 | -155 | -154 |
| 50-55 | 8643 | 3554 | 42195 | 16965 | -645 | 10.23 | 173 | 171 | -5.69 | -480 | -474 |
| 55-60 | 8212 | 2909 | 40015 | 12263 | -1035 | 10.58 | 130 | 129 | -11.36 | -909 | -906 |
| 60-65 | 7789 | 1874 | 37737 | 6596 | -929 | 13.28 | 88 | 88 | -11.10 | -838 | -841 |
| 65-70 | 7287 | 945 | 34853 | 2945 | -531 | 18.99 | 56 | 57 | -6.72 | -468 | -474 |
| 70-75 | 6625 | 414 | 31157 | 1260 | -229 | 26.97 | 34 | 35 | -3.05 | -190 | -194 |
| 75-80 | 5785 | 185 | 25667 | 603 | -111 | 52.49 | 32 | 32 | -1.54 | -79 | -79 |
| 80-84 | 4438 | 74 | 19036 | 185 | -48 | 67.43 | 12 | 8 | -1.66 | -63 | -40 |
| 85+ | 3154 | 25 | 18934 | 122 | -25 | 166.59 | 20 | 10 | -0.81 | -31 | -15 |

Appendix 1.5: Abridged Table of Economically Active Life, Both Sexes Population of Guyana: 2012

| Appendix 1.5: Abridged Table of Economically Active Life, Both Sexes Population of Guyana: 2012 |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Age interval | Age specific activity rates (\%) |  | Survivors at age $x$ of 10,000 born alive |  | Stationary population in age interval |  | Cumulated stationary population in age $x-\infty$ |  | Average remaining life time at beginning of age group years of: |  |  |
|  | In age interval | $\begin{gathered} \text { At beginning } \\ \text { of age (x) } \end{gathered}$ | Total $\left(l_{\mathbf{x}}\right)$ | Economically active | Total $\left(5 L_{x}\right)$ | Economically active | Total (Tx) | $\begin{gathered} \text { Economically } \\ \text { active } \\ \left(T_{w x}\right) \end{gathered}$ | Total years <br> $\mathbf{e}_{\mathrm{x}}$ | Economically active years ( $\mathrm{e}_{\mathrm{wx}}$ ) | Inactive years |
| (1) | (2) | $\begin{gathered} (3)= \\ \left(1_{5}+l_{6}\right) / 2 \end{gathered}$ | (4) | $(5)=(4) *(3)$ | (6) | $(7)=(6) *(2)$ | (8) | (9) | $\begin{aligned} & (10)= \\ & (8) \div(4) \end{aligned}$ | $(11)=(9) \div(4)$ | $(12)=(10)-$ <br> (11) |
| 0-1 | 0 | 0 | 10000 | 0 | 9723 | 0 | 681546 | 266050 | 68.15 | 26.61 | 41.55 |
| 1-5 | 0 | 0 | 9680 | 0 | 38533 | 0 | 671823 | 266050 | 69.40 | 27.48 | 41.92 |
| 5-10 | 0 | 0 | 9603 | 0 | 47891 | 0 | 633290 | 266050 | 65.95 | 27.70 | 38.24 |
| 10-15 | 0 | 0 | 9553 | 0 | 47662 | 0 | 585400 | 266050 | 61.28 | 27.85 | 33.43 |
| 15-20 | 34.51 | 0 | 9512 | 0 | 47359 | 16345 | 537738 | 266050 | 56.53 | 27.97 | 28.56 |
| 20-25 | 63.66 | 49.09 | 9423 | 4625 | 46779 | 29780 | 490378 | 249705 | 52.04 | 26.50 | 25.54 |
| 25-30 | 68.20 | 65.93 | 9281 | 6119 | 45984 | 31363 | 443599 | 219926 | 47.79 | 23.70 | 24.10 |
| 30-35 | 68.46 | 68.33 | 9109 | 6224 | 45095 | 30870 | 397615 | 188563 | 43.65 | 20.70 | 22.95 |
| 35-40 | 68.69 | 68.57 | 8927 | 6121 | 44127 | 30310 | 352520 | 157693 | 39.49 | 17.67 | 21.83 |
| 40-45 | 68.74 | 68.71 | 8720 | 5992 | 43038 | 29582 | 308393 | 127383 | 35.36 | 14.61 | 20.76 |
| 45-50 | 67.03 | 67.88 | 8490 | 5763 | 41831 | 28039 | 265354 | 97800 | 31.25 | 11.52 | 19.74 |
| 50-55 | 64.68 | 65.85 | 8226 | 5417 | 40032 | 25891 | 223524 | 69761 | 27.17 | 8.48 | 18.69 |
| 55-60 | 54.14 | 59.41 | 7762 | 4611 | 37608 | 20361 | 183492 | 43870 | 23.64 | 5.65 | 17.99 |
| 60-65 | 34.65 | 44.40 | 7267 | 3226 | 34778 | 12052 | 145884 | 23509 | 20.08 | 3.24 | 16.84 |
| 65-70 | 19.93 | 27.29 | 6620 | 1807 | 31220 | 6221 | 111106 | 11457 | 16.78 | 1.73 | 15.05 |
| 70-75 | 10.53 | 15.23 | 5845 | 890 | 27022 | 2846 | 79886 | 5236 | 13.67 | 0.90 | 12.77 |
| 75-80 | 6.73 | 8.63 | 4931 | 426 | 21788 | 1467 | 52864 | 2390 | 10.72 | 0.48 | 10.24 |
| 80-85 | 3.34 | 5.04 | 3765 | 190 | 16029 | 535 | 31075 | 923 | 8.25 | 0.25 | 8.01 |
| 85+ | 2.58 | 2.96 | 2628 | 78 | 15047 | 388 | 15047 | 388 | 5.73 | 0.15 | 5.58 |

