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Determinants of Female Labor Supply and Female Wage Form

A Quantitative Analysis on the factors that influence Female Labor Supply and Female Wage Form in the Labor Force of the Gambia.

by

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Abstract

This study investigates the factors that influence female's labor supply and their wage forms. Human capital, demographic, social, and cultural factors were used to explore their impact on female labor supply and female wage form using a multinomial logistic model. The data for this study were employed from the Demographic and Health Survey (DHS) conducted in the Gambia in 2013. The result indicated that women in the urban areas are more likely to be in the category working than worked in the past 12 months compared to rural women who are mostly involved in seasonal work. The result for wage form and area of resident implies that a change from rural to urban increases the person's chances of receiving wages in cash. While the result for educational attainment and female labor supply implies that the chances of someone having primary education and been in seasonal work is higher than the person with no education. For education and wage form, the result implies that the chances of someone having no education and receiving in-kind wages are higher than the person with primary education. Thus, the need for government to implement targeted policies to avoid the exploitation of women in the labor force.

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Abbreviations

DHS	Demographic and Health Survey
ILO	International Labor Organization
EC	European Commission
USAID	United States Agency for International Development
FAO	Food and Agriculture Organization
GWEP	Gender and Women Empowerment Policy
NPAGW	National Policy and Advancement of Gambian Women
UNCDF	United Nations Capital Development Fund

1 Introduction

1.1 Research Problem

Bridging the gender gap in achieving equal economic opportunities is a course for concern in the development of any economy and in achieving Sustainable Development Goal number one (Poverty Reduction) goal number five (Gender Equality), and goal number eight (Decent Work and Economic Growth). Despite the continued addressing of gender disparities in achieving economic opportunities by policymakers, there still exist disparities between women and men both in terms of labor force participation rates and the wage levels paid to them. Thus, Economic Participation and Opportunity form the second-largest gender gap in the world (Global Gender Gap Report 2020). According to the European Commission (2021), women remain underrepresented in the labor market compared to men. This implies that, on average, there still exists a 14.5% gap in terms of labor force participation rate and 20.5 % in terms of wages between men and women as of 2017 (ILO, 2018). Hence, the economic loss caused by gender employment disparities equals €370 billion per year (European Commission 2021). Gender discrimination in the labor markets of developing countries mostly includes various aspects: females been paid less than men for doing similar works, worse career prospects, fewer opportunities of vocational education and more precarious jobs in general, and also limiting females to participating in very little paid unskilled jobs. This leads to blocking women from getting access to better-paid works especially in agricultural sectors of developing countries.

However, looking at all these factors, there is a plethora of literature that focuses on female labor force participation, and female wage rates while the factors that influence whether women receive wages in kind or cash in labor markets remain neglected. Payments in kind are often regarded as a reflection of underdeveloped markets and that it therefore may be beneficial to workers. Thus, this is implicit in the view of Kurosaki (2011), which is later discussed in the theoretical approach of this paper. In-kind payments are defined by the ILO as noncash payments earn by an employee for work done. Whiles in cash payment is defined as the payment of wages in monetary forms (ILO, 2015). This is composed of food, drink, fuel, clothing, footwear, free or subsidized housing or transport, electricity, car parking, mortgages to name a few. Hence, the ILO Protection of Wages Convention 1949 (No. 95) “allows for the partial payment of wages in the form of allowances in kind in industries or occupations in which payment in the form of such allowances is customary or desirable because of the nature of the

industry or occupation concerned” (ILO, Article 14b). However, there still exists a risk of employee exploitation regarding in-kind payments especially when there are no legislative protections to safeguard employment processes. Notwithstanding, few countries follow some measures identified by the ILO like “prohibiting in-kind payments as part of the minimum wage”, an example of this is Spain’s legislation, which permits 30% in-kind payment as part of the wage payment but restricts in-kind payment for minimum wage earners and the same trend goes for Cambodia too where in-kind payments are excluded for minimum wage earners. “Setting a maximum level” (ILO 2015) is another measure used by few countries like Switzerland, where food and housing can be valued up to a maximum of 33CHF per day in their local work environment and a similar trend goes for France. Whiles in Senegal and Chat “limiting the value of in-kind benefits to a multiple of the minimum wage” (ILO 2015), they match the value of a single meal equivalent to an hour working at the minimum wage. The ILO (2015) also stressed that all in-kind payments should be included in the social security of the employees. For instance, if the minimum wage is 100 dollars per month and 20% is paid in kind then the social security contributions should still be 100 dollars and not 80 dollars. However, there is limited evidence as to whether most countries are following these measures as required by ILO especially developing countries.

Furthermore, most agricultural works in developing countries are seen as selective work based on one's gender. For instance, some works are classified as women jobs such as transplanting and weeding that receive very low payment and mostly received it in the form of in-kind payments compared to the wage payment allocated to other agricultural activities often done by men that rewarded in cash (Swain, et, al. 2019). Other authors, Cramer, Sender & Oqubay, (2020), also highlighted in their study that most women in Sub-Saharan Africa are often categorized as contributing family workers than men. Additionally, most of these women are engaged in either seasonal wage work or are into employment based on commission. Based on this consideration, the ILO, (2019a) regarded gender inequality as a global phenomenon that comprises both unequal opportunities to the labor market and unequal access to good working conditions. This indicates that female laborers especially in developing countries are faced with discrimination both in wage payments forms, employment rates, and wage rates.

Coming to Sub-Saharan Africa, the Global Gender Gap Index shows that most Sub-Saharan African countries are still placed at the bottom of the ranking list in terms of economic opportunities for females in the labor market. Hence this raises a question about the

inclusiveness of Africa's development trajectories. Louise Fox, the Chief Economist for United States Agency for International Development (USAID), argues that despite the economic growth in the non-farm sectors of Sub-Saharan African countries, this sector does not and will not create sufficient new non-farm wage jobs to employ both the recruits and for those that are willing to leave the agricultural sector for the non-farm sector (Cramer, Sender & Oqubay, 2020). She attributed this to the current demographic trends and structure of Sub-Saharan African countries. In the light of this, she highlighted two main supply-side challenges that will keep on affecting the region as a whole and these include: firstly, she argued there will be an excess supply of labor since fertility rates in Africa will not decline massively as it happens remarkably in other regions like the East Asian economies. Secondly, she argued that one should not expect the private sectors in Sub Saharan Africa to extend wage employment in international competitive firms rapidly because it needs a longer time for schools in rural Africa to boost the literacy and number of students to provide enough new workers with at least a basic education (Cramer, Sender & Oqubay, 2020).

However, there is literature that highlighted that Sub-Saharan Africa has been experiencing "miraculous growth" Thorbecke & Ouyang,(2016.) over these years. According to these authors, Sub-Saharan Africa has started catching up with the rest of the world and this has been associated with the structural transformation as its main driver. They highlighted that starting from the 2000s, the Sub-Saharan Africa region has experienced a sudden increase in the process of growth, massive reduction in poverty, and considerable improvements in human development indicators with a better inclusive process of growth. Based on this consideration, they indicated that the continued structural transformation has resulted in an increase in labor productivity and contributed to stimulating growth in a more inclusive manner. However, some researchers have given another view on this matter and highlighted that part of the reasons why growth is not impacting poverty and gender equality is because Africa's growth has not been accompanied by an increase of decent employment opportunities. Based on this consideration, Armah & Baek (2015) highlighted in their studies that about 70% of jobs in sub-Saharan African countries are regarded as vulnerable. This is based on the highest number of the population in Africa are in the agricultural sector, thus according to ILO report, the job environment of agricultural workers or wage earners are described as very low forms of labor, bad working conditions that's goes along with limited or no social protection. In this, the transportation conditions for laborers to and from their agricultural farms are not conducive with high exposures to pesticides and other forms of agrochemicals that can be seen as a high occupational risk.

1.1.1 Gambia – Overview

The Gambia is ranked as a low-income country located in mainland Africa (World Bank, 2019). The country has a total population of 2.3 million of which 1.3 million are of the age 15 years and above and the 1 million are of the age 0-14 years (World Development Indicator 2020). The 2015/16 Integrated Household Survey of the Gambia results show that the population of The Gambia has increased by 3.5 percent since 2013 with 47.6 percent being male and 52.4 percent being female. It further shows that the Gambia has a young population with more than 70 percent are below age 30 and 44 percent under age 15. This reveals a high dependency ratio that has implications for youth and women empowerment projects and social protection schemes. Furthermore, The Gambia Labour Force Survey (GLFS 2018) Analytical Report, shows that the number of employed persons out of the total population is 431,168; of which 275,939 are males and 155,229 females, meaning there are more employed males than females (GLFS 2018). Regarding youth employment, there is 377,326 youth who are actively participating in the labor force, of which 54.4 percent are males and 45.6 percent females (GLFS 2018).

