

Female Vulnerable Employment in India's Informal Sector

Ngozi ADELEYE¹, Yasmeen SULTANA², Abdul JAMAL³, Mohamed NAZEER⁴ &
Arumugam SANKARAN⁵

Abstract

This study examines female vulnerable employment in India's informal sector and the impact on economic growth using quarterly data from 1991 to 2017 and a blend of descriptive and econometric analyses (the two-stage least squares instrumental variables technique). From the descriptive analysis, some of the compelling findings are: (1) larger percentage of female are engaged in vulnerable employment, (2) India's female employment is largely concentrated in the agricultural sector relative to the industrial and services sectors, (3) a larger proportion are self-employed, (4) a growing percentage contribute to the family income as breadwinners, (5) India has the highest percentage of female in vulnerable employment in the whole of Asia and second to Nepal among SAARC countries, and (6) India's percentage of women in vulnerable employment towers its own regional average of 69.6 percent, it is twice that of East Asia at 43.8 percent and five times that of Western Asia at 17.5 percent. These statistics affirm that most women in India are engaged in vulnerable employment. Likewise, results from econometric simulations suggest that (1) increasing the number of female in vulnerable employment stifles economic growth, (2) increasing female employment in the agricultural sector significantly reduces economic growth, while (3) increase in female employment in both industrial and services sectors stimulate economic growth significantly. Policy outcomes are discussed.

Keywords: Asia; female; informal sector; unorganised sector; vulnerable employment

JEL Codes: E24; J21; N35; N65; N95; O53; Q52

Introduction

At the beginning of the twenty-first century, the major portion of the world's working population earns its source of revenue under the vulnerable and anxious circumstances of the informal economy. Vulnerable employment refers to jobs devoid of secure contracts, workers remuneration or social fortification. Regardless of whether in formal or informal enterprises, vulnerable employment encapsulates self-employment (or own-account workers), and informal wage employment. Vulnerable employment poses threats to all the stakeholders such as firms, employees, labour market and the larger society. The higher the share of vulnerable employment, the larger will be the proportion of the working poor. This is because the magnitude of vulnerable employment is an indicator of labour market distress. Firms are often busy with facing competition by reducing wage bills in order to increase the bottom-line (profits). Numerous of the vulnerable jobs are in the informal financial system, characterized by low levels of efficiency and fail to give workers with sufficient income to drag them or their families out of poverty.

¹ Lecturer, Department of Economics and Development Studies, Covenant University, Ota, Ogun State, Nigeria.
E-mail: ngozi.adeleye@covenantuniversity.edu.ng

² Assistant Professor, Department of Economics, Pondicherry University, Puducherry, India. E-mail: yasmin.sultana@gmail.com

³ Assistant Professor, Department of Economics, The New College (University of Madras), Chennai, Tamil Nadu, India.
E-mail: abduljamal@gmail.com

⁴ Assistant Professor, Department of Economics, The New College (University of Madras), Chennai, Tamil Nadu, India.
E-mail: getnazeer1981@gmail.com

⁵ Assistant Professor, Department of Economics, Pondicherry University, Puducherry, India. E-mail: sankaranecopu@gmail.com

The cut-throat competition among firms causes them race to increase their bottom-line at the expense of engaging a quality labour force. The quality of employment is an important indicator of well-being in the present global scenario and it is disturbing to note that such quality is declining. Most of the jobs springing up are from the unorganized sector. They are temporary, casual or contractual in nature and characterized by poor working conditions. These types of jobs are called vulnerable employment.

Vulnerable employment can also be definite as the amount of own-account workers and voluntary family workers. Vulnerable workers are always at high risk of dismissal and do not benefit from a social safety net. Hence, they are saddled with the challenges of illness and disabilities, if such jobs are abruptly lost. Such workers are unprotected under prevailing labour laws. The current world labour-engagement trend emerging from globalization is tilting towards flexibility in the organization of work leading to a variety of employment relationships. The absence of a collective bargaining process is the direct off-shoot of the absence of trade unions which are non-existent in vulnerable employment settings. The current trend is occasioned by contract labour system, long and oppressive working hours, the absence of social security, threat of job security and so on. These features have epitomized the most glaring structures of the industrial relations system.

