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How Healthy He and She: A Gender-Specific Study of Suicide Mortality in BRICS Countries

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Abstract

Suicide shows high rates of psychological distress and early warning signs of an increase in mental health disorders. To understand the situation of suicide mortality the present study focuses on gender-based suicide mortality in BRICS countries from 2005 to 2019. The paper tries to assess the extent of suicide mortality in general and gender-specific suicide mortality in particular in all the five countries of BRICS. It explores the reasons for high male suicide mortality in Russia and South Africa. It also looks at the reasons for the recent increase in female suicide mortality in India and decreasing female suicide mortality in the Russian Federation. The paper tries to understand the reasons for reduced male suicide mortality in China. It analyses three areas such as sectoral employment, urban population and self-employment to examine whether suicide mortality has any relation to these factors in these five countries. The paper presents a vision for the generation of better employment opportunities and from narrow biomedical approaches to community-oriented psychosocial perspectives, in setting priorities for interventions and research to solve the problems related to mental health disorder which leads to suicide-based mortality. It will focus on the implementation of WHO guidance, and deployment of digital platforms, to address mental health issues to reduce the incidences of suicidal mortality. The paper examines the SDG's impact from the perspective that it tries to look at SDG's goal 3 in the context of BRICS countries and draws the attention of the policymakers, scholars, and academia toward the serious issue of suicide mortality.

Keywords: *Suicide, BRICS, Gender-specific, Employment, Population*

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1. Introduction

Suicide shows high rates of psychological distress and early warning signs of an increase in mental health disorders. Globally young and old population are majorly affected by it. As per WHO data suicide is the main cause of death in the age group of 15-29 world-wide and 77% of lower and middle-income countries are affected by it. Apart from depression and disorders due to use of alcohol the other important reasons of suicides are loss of loved ones, loneliness, relationship break-up, financial problems, discrimination, chronic pain and illness, violence, abuse and conflict (https://www.who.int/health-topics/suicide#tab=tab_1). Human resource is the most important factor in attaining the sustainable development. The "health and well-

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being" of the vast resource takes the Center stage in formulating, implementing and executing any goal, be at national or at international level. The paper examines the SDGs impact from the perspective that it tries to look SDG's goal 3 in the context of BRICS countries and draws attention of the policy makers, scholars, academia towards the serious issue of suicide mortality. A vast demography and the fastest emerging economies status before the outbreak of Covid-19 pandemic made BRICS nations the most dominant economies on global platform. BRICS nations geographic area is over one quarter of world's land. The regional group is home to approximately 3 billion people and holds combined GDP of \$ 20 tn. All these indicators support that the nations of BRICS could one day become the largest entity of the world (<https://worldpopulationreview.com/country-rankings/bric-countries>). The purpose of the paper is to assess the extent of suicide mortality in general and gender-specific suicide mortality in particular in all the five countries of BRICS. It explores the reasons of high male suicide mortality in Russia and South Africa. It also looks at the reasons of recent increase in female suicide mortality in India and decreasing female suicide mortality in Russian federation. The paper tries to understand the reasons of reduced male suicide mortality in China. It analyzes three areas such as sectoral employment, urban population and self-employment to examine whether suicide mortality has any relation with these factors in these five countries. The recommendations made in the paper are not only relevant for the mental health of populations and functioning of health systems in BRICS countries but also in other countries as well which are affected by the mental health problem, with wide disparities in quality of and access to mental health care. Finally, the paper presents a vision for the generation of better employment opportunities and from narrow biomedical approaches to community-oriented psychosocial perspectives, in setting priorities for interventions and research to solve the problems related to mental health disorder which leads towards suicide-based mortality.

2. Theoretical Conceptual Framework

BRICS countries have made enormous progress in protecting the health of the citizens. They have worked on many health fronts to fight against several leading causes of death and diseases such as Malaria, HIV, Tuberculosis. Good health includes physical as well as mental health of human-being which is the third goal of 2030 Sustainable Development Agenda. BRICS countries represents varied picture on health front as progress has been uneven, both between and within countries. The level of sectoral transition, occupational shift, education, employment status is different due to widening economic and social inequities, extent of urbanization, climatic and health related threats. Several macroeconomic indicators show that these countries are in struggling phase to come out from the below average situation. The most volatile situation is of annual rate of economic growth, employment and inflation.

Health sector is a special area of immediate intervention especially in Russian Federation, South Africa as these two countries are having a very high rate of male and female suicide mortality rate. In Brazil, the rate of suicide mortality rate of both the gender is increasing which is a cause of high concern. In India female suicide mortality rate is increasing in the recent years which is also an alarming issue. High suicide mortality especially amongst the youth is the cause of global concern. Two most populous countries of the world; China and India are member countries of the BRICS so the issue of suicide becomes all the more serious.

3. Literature Review

3.1. Russian Federation (Deficiently Populated Country)

Since the collapse of Soviet Union, Russian population is steadily declining with a rate of half percent per year. The fall in living standard is proving a major cause in increasing number of deaths in the country. Increased use of alcohol was another reason of death in Russian federation. The average life expectancy of female is 75 years but for male it has dropped to 63 years. Population growth and demographics have long been a problem as the country is losing population every year. At present the rate of change of Russian population is close to 0% and expected to decline slowly and reach to the level of 140 million by 2030, and 136 million by 2040 (<https://worldpopulationreview.com/countries/russia-population>). According to UN report of September 11, 2019, Russia ranks 3rd in suicide rates globally. Psychiatrist Lev Perezhogin told *The Moscow Times* in 2019 that Russia regularly appears high in global suicide rankings due to social upheavals and an inability to overcome the legacy of the Soviet era (<https://www.themoscowtimes.com/>). William Alex Pridemore, school of criminal justice, state university of New York at Albany opine that alcohol appears to play an important role in high suicide mortality rate in Russia. Daria (2016) feels social networks have suicidal content. Internet and communications systems are threatening children. Social and economic situation

is worse. The writer says that in 90% of cases, depression or certain character features, like extensive impulsiveness, is an underlying condition that drives a teenager to commit suicide. Yelena Shumakova, a supervisor at Your Territory Online, a foundation that provides anonymous online consultations to teenagers in trouble feels that the main cause of suicide in young Russian children is that they are becoming lonelier these days. Neufeld *et al.* (2020) find Alcohol use as one of the main risk factors of suicide mortality in Russia. Makarenko and Ulyanovskaya (2019) describe psycho-social problems as the main causes of suicidal tendencies among young people in the Russian Federation.

3.2. Brazil (Deficiently Populated Country)

In Brazil population growth rate was 3.02% which significantly declined to 0.72% in 2019. It is projected that the population will reach to its peak of 229.6 million in 2045 after which it will decrease slowly and will have the growth rate of -0.01% (<https://worldpopulationreview.com/countries/brazil-population>). Dos *et al.* (2015) write that in Brazil young adults death due to suicide is increasing especially of males. Studies on reasons of suicide in Brazil find a relationship between lower education level (Machado and Santos, 2015), illiteracy especially among younger population (Värnik, 2012), illiteracy in older population (Minayo and Cavalcante 2010) and suicide. Dantas *et al.* (2017) find unemployment, income, high occupational pressure, job market competitiveness as the reasons of vulnerability of young population and their suicide in Brazil. The authors emphasize that in old age the high suicide is due to loneliness, joblessness, loss of loved ones and economic disturbances. Alarcão *et al.* (2019) observe that socioeconomic deprivation in geographic clusters, poor infrastructure in rural areas is the main cause of youth suicide in the age group of 15-29 in Brazil. Suicide Mortality Rate in Brazil. In Brazil, income inequality (Machado *et al.*, 2015), mental disorders (Cho *et al.*, 2016; Alves and Nardi, 2020) physical illness, alcohol abuse, financial loss, chronic pain, loss of loved ones, family history (Fegg *et al.*, 2016) are the major causes of suicide among the individual risk factors. Jaen-Varas *et al.* (2019) findings suggest that socioeconomic indicators, particularly unemployment and social inequality, are the main reasons of suicide in adolescence. Gomes *et al.* (2018) find in South Brazil high suicide among Police officers and people deployed in military services as they have permanent access of fire guns and frequent combat exposure. Botega (2014) finds approximately 80% of the suicidal cases are of hanging, deliberate self-poisoning using pesticides and firearm injury. McDonald *et al.* (2021) write that trend in methods of suicide varied by sex and state in Brazil. The total suicidal rate increased between 2000 and 2017. During this period suicide by hanging, self-poisoning through drugs or alcohol, jumping from height had increased. There was decrease in firearm related suicide rates over the period from 2000 to 2017.

3.3. South Africa (Overly Diseased Country Infected With HIV/AIDS)

South Africa was divided between indigenous people and white minority from the period 1948-1994 due to apartheid laws. The country is facing the problem of the HIV/AIDS disease as 18.8% of the population is estimated to be affected. Presently skills drain by the professionals especially medical professional is affecting the country even more (<https://worldpopulationreview.com/countries/south-africa-population>). Matzopoulos *et al.* (2015) find suicides rate approximately five times higher in men than women in South Africa. Bantjes *et al.* (2017) find that in post-apartheid South Africa continued social problems such as oppression and violence are the most important reasons of suicide mortality. Meissner *et al.* (2016) suggests that some young men in South Africa may be at increased risk of suicide because of the attitudes they hold of being dominant constructions of masculinity in the country. Kootbodien *et al.* (2019) find that agricultural and fishery workers are at highest risk of suicide in men and women of working-age. The authors describe that nonstandard work shift, higher psychosocial demands, physically demanding work, lower job control and higher job insecurity are some of the reasons of occupation related suicide in South Africa. Matandela (2017) while sharing the experiences of South African nurses find that patients suicide mortality is mostly due to health hazard, loss of loved one, stress, self-blame, emotional trauma depression, losing jobs. Scribante *et al.* (2004) write that in South Africa for suicide the most common methods are hanging and poisoning.

3.4. China (Overly Populated, Aged Population)

As per UN projections of 2021, China's population will peak in 2030. The country is facing shrinking labor force due to an over-65 population of 240 million (World Population Prospects). Looking at the shortage of young population the country has ended "one child" policy. China has successfully reduced the level of poverty. Presently only 10% population are living on US\$ 1 per day whereas 35 years ago it was 64% (<https://worldpopulationreview.com/countries/china-population>). Yu *et al.* (2021) observe that a range of socio

demographic, lifestyle, stressful life events, physical, and mental health factors were associated with suicide in China. High-risk groups identified were elderly men in rural settings and individuals with mental disorders. Cheng *et al.* (2020) opine that graduation pressure, depression, and academic pressure may be the top three causes that lead to Chinese graduate students' suicides. Authors from China observe that the suicidal rate has dropped in rural China. It is the major reason in the fall of overall suicidal rate in the country.

One of China's wealthiest people, multibillionaire Jack Ma, followed a "996" work schedule to build his company Alibaba and his tech empire. He believed that working from 9 a.m. to 9 p.m., six days a week was one of the ways to quickly scale his business and take on the major US tech giants. He was of the opinion that working long hours and weekends is a way to make up for lost time and get ahead of the competition. It is interesting to note that the younger generation of Chinese workers is not necessarily fond of Ma's work code. As reported by the South China Morning Post, the Gen-Z workers are known to "slack off by refusing to work overtime, delivering medium-quality work, going to the toilet frequently and staying there for a long time, playing with their mobile phones or reading novels at work" (<https://www.forbes.com/sites/jackkelly/2021/01/12/chinas-toxic-work-culture-results-in-deaths-and-suicide/>).

3.5. India (Overly Populated, Youth Population)

According to UN Projections 2021, India's population is expected to grow till 2060. After 2030, India is expected to be the most populous country in the world ([World Population Prospects](#)). The 2019 Report titled 'Accidental Deaths and Suicides in India' by National Crime Bureau (NCB) shows high deaths of young adults due to suicide. The data shows out of total 1.39 lakh suicides, 93,061 were of young adults. The high suicidal rate among youth is due to many reasons such as; family issues, love affairs, drug abuse and mental illness. Among all these, family problem was the biggest reason of suicide for the people in the age group of 18 to 45 in India (<https://www.indiatoday.in/diu/story/ncrb-report-data-india-young-adults-suicide-2019-india-1717887-2020-09-02>). The higher concentration of female in Agriculture and service sector where job opportunities are mostly informal in nature. This might be the reason of increased female suicidal mortality rate in India. Gupta (2021) finds that the fall in self-employment is owing to falling share of unpaid family workers. There is industrial segregation among female workers with higher concentration in agriculture and services. Sen (2017) finds that in India women do not receive similar care in health, medicine and nutrition. Women are missing from socio, economic and political sphere because they are neglected compared with men. The suicide by farmers is high in India. Parvathamma (2016) writes that India is an agrarian country with around 60% of its people depending directly or indirectly upon agriculture such as monsoon failure, high debt burdens, genetically modified crops, government policies, public mental health, personal issues and family problems lead to farmers suicide in India. Other causes of suicide include malnutrition, diseases and suicides which are non-farming related. According to WHO Report, "In India, pesticides, firearms, self-hanging, jumping off bridges and in front of trains are the major means by which suicide is attempted" (<https://www.who.int/india/health-topics/suicide>).