Moreover, about 70% of the labor force is employed in the agricultural sector (FAO, 2019). According to the Gambia Labor Force Survey (2018), the Gambia does not have minimum wage and the workers union is just provided for by the Labor Act. Regarding the rural areas of the Gambia, agriculture is the main occupation for both the poor and the nonpoor whiles in the urban areas, there is a mixture of agriculture, crafts, trade, and sales and services are the main occupation with most of the nonpoor engaged in sales and services sector. Regarding the labor market participation rate in the rural Gambia, it is composed of semi-subsistence agriculture where both women and men grow crops and a little bit of livestock rearing. However, men do focus more on the cash crops like groundnut which is the main exporting crop in The Gambia and women do focus on the food crops like rice and maize that is mostly used for daily family meals. Additionally, men also have bigger control over income than women. According to World Bank (2019c), disparities between rural and urban and gender differences are what affect the role of labor markets in helping households to move out of poverty. The Gambia compared to other Sub-Saharan countries has the highest labor market participation for the working-age group 15- 64 but with a massive rural-urban divide especially for women. Thus, the general

labor force participation rate for the Gambia is 64.2% greater than that of its neighboring countries like Senegal, Mali, and Sierra Leone that stand at 60.6%, 59.4%, and 58.1% (World Bank 2020). However, the labor force participation rate for urban women remains a challenge with only 30% of urban females participating in the labor force whiles males labor market participation rates constitute the remaining 70% (World Bank 2020). Thus the limited labor market participation rates for women lead to low productivity thereby keeping women inferior to men by depending on the income of men and this gives them a little say in household decision making. About 30% of the working-age youthful population in The Gambia are regarded as not in education, employment, or training is known as NEET (World Bank 2020). Notwithstanding, the number is higher in urban areas where a quarter of the youthful male population and almost half of the youthful female population are all in the NEET group. The NEET category doesn't only affect the long-run employability but it as well leads to high social risk particularly in the urban areas. Thus part of the reasons why it is important to study factors affecting female labor supply in the Gambia.

However, The Gambia over the years has become cognizant of the disparity between men and women in all sectors, thus has adopted numerous policies to enhance the integration of women in the socio-economic development process as equal partners and beneficiaries with men. These initiatives were made against the backdrop of significant poverty. The Multi-Dimensional Poverty Index (MPI) 2019 reflects the incidence of poverty and the average intensity of deprivation estimated that 10.1 percent of the population live below the income poverty line \$1.90/day, representing 32% in severe multidimensional poverty and 21.8% vulnerable to multi-dimensional poverty. It is estimated that the national poverty line stands at 48.6% (2015). Based on this consideration, The government of the Gambia implemented the Gender and Women Empowerment Policy (GWEP) 2010-2020 that replaced the National Policy for the Advancement of Gambian Women (NPAGW) of 1999 which hitherto provided a point of reference for addressing gender inequalities at all levels of government and by all stakeholders. Thus, NPAGW contributed to a significant increase in awareness of the correlation between gender and development, increased enrolment and retention of girls in schools, improved health care, encouraged women participation in decision making, and reduction of gender stereotyping and discrimination. However, GWEP noted that due to the conflation of issues such as high fertility rate amongst women, low education, heavy domestic engagement, and lack of political participation, women's access to employment remains elusive, and where they are employed they find it difficult to make it to the top. Based on these factors, one can partly explain why it

is difficult for women to escape the revolving doors of poverty in the Gambia. The policy covers the following themes: Gender and Education, Gender and Health, Gender and Sustainable Livelihoods Development, Gender and Good Governance, Gender and Human Rights, Poverty Reduction, and Economic Empowerment. In terms of women's equal participation in the labor force, GWEP calls for the creation of a favorable environment for equal employment opportunities and benefits for women, men, girls, and boys. The UN Capital Development Fund (UNCDF) in 2019 highlighted that the uneven participation of women in the workforce is lower than men with over 57% of women economically inactive. Equally, the report supports the proposition that women on average earn \$ 700 less in relation to men with lower levels of education. Due to domestic work, time allocated to taking care of the home and children affects women's mobility. Over one-third of men surveyed (38%) think that husbands should control their wives' use of financial services. The latter illustrates some of the norms that affect women's participation in the Gambia. Given these statistical results, cultural biases, couple with inequality, and other social and economic inventions, gender sensitivity still remains a challenge. Cultural and other forms of biases still remain a challenge, and that has to be solved if any meaningful strive is to be registered in gender inclusion and sensitivity. To be sensitive simply means to be appreciative of others' feelings, and in strict gender parlance, it will simply mean being considerate to the needs, and feelings of the other gender. This is important, because, both men and women think differently and thus have their peculiarity of needs and wants. Therefore, creating a balance and a positive response to their independent needs and peculiarities' is important for not only ensuring an inclusive society but a just and equitable sense of existence between men and women

1.2 Aim and Scope

This study aims to empirically investigate the factors that influence female labor supply and whether female receive their wages in kind, in cash, or both forms in the labor force of The Gambia. Thus, this paper will answer the research questions: *what factors influence women's labor supply in The Gambia? And what factors influence whether Gambian women receive wages in kind, cash or both?* This will be addressed by employing the human capital, demographic factors, and other social and cultural factors that affect women's decisions and behavior in the labor market of Gambia. In this regard, 2013 Demographic and Health Survey Data (DHS) will be employed by running a multinomial regression to retrieve results.

This thesis will be related to previous research done by Cramer et, al. (2020) and Swain et, al. (2019) who conducted a study in gender inequality in rural labor markets in developing countries on the female wage rate, female wage forms, and types of work. Additionally, the work of Kurosaki, (2011) will also serve as a guide regarding the determinants of in-kind wages in developing Asian countries both in historical and contemporary evidence. However, in terms of techniques, this paper employed a multinomial regression model that came out as the best for the dependent variables employed. This study is the first to write on the said topic in the Gambia. Hence, the empirical evidence will serve as a guide for policymakers and future researchers in the Gambia and Sub-Saharan Africa at large.

1.3 Outline of the Thesis

This study is divided into six main chapters. Chapter 2 reviews the available literature and developed a theoretical approach for this paper. Chapter 3 described the DHS data and gives a descriptive statistic of individuals who partake in the survey. Chapter 4 demonstrates the empirical model and the multinomial model for this paper and a description of the variables employed for the model. Chapter 5 explains the results of the multinomial regression and then the discussion follows. Chapter 6 concludes, gives limitations of the studies then recommendations for policymakers and future researchers.

2 Theory

2.1 Previous Research

2.1.1 Economic Development, Education and Female Labour Supply

The status of women in the workforce is not only driven by their wage rates but also by their participation rate. To start with the participation rate of women in the labor force, Folasade & Olarewaju, (2019), indicated in their study that, during the initial stages and process of economic development, there is a massive rise in blue-collar jobs leading to an increase in employment due to urbanization and industrialization as seen in the development of the manufacturing sector. Hence during the shift from subsistence agriculture to the industrialized and labor-intensive economy, female labor force participation decreases as a result of the high demand for men's input compared to females' inputs (Lechman, 2014). These authors also argued that a decrease in female labor force participation during the movement from agriculture to an industrialized and labor-intensive economy is also due to a rise in family income. Based on these opportunities from the blue color jobs, male labor force participation rises as well as their wages. However as development picks up in an economy, the innovation of technology and household appliances limits the opportunity cost of time of females in the household. Thus women prefer using this extra time to go to school and increase women's school enrollment and increases their level of educational attainment, which might increase the demand for women in white-collar jobs (Folasade & Olarewaju, 2019). Thus these authors demonstrated that the rise in the demand for females labor leads to an increase in females earnings. Education has been a key variable used by different researchers in framing the supply determinants of female labor force participation and their wage forms.

The Gambia Decent Work Country Program (2015-2017), identified one's level of education as an important factor for a person's job chances. The same document indicated that 9.8% of the total population of the country age 15 years and above have completed primary education, 2.6% completed post secondary education (Certificate/Diploma), and only 0.4% completed university education. These figures demonstrated significantly low educational attainment rates that can negatively affect the availability of skillful Gambians in the labor market of the Gambia. Additionally, 62% of females have never gone to school compared to males with 49% (GDWCP 2015). Based on these statistics, one can see the challenges that women of the Gambia

need to conquer to participate in the labor force of the Gambia. Thus educational attainment still remains a major constraint both in quantity and in quality, especially for the female child.

Another author Golden (1994), found a positive correlation between female education and female labor force participation over the economic development process of a country. She conducted a study on the general u-shaped relationship between economic development and women's labor force participation. According to her as economies transform and women's education advances, women go back into the paid labor force as shown in the movement along the rising side of the U-shaped curve. However, she associated the downward slope of the U shape with the initial presence of a strong income effect, a weak substitution effect, and the movement of production from agriculture to industry. According to this hypothesis, when incomes are very low and some types of agriculture dominating such as poultry farming, cultivation of rice, cotton, livestock rearing, tree crops to name a few, women tend to highly participate in the labor force. In this regard, they are often unpaid workers on their family farms and household businesses or sometimes work as paid laborers. However, as incomes rise in most communities due to a growth in the market and provision of new technology, women's labor force participation tends to decline. In this situation, women's work is often hired by the family and then they incorporate into the homes with mostly the same hours of work. The decline in women's labor force participation was associated with an income effect that might be strengthened by a decline in the relative price of home-produced items and a decline in the demand for women's work in the labor-intensive sector. Whiles the rising part of the U shape according to Golden demonstrates a rise in the educational attainment of women leading to an increase in female labor force participation. However, what is not fully evident is the wage form in which these earnings are received.

2.1.2 Economic Development Area of Residence, Female labor supply

According to a study conducted by Oya (n.d), employment in the rural areas of Sub Saharan Africa is not only restricted to large-scale commercial agriculture as perceived by many but it is also composed of both agriculture and nonagricultural labor. His study indicated that the poorest wage earners in the rural labor force are usually limited to labor that requires very little skill and poorly paid. His result from Mozambique and Mauritania shows that the poorest workers in the rural labor force of these countries are female workers that are involved in household work, agricultural activities, and petty sellers working for another trader. Another

author Magidu (2010) conducted a study in Uganda by exploring the Uganda National Services Delivery Survey of 2008 using logistic regression to analyze the impact of location (urban or rural) on the formal employment status of women. His study found out that, women residing in the urban areas are more likely to participate in the formal sector compared to women residing in the rural areas. This could be because most urban areas in Africa labor force have more employment in the services sector than in agriculture. While agricultural work is the dominant occupation in rural areas and is mostly regarded as informal work. Yuni (2015), used Nigeria's household survey employment data by employing a logistic regression model to examine the determinants of female labor force participation in Nigeria. In doing so, the study result indicated that there is a difference in the determinants of female labor force participation between urban and rural areas of Nigeria. The marital status of women, religion, and poverty rate were significant factors that determine female labor force participation in rural Nigeria. While the age and education level of women were the significant determinants of female labor force participation in urban areas of Nigeria.