Vulnerable employment is specific as the amount of the employment position cluster of own-account workers and causal family workers. They are less probable to have formal work provision and are consequently more likely to be short of decent working conditions and sufficient social security. Vulnerable employment is frequently characterized by insufficient earnings, low output and hard conditions of employment that undermine workers' basic rights. Hence, many studies are still focusing on the different dimensions of vulnerable employment. The ILO's squeeze of decent work for all point up the agency's interest in incorporating a better development focal point for the requirements of the working poor, and mostly informal workers, more central to its plans (ILO,1999). Wnuk-Lipinski (1977) classified job satisfaction as a very important part of the excellence of life. For instance, a amount of norms for reviewing the quality of work were developed, encircling both universal measures of job satisfaction as well as precise measures of workers' gratified with an assortment of job aspects (Land, 1975; Staines & Quinn, 1979; Kalleberg; Krueger *et al.*, 2002 and Vaisey, 2005;).

Quinlan et.al. (2001), recognized the nature of the problems so as to flexible work and the managerial transformation referred to can pretense for Occupational Health and Safety (OHS) regulation as well as evaluating the responses being put into operation to deal with them. Pallakantor, Umarani, and Jeemolunni (2006), based on the field survey conducted on 814 male and female informal workers in Surat city (India), felt that salary and regular workers jobs are relatively decent when compared to self-employed and casual workers. There is a need for improvement of pay levels, amount and regularity of days of work, excess of hours o work, training, and organizing.

India's Informal Sector

Today the unorganised or the informal sector in India records for more than 90 percent of the workforce eventually becomes the backbone of Indian economy. Virtually 50 percent of the India's national income grows from the informal sector (National Statistical Commission, 2012). The magnitude of the organised sector is described by the higher earnings yet the job security is lesser, which is reported that of less than 6 percent of the full employment during 2004-05. Approximately two-third of the total organised sector's employment depends on the public sector. The informal sector is very heterogeneous, disparately spread-out, with very few data-sources. In recent years, organised sector employment expanded slowly than the total employment, sparking the increase of employment in the unorganised sector. Therefore it has been raising informalisation of employment in India as, close to 81 percent of all employed persons are making their living by working in the informal sector. The efficiency and earning points in the majority of the enterprises are very low and do not frequently offer full-time work to those who were engaged. For the workers, the working atmosphere is not conducive; working hours are extended and the environment of decent employment such as compensated leave, medical support, health insurance, pension, bonus, motherhood leave benefits are almost non-existent. The past available evidence suggests that the vastness of the expansion in employment will come from the unorganised sector.

Feminization of Vulnerable Jobs

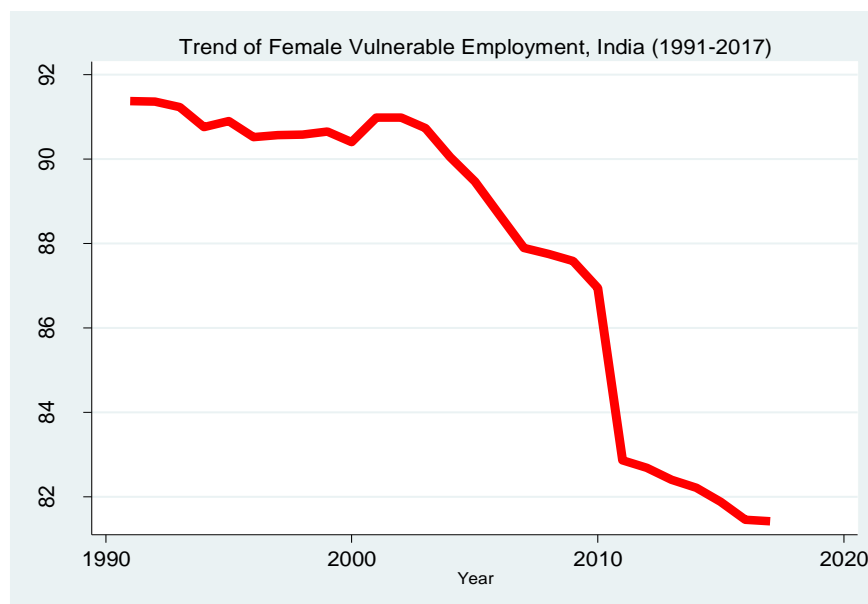
Labour liberalization was predicted to increase the participation of women. This turned out to be true as more women are employed principally because it is cheaper to engage women who have poor bargaining skills than men.