4. Design, Methodology and Approach

The methodology of analysis adopted to understand the reasons of suicide mortality in the BRICS countries. In the first instance, the focus is on examining the overall suicide mortality rate. Thereafter the gender-specific suicide mortality rate in BRICS countries is discussed. Further the paper examines the sectoral employment, urban population and self-employment in BRICS countries to understand the reasons of highs and lows of male and female suicide mortality rate in BRICS countries. The last part explores the similarities and dissimilarities of the aforementioned reasons amongst the member nations and provides the policy prescription. To examine the differences in the trend of gender-based suicide mortality rate in emerging economies of BRICS the study uses time-series data, fetched from the World Health Organization and World Bank Databases. The study covers the period from 2005 to 2019.

4.1. Suicide Mortality rate in BRICS Countries

Though China and India are two most populous countries of the world but the remarkable fact is that their suicide mortality rate has declined in 2019 in comparison to 2005 (Figure 1). In Russian federation the suicide mortality rate is declining consistently but still it is highest in comparison to all other BRICS nations. South Africa is noticeably worse due to its rigid trend of suicide mortality rate. Though Brazil has the lowest suicide mortality rate amongst all the nations of BRICS but the country is exhibiting an increasing trend in the recent

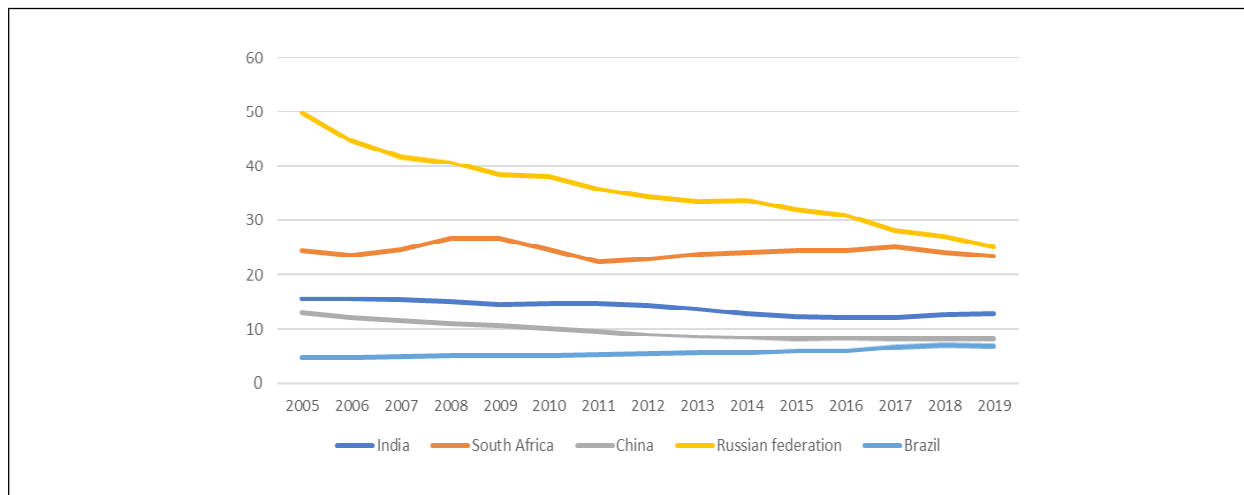


Figure 1: Suicide Mortality Rate (per 100,000 Population) in BRICS Countries

Source: World Health Organization, Global Health Observatory Data Repository (<http://apps.who.int/ghodata/>)

years. Suicide mortality rate was highest in Russian Federation amongst BRICS Nations in 2005 (Figure 1). Though it declined but remained at the same position even in 2019. South Africa came in close proximity to it in the recent years which maintained good gap in the year 2005 from Russian Federation. Except Brazil in all the BRICS countries suicide mortality rate has declined in 2019 in comparison to 2005, the fastest pace was of Russian federation. South Africa has exhibited the slowest decline.

4.2. Gender Based Comparison of Male and Female Suicide Mortality Rate in BRICS Countries

In Russian federation male suicide mortality rate was very high in 2005 and it remained so in 2019 though it declined drastically during this whole period. Female suicide mortality rate has also declined. Brazil has lowest male and female suicide mortality rate among BRICS nations but the rate has increased in 2019 in comparison to 2005. In South Africa male suicide mortality rate was very high in 2005 and it remained so in 2019. Female suicide mortality rate has declined marginally in the recent years. China exhibited low male and female suicide mortality rate in 2005 and a gradual decline in it in the year 2019. India experienced low male and female suicide mortality rate in 2005 and a gradual decline in the case of male suicide rate but female suicide rate has increased in 2018 and 2019. Figures 2 and 3 reveal the fact that in Russian Federation, Brazil, South Africa, China and India Male suicide mortality rate was higher than the female suicide mortality rate all through the years starting from 2005 to 2019.

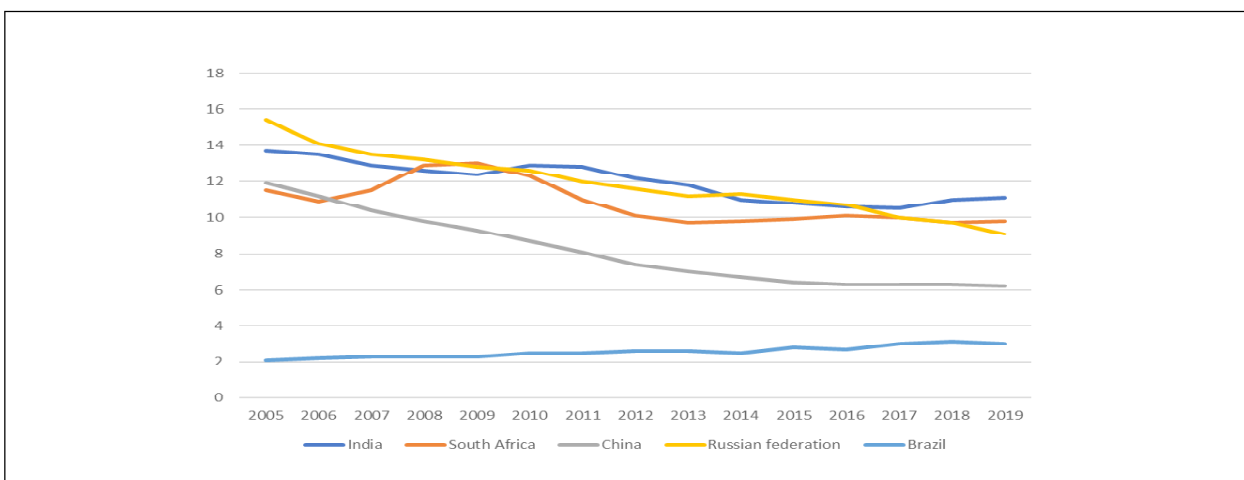


Figure 2: Suicide Mortality Rate, Female (per 100,000 Female Population) in BRICS Nations

Source: World Health Organization, Global Health Observatory Data Repository (<http://apps.who.int/ghodata/>)

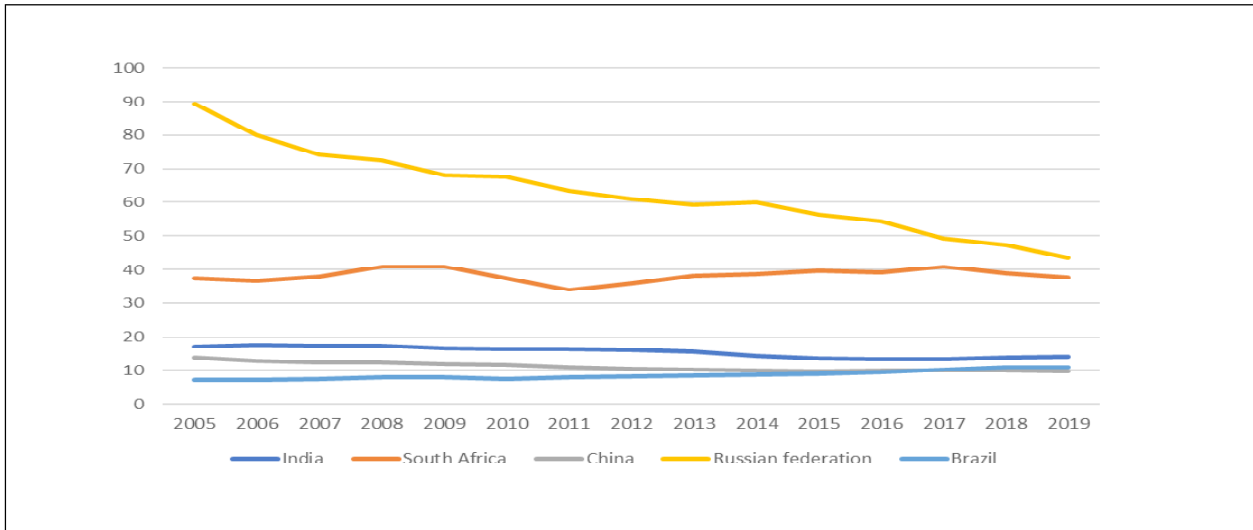


Figure 3: Suicide Mortality Rate, Male (per 100,000 Male Population) in BRICS Nations

Source: World Health Organization, Global Health Observatory Data Repository (<http://apps.who.int/ghodata/>)

To understand the gender specific suicide mortality in BRICS countries and the reasons of it, three areas are studied below:

- (a) Sectors: Employment of male and female (in % of male employment and female employment) in services, Industry and Agriculture in BRICS countries
- (b) Urban Population (% of total population)
- (c) Self-employed, female (% of female employment) and male (% of male employment)

Sectors: Employment of male and female (in % of male employment and female employment) in services, Industry and Agriculture in BRICS countries.

In Russian Federation and Brazil Male employment increased in the service sector in 2019 from 2005 whereas it was almost stagnant in the industry in the same period (Figure 4 and Figure 5). It fell down in Agriculture. In South Africa, the percentage of male employment has increased in the service sector in 2019 from 2005 whereas it went down in industry and agriculture in the same period (Figure 6). In China, the percentage of Male employment has increased substantially in the service sector and also in industry in 2019

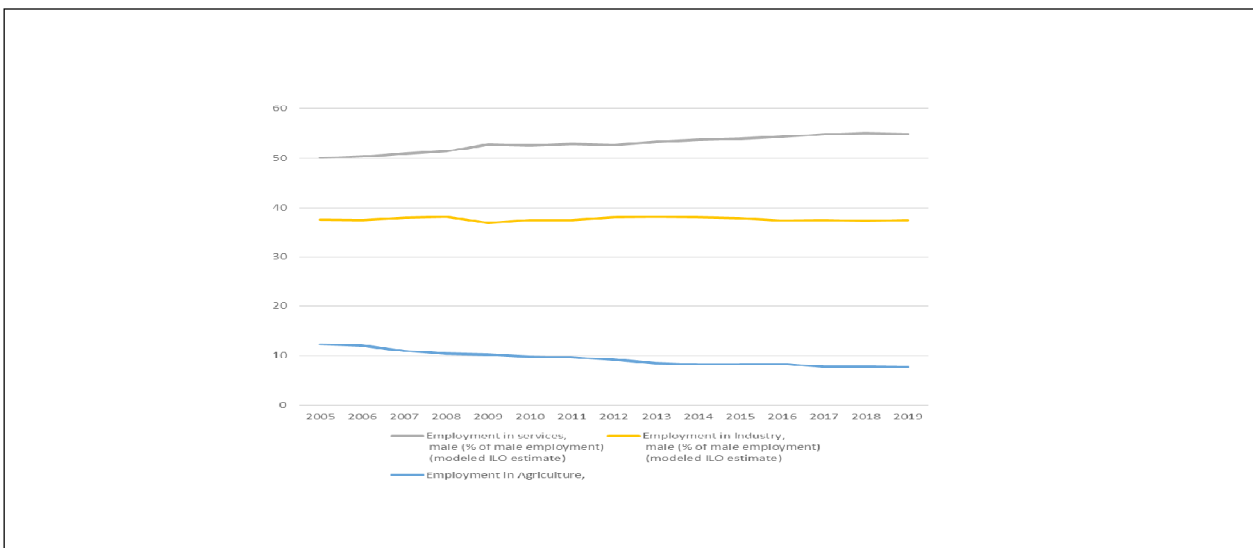


Figure 4: Male Employment (% of Male Employment) in Three Sectors in Russian Federation