2.1.3 Economic Development, Area of Residence and wage form

Payment of wages in kind was part of the important forms of wages in the Chinese urban markets. During this period, many firms lack independence in making business decisions. Wage allocations were highly controlled based on a wage calculation table set up by the central government. In doing so, one's wage level is dependent upon your level of education, area of residence, and skills level. In-kind wage, payments account for 68% of their urban labor force in the 1980s (Li & Zhao, 2003). These authors associated the reason for in-kind payments with two factors; the first is due to the inaccessibility to consumer goods by individuals. Secondly, is due to the employer's evasion of the government's monitoring of wage bills. These in-kind wages are often paid in the form of consumer goods such as food (rice, meat, fruits, coos), hygienic items such as soap, toothpaste, detergents, etc. The reason for in-kind payment in consumer goods in china is because the availability of all kinds of consumer goods was based on market conditions. This market condition was based on two factors, low prices of consumer goods if the person is having a coupon and high prices of goods for cash holders. Thus employees prefer having coupons and be able to have access to consumer goods than been paid little cash that can't meet the market standards of consumer goods. This scenario was worsened by local protectionism, which hinders the importation of commodities from other states. This makes it more disadvantageous for consumers since they won't have access to buy wholesale

goods directly from producers but would have to rely entirely on retail buying no matter the market condition.

However, the importance of in-kind wages declines as the Chinese economy is growing. Coming to the 1990s, the government of China, imposed a hard budget constraint on State Own Enterprises in managing the wage behavior of firms. This regulation leads to a 30% increase in the wages of civil servants and other private enterprises were advised to do the same at their own wish. This urban labor force situation in china supported the view of Kurosaki (2013). He demonstrated in-kind wage payments as a significant component in the initial stages of economic development that has not been recognized in recent economic growth. In this, in-kind wages are seen as crucial elements important for low-income developing countries that can boost the food security of rural dwellers constrained with thin food markets. His findings show that in-kind wage payments were important in the early stages of economic development when markets are thin and no insurance markets available.

However, according to a study conducted by Burnette (2004), in the rural labor force of England between (1740-1850) indicated that the wage book available for recording of wages for workers does not have any recordings under the in-kind wages that were made as part of the wage bill despite having some percentage of the wage allocated to in-kind wage payments. This shows how neglected in-kind payments have been. Their study also showed that the husband's additional earnings due to help in farm work by her wife do not often reflect in the wife's earning. In the case of rural Zimbabwe wages paid to agricultural workers were in the form of both in-kind and cash before the year 2000 (Chambati, 2017). These wage payments were based on an agreement between the employer and the employee due to the lack of strong labor office institutions. However, their studies indicated between the period 2012 and 2014, monthly wages for permanent workers for cash increases from 56 dollars to 79 dollars. What came surprisingly from their study is that the evidence from their data does not indicate that a gender disparity exists in their wage payment forms.

2.2 Theoretical Approach

2.2.1 Socio-Economic Factors, Underdeveloped Markets Female Labour Supply and Wage Form

What has not been studied deeply in recently developing countries is the form of wages received by females in the labor force. Wage forms are defined as the different forms of wages paid by employers to the employee based on labor performed and these can be in the form of wages paid in kind, in cash, piece wages, time wages to name a few (ILO 2015). According to Scholliers, P., & Schwarz, L. (2003), in-kind wages in Groningen for resident workers include wool for maids and sheep graze for men. In the 19th century, men were responsible for maintenance, and overseers in cotton mills receive weekly wages while female reelers were receiving their wages in the form of piece wages. Thus men were paid more than women. (Scholliers, P., & Schwarz, L. 2003). However, one can still use historical studies of wage forms in some Western countries as well as some more recently developed countries. The point is that in Western labor history, payments in kind have been perceived as pre-modern customary practices that were related to lack of coins. As economies developed and monetized, payments in cash became increasingly common. Although “fringe benefits”, in addition to cash wages, have become increasingly common (Scholliers, P., & Schwarz, L. 2003).

Regarding labor demand and the role of employers, one common idea is that some employers use payments in kind (often in the form of credits in a store or housing) as a way of reducing workers’ mobility and tie them closer to the workplace. By offering workers credits in the company store, some workers become indebted and cannot move. This practice is in Western history know as “the truck system” or “truck wages” (The Truck-System, 1842). The truck system was heavily criticized by trade unions and social reformers and banned in many countries (The Truck-System, 1842).

This is probably the origins of the ILO convention. This will lead this paper to a study done by Kurosaki (2011), on payment of wages in kind in the rural areas of some Asian countries and a study done by Swain, et. al. (2019) in the Dhenkanal district of Odisha (India) on gender disparities in the rural labor market. These two studies will be used in framing the determinants of female labor supply and their wage forms. Regarding Kurosaki (2011), he demonstrated in-kind wage payments as a significant component in the initial stages of economic development that has not been recognized in recent economic growth. In light of this, in-kind wages are seen

as crucial elements important for low-income developing countries that can boost the food security of rural dwellers constrained by underdeveloped food markets. His findings show that in-kind wage payments were important in the early stages of economic development when markets are underdeveloped and no insurance markets available. Secondly, post-World War II Japan, shows that in-kind wage payments via meals can appear temporary a few years after the war when there was a food crisis. This was because most of the households in Japan perform farming on their own lands and in-kind wages stopped as soon as their economy regained from the impact of the war thus, in-kind payments are not currently performed in the agricultural labor force of Japan. In this, the Japanese employers saw the provision of meals to others as more of a social obligation than a form of payment for one's labor.

On a contrary view to Japan where most of the household farms were based on family labor, India and Pakistan's was majorly based on hired labor. This is because of the limited availability of lands and the landowners do not practice manual work but would rather choose to be doing more farm management leading to high labor transactions within households. For the case of Myanmar, the theoretical model suggests that when food security is crucial for laborers due to poverty or underdeveloped markets, they tend to supply more labor for jobs that are paid in kind that is food than for jobs that are paid in cash. This hypothesis was consistent with the empirical result that employees tend to supply more labor for jobs paid in kind when the share of the main meal in their household budget is bigger than the farmlands, they produce their food on. That is when workers cannot produce all the meal needed for their households due to limited availability of their own lands and therefore needs to work on someone else's farmland based on wage payment. In this regard, they prefer payment in kind to supplement their household budget for food.

Another determinant of the share of in-kind wages in rural Myanmar is when the household is headed by a female. This variable shows a significant positive coefficient. In light of this, when the household is headed by a female, the in-kind wage payment increases by 80%. This still supports Kurosaki's theoretical model that food security for households affects labor supply since females are the ones mainly responsible for food management in rural Myanmar. However, educational level indicated no statistical significance for female wage forms. Finally, their result also shows that in-kind wages were mostly used as payments when the employer was a large-scale farmer and the employee was regarded as a landless laborer.

Coming to the case of Swain, et, al. (2019), their study was conducted in the Dhenkanal district of Odisha (India) on gender disparities in the rural labor market. Their study focuses on the socio-economic determinants of female laborers in the agricultural sector in comparison to that of male laborers, the form of wage paid to men and women, and the types of work done by agricultural laborers. To them, gender disparities in the labor market of developing countries are not only seen as a phenomenon but are further categorized as a deep-rooted culture that still exists in the labor market of developing countries especially in their agricultural sector. In this, both men and women work in similar work but are paid in different wage forms and wage rates and with differing access to technology, assets, education, and training. These disparities in the wage payment forms are regarded as major factors of gender discrimination in the labor market where men workers receive their daily wages in cash while women receive theirs in kind.

Additionally, male workers as well receive more than females in even female-dominant jobs like weeding and transplanting. Regarding the factors that determined whether women work in the irrigated (limited availability of water) or non-irrigated (farms with year-round availability of water) sectors, their study result reveals that women work more in the non irrigated farms while men concentrate on the irrigated farms. Furthermore, their study shows that women's labor supply is also affected by women's lack of knowledge and expertise in operating certain types of machinery for mechanized jobs. These are all parts of the reasons why more men work in the irrigated and other mechanized sectors compared to women. Moreover, they demonstrated that female laborers depend on more on-farm activities than male laborers. In this regard, female laborers are paid less than male laborers for doing similar labor and most of the women as well receive those payments in kind instead of cash while men received all their payments in cash.