Most of the women are constrained to do low productive and insecure jobs, either to supplement family incomes or owing to loss of jobs by the male wage earner. Naturally, women are prone to get extra jobs but the work they get is more informal in nature or is the one that men do not favor to do or is left by them to shift to higher jobs. About 60 percent of the female work-force in developing countries works in the informal sector (Mbaye and Benjamin, 2014).

When compared to men, women's average earnings are lower or no earnings at all with cases of unpaid family labour which becomes a challenging task for empowerment. Family responsibilities, flexible working hours, low level of capital and skills are the reasons for their concentration of women in vulnerable employment (ILO,2009). The contributions of female informal workers to the economy are very high but they are marginalized and remain as part of the working poor. In addition to agriculture, there is an increasing number of women earning income from low qualitative informal jobs like domestic, construction, and factory workers. In addition to street vending, rag picking these work engagements sum up as insecure employment with no guaranteed minimum wage. Hence, female workers are marginalized with earnings less than their male counterparts in almost all occupations. This is a matter of serious concern.

Figure 1, shows the trend of the percentage of females engaged in the informal sector characterized as vulnerable employment. The graph shows a declining trend from 91.38 percent in 1991 to 90.05 percent in 2004.

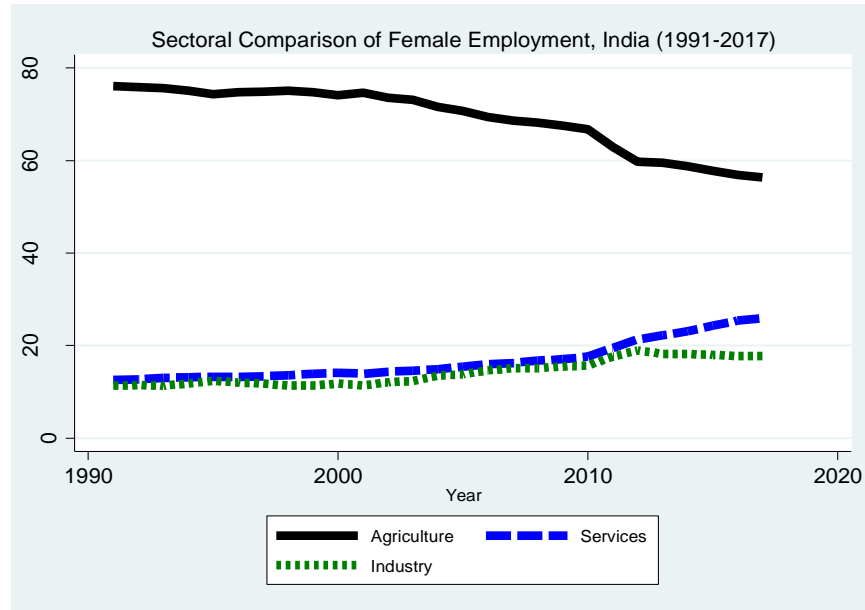
Figure 1: Trend Analysis of Female in Vulnerable Employment, India (1991-2017)



Source: Authors

The trend slipped further to 86.94 percent in 2010 and 81.42 percent in 2017. Gender-focused analysts may find this trend heart-warming because it shows that there is a gradual thinning down of females in vulnerable employment which implies that are moving towards the formal sector. Recent trends in patterns of women's work are shown in Figure 2.

Figure 2: Sectoral Analysis of Female Employment, India (1991-2017)



Source: Authors

From Figure 2, there is a gradual declining engagement of females in the agricultural sector which is where most of them are employed (see Table 1), and a gradual representation in the formal sectors of industrial production and services. The trend portrays that employers are beginning to give employment opportunities to the women-folks which is a clear departure from the past where they are largely confined to the agricultural sector. Although the percentage of women in both vulnerable and agricultural employment is still very high, statistics reveal that there is a gradual reduction in their representation. Using World Development Indicators (WDI), statistics shown in Table 1 reveal distinct characteristics of female vulnerabilities in employment. For instance, on average, the females constitute 88percent of employees in vulnerable employment which supports the argument that fewer men-folks are usually engaged under these intolerable working conditions. Likewise, a larger proportion (88.42 percent) is self-employed while only 11.48percent are wage and salaried workers. Comparing the employment statistics of the female gender in three sectors – agriculture, industry, and services reveal some interesting analytics.