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

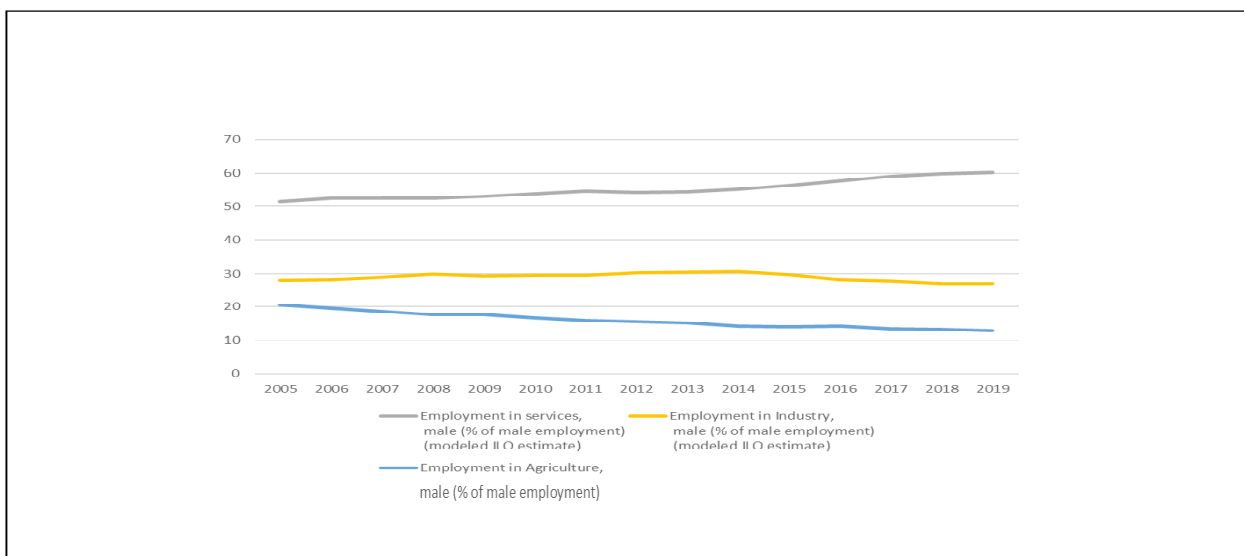


Figure 5: Male Employment (% of Male Employment) in Three Sectors in Brazil

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

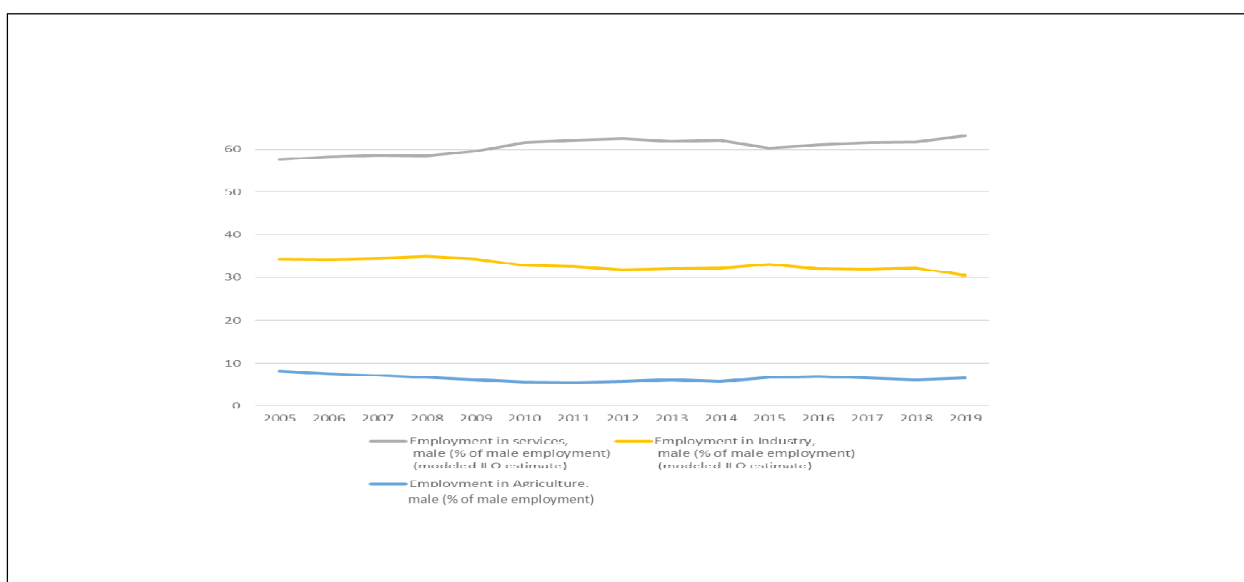


Figure 6: Male Employment (% of Male Employment) in Three Sectors in South Africa

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

from 2005 (Figure 7). It fell down in Agriculture. In India, the percentage of Male employment has increased substantially in the industry sector and also in service in 2019 from 2005 (Figure 8). It fell remarkably in Agriculture. The industry and service sector together attracted more males to work.

In Russian Federation, Brazil and South Africa the percentage of female employment increased in the service sector in 2019 from 2005 and went down in industry and agriculture over the years starting from 2005 to 2019 (Figure 9, Figure 10 and Figure 11). In China, the percentage of female employment has increased drastically in the service sector and marginally in the industry in 2019 from 2005 (Figure 12). It significantly fell down in Agriculture. In India, the percentage of female employment has increased substantially in the service sector and also in industry in 2019 from 2005 (Figure 13). It fell remarkably in Agriculture.

Male employment in all the BRICS countries is going through the phase of occupational shift from either agriculture to service sector skipping industry or from agriculture to industry and service. This shift has brought down male suicide mortality rate in Russian Federation, China and India. Brazil has experienced a slight increase in male suicide mortality rate and South Africa is almost maintaining the same trend. As

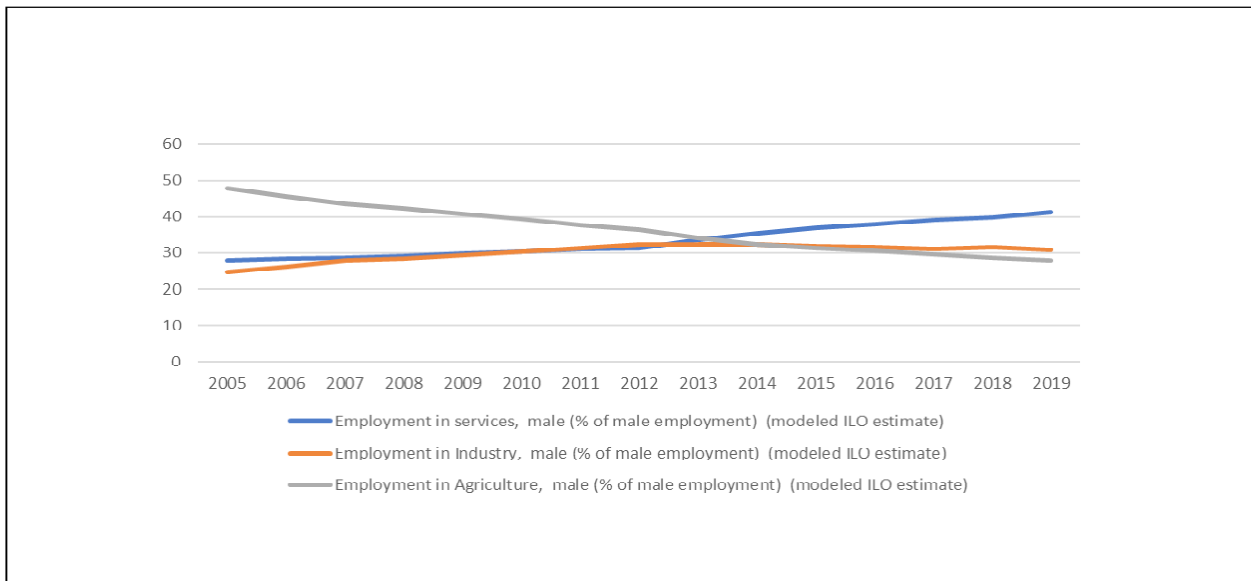


Figure 7: Male Employment (% of Male Employment) in Three Sectors in China

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

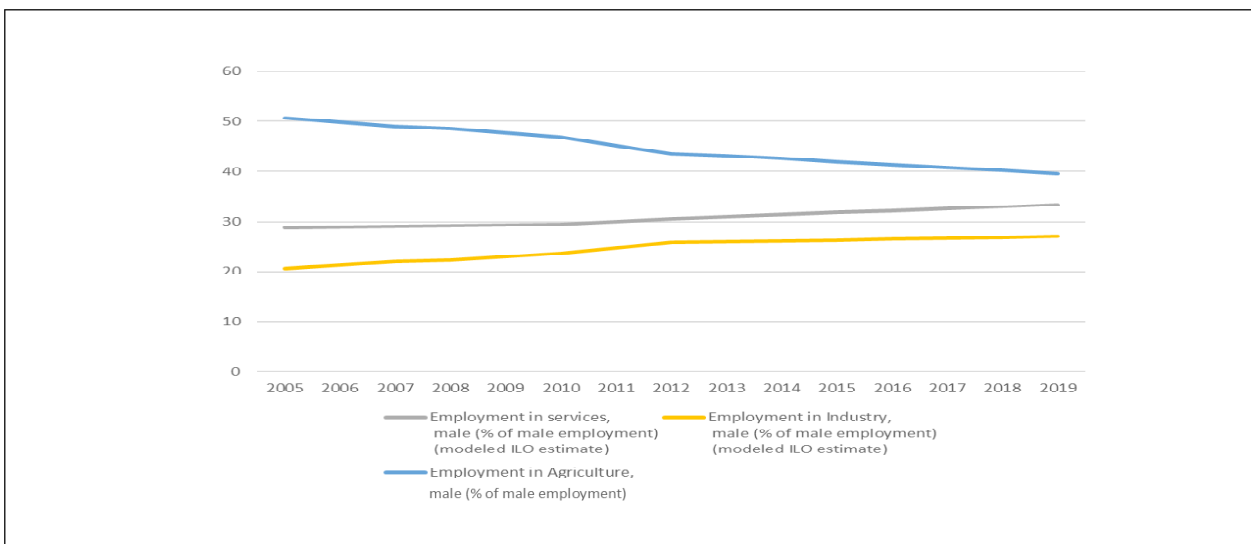


Figure 8: Male Employment (% of Male Employment) in Three Sectors in India

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

Service sector has brought versatile opportunities with time related flexibility in formal and informal job market male job seekers got ample options to earn for the livelihood. This might have brought peace of mind with the increased source of earnings and reduced the chances of mental distress which impacted the suicidal mortality rate positively in three major BRICS countries.

Female employment in all the BRICS countries is going through the phase of occupational shift from either agriculture to service sector skipping industry or from agriculture to service and industry or industry and service respectively. This shift has brought down female suicide mortality rate in Russian Federation, South Africa, China and India. Brazil has experienced a slight increase in female suicide mortality rate. As Service sector has brought versatile opportunities with time related flexibility in formal and informal job market female job seekers got ample options to earn for the livelihood. This might have brought peace of mind with the increased source of earnings and reduced the chances of mental distress which impacted the suicidal mortality rate positively in four major BRICS countries.

Urban population (% of the total population).

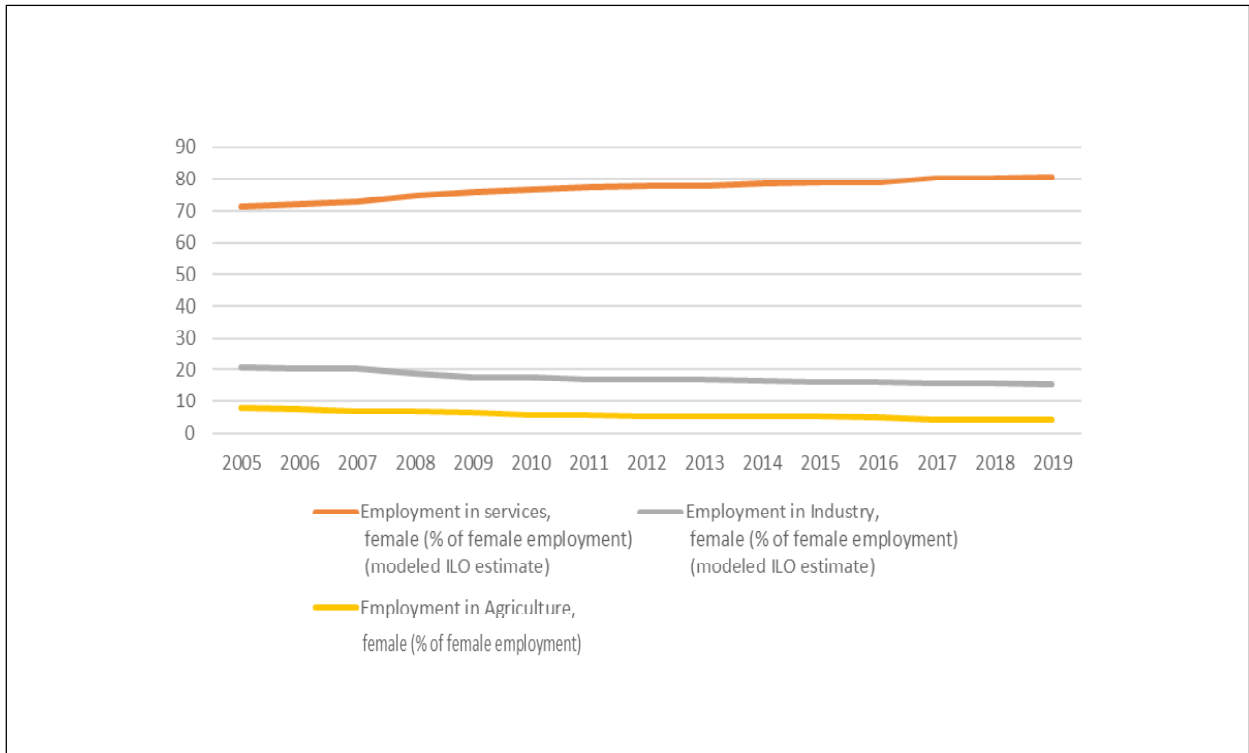


Figure 9: Female Employment (% of Female Employment) in Three Sectors in Russian Federation