Based on these considerations, this paper will not only focus on the socio-economic factors that influence female labor supply but will also explore the factors that determine women's wage forms in the labor market of the Gambia. "In contrast to Swain et al (2019), the paper is focusing on female labor supply and wage form, rather than differences between men and women. The paper is also focusing on female labor supply and wage form and not men as in the case of Swain et al., (2019). Thus, in doing so, the work of Kurosaki (2011) and Swain, et al., (2019) on the socio-economic determinants of female agricultural laborers and the wage forms they receive as payment for their job will be used in framing the determinants of female labor supply and their wage forms for this study. Thus, this study will explore the factors that influence

female labor supply and their wage forms in the labor market of Gambia. Kindly see below is the framework for this study

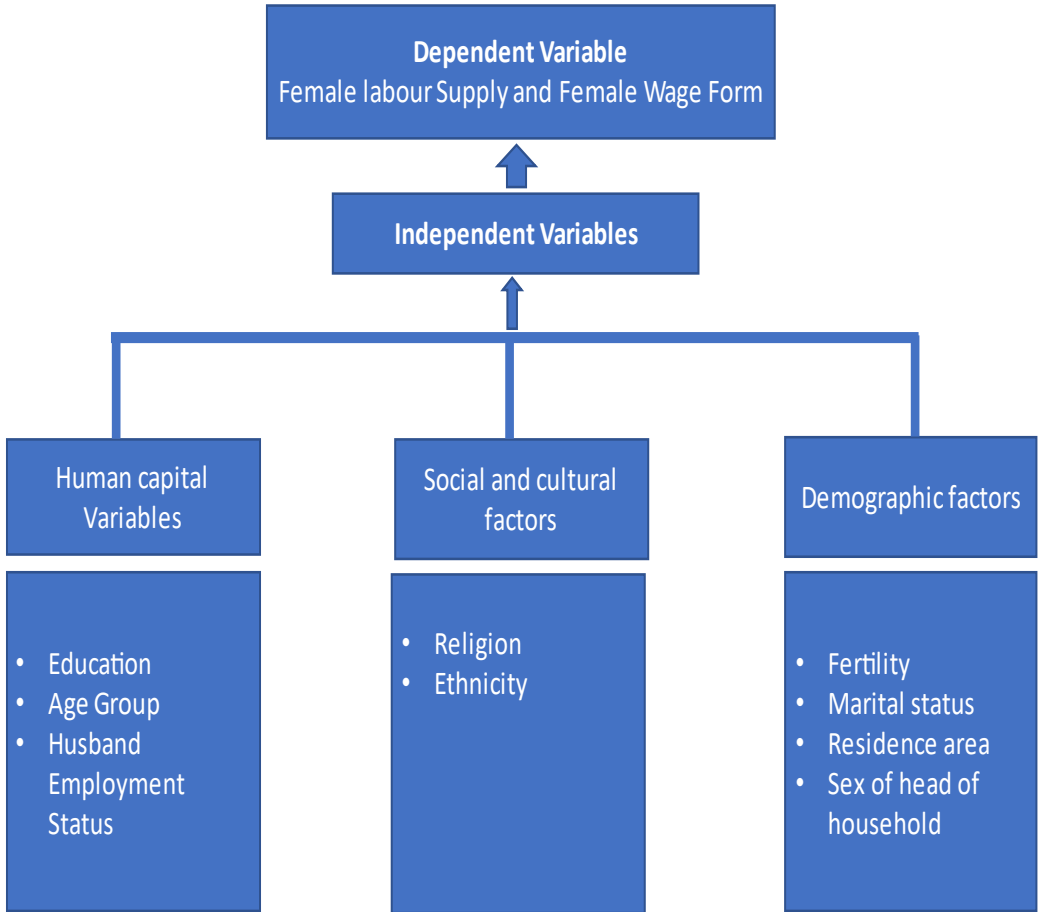


Figure 1: Theoretical framework

3 Data

3.1 Source Material

The data in this study have been obtained from the Demographic and Health Survey Data (DHS) 2013 conducted in the Gambia. The DHS Program is a five-year project to assist institutions in collecting and analyzing data needed to plan, monitor, and evaluate population, health, and nutrition programs. The DHS Program is funded by the U.S. Agency for International Development (USAID). The project is implemented by ICF in Rockville, Maryland, in partnership with the Johns Hopkins Bloomberg School of Public Health/Center. The DHS survey conducted in the Gambia used a two-stage stratified sampling method, one method is a cluster selection method, with a total of 281 clusters (9038 urban and 17563 rural). The other method is the household selection procedure. 26 households were involved per cluster that is 7306 households. The age of women eligible for an interview is 15-99 years.

One reason for choosing the DHS data is that different researchers have highlighted that most household surveys in Africa often fail to capture the different types of work that women do over the year. One reason the DHS data was chosen over all other available data sets because it includes both the types of work and wage forms of females that are utilized as the dependent variables for this study. The DHS data is also more internationally used compared to other data sets in the Gambia. The DHS data has been conducted in almost all Sub-Saharan African countries and similar researches like this paper have been conducted using the DHS data set.

3.2 Descriptive Statistics

This study has the advantage to be the first to explore the factors that influence female labor supply and female wage forms in The Gambia according to my knowledge. The data used in this study comes from a women’s survey participating in the labor force. Thus, this section explores the effects of the female labor supply and their wage forms.

3.2.1 Female Employment Status and Female Wage Form

The different categories of employment matters for female labor force participation in the Gambia. Information on employment status comes from the women’s questionnaire. The data indicated that the category “working” accounts for 80% of the female participation rates. Out of 3416, females in the sample, 80% are found in the “working” category while only 3% are seasonal and the remaining in the category working past 12 years at the time of the survey.

For wage forms, the information from the questionnaire indicated that out of 3416 females in the sample, 52% are found to be receiving their wages in kind, 39% receive in both while only 9% receive in cash.

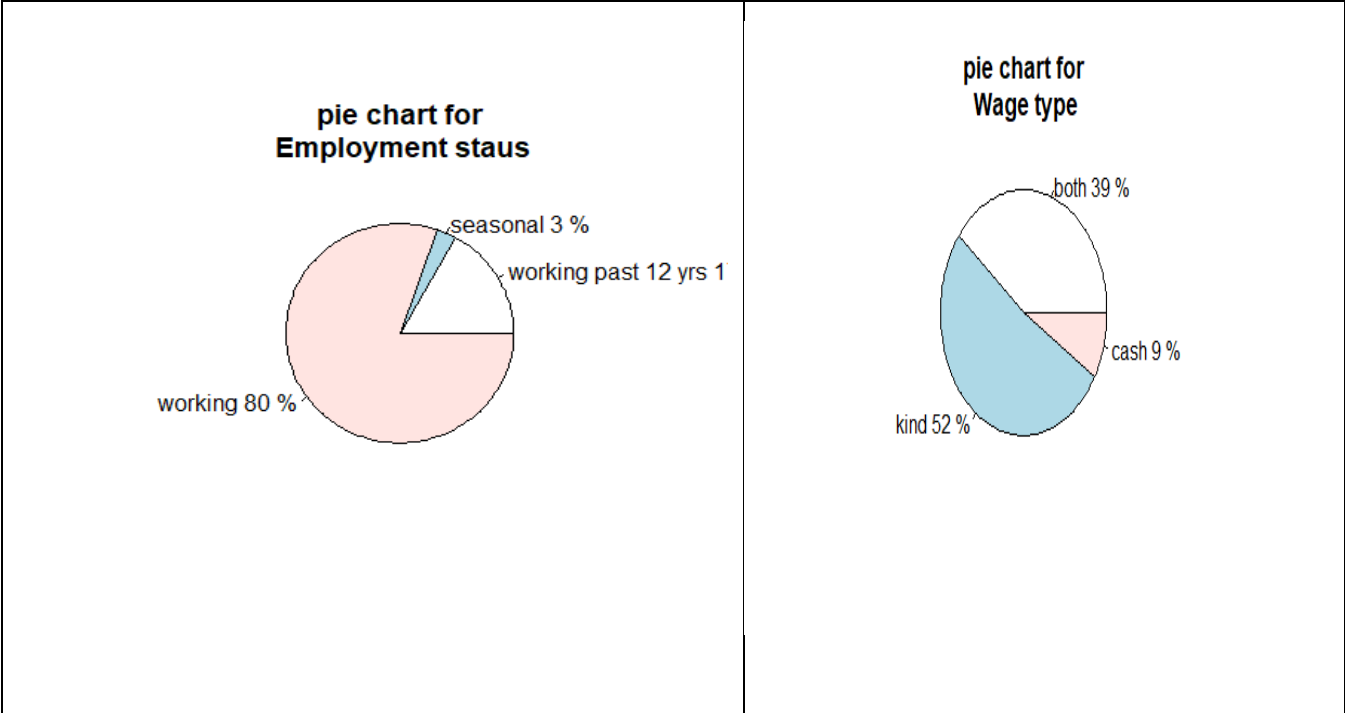


Figure 2: Percentage share of female employment status and female wage form in The Gambia

3.2.2 Female Employment Status and Wage Form for Area of Resident

The information on the area of residents indicated that females in the rural areas were found to be dominant in all categories of employment. Additionally, females of rural were also found to be dominants earners for all forms of wages.