Table 1 Summary Statistics

Variables	Mean	SD	Minimum	Maximum
Female in Vulnerable Employment	87.94	3.71	81.41	91.38
GDP (constant 2010 US\$)	1.23e+12	6.56e+11	4.72e+11	2.63e+12
Female Employment in Industry	14.14	2.73	11.31	18.96
Contributing Female Family Workers	34.71	4.77	26.71	44.46
Female Employment in Agriculture	69.13	6.82	56.36	76.10
Female Employment in Services	16.72	4.21	12.59	25.94
Self-Employed Female	88.42	3.71	81.94	92.10
Female Wage and Salaried Workers	11.58	3.71	7.90	18.06

Notes: 1.23E+12 = 1,230,000,000,000.00; SD = Standard deviation

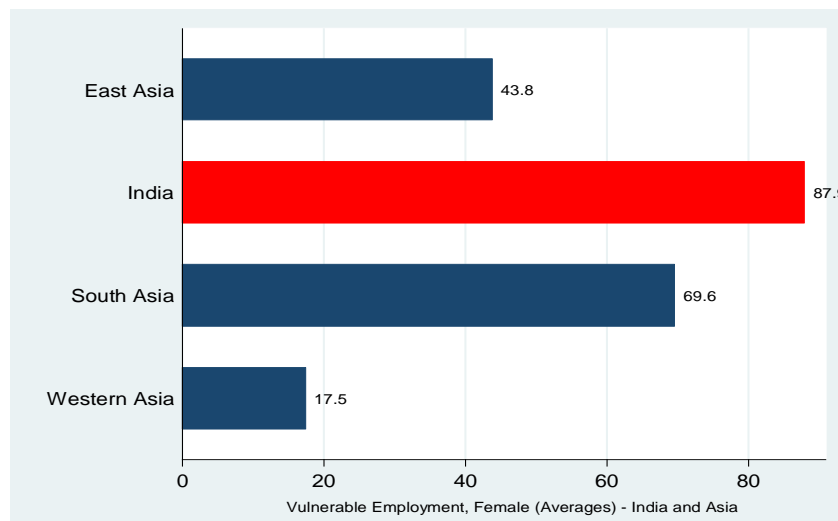
Source: Authors' Computations

The percentage of those engaged to work in the agricultural sector (69.13 percent) is five times the size of those employed in the industrial sector and almost five times to those engaged in the services sector. These figures affirm the conjecture that women are mostly confined to less-formal employment either due to less education or inability to use advanced technology most deployed in the services and industrial sectors. Another interesting statistic is that on average, 34.71 percent of women support the men in contributing to the family income. That is, some of them are co-breadwinners saddled with the responsibilities of providing the basic needs of the family. Overall, it can be inferred from these statistics, that women in India constitute the majority of employees in vulnerable employment.

Comparative Statics of Vulnerable Employment in India and Asia

Amidst regional comparisons, India located in South Asia is the largest economy in the region with an average gross domestic product (GDP) of \$1.23 trillion USD for the period under consideration. Likewise, statistics shown in Figure 3 reveal that the country has the highest percentage of women in vulnerable employment.

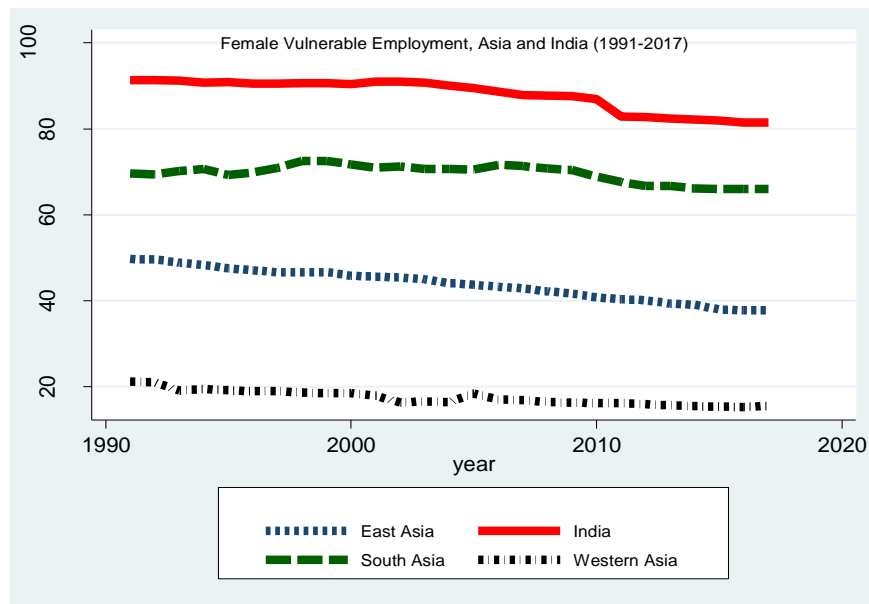
Figure 3: Histogram of Female in Vulnerable Employment, India and Asia (1991-2017)