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

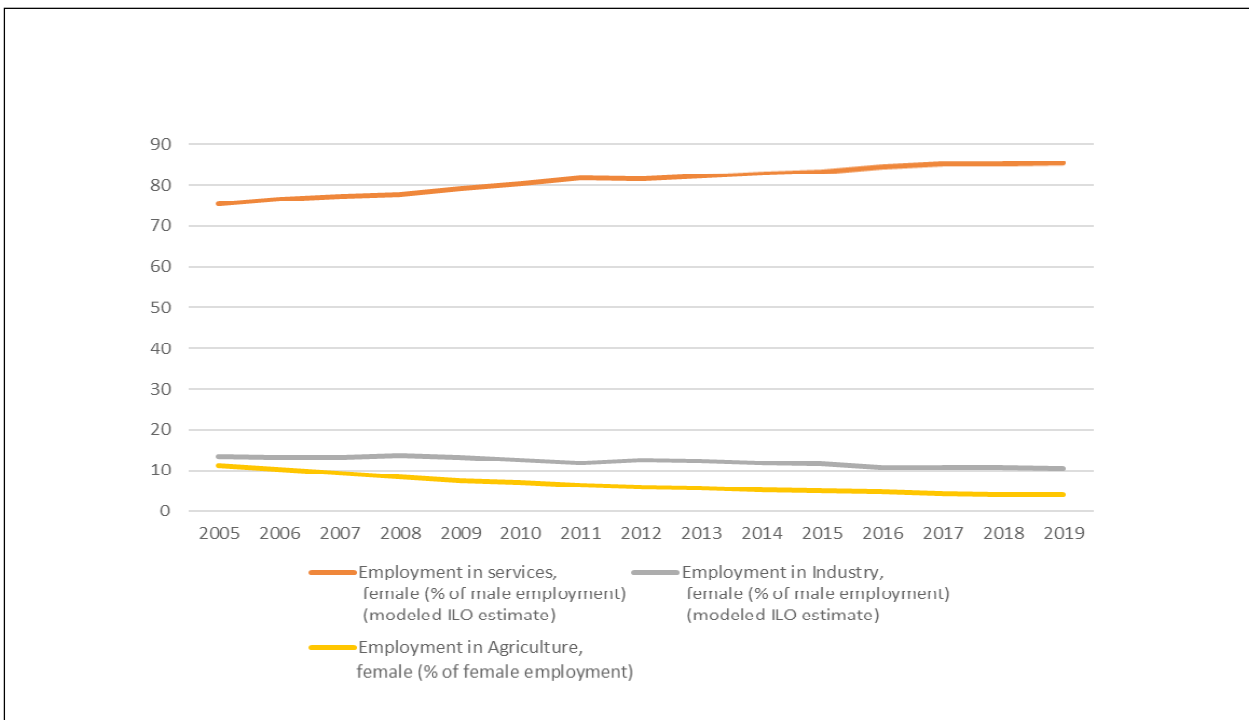


Figure 10: Female Employment (% of Female Employment) in Three Sectors in Brazil

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

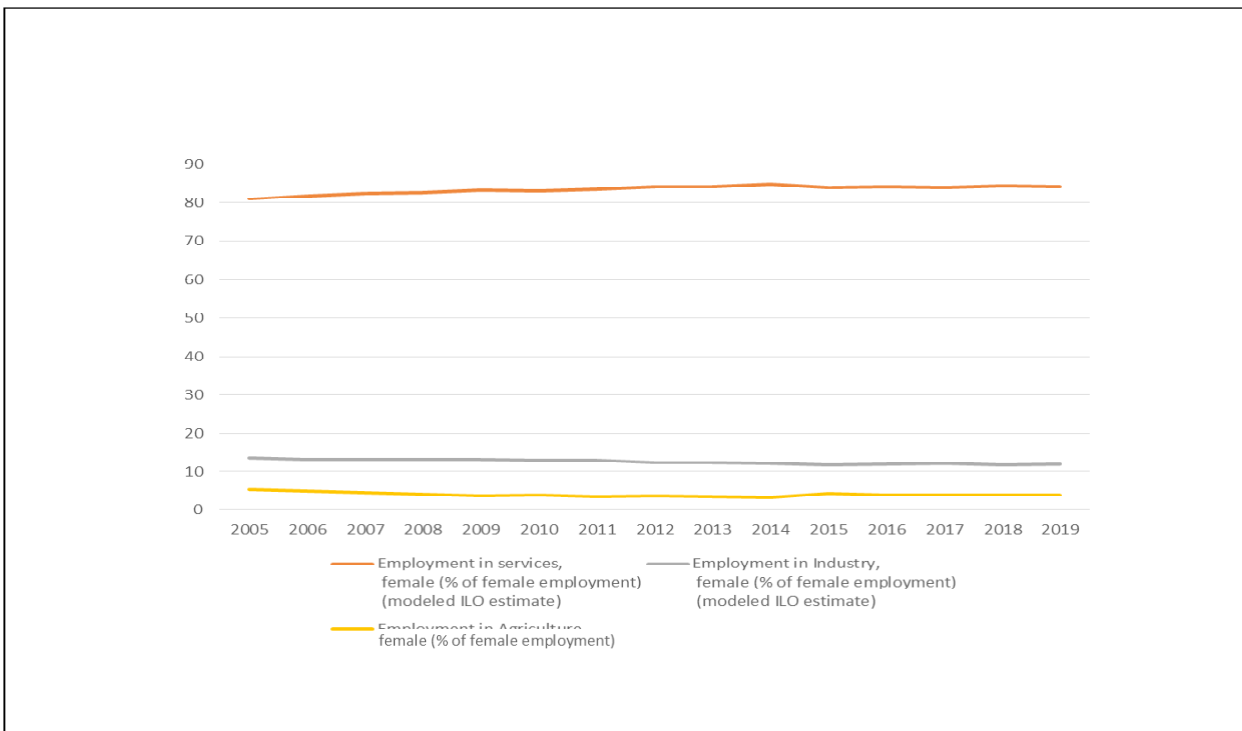


Figure 11: Female Employment (% of Female Employment) in Three Sectors in South Africa

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

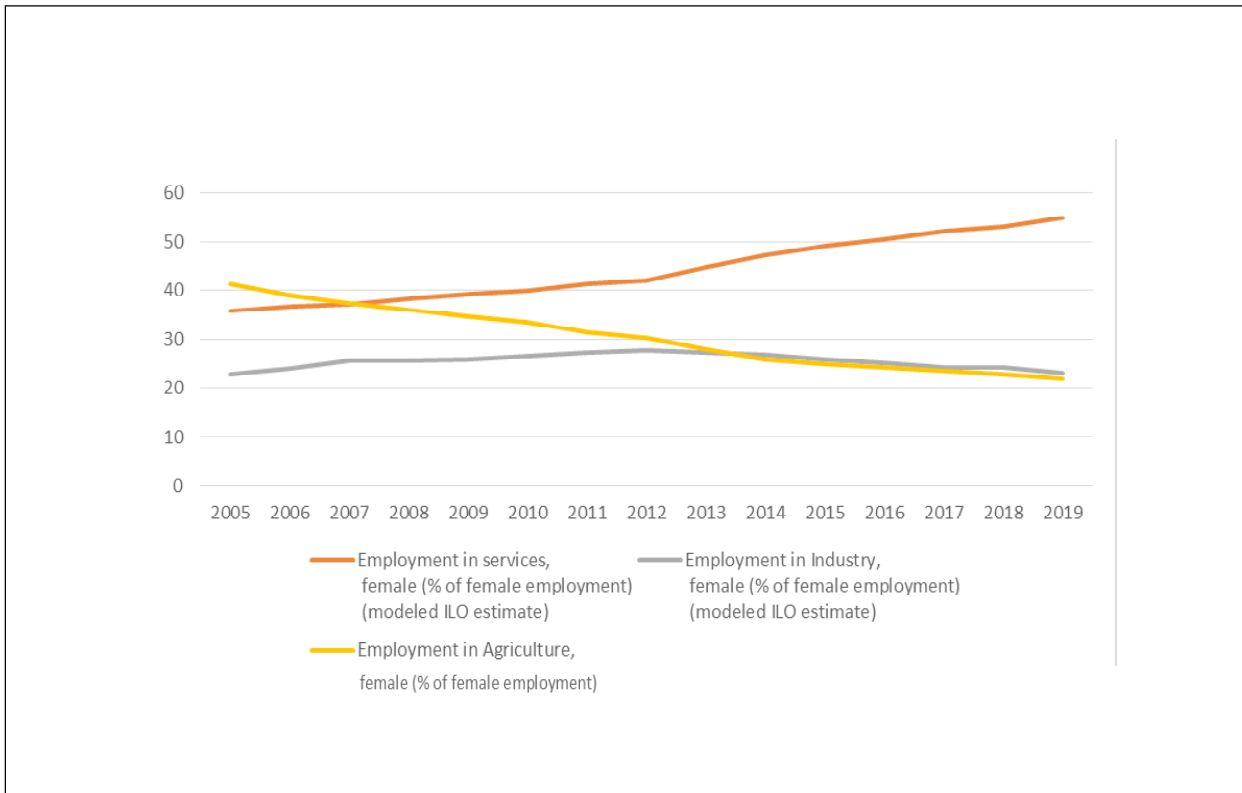


Figure 12: Female Employment (% of Female Employment) in Three Sectors in China

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

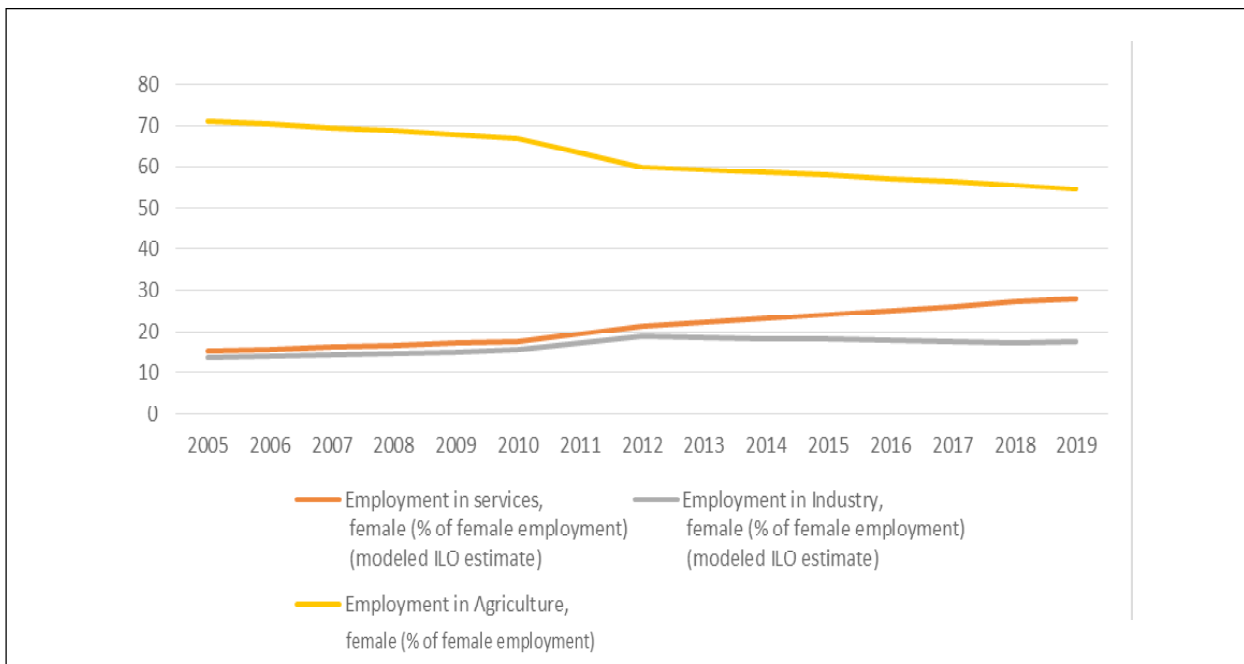


Figure 13: Female Employment (% of Female Employment) in Three Sectors in India

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

In Russian Federation and Brazil, there was already a very high urban population in 2005 which increased further in 2019 (Figure 14 and Figure 15). South Africa and China had a moderate urban population which increased from 59.53% and 42.52% in 2005 to 66.85% and 60.30% respectively in 2019 (Figure 16 and Figure 17). India witnessed a below-average urban population of 29.23% in 2005 which increased to 34.47% in 2019 (Figure 18).