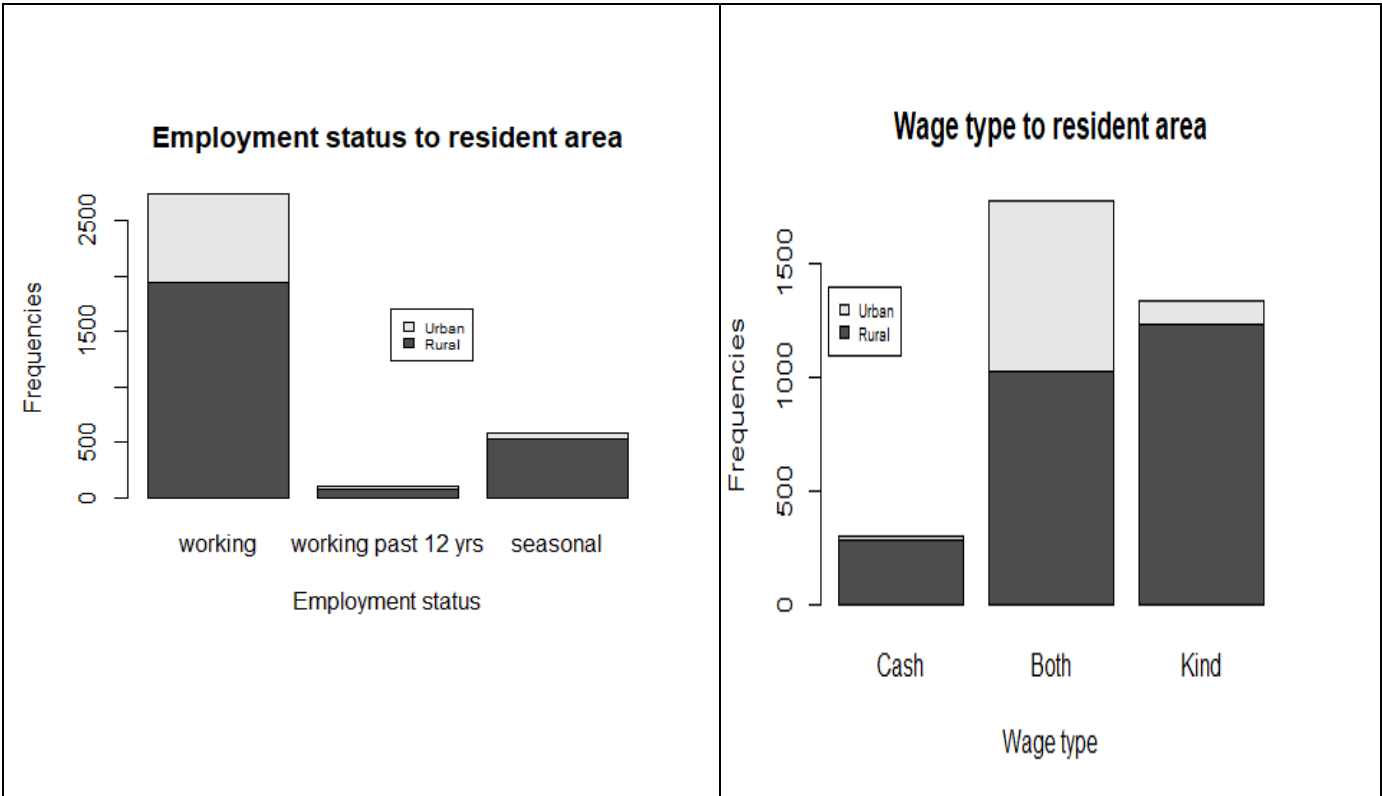


Figure 3: Female employment status and wage forms for the area of residence

3.2.3 Women in The Gambia

The DHS data for the Gambia provides valuable information on the conditions of females in the labor force of the Gambia. Table 1 provides the differences in educational levels, employment status, and wage forms between urban and rural women in the labor force. It can be observed from the table that urban women have secondary and higher educational attainments compare to rural women. For employment status, more females in urban are found working at the time of the survey than rural. Whiles more rural were found to work in the past 12 years than urban ones. For wage form, the information indicates that females in the urban

receive more in-kind payment than rural. Whereas females in the rural receive more cash payments than urban ones.

Table 1: Area of resident levels of education, employment status, and wage forms

	Rural (N=2543)	Urban (N=873)	Total (N=3416)	p value
Education				< 0.001
Primary	286 (11.2%)	93 (10.7%)	379 (11.1%)	
Higher	3 (0.1%)	81 (9.3%)	84 (2.5%)	
No education	2132 (83.8%)	506 (58.0%)	2638 (77.2%)	
Secondary	122 (4.8%)	193 (22.1%)	315 (9.2%)	
Employment_status				< 0.001
Seasonal	69 (2.7%)	27 (3.1%)	96 (2.8%)	
worked past 12 yrs	523 (20.6%)	53 (6.1%)	576 (16.9%)	
Working	1951 (76.7%)	793 (90.8%)	2744 (80.3%)	
Wage Forms				< 0.001
Cash	279 (11.0%)	20 (2.3%)	299 (8.8%)	
Kind	1030 (40.5%)	749 (85.8%)	1779 (52.1%)	
Both	1234 (48.5%)	104 (11.9%)	1338 (39.2%)	

Table made using the sample for females in the labor force

4 Methods

4.1 Methodology

Many studies of labor markets, including female labor force participation, analyze binary outcomes thereby employing logistic (or probit, or linear probability) regressions. In reality, however, multiple outcomes are not necessarily ordered, for example, these types of outcomes can be studied by multinomial logistic regressions. The multinomial Logistic Regression technique has various advantages Tabachnick et al. (2012). Firstly, it is more vigorous to breaching assumptions of multivariate normality. Secondly, it is identical to linear regression but way easier to interpret and does not predict a linear relationship between the dependent and independent variables with no assumptions of normally distributed error terms (Bayaga, n.d.). For example, People's occupational desires might be influence by their educational level or area of residence. Thus the occupational status will be the outcome variable. Therefore, these types of outcomes can be studied by multinomial logistic regressions. Based on this consideration, a multinomial logistic regression is used to assess the relationship between the dependent variable (probability to participate in the labor force and also the type of wage-earning) and the independent variables in this study. Modeling of employment processes such as labor supply, labor participation, monitoring and reporting, planning and mitigation, etc is among rather difficult subjects tackled by development specialists especially in applying multinomial logistic regression in the dynamic (social) setting. Invariably though, social science research (Yu, Lai & Wang, 2008; Fan & Xiao, 2006) problems somewhat call for analysis and prediction of dichotomous¹ outcomes. Multinomial logistic regression is used to predict categorical placement in or the probability of category membership on a dependent variable based on multiple independent variables. The independent variables can be either dichotomous (i.e., binary) or continuous (i.e., interval or ratio in scale). Multinomial logistic regression is a simple extension of binary logistic regression that allows for more than two categories of the dependent or outcome variable. Like binary logistic regression, multinomial logistic regression uses maximum likelihood estimation to evaluate the probability of categorical membership. The purpose of this analysis is to understand the multinomial logit model (MLM) that uses the

maximum likelihood estimator and its application in labor supply research. This method assumes that the data satisfy a critical assumption called the “independence of irrelevant alternatives.” A diagnostic developed by Hausman is used to test the independence of irrelevant alternatives assumptions. Models in which the dependent variable consists of several unordered categories can be estimated with the multinomial logit model, and these models can be easily interpreted. Thus, in this study, three options exist for labor force participation: the individual participates in the labor force, participated past 12 years, or participated seasonal in the labor force. These values represent the dependent variables for female labor force participation. And another dependent variable is the wage form of women which is either paid in cash, paid in kind, or paid in the form of both cash and kind (both). Thus, these values represent the dependent variables for female wage form. Based on this consideration, the most suitable model in estimating the functions of labor force participation and wage forms with their independent variables is the multinomial logistic regression because it acknowledges both female labor force participation and female wage forms as categorical variables. It has also been widely used by previous researchers on Labour Force Participation in Sub-Saharan Africa.

4.1.1 Multinomial Regression Model

The multinomial regression model has been adopted by International Monetary Fund (IMF) to examine the determinants of the gender gap in labor force participation and its welfare implications using household survey data for five Sub Sahara African countries in multinomial logit models (Dieterich et al., 2016). The multinomial logistic regression model is used in this study to analyze the relationship between multiple control variables of different kinds and categorical dependent variables (employment status and wage forms). Over the last two decades, multinomial logistic regression has become an increasingly employed statistical method in research. Although it has a history dated back to the nineteenth century, it is widely used as a statistics tool for situations in which the occurrence of a binary response variable is predicted from one or more control variables. Also, multivariate diagnostics (i.e. standard multiple regression) can be used to assess for multivariate outliers and the exclusion of outliers or influential cases. Sample size guidelines for multinomial logistic regression indicate a minimum of 10 cases per independent variable (Schwab, 2002).

In the study, we try to explore determinants of women labor supply and women wage form which in this study are in categories as for labor supply and wage form.

Thus this study defined the wage form (ω) as a function of educational level, fertility rate under 5 years, area of residence, ethnicity, religion, age group, marital status, and Husband employment status and labor supply(ω^*) as a function of educational level fertility rate under 5 years, area of residence, ethnicity, religion, Age group, marital status, and Husband employment status.

Given the wage form function for female employment status can be specified as;

$$\omega = f(Edu, Fer, area, eth, R, Agroup, MS, H. Emp) \dots \dots \dots (1)$$

Where ω is the wage form, while edu=educational level, fer=fertility rate of children under 5, area= is the residential area of the woman, while eth and R are ethnicity and religion which are social and cultural factors, A group refers to the different age group of women, MS is the marital status of the woman and **H.Emp** indicates the employment status of the husband or partner

Therefore, assuming that the ordinary labor supply is between ordered sets, therefore, using the positive monotonic function to obtain a straightforward method, with the range of that function constituting the domain of the marginal valuation function like that of the wave rate pattern.

The labor supply function for the woman’s labor spend may be derived as;

$$\omega^* = f(Edu, fer, area, eth, R, Agroup, MS, H. Emp) \dots \dots \dots (2)$$

The w^* is the labor supply, edu=educational level fer=fertility rate of children under, area= is the residential area of the woman, while eth and R are ethnicity and religion which are social and cultural factors, Agroup refers to the different age group of women, MS is the marital status of the woman and **H.Emp** indicates the employment status of the husband or partner.

Since the assumption that the above equations follow a positive monotonic function, they can be converted to their linear form by specifying their functional form and associated random probability distribution, by applying a suitable monotonic transformation of the dependent variables with a link function let it be $\vartheta(.)$.

Therefore equation (1) and equation (2) can be written as;

$$\vartheta(\omega) = \beta_0 + \beta_1 edu + \beta_1 fertility + \beta_2 area + \beta_3 ethnicity + \beta_4 Religion + \beta_5 Age + \beta_6 Maritall status + \beta_8 H. Emp + \epsilon \dots \dots \dots (3)$$

$$\vartheta(\omega^*) = \beta_0 + \beta_1 \text{fertility} + \beta_2 \text{area} + \beta_3 \text{ethnicity} + \beta_4 \text{Religion} + \beta_5 \text{Age} \\ + \beta_6 \text{Marital status} + \beta_7 \text{Education} + \beta_8 \text{H. Emp} + \epsilon \dots \dots \dots (4)$$

Assuming the ϵ are independently and identically normally distributed, both with mean zero and a constant variance with the correlation between these disturbance terms are allowed. The above two equations (3) and (4) follow the normality assumptions. Such as assuming that the disturbances are uncorrelated with the independent variables.

where β is the set of regression coefficients associated with outcomes, and the predictors.