Source: Authors

Information gleaned Figure 3 shows that India's percentage of women in vulnerable employment towers its own regional average of 69.6 percent, twice that of East Asia at 43.8 percent and five times that of Western Asia at 17.5 percent. These statistics affirm that India's women-folks are mostly engaged in vulnerable employment compared to women in other sub-regions. Similarly, the trend analysis shown in Figure 4 supports these arguments.

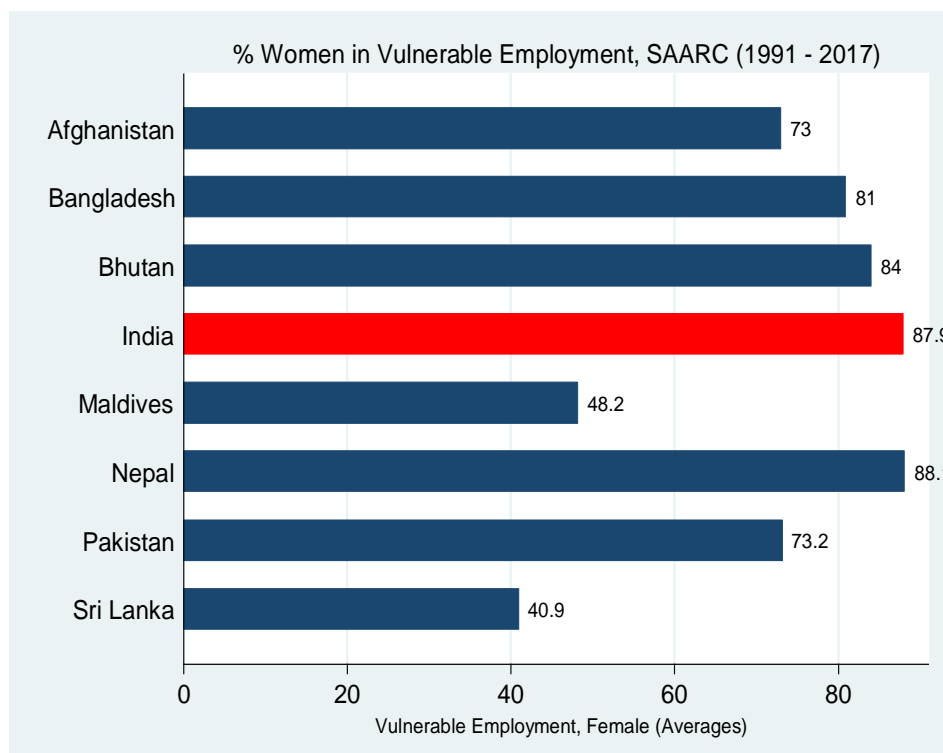
Figure 4: Trend Analysis of Female in Vulnerable Employment, Asian Region and India (1991-2017)



Source: Authors

India’s statistics within its regional economic bloc, the South Asian Association for Regional Cooperation (SAARC), which comprises eight (8) countries: Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, and Sri Lanka are not significantly different from those obtained from the entire Asian region. The information gleaned from the data as shown in Figure 5 revealed that India (87.9 percent) dipped slightly below Nepal (88.1 percent) as the country with the second-highest percentage of women in vulnerable employment.