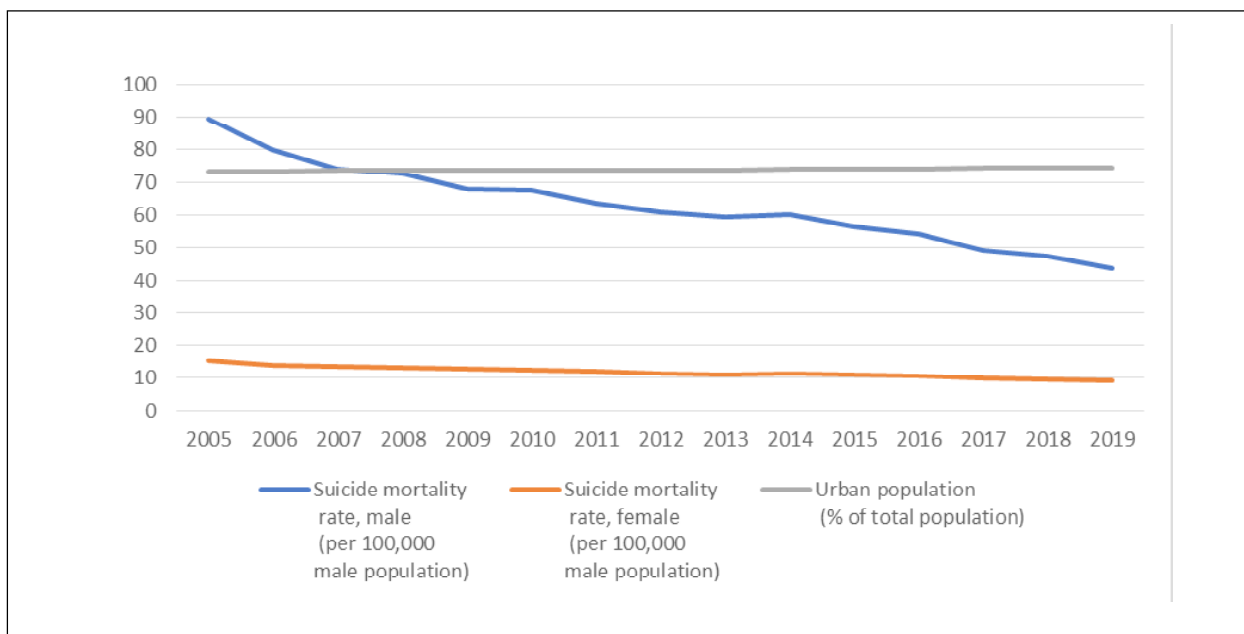


Figure 14: Male Suicide Mortality (Per 100,000 Male Population) Female Suicide Mortality (Per 100,000 Female Population) And Urban Population (% Of Total Population) in the Russian Federation.Female Population) And Urban Population (% Of Total Population) in Russian Federation

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

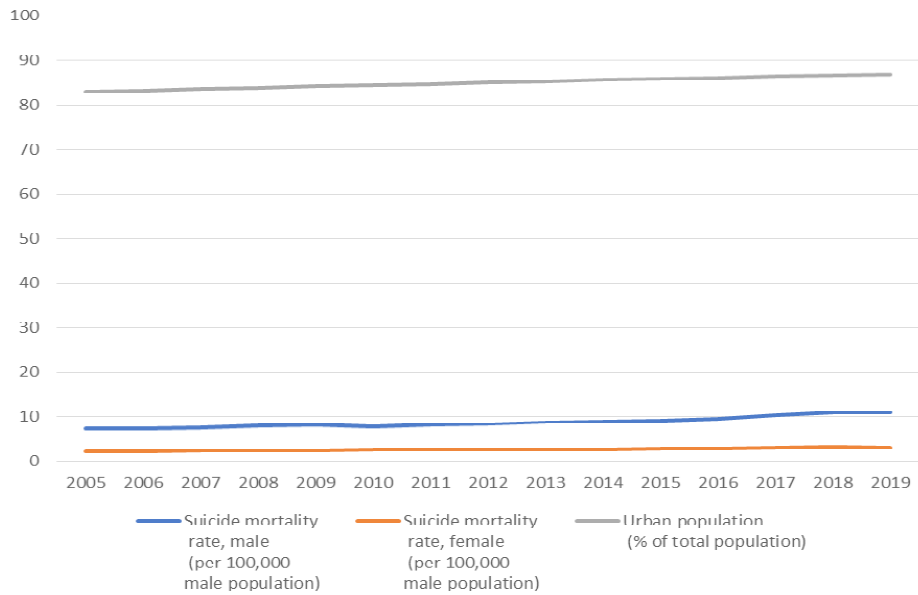


Figure 15: Male Suicide Mortality (Per 100,000 Male Population) Female Suicide Mortality (Per 100,000 Female Population) And Urban Population (% Of Total Population) in Brazil

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

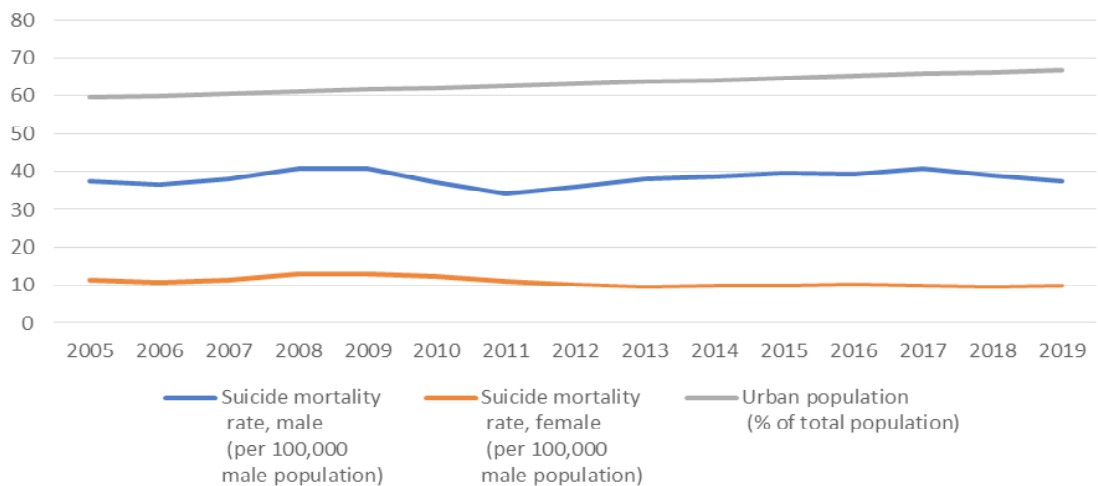


Figure 16: Male Suicide Mortality (Per 100,000 Male Population) Female Suicide Mortality (Per 100,000 Female Population) And Urban Population (% Of Total Population) in South Africa

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

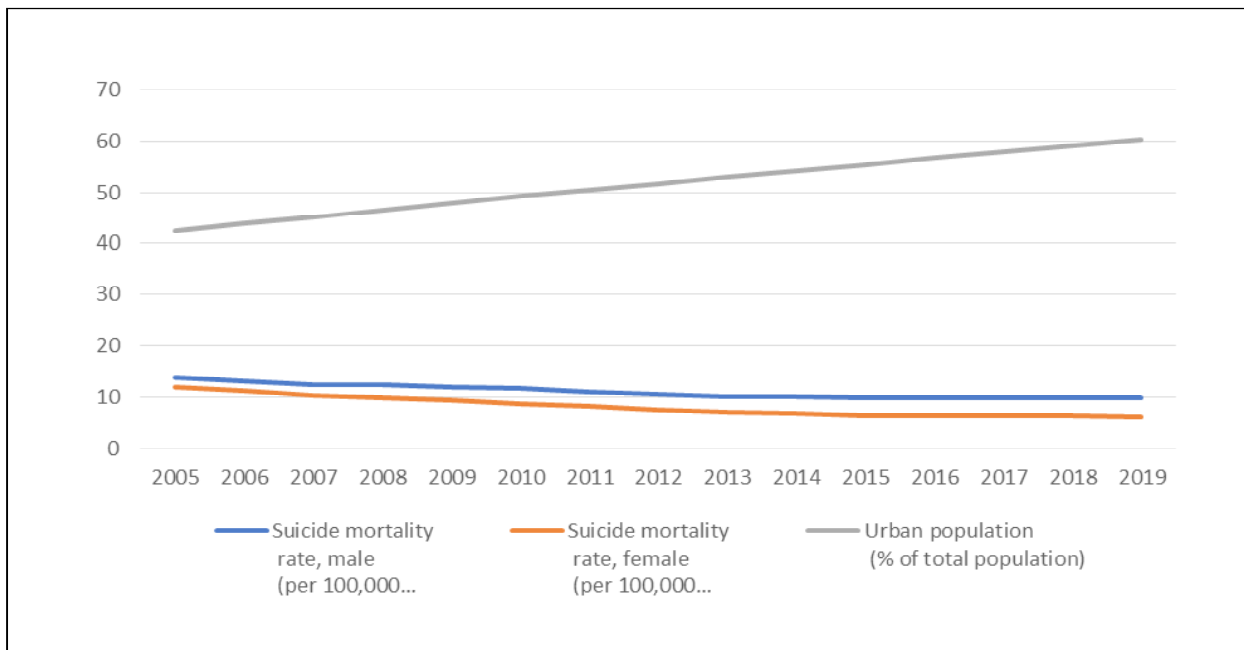


Figure 17: Male Suicide Mortality (Per 100,000 Male Population) Female Suicide Mortality (Per 100,000 Female Population) And Urban Population (% Of Total Population) in China

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

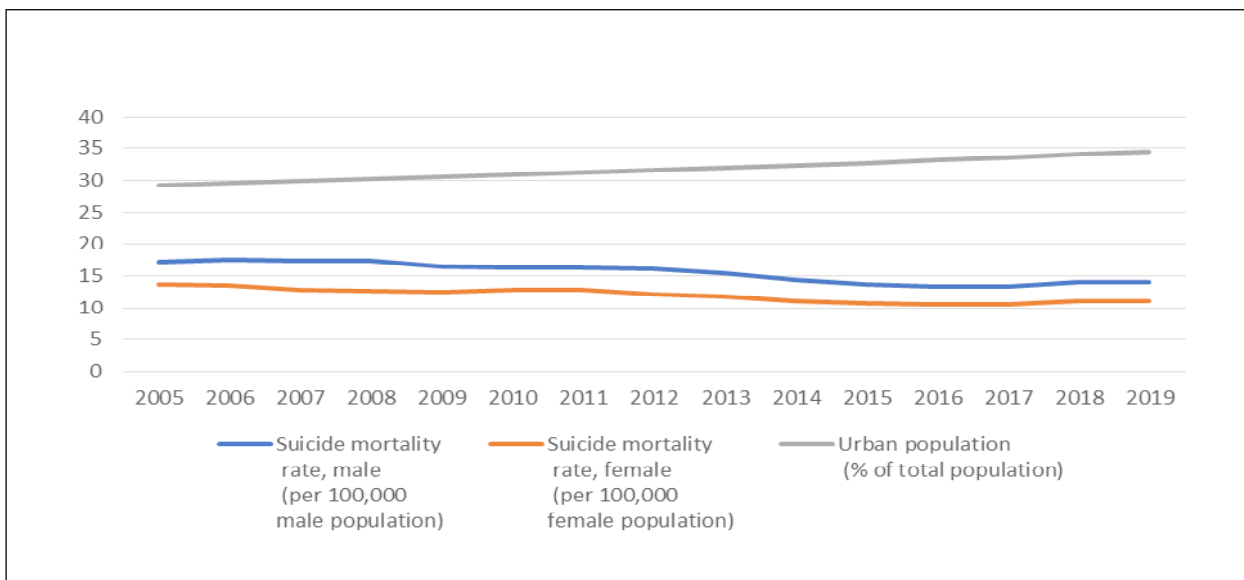


Figure 18: Male Suicide Mortality (Per 100,000 Male Population) Female Suicide Mortality (Per 100,000 Female Population) And Urban Population (% Of Total Population) in India

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

Increase in urban population in the countries where already high urban population was existent since 2005 such as Russian Federation and Brazil can be treated as minor reason of change in suicide mortality rate of male and female. In case of South Africa also it was a minor reason of fall in female suicide mortality rate. India experienced slow increase in urban population and very small decrease in suicide mortality rate of male and female both. Thus, it remained a minor reason in India as well. It was China which went through fast increase in urban population and satisfactory decline in male as well as female suicide mortality rate.

Self-employed, female (% of female employment) and male (% of male employment).

In Russian Federation, the percent of self-employed females and males was already low in 2005 which came down slightly in 2019 in respect of females whereas it was quite volatile in respect of males (Figure 19). In Brazil, the percent of self-employed females and males was already below average. It was 34.68% in 2005 which came down to 27.45% in 2019 in respect of females whereas it was quite volatile in respect of males and remained almost 37% in one and half decades (Figure 20). In South Africa, the percent of self-employed females and males was already low which came down substantially for females, not that much in the case of males (Figure 21). China experienced a fall in the percent of self-employed males and females from 2005 to 2019. A high percentage of males and females are working as self-employed. The percentage has gone down from 58.25% in 2005 to 44.86% in 2019 for males and from 55.56% in 2005 to 46.79% in 2019 for females (Figure 22). India also witnessed a fall in the percent of self-employed males and females from 2005 to 2019. A high percentage of males and females are working as self-employed. The percentage has gone down from 82.59% in 2005 to 75.83% in 2019 for males and from 89.31% in 2005 to 75.83% in 2019 for females (Figure 23).

