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Analysis of Collective Bargaining and Macroeconomic Effects: Evidence from Ghana

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Dissertation Submitted in Partial Fulfillment

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Abstract

Frequent labor strikes are a problem in Ghana that often interrupt the production of goods and the provision of services including health and education. The strikes primarily result from wage disputes that appear to arise from inflation and low real wages. Although there have been studies on collective bargaining and macroeconomic conditions in Ghana, there is a lack of research on the relationship between inflation as well as real wages, and collective bargaining labor strikes. This quantitative correlational study involving secondary data analysis was undertaken to help solve the problem by addressing the lack of evidence on the statistical significance of the aforementioned relationships in Ghana. The main theoretical foundation for the research was the industrial relations theory of collective bargaining. Statistical inferential techniques and SPSS Version 28 were used to analyze 36 years of secondary time-series data on inflation rates, consumer price indices, number of labor strikes, and minimum wages. The results revealed that the correlation between inflation rate and number of labor strikes was statistically insignificant whilst that between real wages and number of strikes was significant. The regression of the number of labor strikes on the inflation rate and real wages was statistically significant. Individually, only the regression on real wages was statistically significant. It was concluded that real wages correlate inversely with the number of labor strikes. Further research may be done in similar settings to compare the generalizability of the outcomes of this study. The implications of this study for positive social change include the potential of the findings to persuade the government to implement effective interventions that improve inflation and real wages to help curb frequent strikes by workers.

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Dedication

I dedicate this dissertation to my dear parents, Sam Mozu of blessed memory and Agnes Mozu. When I received my master’s degree, my dad encouraged me to move on to achieve my doctorate degree before he passed. Unfortunately, he did not live to see that wish fulfilled. My Mom has always had my best interest at heart and deserves this honor as well.

Acknowledgments

Special thanks be to God who has sustained me through this doctoral journey. His grace and providence have enabled me to finish this long journey successfully despite challenges.

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Finally, I wish to acknowledge the support of my family and friends. My heartfelt appreciation goes to everyone else who contributed in some way to the successful completion of this dissertation.

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Chapter 1: Introduction to the Study

The study is an analysis of the relationship between collective bargaining and macroeconomic factors such as inflation and real wages. Inflation is a key measure of economic performance in macroeconomics. It may be expected that the perception of workers about economic conditions would be mainly hinged on the impact of real wages on their needs. Ghana has been faced with frequent collective bargaining labor strikes for several years dating back to pre-independence era. Yarak (2018) stated that the CPP government in the early 1960s attempted to co-opt and neutralize the Trades Union Congress (TUC) causing the union's labor strike to fail. This has been the stance of successive governments who tend to attribute the strikes to political influence by the opposition parties and therefore fail to find a lasting solution to the problem. Amoako (2015) observed that the indifference of the government and its institutions to resolve the grievances of teachers resulted in strikes. Also, the government and its institutions adopted a position that entrenched the striking teachers' attitude to protract the strike action. Amoako asserted that the government tried to portray to the general public that the strike action was unjustified and was politically inspired for the purpose of discrediting the administration. This was the government's way of gaining public support against the striking teachers.

This research study is a contribution to help explain the problem by investigating the relationship between the frequent labor strikes and the status of the macroeconomic indicators in Ghana. It is envisaged that there would be a positive social change in terms of alleviation of economic hardships for workers in Ghana when government makes interventions in response to evidence identifying the cause of the frequent labor strikes. It may also be expected that since frequent labor strikes interrupt the production of goods and services, finding a solution to these strikes would improve productivity and gross domestic product (GDP), as well as ensure uninterrupted supply of much needed goods and provision of services.

This chapter includes a discussion of the background of the study, problem statement, purpose of the study and the research questions and hypotheses. Other important topics that are covered are the nature of the study, key definitions, assumptions, delimitations, limitations as well as the significance of the study.