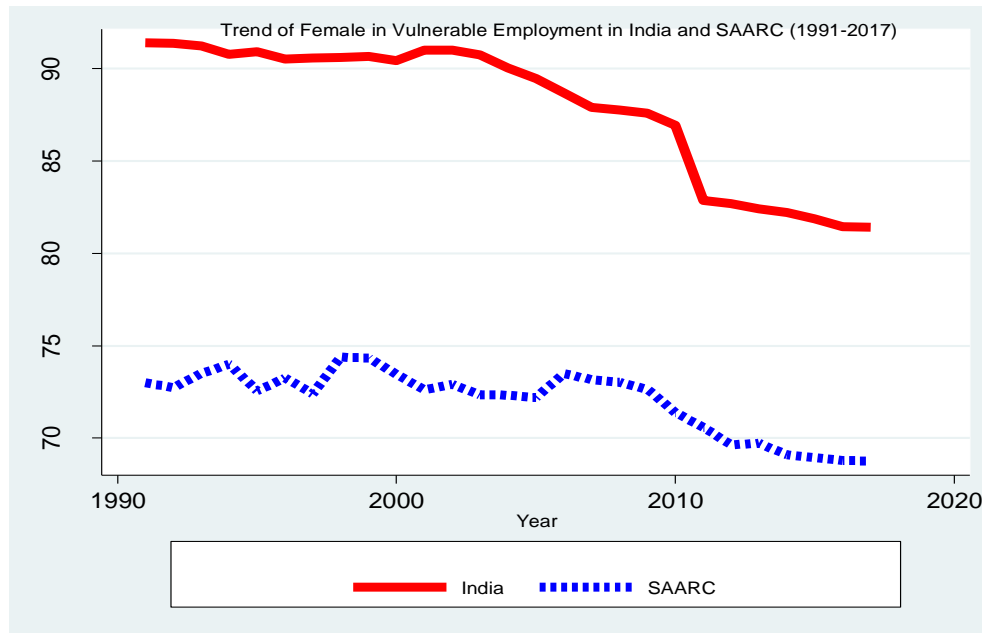
Figure 5: Histogram of Female in Vulnerable Employment, SAARC States (1991-2017)



Source: Authors

Followed by Bhutan (84 percent), Bangladesh (81 percent) and Pakistan while those with the lowest percentages are Sri Lanka (40.9 percent) and the Maldives (48.2 percent). The trend analysis of India and SAARC shown in Table 6 reveals that the former towers far above its regional bloc on the percentage of women in vulnerable employment.

Figure 6: Trend Analysis of Female in Vulnerable Employment, SAARC States (1991-2017)



Source: Authors

Econometric Modeling and Results

Having shown some stylized facts on the historical analysis of women in vulnerable employment in India, it is pertinent to engage some scientific analysis. Given that India is the largest economy in Asia, this present study attempts to deal with the following research questions: (1) To what extent does vulnerable employment influence economic growth and (2) what are the contributory impacts of women in agricultural, industrial and services sectors on economic growth given the vulnerability in employment? To answer these questions, the study uses quarterly data (a re-structured annual data to control for small sample bias) from 1991q1 to 2017q4. The variables are sourced from World Development Indicators (WDI) and they are as described in Table 1. The empirical technique adopted is the two-stage least squares instrumental variables technique (2SLS-IV). The reason for adopting this technique is to control for the endogeneity of the vulnerability variable and the econometric models are specified as:

$$\ln GDP_t = a_0 + a_1 \ln VE_t + \gamma Z' + u_t \quad [1]$$

$$\ln GDP_t = b_0 + b_1 \ln VE_t + \varphi Z' + \eta X' + e_t \quad [2]$$

where $\ln GDP_t$ is the natural logarithm of gross domestic product the measure of economic growth; $\ln VE_t$ is the natural logarithm of the percentage of female in vulnerable employment; Z' is the vector of instrumental variables in natural logarithms; X' is the vector of sectorial representation of female in agriculture, industry and services variables in natural logarithms; $a, b, \gamma, \varphi, \eta$ are parameters to be estimated and u_t, e_t are the error terms.

Equation [1] addresses the first research question and Equation [2] is the augmented Equation [1] designed to proffer answers to the second research question the results of which are detailed in Table 2.

Table 2 2SLS-IV Regression Results (Dep. Variable: GDP, log)

Variables	[1]	[2]	[3]	[4]
Constant	79.1845*** (37.16)	52.0694*** (5.18)	36.3822*** (5.76)	-8.5085 (-1.00)
Vulnerable Emp. log	-11.5023*** (-24.16)	-1.3287 (-0.36)	-3.1235** (-2.50)	6.0292*** (3.53)
Agriculture Emp., log		-4.3533*** (-2.84)		
Industry Emp., log			2.0140*** (7.05)	
Services Emp., log				3.3076*** (10.45)
Instruments	Female-Family, Self-Emp.	Agriculture, Female-Family, Wages	Industry, Female-Family, Self-Emp.	Services, Female-Family, Self-Emp.
No. of Observations	108	108	108	108
R-Squared	0.845	0.887	0.899	0.928
F Statistic	583.746	411.909	470.599	675.665

Notes: 2SLS: Two-Stage Least Squares; Instrumented: Vulnerable Employment; ***, ** are statistical significance at the 1%, and 5% levels respectively; *t*-statistics (in parentheses) are based on White heteroscedasticity-consistent standard errors.