Using the linear predictor function $\vartheta(\omega^*)$ and $\vartheta(\omega)$

To arrive at the multinomial logit model, one can imagine, for $K=3$ possible outcomes, running $K-1$ independent binary logistic regression models, in which one outcome is chosen as a "reference" and then the other $K-1$ outcomes are separately regressed against the reference outcome. This would proceed as follows, if outcome K (the last outcome) is chosen as the reference:

$$\ln \frac{\text{pr}(Y = 1)}{\text{pr}(Y = k)} = \beta_0 + \beta_1 \text{fertility} + \beta_2 \text{area} + \beta_3 \text{eth} + \beta_4 R + \beta_5 \text{Agroup} \\ + \beta_6 \text{Marital status} + \beta_7 \text{Hes} + \pi$$

$$\ln \frac{\text{pr}(Y = 2)}{\text{pr}(Y = k)} = \beta_0 + \beta_1 \text{fertility} + \beta_2 \text{area} + \beta_3 \text{eth} + \beta_4 R + \beta_5 \text{Agroup} \\ + \beta_6 \text{Marital status} + \beta_7 \text{Hes} + \pi$$

4.2 Variables

4.2.1 Dependent Variables

The dependent variables in this study are categorical variables for female labor supply and female wage form. Respondents for women were asked about their employment status and the wage forms they receive as payment for their work.

Female labor supply

The dependent variable female labor supply is a categorical variable where the respondent was asked whether she is currently working, worked in the past 12 years, or worked seasonally. Currently working was used as the reference group for this study.

Wage form,

The dependent variable, wage form, is a categorical variable where the respondent was asked whether she was paid in kind, in cash, or paid in both kind and cash (both). Thus, paid in cash was used as the reference group for this study.

4.2.2 Independent Variables

Human Capital Variables

Educational Attainment: Educational attainment is a categorical variable that is composed of the highest level of education the woman attains: No Education, Primary, Secondary (both junior and senior), and Tertiary. In this case, primary education is used as the reference group.

Age Group: This variable involves the different age groups used in this study. It is a categorical variable that reflects the different age groups of women eligible for interview and this is composed of ages between 20-39, 40-59, 60-79, 80-99, and 15-19. The age group 15-19 was the reference group for this category.

Husband Employment Status: This variable is also a categorical variable that is composed of working, unknown, and not working. The reference group for this category is working.

Social and Cultural Factors

Religion: This variable is a categorical variable composed of the different religious affiliations in The Gambia. These religious groups include Islam, traditional believers, and Christianity. The reference group for this category was Islam.

Ethnicity: This is also a categorical variable that is composed of the different ethnic groups in The Gambia. These include Mandinka, Wollof, and others. Mandinka is the reference group for this category

Demographic factors

Fertility: Different researchers have highlighted that women's employment status has a lot to do with changes in the fertility behavior of women within and across countries. Fertility is a continuous variable that is composed of the total number of children born per woman. This

study will examine this variable with respect to how an additional child born will affect the woman's labor force participation and wage form. The coefficient of this variable is expected to have a negative relation with female labor force participation with the notion that after giving birth women will dedicate most of their time to their children by breastfeeding and taking care of the child thus will choose not to take part in the labor market.

Marital status: The marital status of women is a crucial variable in researching the determinants of female labor force participation in Sub-Saharan. This variable is also a categorical variable that is composed of women that are never in a union, divorced, married, widowed, or separated. Divorced is the reference group for this category.

Area of Resident: The area of residence in this paper is a categorical variable composed of urban and rural women in The Gambia. While the disparities between rural and urban female labor force participation rates have been increasing for most developing countries, the drivers and nature of these differentials between the two areas are context-specific. This variable is a binary variable and the reference group is rural.

Sex of head of household: The sex of the household head is a binary variable that is composed of whether the household head is a female or male. The reference group for this variable is female.

5 Empirical Analysis

5.1 Multinomial Regression Result for Female Labour Supply and Female Wage Form

Table 2 below shows the two models that answer the research question of what factors influence female labor supply in The Gambia. A sample size of 3416 had been used in this study, and the response variable consisted of three categories. Nine explanatory variables were used for building the primary multinomial logistic regression model. Model 1 represents the effects of “seasonal work” of females in the labor force. Model 2 represents the effects of “worked in the past 12 years” of females in the labor force. To interpret the proportion of the coefficients, the multinomial results are reported in Table 2 below. Thus, in interpreting a result, it is assumed that all other variables are held constant in the model (*ceteris paribus*). The variables Education and location of the respondents are useful predictors for distinguishing between groups on employment status for this study. These predictors differentiate survey respondents who are on different employment statuses.

Table 2: Log Odds- Determinants of female labor supply within the labor force sample

	Model 1 Seasonal	Model 2 Worked Past 12 Months
Constant	-0.111*** (0.046)	-0.799 (1.298)
Resident_area		
Rural	Reference	
Urban	-0.508* (0.071)	-1.767*** (0.005)
Educational Attainment		
Primary	Reference	
No education	-0.680** (0.291)	0.136 (0.222)
Secondary	-0.057 (0.373)	-0.150 (0.338)
Higher	-0.638 (0.791)	1.298*** (0.475)
Religion		

Islam	Reference	
Christianity	-3.051*** (0.000)	-0.634 (0.497)
Traditional	-2.051*** (0.000)	-3.554*** (0.000)
Ethnicity		
Mandinka	Reference	
Wollof	1.157*** (0.285)	0.283 (0.195)
Others	0.561** (0.264)	1.047*** (0.149)
Sex of Household Head		
Female	Reference	
Male	-0.153 (0.300)	0.122 (0.199)
Fertility	-0.195*** (0.049)	-0.027 (0.028)
Marital_status		
Divorced	Reference	
In union	1.767 (0.071)	-0.370*** (0.000)
Married	4.783*** (0.246)	2.712** (1.073)
Neverin union	-3.032*** (0.000)	2.892** (1.227)
Separated	-2.894 (0.091)	-1.957*** (0.0001)
Widowed	-2.557 (1.172)	1.730 (1.181)
Husband_employment Status		
Not Working	Reference	
Working	0.558* (0.329)	-3.001*** (0.128)
UnKnown	-0.594 (0.140)	3.866*** (0.000)
Age Group		
15 -20	Reference	
20-39	1.775*** (0.010)	-2.164*** (0.004)

40-59	1.794*** (0.005)	-2.325*** (0.004)
60-79	1.939*** (0.011)	-2.469*** (0.008)
80-99	1.868*** (0.002)	-2.354*** (0.006)

Note:

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Area of Resident

The independent variable Area of Resident is significant at 95% level for the category “worked in the past 12 years” and significant level of 90% for the category “seasonal” worker. What does this imply?

The log odds of a respondent who “worked for the past 12 years” compared to be “working” will decrease by 1.767 for a resident of urban compare to the rural resident. This implies that if a person moves from rural to urban will decrease the person’s log odds by 1.767 for worked in the past 12 years.

The log odds of a respondent who is a “seasonal” worker compared to be “working” will decrease by 0.508 for a resident of urban compared to a rural resident. Thus, rural residents have higher chances to be in seasonal work compared to the resident in urban.

Educational Attainment

Result for educational attainment reveal a statistically significant relationship between educational attainment for “no education” and “higher” education with the dependent variables “seasonal” and “worked in the past 12 years” respectively. “No education” shows a statistically significant role in differentiating “seasonal” workers from the working group (reference) group. “Higher education” shows a statistically significant role in differentiating “worked in the past 12 years” from the working group (reference) group.

Thus, the log odds of a respondent in “seasonal” work compared to be in “working” will decrease by 0.680 if the respondent has “no education” compared to the respondent with primary education. This implies that the chances of someone having no education and been in seasonal are lower than the person having primary education.

The log odds of a respondent who “worked for the past 12 years” compared to be “working” will increase by 0.136 if the respondent has “higher education” compared to the respondent with primary education. This implies that the chances of someone having higher education and worked for the past 12 years is higher than the person having primary education.

However, other educational categories assigned do not differentiate the seasonal and worked past 12 years from the working group (reference) group (> 0.5). Survey respondents who were not educated have a log-odds of 0.136 or 14.6% more likely ($1.146-1=0.146$) to be in the group of survey respondents who are worked for the past 12 years. Higher education also shows a positive likelihood of being in the worked past 12 years’ respondents than the working (reference) group if moving from primary to higher education.

Fertility

An additional child born to a mother will have a log odd of 0.195 higher for being in “seasonal work” than to be working. Whiles an additional child born to a mother will have a log odd of 0.027 more likely to be in the group of survey respondents who are “seasonal” workers than in the group of respondents who are “working”

Table 3 below shows the two models that answer the research question of what factors influence female wage form in The Gambia. A sample size of 3416 had been used in this study, and the response variable consisted of three categories. Nine explanatory variables were used for building the primary multinomial logistic regression model. Model 1 represents the effects of “in-kind” wages of females in the labor force. Model 2 represents the effects of “both” wages of females in the labor force. To interpret the proportion of the coefficients, the multinomial results are reported in Table 3 below. Thus in interpreting a result, it is assumed that all other variables are held constant in the model (*ceteris paribus*). The variables Education and location of the respondents are useful predictors for distinguishing between groups on wage forms for this study. These predictors differentiate survey respondents who are on different wage forms. It also differentiated survey respondents who thought earning cash on education and location from survey respondents who thought earning kind on education and location.