Note (1): Columns 4, 6, 8 and 10 were extracted from Male Life Tables for Guyana.
Note (2): Computations for columns 15, 17 and 19 were done in Appendix 1.6, and col.(14) = Successive difference of col.(5).
Note (3): The labour force population was adjusted by prorating the "Others" and "Not Stated" categories of the principal activities of the working age population before calculating the age specific activity rates used the estimation.

| Appendix 1.5: Continued - Both Sexes |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Age interval | Average active years per active survivors of age $x$ | Component of Annual Change in Number of Economically Active Persons During Age Interval |  |  |  |  |  |  |
|  |  | Net increase | Death of active persons |  | Net entries into economically activity |  | Net retirements into inactive status |  |
|  |  | decrease (-) | Number | Rate per 1000 active | Number | Rate per 1000 active | Number | Rate per 1000 active |
| (1) | (13) | (14) | (15) | $\begin{gathered} (16) \\ =(15) \div(7) \end{gathered}$ | (17) | $\begin{gathered} (18)= \\ (17 \div(6-7) \end{gathered}$ | (19) | $(20)=(19) \div(7)$ |
| O-1 | O | 0 | 0 | O | 0 | O | 0 | 0 |
| 1-5 | O | O | O | 0 | O | O | 0 | O |
| 5-10 | O | O | O | 0 | O | O | O | O |
| 10-15 | O | 0 | O | 0 | O | 0 | 0 | 0 |
| 15-20 | 43.60 | 4625 | 44 | 2.69 | 4669 | 150.55 | O | O |
| 20-25 | 38.99 | 1494 | 51 | 1.71 | 1545 | 90.89 | 0 | 0 |
| 25-30 | 34.54 | 105 | 41 | 1.31 | 146 | 9.96 | O | O |
| 30-35 | 30.15 | -103 | 126 | 4.08 | 23 | 1.61 | 0 | 0 |
| 35-40 | 25.71 | -129 | 151 | 4.98 | 22 | 1.57 | O | O |
| 40-45 | 21.26 | -229 | 235 | 7.93 | 6 | 0.46 | 0 | 0 |
| 45-50 | 16.97 | -346 | 191 | 6.83 |  |  | 155 | 5.51 |
| 50-55 | 12.88 | -806 | 495 | 19.12 |  |  | 311 | 12.01 |
| 55-60 | 9.51 | -1385 | 350 | 17.21 |  |  | 1035 | 50.82 |
| 60-65 | 7.29 | -1420 | 201 | 16.71 |  |  | 1218 | 101.07 |
| 65-70 | 6.34 | -917 | 132 | 21.18 |  |  | 785 | 126.13 |
| 70-75 | 5.88 | -465 | 74 | 26.02 |  |  | 391 | 137.22 |
| 75-80 | 5.61 | -236 | 76 | 51.78 |  |  | 160 | 109.15 |
| 80-85 | 4.87 | -112 | 29 | 54.04 |  |  | 83 | 155.01 |
| 85+ | 4.99 | -78 | 58 | 149.80 |  |  | 20 | 50.55 |
| Note (1): Columns 4, 6, 8 and 10 were extracted from Male Life Tables for Guyana. |  |  |  |  |  |  |  |  |
| Note (2): Computations for columns 15, 17 and 19 were done in Appendix 1.6, and col.(14) = Successive difference of col.(5). |  |  |  |  |  |  |  |  |