Background of the Study

The focus of this research study was to ascertain the relationship between the number of collective bargaining labor strikes and inflation rate as well as real wages in Ghana. Ghana is a historic country in the Sub-Saharan region of Africa because it was the first country to attain independence from colonial rule (Apter, 2008). Studies on labor strikes in Ghana have been very limited.

Lamarche (2015) defined collective bargaining as a process of negotiation between independent unions and employers (or employers' organizations) to determine terms and conditions of employment, typically wages and working time, and relations between the parties. There is no doubt that the growth of every economy depends on the strength and commitment of its labor force. This therefore suggests that where the labor force is unstable with erratic performance marred by constant strikes, the growth of a country's economy would be dwindling. The public sector in Ghana has been characterized by frequent strike actions following the introduction of the single spine salary structure. Workers have been asking for better conditions of service and the timely payment of arrears. Despite the role the labor force plays in the growth of the economy, there has been very little effort by previous and successive governments to find a lasting solution to these frequent strike actions.

Selala (2014) defined collective bargaining as the bargaining process between labor and management in the labor relations system whereby the urgency to reach a decision is caused by social, economic and legal pressures. The outcome is a collective bargaining agreement (CBA) signed by the parties to the negotiations. The CBA affords labor protection to workers, legitimacy, and stability to employers, and provides public authorities with a form of regulation which is determined by the social partners and can thus be tailored to their circumstances and at the same time reinforcing compliance with minimum standards.

Lamarche (2013) asserted that collective bargaining is predicated on respect for the right to organize and the recognition of the right to collective bargaining. Ghana is in the contexts of high levels of informality, weak regulatory institutions and vastly unequal power relations between employers, workers and unions. ILO (2017) provided information to the end that collective bargaining could offer potential mechanisms for workers to engage with employers and negotiate improvements in the terms and conditions of employment.

Hodges and Baah (2006) conducted a survey of 96 enterprises in Ghana in 2001 which revealed that over 37% of collective bargaining agreements had wage indexation clauses which require wages to be adjusted upward when inflation rises above a certain level. It was reported that workers' rights continue to be violated by some employers despite many conventions and labor laws that regulate the labor market in Ghana, and working conditions remain poor. Total government debt was said to be high at 73% of Gross Domestic Product (GDP). Total government debt in 2009 was 36%. The Institute of Statistical, Social and Economic Research (ISSER) reported that the high debt situation of Ghana underscores the need for serious prioritization of public finances (ISSER, 2015). Though there was a growth of 3.9% in GDP, the economy was still fraught with inequitable distribution of the wealth produced as well as inadequate social development. Killick (2010) described the economy of Ghana as fragile. Obeng-Odoom (2017) noted that tension had entangled most policies that were needed to address structural economic issues in Ghana.

A study by Asante (2018) showed that collective bargaining issues were associated with high cost of living, inadequate infrastructure, corruption, poor working conditions, unemployment, and lack of governance. Macroeconomic factors may affect the financial performance of firms as well as collective bargaining outcomes (Katz, Kochan & Colvin, 2015). Levi et al. (2015) stated that, through collective bargaining, trade unions primarily negotiate terms for wages, benefits, and better working conditions for workers. Seniwoliba (2013) noted that there were several labor unrests in the first quarter of 2013 where workers demanded payment of outstanding compensation as well as better conditions of service. He observed that there have been inadequate efforts by successive governments to find a sustainable solution to the frequent labor strikes in the country.

Reviews of the literature have indicated that research on labor strike activity in Ghana is limited (Akindele, 2014; Seniwoliba, 2013). It was evident from the newspaper reports that strike activity in Ghana was frequent and was prevalent in the health and education sectors, but a sustainable solution had not been found to address the issue (Gyamfi, 2011; Seniwoliba, 2013). The gap that this research study addressed was the lack of research on the relationship between collective bargaining labor strikes and macroeconomic factors in Ghana. The macroeconomic factors that I studied were inflation and real wages since these factors were the primary concerns of trade union members.