Table 3: Log Odds- Determinants of female wage within the labor force sample

	Model 1	Model 2
	In-Kind	Both
Constant	1.019*** (0.902)	0.141*** (0.959)
Resident_area		
Rural	Reference	
Urban	2.509*** (0.274)	0.308 (0.290)
Educational Attainment		
Primary	Reference	
Higher	-0.402 (0.706)	-0.272 (0.754)
No education	0.468** (0.209)	0.598*** (0.208)
Secondary	-0.123 (0.328)	-0.962*** (0.346)
Religion		
Islam	Reference	
Christianity	-0.409 (0.449)	-0.458 (0.455)
Traditional	0.665*** (0.541)	1.612*** (0.541)
Ethnicity		
Mandinka	Reference	
Wollof	0.854*** (0.310)	1.006*** (0.312)
Others	-1.482*** (0.164)	-0.975*** (0.162)
Sex of Household Head		
Female	Reference	
Male	0.085 (0.234)	-0.265 (0.234)
Fertility	-0.149*** (0.030)	-0.161*** (0.030)
Marital_status		
Divorced	Reference	

In Union	1.150*** (0.00000)	-2.296*** (0.00000)
Married	-1.672*** (0.403)	-3.919*** (0.404)
Neverinunion	-1.652*** (0.678)	-0.710*** (0.722)
Separated	2.498*** (0.000)	-3.586*** (0.000)
Widowed	-1.003*** (0.572)	-1.602*** (0.609)
Husband_employment Status		
Working	Reference	
Not Working	-0.168 (0.148)	0.531*** (0.148)
UnKnown	-0.855*** (0.000)	1.144*** (0.00000)
AgeGroup		
15- 20	Reference	
20-39	-0.900 (1.076)	0.014 (1.141)
40-59	-0.711 (1.075)	0.120 (1.140)
60-79	-0.824 (1.078)	0.120 (1.142)
80-99	-0.825 (1.142)	0.609 (1.198)

Note: *p<0.1; **p<0.05; ***p<0.01

Area of Resident

The independent variable Area of Resident is significant at 95% level for the category ‘in-kind wages’ and shows no significance for the category “both”. What does this imply?

The log odds of a respondent who receives wages “in-kind” compared to wages in “cash” will increase by 2.509 for “urban” residents compare to “rural” residents. The result for wage form and area of resident implies that a change from rural to urban increases the person's chances of receiving wages in cash.

An additional person in the urban will have a log odd of 0.308 more likely to be in the group of survey respondents who receives wages in “both” than survey respondent who receives wages in cash.

Educational Attainment

The result for educational attainment reveals a statistically significant relationship between “no education” and the dependent variables. “No education” shows a statistically significant role in differentiating in “kind” and “both” wage earners from the cash wage earners (reference) group. “Secondary education” shows a statistically significant role in differentiating “both” wage earners from the cash wage earners (reference) group.

Thus, the log odds of a respondent receiving wages in “kind” compared to wages in “cash” will increase by 0.468 if the respondent has “no education” compared to primary education. This implies that the chances of someone having no education and receiving in kind are higher.

However, other educational categories assigned do not differentiate the in-kind and both wage earners from the cash wage earners (reference) group (> 0.5). Survey respondents who attained higher education have a log-odds of 0.402 and 0.272 to not be in the group of survey respondents who receive wages in “kind” and “both”. Secondary education also shows a negative likelihood of receiving wages in “kind and both” than receiving in cash (reference) group if moving from primary to secondary or higher education.

Fertility

The result for fertility is statistically significant at a 95% level for wage forms. An additional child born to a mother will have a log odd of 0.149 and 0.161 lower for receiving wages in “kind” and “both respectively ”than receiving wages in cash.

5.1 Discussion

5.1.1 Discussion Table 2

As indicated in the previous literature, The status of women in the workforce is not only driven by their wage rates but also by their participation rate. The Human Capital variable, Demographic and Social, and Cultural factors are used in assessing the factors that influence

female labor supply in the labor force of the Gambia. The data employed gave a distinctive opportunity to examine how these factors vary among the categorical variables for female employment status (seasonal, worked the past 12 years, and working).

The result for the area of resident implies that if a person is in the urban area she is more likely to be working than to have worked in the past 12 years. While someone in the rural is more likely to have worked in the past 12 years than to be working. This is because there are more permanent jobs in the urban area that are often found in the formal sectors compared to rural that is composed of seasonal or mostly temporal jobs and often found in the informal sector. This result is in line with Magidu (2010), who found out that, women residing in the urban areas are more likely to participate in the formal sector compared to women residing in the rural areas. This could be because most urban areas in Africa's labor force have more employment in the services sector than agriculture and the services sector is dominated in the urban areas. Additionally, the result for seasonal employment also implies that rural residents have higher chances to be in seasonal work compared to a resident in urban. Again, this implies that because of the limited rainfalls (3 months) and limited or almost no availability of irrigation facilities for year-round agriculture in the Gambia, agriculture becomes a seasonal job and is mostly done in the rural areas. Thus, making rural area residents venture more into seasonal work than other forms of employment.

Educational Attainment

The result for educational attainment implies that the chances of someone having primary education and been in seasonal are higher than the person with no education. This result is in line with the findings of Boateng et al., (2013) on the determinants of female labor force participation in Ghana. Their results for education effects on female labor force participation indicated that women with basic and higher education have higher chances of participating in the labor force compared to women with no education. Ntuli (2007), conducted a study in South Africa on the determinants of female labor force participation for a period of 10 years, and their findings indicated a significant positive relationship between education and female labor force participation. This implies that education has been the main factor responsible for an increase in female labor force participation in the South Africa labor force for the period under study (1995-2004).

Fertility

The result for fertility implies that an additional child born to a woman will increase the woman's labor force participation. However, this result contradicts the findings of Sackey (2005) who explored the Ghana Living Standard Surveys and found a negative relationship between fertility and female labor force participation. However according to Beguy (2009), there are predictions that no relationship occurs between female labor force status and fertility since there are very little wage employment opportunities that go with poorly paid domestic works and due to the division of labor between men and women in Africa. That is men working outside the home while women stay home and do the household chores. His study result for Togo and Senegal on the effects of female labor market found that due to the cultural differences in both cities, women of Senegal that work outside the home often conflicts with the division of labor of a husband and a wife while in Togo women's economic independence has been a normal trend in their marital norms for a long time.

5.1.2 Discussion for Table 3

As indicated in the previous literature, The wage forms paid to female workers in developing countries remained understudied. The Human Capital variable, Demographic, Social, and Cultural factors are used in assessing the factors that influence the wage form receive by females in the labor force of the Gambia. The data employed gave a distinctive opportunity to examine how these factors vary among the categorical variables for female labor (wages in kind, wages in cash, and wages in both).

Area of Resident

The result for the area of resident implies that one additional person in the urban increases the person's chances of receiving wages in cash. This result is not surprising because most of the urban areas of the Gambia have more formal jobs and often pay in cash compared to rural areas dominated by agriculture that is often regarded as the informal sector. This result is in line with Scholliers, P., & Schwarz, L. (2003) on the kind payment in the Western labor history. According to these authors, payments in kind have been perceived as pre-modern customary practices that were related to a lack of coins. As economies developed and monetized, payments in cash became increasingly common. Although "fringe benefits", in addition to cash wages, have become increasingly common. This could be the case that urban areas in the Gambia are

experiencing more development than rural areas. However, this result contradicts the findings of (Li & Zhao, 2003). These authors saw the payment of wages in kind as part of the important forms of wages in the Chinese urban labor force. During this period, many firms lack independence in making business decisions. Wage allocations were highly controlled based on a wage calculation table set up by the central government. In-kind wage payments account for 68% of their urban labor force in the 1980s (Li & Zhao, 2003). These in-kind wages are often paid in the form of consumer goods such as food (rice, meat, fruits, coos), hygienic items such as soap, toothpaste, detergents, etc. The reason for in-kind payment in consumer goods in china is because the availability of all kinds of consumer goods was based on market situations.

Educational Attainment

The result for educational attainment implies that the chances of someone having no education and receiving in kind are higher than the person with primary education. This implies that the level of education of a person matters in the form of wages they receive in the Gambia. Since most of the formal jobs are found in the urban areas and often require some level of education compared to rural thus the finding is consistent with the finding for urban dwellers receiving mostly cash payments. This study is in line with Li & Zhao, (2003), who argues that one's wage form is dependent upon your level of education, area of residence, and skills level. However, it contradicts the result for Kurosaki (2011), who found no statistical significance for educational attainment and female wage forms.

Fertility

An additional child born to a woman is more likely not to receive wages in kind and both. This result supports the idea of Lundborg et al., (2014) who conducted a study on how the fertility choices made at the extensive and intensive margin affects the labor supply of women in Denmark using an Instrumental Variable to retrieve the result. Their study questions were based on: whether women earn less after having their first child? Their finding on this indicated that women earn less after having their first-born children showing a negative relationship. The fertility impacts show that women's annual earnings decline when children are at very young ages because most women during this time would choose to work lesser hours of work or would often take a leave of absence without pay. The second question in their studies was based on whether women receive lower earnings because of having a second child or other children born later? Their finding on this question reflects two answers. Firstly, the short-run fertility effects

on women's earnings show a negative relationship while in the long run the negative fertility effects fade away and vanish. These negative results are not mostly surprising since women's labor force participation is often challenged by their household duties because women are usually responsible for the day-to-day household chores.