Source: Authors' Computations

Having instrumented with the percentage of female contributory family workers and those in self-employment, the study provides evidence as shown in column 1 that a percentage increase in the number of females in vulnerable employment is associated with a decline in GDP by 11.5 percent, on average, *ceteris paribus*. This relationship is statistically significant at the 1% level. These results support hypothesis that the work-force in vulnerable employment are often sub-optimally engaged in very poor working conditions which eventually yields low labour productivity leading to a dip in economic growth at the aggregate. Augmenting the model with the inclusion of females in agriculture sucks out the statistical relevance of the vulnerable employment variable. However, the findings shown in column 2 are as expected. Increasing the percentage of women in agriculture is associated with a decrease in GDP by 4.35 percent, on average, *ceteris paribus* at the 1% statistical significance level. This buttresses the conjecture that since agriculture is still predominantly subsistence, its contribution to GDP is abysmally low. The inclusion of women in industry slows a positive impact on GDP (2.04) at the 1% statistical significance level, on average, *ceteris paribus* while vulnerable employment shows a negative impact. These findings are as anticipated. With industrialisation, upscale production technology is involved in boosting labour productivity and eventually economic growth. However, the argument for vulnerable employment still holds. An increase in this type of employment will cause a dip in economic growth (-3.12) as shown in column 3.

Lastly, the model is augmented with the inclusion of women in services there is a clear and significant departure on the impact of vulnerable impact. Findings reveal a positive and statistically significant at the 1% level indicating that increasing vulnerable employment while controlling for females is the services sector increases economic growth by 6.03 percent, on average, *ceteris paribus*. This outcome may not be unconnected to the fact that with information and communication technology which is the backbone of the services sector, the likelihood of increasing labour productivity is very high (Adeye & Eboagu, 2019). This is because less time and traveling is lost with more time devoted to service delivery, hence increasing labour output. Likewise, the results of the services variable are as anticipated.

Evidence shows that a percentage change in the number of females in the services sector has a positive contributory impact on GDP at the 1% statistical significance level, on average, *ceteris paribus*. On the goodness-of-fit, the model stipulation illustrate that the amount of variation in the GDP give details by the regressors varies from 85 percent to 93 percent and the *F*-statistics point out that the regressors are together significant in elucidating economic growth.

Conclusion and Policy Recommendations

Informal workers often encounter difficult working conditions with adverse overall consequences on the economy. Hence, this study examines female vulnerable employment in India's informal sector and impact on economic growth using quarterly data from 1991q1 to 2017q4 and a blend of descriptive and econometric analysis (2SLS-IV technique).

From the descriptive analysis, some of the compelling findings are: (1) larger percentage of female are engaged in vulnerable employment, (2) India's female employment is largely concentrated in the agricultural sector relative to the industrial and services sectors, (3) a larger proportion are self-employed and (4) a growing percentage contribute to the family income as breadwinners, (5) India has the highest percentage of female in vulnerable employment in the whole of Asia and second to Nepal among SAARC countries. Likewise, results from econometric simulations suggest that (1) increasing the number of female in vulnerable employment stifles economic growth, contrary to expectations, (2) increasing female employment in the agricultural sector significantly reduces economic growth, while (3) increase in female employment in both industrial and services sectors stimulate economic growth significantly.

The policy outcomes of these results are not far-fetched. It is noted that decent work for all workers is a global objective for achieving the Sustainable Development Goals (SDGs) and for promoting humane globalization. Therefore, the Indian government and concerned stakeholders must institute workable frameworks that can provide the necessary impetus to raise both the level of productivity and employment which the aim of attaining higher and additional continued levels of economic growth. There is the urgent need for the formalization of informal enterprises as a way of increasing decent employment. To ensure this occurs, the government should take measures on key elements of decent work indicators such as the abolishment of child labour, not allowing children to do work in hazardous occupations, no forced labour, place ceiling on maximum number of hours of work, ensure stability and security of work, gender equality, opportunity for career growth, safety at work-place and social security. Appointing an adequate number of labour inspectors to check on the implementation of labour laws is needful in ensuring compliance. Workers voice should be considered while making decisions which will affect their interests which includes but not limited to: wages, working hours, rationalization, and automation, working hours, dispute redress and other industrial relations. It should be ensured that the work should be productive and give adequate earnings and ensure equilibrium between supply and demand for labour.