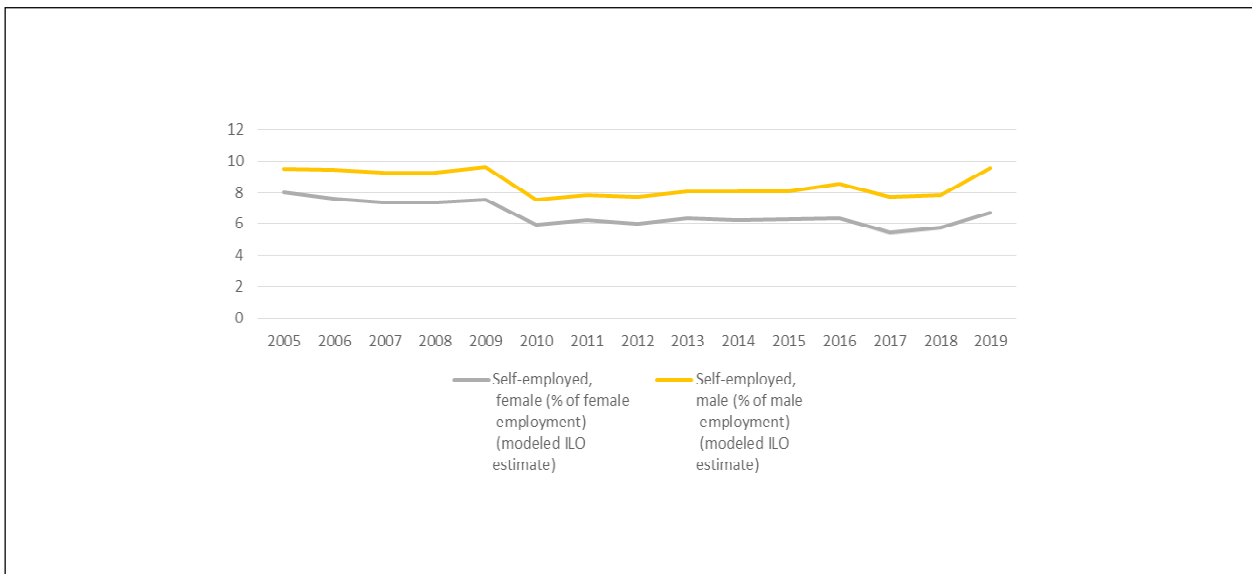


Figure 19: Self-Employed Male, Female (% of Male, Female Employment ILO Estimate) in Russian Federation

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

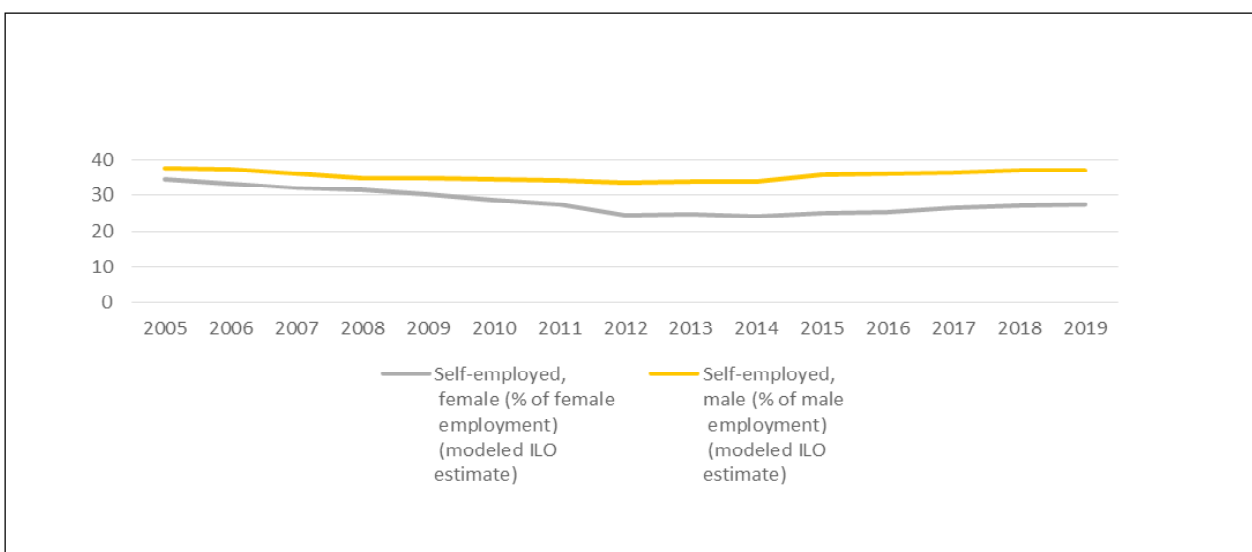


Figure 20: Self-Employed Male, Female (% Of Male, Female Employment ILO Estimate) in Brazil

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

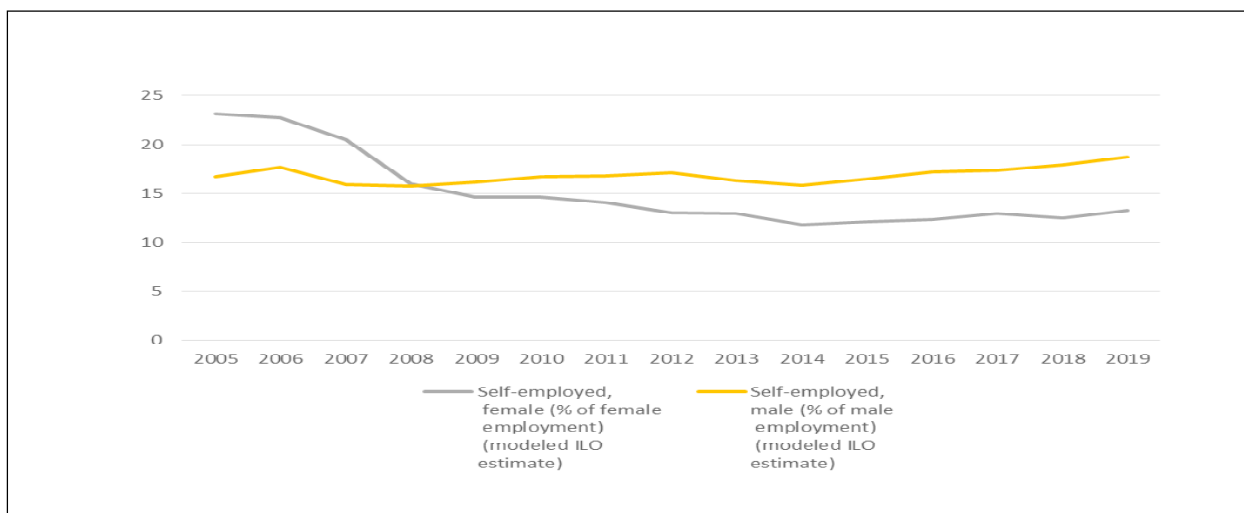


Figure 21: Self-Employed Male, Female (% Of Male, Female Employment ILO Estimate) in South Africa

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

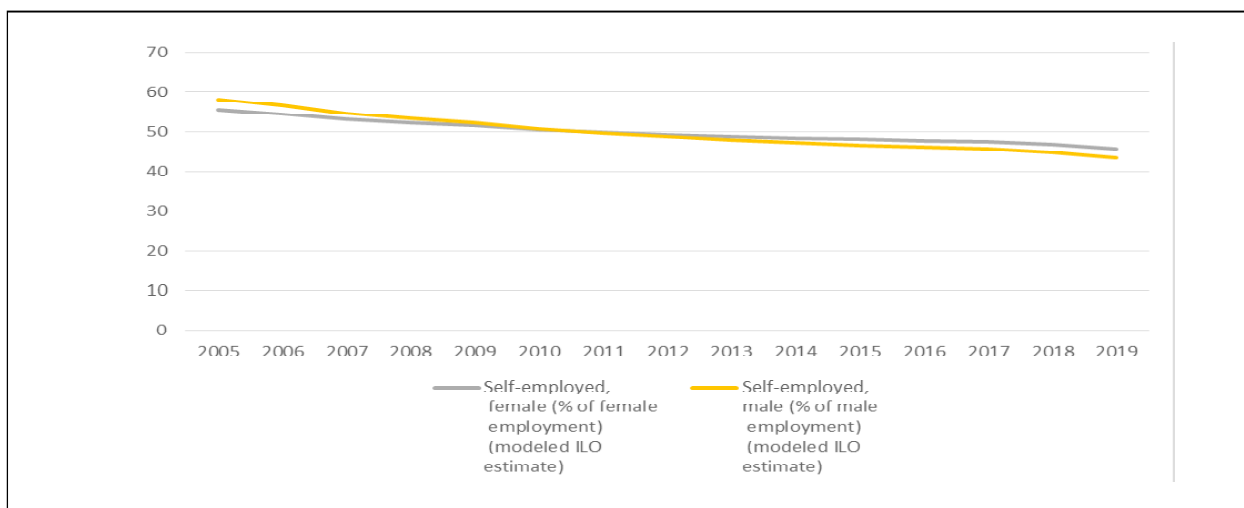


Figure 22: Self-Employed Male, Female (% Of Male, Female Employment ILO Estimate) in China

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

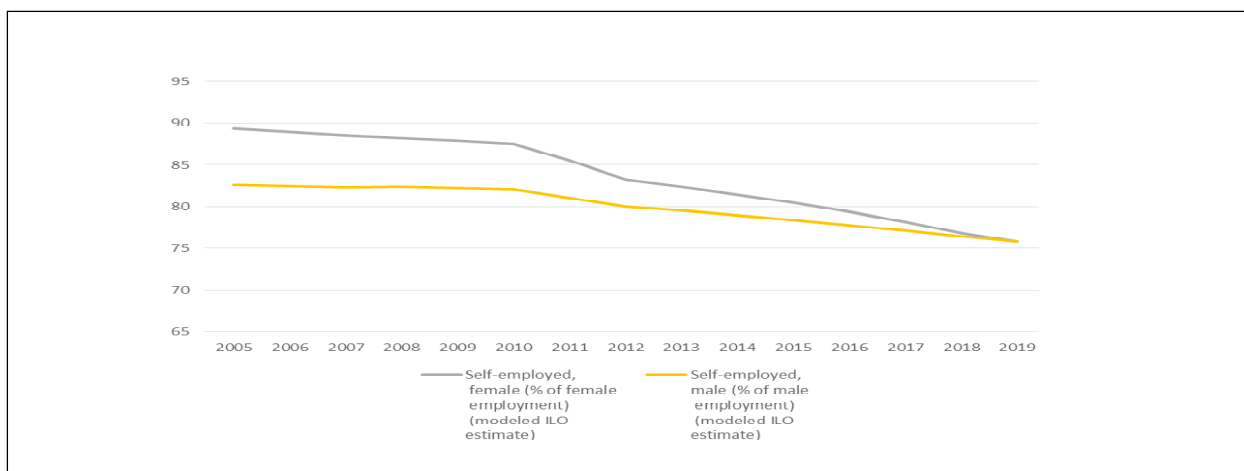


Figure 23: Self-Employed Male, Female (% Of Male, Female Employment ILO Estimate) in India

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

5. Findings

Suicide mortality rate was highest in Russian Federation amongst BRICS Nations in 2005 (Figure 1). Though it declined but remained at the same position even in 2019. South Africa came in close proximity to it in the recent years which maintained good gap in the year 2005 from Russian Federation. Except Brazil in all the BRICS countries suicide mortality rate has declined in 2019 in comparison to 2005, the fastest pace was of Russian federation. South Africa has exhibited the slowest decline.

Female suicide mortality rate was highest in Russian Federation amongst BRICS Nations in 2005. India superseded all the BRICS nations and in 2019 the country is on the first position having the highest female suicide mortality rate (Figure 2). South Africa and Russian Federation are in close proximity to it in the recent years. Except Brazil in all the BRICS countries female suicide mortality rate has declined in 2019 in comparison to 2005. Russian federation has the pace of fastest decline whereas South Africa has exhibited the slowest decline from 2005 to 2019. Male suicide mortality rate was highest in Russian Federation amongst BRICS Nations in 2005. It remained so in 2019. South Africa came in close proximity to it in the recent years which maintained good gap in the year 2005 (Figure 3). Except Brazil and South Africa in all other three BRICS countries male suicide mortality rate has declined in 2019 in comparison to 2005. Russian federation has the pace of fastest decline whereas South Africa has shown very volatile trend since 2005 till 2019.

Male and female suicide mortality rate has come down in majority of BRICS countries with the sectoral shift of employment mostly from Agriculture to service sector or from agriculture to service and industry sector. It shows that agriculture needs immediate attention of the Government to address the plight of the workers by safeguarding their interest. As BRICS countries are the mixed of both; agriculture-based economies such as India and China and service and industry-based economies like Russian federation, South Africa and Brazil, a collective effort of the Governments can prove a milestone in the direction of bringing down the suicidal mortality rate. Some stricter policies at country level such as; bringing gender based wage equality for the same job, provision of social security to all workers of formal as well as informal sector, active complaint cell at the work place, counselling centers at all levels, 24 hours helpline numbers, easily accessible rehabilitation centers, free medical assistance, attendants to monitor the sufferers at rehabilitation shelters and above all provision of human library where a sufferer can get an ear to be heard at local, regional and country level will surely prove effective in controlling the suicide mortality rate in all the BRICS countries.