6 Conclusion

6.1 Research Aims and Objectives

The purpose of this study was to empirically investigate the factors that influence female labor supply and whether female receives their wages in kind, in cash, or both forms in the labor force of The Gambia. The Gambia was chosen because of the lack of research in the labor force. Another motivation for the study is the lack of research on the forms of wages receive by females in the labor force. To address this issue, this study explores the human capital, demographic factors, and other social and cultural factors that affect women's labor supply and the wage forms they receive in the labor force of the Gambia. In this regard, 2013 Demographic and Health Survey Data (DHS) was employed by running a multinomial regression to retrieve results.

This study has provided many explanations on how the human capital, demographic, social, and cultural factors can affect female labor supply and the forms of wages they receive and found that females in different residential areas, different education attainments, and differing fertility rates have different employment status and different wage forms. The result retrieved served as evidence that female employment status and the wage forms, they receive are influence by the human capital, demographic, social, and cultural factors. The analysis of the paper showed that people in the urban area are more likely to be working than to be working in the past 12 years. Whiles someone in the rural is more likely to be working in the past 12 years than to be working. This is because there are more jobs in the urban area that are often found in the formal sectors compared to rural that is composed of seasonal or mostly temporal jobs and often found in the informal sector. This implies that the chances of someone having primary education and been in seasonal are higher than the person with no education.

This result is in line with the findings of Boateng et al., (2013) on the determinants of female labor force participation in Ghana. Their results for education effects on female labor force participation indicated that women with basic and higher education have higher chances of participating in the labor force compared to women with no education. Ntuli (2007), conducted a study in South Africa on the determinants of female labor force participation for 10 years, and their findings indicate a significant positive relationship between education and female labor force participation. This implying that education has been the main factor responsible for an increase in female labor force participation in the South Africa labor force for the period under

study (1995-2004). Regarding the fertility rate of women, this analysis implies that an additional child born to a woman will increase the woman's labor force participation. However, this result contradicts the findings of Sackey (2005) who explored the Ghana Living Standard Surveys and found a negative relationship between fertility and female labor force participation

For the case of wage forms, the result for the area of resident implies that one additional person in the urban increases the person's chances of receiving wages in cash. This result is not surprising because most of the urban area of the Gambia has more formal jobs and often pay in cash compared to rural areas dominated by agriculture that is often regarded as the informal sector. This result was in line with Scholliers, P., & Schwarz, L. (2003) on the kind payment in the Western labor history. According to these authors, payments in kind have been perceived as pre-modern customary practices that were related to a lack of coins. As economies developed and monetized, payments in cash became increasingly common. Although "fringe benefits", in addition to cash wages, have become increasingly common. This could be the case that urban areas in the Gambia are experiencing more development than rural areas. However, this result contradicts the findings of (Li & Zhao, 2003). These authors saw the payment of wages in kind as part of the important forms of wages in the Chinese urban labor force. In-kind wage payments account for 68% of their urban labor force in the 1980s (Li & Zhao, 2003). These in-kind wages are often paid in the form of consumer goods.

Furthermore, the result for educational attainment implies that the chances of someone having no education and receiving in kind is higher than the person with primary education. This implies that the level of education of a person matters in the form of wages they receive in the Gambia. Since most of the formal jobs are found in the urban areas and often require some level of education compared to rural thus the finding is consistent with the finding for urban dwellers receiving mostly cash payments. This study is in line with Li & Zhao, (2003), who argues that one's wage form is dependent upon your level of education, area of residence, and skills level. However, it contradicts the result for Kurosaki (2011), who found no statistical significance for educational attainment and female wage forms.

6.2 Practical Implications

This study observes female labor supply and wage form from a theoretical framework that looks at the socio-economic determinants of female employment status and wage forms. The findings

of the paper shows which human capital, demographic, social, and cultural factors are more likely to affect female labor supply and their wage form. As Swain et al., (2019) argue, gender disparities in the labor force of developing countries are not only seen as a phenomenon but are further categorized as a deep-rooted culture that still exists in the labor market of developing countries especially in their agricultural sector. In this, both men and women work in similar work but are paid in different wage forms. They also have differing access to technology, assets, education, and training that influences the employment status of the woman. These disparities in the wage payment forms and employment status are regarded as major factors of gender discrimination in the labor force where men workers receive their daily wages in cash while women receive theirs in kind. Additionally, this shows clearly that many women in the labor force are not only affected by education, technology, and assets but also other factors such as the area of resident they live in, fertility rate to name a few.

Other factors such as paying women in kind could be as a result of underdeveloped markets which could be a form of empowering women in the labor force. As argued by Kurosaki (2011). He demonstrated in-kind wage payments as a significant component in the initial stages of economic development that has not been recognized in recent economic growth. In this, in-kind wages are seen as crucial elements important for low-income developing countries that can boost the food security of rural dwellers constrained with thin food markets. His findings show that in-kind wage payments were important in the early stages of economic development when markets are thin and no insurance markets available. Thus, this study will recommend to the government of the Gambia to pay women in kind when markets are underdeveloped. However, there still exists a risk of employee exploitation regarding in-kind payments especially when there are no legislative protections to safeguard employment processes. Thus, the need for government to make sure exploitations are avoided in the labor force.

The government of the Gambia can as well learn from the government of their neighboring countries like Senegal and Chat. These two countries follow some measures identified by the ILO like “limiting the value of in-kind benefits to a multiple of the minimum wage” (ILO 2015), they match the value of a single meal equivalent to an hour working at the minimum wage. The ILO (2015) also stressed that all in-kind payments should be included in the social security of the employees. For instance, if the minimum wage is 100 dollars per month and 20% is paid in kind then the social security contributions should still be 100 dollars and not 80 dollars. This study is urging the government of the Gambia to follow suit in this case.

6.3 Limitation and Future Research

Since this study does not analyze the disparities between men and women in the labor force, the result of the paper is more of knowing women status in the labor force first then further research can be done on a sample of both female and male labor force status to know the gaps between women and men.

There are other determinants of female labor supply and their wage forms. The impact of agricultural indicators such as agricultural lands, agricultural inputs, staple food crops, horticultural crops, etc on female labor force status especially in rural areas. Many factors that are not included in the analysis of this study could help in identifying the determinants of female labor force status both in terms of participation rate and wage forms. Therefore, since the study analysis indicated that human capital, demographic, social, and cultural factors influence female labor supply and their wage forms, further research can be done to know the magnitude to which these factors differ for both males and females.

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Appendix A

Table 4A1 Region of resident, level of education, employment status and wage form

	Banjul (N=140)	Basse (N=975)	Brikama (N=595)	Janjanbureh (N=196)	Kanifing (N=294)	Kerewan (N=574)	Kuntaur (N=458)	Mansakonko (N=184)	Total (N=3416)	p value
Education										< 0.001
Primary	11 (7.9%)	85 (8.7%)	67 (11.3%)	10 (5.1%)	56 (19.0%)	53 (9.2%)	28 (6.1%)	69 (37.5%)	379 (11.1%)	
Higher	3 (2.1%)	1 (0.1%)	35 (5.9%)	0 (0.0%)	36 (12.2%)	6 (1.0%)	0 (0.0%)	3 (1.6%)	84 (2.5%)	
No education	75 (53.6%)	858 (88.0%)	372 (62.5%)	182 (92.9%)	157 (53.4%)	497 (86.6%)	418 (91.3%)	79 (42.9%)	2638 (77.2%)	
Secondary	51 (36.4%)	31 (3.2%)	121 (20.3%)	4 (2.0%)	45 (15.3%)	18 (3.1%)	12 (2.6%)	33 (17.9%)	315 (9.2%)	
Employment_status										< 0.001
seasonal	17 (12.1%)	5 (0.5%)	7 (1.2%)	17 (8.7%)	3 (1.0%)	37 (6.4%)	0 (0.0%)	10 (5.4%)	96 (2.8%)	
working past 12 yrs	4 (2.9%)	383 (39.3%)	43 (7.2%)	12 (6.1%)	22 (7.5%)	24 (4.2%)	76 (16.6%)	12 (6.5%)	576 (16.9%)	
working	119 (85.0%)	587 (60.2%)	545 (91.6%)	167 (85.2%)	269 (91.5%)	513 (89.4%)	382 (83.4%)	162 (88.0%)	2744 (80.3%)	
Earning_status										< 0.001
cash	2 (1.4%)	56 (5.7%)	21 (3.5%)	76 (38.8%)	17 (5.8%)	15 (2.6%)	95 (20.7%)	17 (9.2%)	299 (8.8%)	
kind	130 (92.9%)	586 (60.1%)	389 (65.4%)	29 (14.8%)	255 (86.7%)	143 (24.9%)	122 (26.6%)	125 (67.9%)	1779 (52.1%)	
both	8 (5.7%)	333 (34.2%)	185 (31.1%)	91 (46.4%)	22 (7.5%)	416 (72.5%)	241 (52.6%)	42 (22.8%)	1338 (39.2%)	
Education										< 0.001
Primary	11 (7.9%)	85 (8.7%)	67 (11.3%)	10 (5.1%)	56 (19.0%)	53 (9.2%)	28 (6.1%)	69 (37.5%)	379 (11.1%)	
Higher	3 (2.1%)	1 (0.1%)	35 (5.9%)	0 (0.0%)	36 (12.2%)	6 (1.0%)	0 (0.0%)	3 (1.6%)	84 (2.5%)	
No education	75 (53.6%)	858 (88.0%)	372 (62.5%)	182 (92.9%)	157 (53.4%)	497 (86.6%)	418 (91.3%)	79 (42.9%)	2638 (77.2%)	

Secondary	51 (36.4%)	31 (3.2%)	121 (20.3%)	4 (2.0%)	45 (15.3%)	18 (3.1%)	12 (2.6%)	33 (17.9%)	315 (9.2%)
Employment_status									< 0.001
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Earning_status									< 0.001
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