References

- Adeleye N., Eboagu C. (2019). Evaluation of ICT Development and Economic Growth in Africa. NETNOMICS: Economic Research and Electronic Networking, DOI: 10.1007/s11066-019-09131-6
- Annual Report to the People on Employment, GOI, Ministry of Labour and Employment, 1 July 2010
- ILO (1999). Decent Work: Report of the Director-General, International Labour Conference, 87th Session, ILO, Geneva. ILO. (2009). Trends Econometric Models, May 2009, ILO, Geneva.
- Kalleberg, A. L. 2011. The Rise of Polarized and Precarious Employment Systems in the United States, 1970s to 2000s, New York, Russell Sage Foundation
- Krueger, P., Brazil, K., Lohfeld, L., Edward, H. G., Lewis, D. and Tjam, E. 2002. Organization specific predictors of job satisfaction, BMC Health Services Research, vol. 2, no. 1, 6
- Land, K. 1975. The role of quality of employment indicators in general social reporting systems, American Behavioral Scientist, vol. 18, no. 3, 304–332
- Mbaye, A. A. and N. Benjamin (2014). Informality Growth and Development in Africa, in Journal of LincMonga (Eds), The Oxford Handbook of Africa and Economics.
- Paula Kantor, Uma Rani, Jeemol Unni (2006). Decent Work Deficits in Informal Economy Case of Surat, Economic and Political Weekly, Vol. 41, No. 21 (May 27 - Jun. 2, 2006), pp. 2089-2097.

- Quinlan, M., Mayhew, C. & Bohle, P. (2001a) "The Global Expansion of Precarious Employment, Work Disorganisation, and Occupational Health: Placing the Debate in a Comparative Historical Context", *International Journal of Health Services*, 31(3):507-536.
- Report of the Committee on Unorganised Sector Statistics, National Statistical Commission, GOI, February 2012.
- Staines, G. L., and Quinn, R. P. 1979. American workers evaluate the quality of their jobs, *Monthly Labor Review*, vol. 102, no. 1, 3.
- Wnuk-Lipinski, E. 1977. Job satisfaction and the quality of working life, *International Labour Review*, vol. 115, no. 1, 53-64

Biographical Notes

Ngozi ADELEYE is a researcher and lecturer in the Department of Economics and Development Studies, Covenant University, Nigeria and a Senior Research Fellow at the Centre for Economic Policy and Development Research (CEPDeR). A graduate of Ogun State University, Nigeria and University of Sussex, UK. She is quantitative-inclined with proficiency in Stata, EViews and SPSS analytical software. She is the Tutor and Creator of CrunchEconometrix www.cruncheconometrix.com.ng; <https://www.youtube.com/c/CrunchEconometrix> a digital platform dedicated to teaching hands-on applied econometrics to beginners and intermediate-level researchers. Her digital platform has become a succour for students and researchers across the globe. Her research interests revolve on issues related to Sustainable Development Goals (SDGs) such as income inequality, institutions, financial, monetary, industrial and agricultural economics with some of her works presented in local and international Conferences.

Yasmeen SULTANA is working as Assistant Professor of Economics at Pondicherry University, School of Management, Puducherry, INDIA. She has gained 10 years of teaching and research experience and three candidates are pursuing Ph.D under her guidance. Her research interests are in women empowerment, microfinance and Gender Studies.

Abdul JAMAL (Corresponding author) is working as Assistant Professor of Economics at The New College (University of Madras), Chennai, INDIA. He has gained 12 years of teaching and research experience and four Ph.D awarded under his guidance. Further, he has visited three countries for academic purpose and has a number of publications in reputed journals. His research interest areas are women empowerment, microfinance and developmental economics.

Mohamed NAZEER is working as Assistant Professor of Economics at The New College (University of Madras), Chennai, INDIA. He has gained 10 years of teaching and his research interest areas are Migration, International Trade and Developmental Economics.

Arumugam SANKARAN is serving as a Faculty Member in the Department of Economics, School of Management, Pondicherry Central University, Pondicherry, INDIA. He has gained 14 years of teaching and research experience, and completed three Ph.D. Further, he has visited six countries for academic purpose, completed one major research project-sponsored by ICSSR, New Delhi and published twenty articles.