In Russian Federation and Brazil, the percentage of urban population was already very high in 2005 which increased further in 2019. South Africa and China have exhibited moderate percentage of urban population and can be grouped under moderate category. India's percentage of urban population is lowest amongst all the BRICS nations.

The percentage of self-employed female has gone down in 2019 in comparison to 2005 in Russian federation, Brazil, South Africa, China and India. The percentage of self-employed male has gone up in 2019 in comparison to 2005 in, South Africa. In China and India, it declined in the same period and in Russian federation and Brazil it remained volatile throughout the period of almost one and half decade.

6. Conclusion and Suggestions

We generally look at BRICS countries as the association of economically strong emerging economies of the world and ignore the health aspect of it. The health of the citizens determines the health of the nation and so the health of treaties amongst the nations. If human resources are unhealthy achieving the sustainable development goal of "health and well-being" by 2030 will be an uphill task for the BRICS nations. The gender-specific study draws our attention toward gender-based inequity in the case of suicide mortality rate. It is startling to know that in this context female situation is much better than the male as in all the BRICS countries male suicide mortality rate is higher than the female. No doubt globalization and financial liberalization brought countries of the world closer to each other but the worst part of it is that the spill over effect of this closeness is much harsher. It has brought competitiveness and wide inequality at all levels which ultimately proved stressful. Human resources suffered in a variety of ways which affected their health and well-being. Human resource is the most important factor in attaining sustainable development. Thus the "health and well-being" of the vast resource takes the Centre stage in formulating, implementing and executing any goal, be it at the national or at international level.

Governments of all the BRICS nations should cooperate in formulating and implementing policies to help vulnerable people who are suffering from depression and unhappiness. A joint effort can be put at individual

country level in the form of online consultation platforms to help people in trouble. A pool of people with Psychologists, professionals and peers who recovered from the sufferings should be available at local level for 24 hours consultations. At academic institutions psychologists and psychiatrists should be available to work with the troubled people. LGBT teenagers should be given proper sexual orientation. Involvement of family, friends, relatives, community, academia, are vital for all types of assistance to the sufferer. "In a study published in Global Medical Journal, 2016 it is reported that from 1990 to 2016 the Global suicides rates decreased by over 30%. Globally the fastest decrease was in China where it dropped by 60% in the same period. Global Burden of Disease (GBD) and WHO have also shown the similar statistics. In 2016 WHO reported about China as the country where suicides cases are among the lowest in the world—9.7 people in every 100,000 population. As per WHO data released in 2016, suicide rates among Chinese men and women are nearly equal, with 9.1 suicides in every 100,000 men and 10.3 such cases for women. The success in controlling the suicides rate is linked with urbanization, improvement in living standard, reduced reach to poisonous pesticides. China passed the first mental health law in late 2012. In 2015, the government announced a national five-year mental health work plan, stating clear targets to develop the mental health sector by 2020.

The 66th World Health Assembly adopted WHO's comprehensive mental health action plan for 2013-2020. The four objectives of the plan are; strengthening of effective leadership and governance for mental health, in community-based settings provision of integrated and responsive mental health and social care services, strengthening information system for promotion and implementation of mental health related strategies and research for mental health (<https://www.mhinnovation.net/series-ask-policy-expert-national-suicide-prevention-strategies>). WHO recommends four types of interventions on the basis of which national suicide prevention strategies should be developed: limiting access to the suicidal means, interacting and informing to the media, socio-emotional life-skilling to the adolescents and early identifying, assessing, managing and keeping in touch with the people affected by suicidal behavior (https://www.who.int/health-topics/suicide#tab=tab_3). Apart from practicing WHO guidelines and adopting various methods at various levels the other BRICS countries should learn from China about ways to check the suicide mortality rate and apply those practices in their respective country to lessen the problem. Instead of "creating hype" of the problem of suicide some constructive and concrete policies should be made to minimize and stop the tragic incidence. The government, private sector, NGOs, healthcare professional, civil society, community, academic fraternity have to come up with initiatives to reach more people with counselling and other related services to tackle the suicidal problems effectively and efficiently.

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Appendix

Table 1: Suicide Mortality rate (per 100,000 Population) in BRICS Countries

Year	India	South Africa	China	Russian Federation	Brazil
2005	15.5	24.4	12.9	49.8	4.7
2006	15.6	23.6	12.1	44.8	4.7
2007	15.3	24.6	11.5	41.7	4.9
2008	15.1	26.7	11.1	40.7	5.1
2009	14.5	26.7	10.7	38.4	5.1
2010	14.6	24.6	10.2	38.1	5
2011	14.7	22.4	9.6	35.9	5.2
2012	14.3	22.9	9	34.4	5.4
2013	13.7	23.7	8.6	33.5	5.6
2014	12.8	24.1	8.4	33.8	5.6
2015	12.3	24.5	8.1	32	5.9
2016	12.1	24.4	8.2	31	6
2017	12	25.2	8.1	28.2	6.6
2018	12.6	24.1	8.1	27.1	7
2019	12.7	23.5	8.1	25.1	6.9

Source: World Health Organization, Global Health Observatory Data Repository (<http://apps.who.int/ghodata/>).

Table 2: Suicide Mortality Rate, Female (per 100,000 Female Population) in BRICS Countries

Year	India	South Africa	China	Russian Federation	Brazil
2005	13.7	11.5	11.9	15.4	2.1
2006	13.5	10.9	11.2	14.1	2.2
2007	12.9	11.5	10.4	13.5	2.3
2008	12.6	12.9	9.8	13.2	2.3
2009	12.4	13	9.3	12.8	2.3
2010	12.9	12.3	8.7	12.6	2.5
2011	12.8	11	8.1	12	2.5
2012	12.2	10.1	7.4	11.6	2.6
2013	11.8	9.7	7	11.2	2.6
2014	11	9.8	6.7	11.3	2.5
2015	10.8	9.9	6.4	11	2.8
2016	10.6	10.1	6.3	10.7	2.7
2017	10.5	10	6.3	10	3
2018	11	9.7	6.3	9.7	3.1
2019	11.1	9.8	6.2	9.1	3

Source: World Health Organization, Global Health Observatory Data Repository (<http://apps.who.int/ghodata/>).

Appendix (Cont.)

Table 3: Suicide Mortality Rate, Male (per 100,000 Male Population) in BRICS Countries

Year	India	South Africa	China	Russian Federation	Brazil
2005	17.1	37.5	13.8	89.3	7.3
2006	17.6	36.6	13	80	7.2
2007	17.4	38	12.5	74.1	7.5
2008	17.3	40.9	12.3	72.5	7.9
2009	16.5	40.9	12	68	8
2010	16.3	37.3	11.7	67.5	7.6
2011	16.3	34.1	11	63.5	8
2012	16.2	36	10.5	60.9	8.2
2013	15.5	38.1	10.1	59.3	8.6
2014	14.4	38.7	10	60	8.8
2015	13.7	39.5	9.8	56.4	9.1
2016	13.4	39.2	9.9	54.4	9.4
2017	13.4	40.8	9.9	49.3	10.3
2018	14	39	9.9	47.2	10.9
2019	14.1	37.6	9.8	43.6	10.9

Source: World Health Organization, Global Health Observatory Data Repository (<http://apps.who.int/ghodata/>).

Table 4: Male Employment (% of Male Employment) in Three Sectors in Russian Federation

Year	Employment in Services, Male (% of Male Employment) (Modeled ILO Estimate)	Employment in Industry, Male (% of Male Employment) (Modeled ILO Estimate)	Employment in Agriculture, Male (% of Male Employment) (Modeled ILO Estimate)
2005	50.13	37.56	12.31
2006	50.42	37.52	12.07
2007	51	38	11
2008	51.44	38.17	10.39
2009	52.82	36.95	10.23
2010	52.68	37.47	9.85
2011	52.93	37.46	9.61
2012	52.7	38.13	9.17
2013	53.3	38.19	8.51
2014	53.67	38.11	8.22
2015	53.9	37.89	8.22
2016	54.26	37.42	8.32
2017	54.83	37.51	7.66
2018	55.05	37.28	7.67
2019	54.91	37.53	7.57

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

Appendix (Cont.)

Table 5: Male Employment (% of Male Employment) in Three Sectors in Brazil

Year	Employment in Services, Male (% of Male Employment) (Modeled ILO Estimate)	Employment in Industry, Male (% of Male Employment) (Modeled ILO Estimate)	Employment in Agriculture, Male (% of Male Employment) (Modeled ILO Estimate)
2005	51.59	27.93	20.48
2006	52.47	28.1	19.43
2007	52.55	28.94	18.51
2008	52.43	29.95	17.63
2009	53.12	29.32	17.56
2010	53.92	29.48	16.59
2011	54.68	29.5	15.82
2012	54.21	30.37	15.42
2013	54.37	30.55	15.08
2014	55.24	30.74	14.02
2015	56.28	29.77	13.95
2016	57.75	28.2	14.05
2017	59.02	27.7	13.28
2018	59.84	27.09	13.06
2019	60.24	26.95	12.81

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

Table 6: Male Employment (% of Male Employment) in Three Sectors in South Africa

Year	Employment in Services, Male (% of Male Employment) (Modeled ILO Estimate)	Employment in Industry, Male (% of Male Employment) (Modeled ILO Estimate)	Employment in Agriculture, Male (% of Male Employment) (Modeled ILO Estimate)
2005	57.6	34.34	8.06
2006	58.21	34.26	7.53
2007	58.53	34.43	7.05
2008	58.39	34.99	6.63
2009	59.56	34.32	6.12
2010	61.58	32.78	5.64
2011	62	32.55	5.45
2012	62.43	31.81	5.76
2013	61.81	32.06	6.13
2014	62.09	32.15	5.76
2015	60.24	33.1	6.66
2016	61.09	32.05	6.86
2017	61.54	32.01	6.46
2018	61.67	32.16	6.17
2019	63.09	30.44	6.46

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

Appendix (Cont.)

Table 7: Male Employment (% of Male Employment) in Three Sectors in China

Year	Employment in Services, Male (% of Male Employment) (Modeled ILO Estimate)	Employment in Industry, Male (% of Male Employment) (Modeled ILO Estimate)	Employment in Agriculture, Male (% of Male Employment) (Modeled ILO Estimate)
2005	27.78	24.49	47.73
2006	28.47	26.06	45.48
2007	28.56	27.8	43.64
2008	29.18	28.4	42.42
2009	29.92	29.25	40.84
2010	30.29	30.36	39.35
2011	31.16	31.35	37.49
2012	31.39	32.32	36.29
2013	33.48	32.31	34.21
2014	35.32	32.32	32.36
2015	36.78	31.81	31.41
2016	37.9	31.63	30.48
2017	39.19	31.16	29.65
2018	39.76	31.58	28.66
2019	41.23	30.83	27.94

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

Table 8: Male Employment (% of Male Employment) in Three Sectors in India

Year	Employment in Services, Male (% of Male Employment) (Modeled ILO Estimate)	Employment in Industry, Male (% of Male Employment) (Modeled ILO Estimate)	Employment in Agriculture, Male (% of Male Employment) (Modeled ILO Estimate)
2005	28.75	20.66	50.59
2006	28.91	21.3	49.79
2007	29.04	22.02	48.94
2008	29.13	22.3	48.57
2009	29.31	22.97	47.72
2010	29.41	23.68	46.92
2011	30	24.79	45.21
2012	30.63	25.86	43.52
2013	30.97	25.94	43.09
2014	31.37	26.1	42.54
2015	31.78	26.25	41.97
2016	32.14	26.53	41.32
2017	32.5	26.73	40.76
2018	32.87	26.89	40.24
2019	33.37	27.07	39.56

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

Appendix (Cont.)