Problem Statement

Lamarche (2015) indicated that in 2013, there were several labor agitations in Ghana led by trade unions likely due to macroeconomic downturns. A BBC report in 2014 indicated that workers had taken to the streets in Ghana in protest of increasing inflation (Asante, 2019). Brown (2017) indicated that two labor unions in two cities in Ghana, namely, Accra and Tema, protested poor working conditions and economic hardships and demanded better wages. In a study of economic conditions in Ghana, Asante found persistent increase in inflation, high cost of living, depreciation of the local currency, and high unemployment rate particularly among the youth. According to Asante, the inflation rate in 2016, for example, was 15.49% while unemployment amounted to 6.81%. Even though these variables had decreased to 8.8% and 6.78%

respectively, poor economic conditions tend to perpetuate. Basic social services such as education, healthcare, and transportation had become more expensive, further lowering the real wages of the workers. Asante suggested to the Ghana government to take the initiative to solve these macroeconomic issues which, appear to be the cause of the frequent collective bargaining strikes in Ghana. However, some politicians in government tend to attribute the labor unrest to political influence from the opposition instead of finding the root cause of the problem. In a news publication in the “Equal Times” in 2013 captioned “Ghana hit by wave of public sector strikes” it was reported that the cost of living had increased over the previous seven years as a result of the rise in the cost of fuel and removal of subsidies on fuel and utilities. It was also reported that 26% of Ghana’s population of 24 million lived below the poverty line.

The general problem was the frequent labor strikes by unionized workers in Ghana which negatively impact the productivity of their organizations and interrupts the supply of goods and services to the population. There was an increase in inflation to 10.4% in March of 2013 leading to labor disputes involving doctors, teachers, lecturers, court workers and miners (EIU Views Wire, 2013). The Trades Union Congress (TUC) declared a nationwide strike in protest of hike in the prices of utilities (BBC, 2013). The Ghana News Agency (GNA) reported that the leadership of the Teachers and Education Workers Union (TEWU) met with the Fair Wages and Salaries Commission (FWSC) and other stakeholders on January 13, 2021, following a nationwide strike action (GNA, 2021). According to the leadership, the issue has been protracted for about two years. Haas and Stack (1983) studied strike activity in the United States and found that inflation rate had a significantly positive effect on strike activity. Labor strikes may be deemed a threat to the economy of the country since they affect the supply of goods and services. It stands to reason that the country's socioeconomic stability depends on workers' contentment with their cost of living. Seniwoliba (2013) noted that Ghana's numerous strikes were an issue of concern and that the best way to deal with the issue is to prevent its occurrence. It was for this reason that this study was undertaken to help in finding a solution to the issue.

The specific problem to be addressed by this research was the lack of evidence on the relationship between inflation as well as real wages and collective bargaining labor strikes in Ghana. Although, several studies have been conducted on collective bargaining issues and macroeconomic conditions in Ghana, the relationship between inflation as well as real wages and collective bargaining labor strikes has not been well researched.

Purpose of the Study

The purpose of this quantitative correlational research was to investigate the relationship between inflation as well as real wages and collective bargaining labor strikes in Ghana. To address this gap, I employed statistical inferential techniques of correlation in this research to analyze secondary data from sources that included the Ghana Labour Department, the National Labour Commission (NLC), the Fair Wages and Salaries Commission (FWSC), the World Bank, the International Monetary Fund (IMF), the International Institute of Social History (IISG), and the University of Western Cape (UWC) databases.

Wage is an important factor that influences consumer purchasing power and labor strike. Workers engage in strike actions to seek improvement in their standard of living and to press policy makers to create an economy with sustainable consumer price index (Burns, 2012). For Research Question 1 (RQ1), inflation rate is the independent variable whilst number of strikes is the dependent variable. For Research Question 2 (RQ2), real wage is the independent variable whilst number of strikes is the dependent variable. For Research Question 3 (RQ), both inflation rate and real wages are the independent variables, and the number of strikes constitutes the dependent variable. Burns (2012) indicated that the main causes of labor strikes stem from unsatisfactory wages. However, there was a need to examine the situation in Ghana and provide evidence of the correlational relationship that exists between the variables,

Research Question(s) and Hypotheses

In this study, I used a quantitative method to determine whether the relationship that exists between inflation as well as real wages and the number of collective bargaining labor strikes in Ghana was statistically significant.