Appendix 1.6: Calculation of Component of Change in Numbers of Economically Active Survivors During 5 Years Age Intervals, and Annual Losses by Deaths and Retirements and Gains by Entries from Inactive Population: Both Sexes, Guyana: 2012

| Age Interval | Survivors at age $x$ of 10,000 born alive |  | Stationary population in age interval |  | Increase (+) or decrease (-) of economically active survivors during age intervals | Death of economically active persons during age interval |  |  | Net entries into economic activity $(+)$ of net retirement (-) during age intervals |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Total $\left(l_{\mathbf{x}}\right)$ | Economically active | $\begin{aligned} & \text { Total } \\ & \left(5 L_{x}\right) \end{aligned}$ | Economically active |  | Mortality rate 1000 nMx | First estimate of deaths | Adjusted estimates of deaths | Entries or retirement rate | First estimates entries or retirements | Adjusted estimates entries or retirements |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | $(8)=(7) *$ (5) | (9) | (10) | (11) | (12) |
| 15-20 | 9512 | 0 | 47359 | 16345 | 4625 | 1.88 | 31 | 44 | 34.51 | 3269 | 4669 |
| 20-25 | 9423 | 4625 | 46779 | 29780 | 1494 | 3.02 | 90 | 51 | 29.15 | 2727 | 1545 |
| 25-30 | 9281 | 6119 | 45984 | 31363 | 105 | 3.75 | 118 | 41 | 4.54 | 418 | 146 |
| 30-35 | 9109 | 6224 | 45095 | 30870 | -103 | 4.04 | 125 | 126 | 0.25 | 23 | 23 |
| 35-40 | 8927 | 6121 | 44127 | 30310 | -129 | 4.67 | 142 | 151 | 0.23 | 20 | 22 |
| 40-45 | 8720 | 5992 | 43038 | 29582 | -229 | 5.35 | 158 | 235 | 0.05 | 4 | 6 |
| 45-50 | 8490 | 5763 | 41831 | 28039 | -346 | 6.30 | 177 | 191 | -1.70 | -143 | -155 |
| 50-55 | 8226 | 5417 | 40032 | 25891 | -806 | 11.59 | 300 | 495 | -2.35 | -189 | -311 |
| 55-60 | 7762 | 4611 | 37608 | 20361 | -1385 | 13.18 | 268 | 350 | -10.53 | -792 | -1035 |
| 60-65 | 7267 | 3226 | 34778 | 12052 | -1420 | 18.59 | 224 | 201 | -19.49 | -1355 | -1218 |
| 65-70 | 6620 | 1807 | 31220 | 6221 | -917 | 24.82 | 154 | 132 | -14.73 | -920 | -785 |
| 70-75 | 5845 | 890 | 27022 | 2846 | -465 | 33.84 | 96 | 74 | -9.40 | -508 | -391 |
| 75-80 | 4931 | 426 | 21788 | 1467 | -236 | 53.53 | 79 | 76 | -3.80 | -166 | -160 |
| 80-84 | 3765 | 190 | 16029 | 535 | -112 | 70.93 | 38 | 29 | -3.40 | -109 | -83 |
| 85+ | 2628 | 78 | 15047 | 388 | -78 | 174.63 | 68 | 58 | -0.76 | -23 | -20 |


[^0]:    ${ }^{1}$ This is one of the occasional working papers produced by the Demographic Department, Bureau of Statistics, Guyana. The work was done by Sonkarley T. Beaie, Demographic Consultant of the Bureau. Contact number: 592-641-2579 or email: sonbeaie@yahoo.com.

[^1]:    ${ }^{2}$ Bureau of Statistics; available at: http://www.statisticsguyana.gov.gy/census.html\#comp

[^2]:    ${ }^{3}$ Bureau of Statistics, available at:
    http://www.statisticsguyana.gov.gy/pubs/2012_Census_Life_Table.pdf
    ${ }^{4}$ United Nations (1968) Methods of Analysing Census Data on Economic Activities of the Population: available at:
    http://www.un.org/esa/population/techcoop/SocInd/methods_censusdata/chapter1.pdf
    ${ }^{5}$ Kpedekpo, G.M.K. (1969) "Working Life Tables for Males in Ghana 1960". Journal of the American Statistical Association 62(320)

[^3]:    ${ }^{6}$ A. Chevalier and T. K Viitanen (2001) The causality between female labour force participation and the availability of childcare. available at: https://www.tandfonline.com/doi/abs/10.1080/13504850210138469
    ${ }^{7}$ George Psacharopoulos and Zafiris Tzannatos (1989) Female Labor Force Participation: An International Perspective. available at: https://academic.oup.com/wbro/article-abstract/4/2/187/1681327

[^4]:    ${ }^{8}$ Bureau of Statistics, available at: http://www.statisticsguyana.gov.gy/census.html\#comp

[^5]:    ${ }^{9}$ United Nations (1968) Methods of Analysing Census Data on Economic Activities of the Population: available at:
    http://www.un.org/esa/population/techcoop/SocInd/methods_censusdata/chapter1.pdf
    ${ }^{10}$ Bureau of Statistics, available at: http://www.statisticsguyana.gov.gy/census.html\#comp ${ }^{11}$ Ibid

[^6]:    ${ }^{12}$ Bureau of Statistics, available at: http://www.statisticsguyana.gov.gy/census.html\#comp

[^7]:    Note (1): Columns 4, 6, 8 and 10 were extracted from Male Life Tables for Guyana.
    Note (2): Computations for columns 15, 17 and 19 were done in Appendix 1.2, and col.(14) $=$ Successive difference of col.(5).