Table 9: Female Employment (% of Female Employment) in Three Sectors in Russian Federation

Year	Employment in Services, Female (% of Female Employment) (Modeled ILO Estimate)	Employment in Industry, Female (% of Female Employment) (Modeled ILO Estimate)	Employment in Agriculture, Female (% of Female Employment) (Modeled ILO Estimate)
2005	71.37000275	20.71999931	7.909999847
2006	72.20999908	20.14999962	7.650000095
2007	72.90000153	20.15999985	6.940000057
2008	74.62999725	18.77000046	6.599999905
2009	75.95999908	17.78000069	6.260000229
2010	76.76999664	17.67000008	5.559999943
2011	77.26000214	17.05999947	5.679999828
2012	77.52999878	17.05999947	5.409999847
2013	77.72000122	16.87999916	5.400000095
2014	78.30000305	16.54000092	5.150000095
2015	78.83000183	16.05999947	5.110000134
2016	78.98000336	16	5.019999981
2017	80.16999817	15.78999996	4.039999962
2018	80.26999664	15.73999977	3.990000001
2019	80.54000092	15.44999981	4.010000229

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

Table 10: Female Employment (% of Female Employment) in Three Sectors in Brazil

Year	Employment in Services, Female (% of Female Employment) (Modeled ILO Estimate)	Employment in Industry, Female (% of Female Employment) (Modeled ILO Estimate)	Employment in Agriculture, Female (% of Female Employment) (Modeled ILO Estimate)
2005	75.52999878	13.39000034	11.09000015
2006	76.69000244	13.13000011	10.18000031
2007	77.48000336	13.30000019	9.220000267
2008	77.84999847	13.68999958	8.460000038
2009	79.09999847	13.31000042	7.590000153
2010	80.38999939	12.60999966	7
2011	81.65000153	11.89999962	6.449999809
2012	81.51000214	12.61999989	5.880000114
2013	82.13999939	12.22000027	5.639999866
2014	82.87999725	11.93999958	5.179999828
2015	83.31999969	11.65999985	5.019999981
2016	84.5	10.77000046	4.730000019
2017	85.05000305	10.68999958	4.260000229
2018	85.11000061	10.75	4.139999866
2019	85.41000366	10.56999969	4.019999981

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

Appendix (Cont.)

Table 11: Female Employment (% of Female Employment) in Three Sectors in South Africa

Year	Employment in Services, Female (% of Female Employment) (Modeled ILO Estimate)	Employment in Industry, Female (% of Female Employment) (Modeled ILO Estimate)	Employment in Agriculture, Female (% of Female Employment) (Modeled ILO Estimate)
2005	81	13.60999966	5.389999866
2006	81.81999969	13.27000046	4.909999847
2007	82.44999695	13.09000015	4.460000038
2008	82.77999878	13.10000038	4.119999886
2009	83.29000092	13.10000038	3.619999886
2010	83.22000122	13.01000023	3.769999981
2011	83.61000061	12.93999958	3.450000048
2012	84.16000366	12.25	3.589999914
2013	84.11000061	12.39999962	3.490000001
2014	84.76999664	12.02999973	3.200000048
2015	84.04000092	11.72999954	4.230000019
2016	84.20999908	11.90999985	3.880000114
2017	84.01000214	12.21000004	3.769999981
2018	84.51000214	11.61999989	3.880000114
2019	84.23000336	11.98999977	3.789999962

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

Table 12: Female Employment (% of Female Employment) in Three Sectors in China

Year	Employment in Services, Female (% of Female Employment) (Modeled ILO Estimate)	Employment in Industry, Female (% of Female Employment) (Modeled ILO Estimate)	Employment in Agriculture, Female (% of Female Employment) (Modeled ILO Estimate)
2005	35.84999847	22.95000076	41.20000076
2006	36.79999924	24.13999939	39.06000137
2007	37.15999985	25.55999947	37.27999878
2008	38.20000076	25.70999908	36.09000015
2009	39.31999969	25.98999977	34.68999863
2010	40.00999832	26.62000084	33.36999893
2011	41.40000153	27.18000031	31.42000008
2012	42.02000046	27.76000023	30.21999931
2013	44.79999924	27.31999969	27.87999916
2014	47.24000168	26.86000061	25.89999962
2015	49.09000015	25.87999916	25.03000069
2016	50.56999969	25.23999977	24.20000076
2017	52.13999939	24.25	23.61000061
2018	53.04000092	24.18000031	22.78000069
2019	54.91999817	23.05999947	22.01000023

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

Appendix (Cont.)

Table 13: Female Employment (% of Female Employment) in Three Sectors in India

Year	Employment in Services, Female (% of Female Employment) (Modeled ILO Estimate)	Employment in Industry, Female (% of Female Employment) (Modeled ILO Estimate)	Employment in Agriculture, Female (% of Female Employment) (Modeled ILO Estimate)
2005	15.30000019	13.64999962	71.05000305
2006	15.67000008	13.98999977	70.33999634
2007	16.09000015	14.32999992	69.58000183
2008	16.60000038	14.59000015	68.81999969
2009	17.04000092	15.02999973	67.93000031
2010	17.48999977	15.52999973	66.98000336
2011	19.31999969	17.12000084	63.56000137
2012	21.27000046	18.77000046	59.95999908
2013	22.20999908	18.43000031	59.36000061
2014	23.15999985	18.17000008	58.66999817
2015	24.12000084	17.95000076	57.93000031
2016	25.11000061	17.73999977	57.15000153
2017	26.13999939	17.52000046	56.34999847
2018	27.19000053	17.28000069	55.52999878
2019	27.95999908	17.35000038	54.68999863

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

Table 14: Male Suicide Mortality (Per 100,000 Male Population) Female Suicide Mortality (Per 100,000 Female Population) And Urban Population (% Of Total Population) in Russian Federation

Year	Suicide Mortality Rate, Male (Per 100,000 Male Population)	Suicide Mortality Rate, Female (Per 100,000 Male Population)	Urban Population (% Of Total Population)
2005	89.3	15.4	73.463
2006	80	14.1	73.508
2007	74.1	13.5	73.553
2008	72.5	13.2	73.598
2009	68	12.8	73.642
2010	67.5	12.6	73.687
2011	63.5	12	73.732
2012	60.9	11.6	73.791
2013	59.3	11.2	73.863
2014	60	11.3	73.95
2015	56.4	11	74.05
2016	54.4	10.7	74.164
2017	49.3	10	74.292
2018	47.2	9.7	74.433
2019	43.6	9.1	74.587

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

Appendix (Cont.)

Table 15: Male Suicide Mortality (Per 100,000 Male Population) Female Suicide Mortality (Per 100,000 Female Population) And Urban Population (% Of Total Population) in Brazil

Year	Suicide Mortality Rate, Male (Per 100,000 Male Population)	Suicide Mortality Rate, Female (Per 100,000 Female Population)	Urban Population (% Of Total Population)
2005	7.3	2.1	82.834
2006	7.2	2.2	83.143
2007	7.5	2.3	83.448
2008	7.9	2.3	83.749
2009	8	2.3	84.044
2010	7.6	2.5	84.335
2011	8	2.5	84.631
2012	8.2	2.6	84.923
2013	8.6	2.6	85.209
2014	8.8	2.5	85.492
2015	9.1	2.8	85.77
2016	9.4	2.7	86.042
2017	10.3	3	86.309
2018	10.9	3.1	86.569
2019	10.9	3	86.824

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

Table 16: Male Suicide Mortality (Per 100,000 Male Population) Female Suicide Mortality (Per 100,000 Female Population) And Urban Population (% Of Total Population) in South Africa

Year	Suicide Mortality Rate, Male (Per 100,000 Male Population)	Suicide Mortality Rate, Female (Per 100,000 Female Population)	Urban Population (% Of Total Population)
2005	37.5	11.5	59.536
2006	36.6	10.9	60.077
2007	38	11.5	60.616
2008	40.9	12.9	61.154
2009	40.9	13	61.687
2010	37.3	12.3	62.218
2011	34.1	11	62.746
2012	36	10.1	63.272
2013	38.1	9.7	63.793
2014	38.7	9.8	64.312
2015	39.5	9.9	64.828
2016	39.2	10.1	65.341
2017	40.8	10	65.85
2018	39	9.7	66.355
2019	37.6	9.8	66.856

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

Appendix (Cont.)

Table 17: Male Suicide Mortality (Per 100,000 Male Population) Female Suicide Mortality (Per 100,000 Female Population) And Urban Population (% Of Total Population) in China

Year	Suicide Mortality Rate, Male (Per 100,000 Male Population)	Suicide Mortality Rate, Female (Per 100,000 Male Population)	Urban Population (% Of Total Population)
2005	13.8	11.9	42.522
2006	13	11.2	43.868
2007	12.5	10.4	45.199
2008	12.3	9.8	46.539
2009	12	9.3	47.88
2010	11.7	8.7	49.226
2011	11	8.1	50.511
2012	10.5	7.4	51.765
2013	10.1	7	53.013
2014	10	6.7	54.259
2015	9.8	6.4	55.5
2016	9.9	6.3	56.736
2017	9.9	6.3	57.96
2018	9.9	6.3	59.152
2019	9.8	6.2	60.308

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

Table 18: Male Suicide Mortality (Per 100,000 Male Population) Female Suicide Mortality (Per 100,000 Female Population) And Urban Population (% Of Total Population) in India

Year	Suicide Mortality Rate, Male (Per 100,000 Male Population)	Suicide Mortality Rate, Female (Per 100,000 Male Population)	Urban Population (% Of Total Population)
2005	17.1	13.7	29.235
2006	17.6	13.5	29.569
2007	17.4	12.9	29.906
2008	17.3	12.6	30.246
2009	16.5	12.4	30.587
2010	16.3	12.9	30.93
2011	16.3	12.8	31.276
2012	16.2	12.2	31.634
2013	15.5	11.8	32.003
2014	14.4	11	32.384
2015	13.7	10.8	32.777
2016	13.4	10.6	33.182
2017	13.4	10.5	33.6
2018	14	11	34.03
2019	14.1	11.1	34.472

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

Appendix (Cont.)

Table 19: Self-Employed Male, Female (% of Male, Female Employment ILO Estimate) in Russian Federation

Year	Self-employed, Female (% of Female Employment) (Modeled ILO Estimate)	Self-employed, Male (% of Male Employment) (Modeled ILO Estimate)
2005	7.989999771	9.489999771
2006	7.619999886	9.409999847
2007	7.349999905	9.239999771
2008	7.360000134	9.25
2009	7.519999981	9.600000381
2010	5.929999828	7.559999943
2011	6.21999979	7.829999924
2012	6.010000229	7.699999809
2013	6.369999886	8.079999924
2014	6.21999979	8.090000153
2015	6.260000229	8.090000153
2016	6.360000134	8.539999962
2017	5.46999979	7.690000057
2018	5.769999981	7.820000172
2019	6.690000057	9.539999962

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

Table 20: Self-Employed Male, Female (% Of Male, Female Employment ILO Estimate) in Brazil

Year	Self-employed, Female (% of Female Employment) (Modeled ILO Estimate)	Self-employed, Male (% of Male Employment) (Modeled ILO Estimate)
2005	34.68999863	37.81000137
2006	33.49000168	37.31999969
2007	32.25	36.20000076
2008	31.39999962	35.06000137
2009	30.29999924	35
2010	28.71999931	34.52999878
2011	27.38999939	34.31999969
2012	24.5	33.68000031
2013	24.62000084	34.04000092
2014	24.20000076	34.16999817
2015	25.07999992	35.81000137
2016	25.39999962	36.34999847
2017	26.40999985	36.65000153
2018	27.04000092	37
2019	27.45999908	37.24000168

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

Appendix (Cont.)

Table 21: Self-Employed Male, Female (% Of Male, Female Employment ILO Estimate) in South Africa

Year	Self-employed, Female (% of Female Employment) (Modeled ILO Estimate)	Self-employed, Male (% of Male Employment) (Modeled ILO Estimate)
2005	23.11000061	16.75
2006	22.75	17.73999977
2007	20.54000092	15.93000031
2008	16	15.81000042
2009	14.64000034	16.19000053
2010	14.64999962	16.72999954
2011	14.14000034	16.84000015
2012	13.07999992	17.17000008
2013	12.96000004	16.32999992
2014	11.81999969	15.89999962
2015	12.06999969	16.52000046
2016	12.34000015	17.23999977
2017	12.97999954	17.40999985
2018	12.53999996	17.95000076
2019	13.31000042	18.72999954

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

Table 22: Self-Employed Male, Female (% Of Male, Female Employment ILO Estimate) in China

Year	Self-employed, Female (% of Female Employment) (Modeled ILO Estimate)	Self-employed, Male (% of Male Employment) (Modeled ILO Estimate)
2005	55.56000137	58.25999832
2006	54.47999954	56.63999939
2007	53.31000137	54.81999969
2008	52.40000153	53.5
2009	51.61000061	52.24000168
2010	50.63000107	50.86999893
2011	49.84000015	49.68000031
2012	49.31000137	48.81000137
2013	48.83000183	48.02000046
2014	48.40999985	47.36000061
2015	48.13999939	46.75999832
2016	47.88000107	46.27000046
2017	47.56999969	45.83000183
2018	46.79999924	44.86000061
2019	45.84999847	43.72000122

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

Appendix (Cont.)

Table 23: Self-Employed Male, Female (% Of Male, Female Employment ILO Estimate) in India

Year	Self-employed, Female (% of Female Employment) (Modeled ILO Estimate)	Self-employed, Male (% of Male Employment) (Modeled ILO Estimate)
2005	89.31999969	82.59999847
2006	88.94999695	82.45999908
2007	88.58999634	82.29000092
2008	88.26000214	82.34999847
2009	87.94999695	82.20999908
2010	87.54000092	82.06999969
2011	85.51999664	81.04000092
2012	83.23999786	79.98999786
2013	82.34999847	79.52999878
2014	81.44999695	78.98999786
2015	80.44999695	78.40000153
2016	79.36000061	77.76000214
2017	78.16000366	77.12999725
2018	76.83999634	76.47000122
2019	75.83999634	75.83000183

Source: International Labor Organization, ILOSTAT database. Data retrieved on January 29, 2021

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