RQ1: Does a statistically significant relationship exist between inflation and collective bargaining labor strikes?

$H_0$1: There is no statistically significant relationship between inflation and collective bargaining labor strikes.

H_a1: There is a statistically significant relationship between inflation and collective bargaining labor strikes.

RQ2: Does a statistically significant relationship exist between real wages and collective bargaining labor strikes?

$H_0$2: There is no statistically significant relationship between real wages and collective bargaining labor strikes.

H_a2: There is a statistically significant relationship between real wages and collective bargaining labor strikes.

RQ3: Does a statistically significant relationship exist between inflation and real wages as independent variables and collective bargaining labor strikes as dependent variable?

$H_0$3: There is no statistically significant relationship between inflation and real wage as independent variables and collective bargaining labor strikes as dependent variable.

H_a3: There is a statistically significant relationship between inflation and real wages as independent variables and collective bargaining labor strikes as dependent variable.

The independent variable studied for RQ1 was inflation rate and the dependent variable was the number of labor strikes over the same period. For RQ2, the independent variable studied was real wages and the dependent variable was the number of labor strikes. Secondary data on the number of strikes, inflation rate, Consumer Price Index (CPI) and minimum wage were collected. For RQ3, both independent variables were examined together for their correlation with the number of collective bargaining labor strikes as the dependent variable. The secondary data were obtained from governmental and non-governmental sources.

The volume of strikes is defined as the average number of hours lost per thousand employed workers (Franzosi, 1989). The volume of strikes may be measured as the average number of hours lost per thousand employed workers. Real wages will be derived from the corresponding CPI for the same period. Three measures of work stoppages usually used in records and publications are number of strikes and lockouts, number of workers involved and lost days due to strikes and lockouts (ILO, 2017). In the absence of some of the parameters of volume of strikes, number of strikes was considered an appropriate measure for labor strike activity.

Theoretical Foundation

The theories that formed the foundation for this study include the behavioral theory on labor negotiations laid down by Walton and McKersie (1991). They offered a four- stand process for understanding collective bargaining negotiations. The first stand is integrative bargaining, which is a collaborative form of agreement used to form an agenda based on mutual understanding between the opposing parties in the negotiation. In this sphere, most of the work occurs behind the scenes and each party presents their grievances or strains on the table. The second is the distributive bargaining which assumes that an organization is interlaced with its employees, even though their interest or views might be opposed. In the nutshell, the organization is grown out from the employees and the employees are also grown out from the employers and both employees and employers need each other for their survival. In the end, both parties will enter negotiations with the impression of what their final agreement will reach in terms of money, workforce, or working conditions and resources. The third stands by Walton and McKersie is the intraorganizational bargaining. In this sphere, the representatives of the union and management officials act on behalf of the opposing parties such as union versus management, to resolve the needs of the stakeholders. This is to ensure that the total interests of the respective constituents are represented. Walton and McKersie suggested that negotiators for management and labor should engage in an intra-negotiation process before engaging in an inter-negotiation process with each party. The last stand of Walton and McKersie is the attitudinal restructuring. This is where the opposing parties establish their viewpoints and insight among each other and provide a prescription that will provide an outcome for the current negotiation that affects future negotiations. In addition, if the opposing parties are not able to resolve their differences within their own bargaining units it will have tradeoffs made during integrative or distributive bargaining.

Hameed (1970) described the industrial relations theory of collective bargaining as the most valid of all the theories on collective bargaining because representatives are considered as partners with the employer in the management of the organization. It is a functional relationship where unions get a hand in shared governance. Other theories that are relevant to this study include the marketing theory of the sale of labor and the governmental theory of procedures for settling disputes. Hameed explained that the marketing theory seeks to position labor on an economically competitive pedestal of compensation. The governmental theory seeks to use political influence on union members to achieve its objectives.

Salamon (2000) noted that the importance of the social action theory of industrial relations is that emphasis is placed on the individuals' right to retain at least some freedom of action. Social action was said to arise out of the expectations, norms, attitudes, values, experiences, situation and goals of the individuals working in the system. Knowing that individuals in an organization may act collectively based on their experiences may help in understanding their reactions to economic impacts.

The behavioral theory of labor negotiations relates to this research study by highlighting the role collective bargaining plays in trade union and employer negotiations for better conditions of service. The managerial theory relates to the research study by highlighting the importance of collaboration between trade unions and employers in ensuring productivity and commensurate compensation. The social action theory relates to the research study by explaining the tendency of workers to engage in collective action such as in strikes.

Nature of the Study

Quantitative research is ideal for understanding the relationship between a dependent and an independent variable. Doellgast and Benassi (2014) used quantitative data to determine how collective bargaining differs among institutions and across countries. Maxwell (2013) indicated that qualitative research is more concerned with exploring scenarios, individuals, and groups of individuals with an aim of providing exploratory or descriptive context. Since this research was concerned with testing hypothesis and the use of statistical analysis, quantitative research was an appropriate method to use.

The collective bargaining variable was the number of labor strikes, and the macroeconomic variables were inflation and real wages. The macroeconomic variables were hypothesized to affect the collective bargaining variable of number of strikes. A researcher conducting a study of the relationship between two variables would likely use the null hypothesis of no statistically significant relationship (Vogt & Johnson, 2016).

Bankole and Fatai (2013) employed time series annual data in their studies to determine the effect of unemployment on collective bargaining in Nigeria based on Okun's law. I utilized quantitative annual time series data. This research involved the use of secondary data from sources that include the Ghana Labour Department, the National Labour Commission, the Ghana Fair Wages and Salaries Commission, the World Bank, the International Monetary Fund, International Institute of Social History, and the UWC database. To this end, the accuracy and reliability of the data was not an issue.

It was the focus of this quantitative research study to investigate the relationship, that exists between inflation as well as real wages and collective bargaining labor strikes in Ghana. Nickels et al. (2016) indicated that workers' income is affected by the consumer price index and workers would slack performance if they were dissatisfied with their income. Secondary data collected in this research study included year and number of labor strikes, inflation rate, CPI, and minimum wage for the period under study.

Definitions

The following are definitions of terms used in this study:

Collective bargaining: A good-faith process by which employees represented by their unions tactfully negotiate with the organization's management for negotiating wages, working hours, working conditions, and other matters of mutual interest for a specified period (Business Dictionary, 2021).

Consumer Price Index (CPI): A measure of changes in the purchasing-power of a currency and the rate of inflation (Business Dictionary, 2021).

Inflation: A sustained, rapid increase in prices, as measured by some broad index (such as Consumer Price Index) over months or years and mirrored in the correspondingly decreasing power of the currency (Business Dictionary, 2021).

Macroeconomic condition: economic factors that influence the state of the whole (aggregate) economy, such as changes in employment levels, gross national product (GNP), and prices that may result in deflation or inflation (Business Dictionary, 2021).

Purchasing power: Value of money measured by the quality and quantity of goods and services it can buy (Business Dictionary, 2021).

Real wage rate: Compensation rate adjusted for the effects of inflation (Business Dictionary, 2021).

Strike: Collective, organized, cessation or slowdown of work by employees, to force acceptance of their demands by the employer (Business Dictionary, 2021).

Trade union: An organization whose membership consists of workers and union leaders, united to protect and promote their common interest (Business Dictionary, 2021).

Assumptions

It was assumed that the numbers of work stoppages were correctly compiled in the databases sourced. It was also assumed that secondary data on the inflation rates, CPI and minimum wages for Ghana were significantly accurate. Another assumption was that labor strikes actions tend to be initiated and led by unionized employees. An ILO report on Ghana shows that trade union membership density which is a measure of the percentage of the total number of employees that are union members was 20.6% in 2016. The percentage of workers covered by collective bargaining was also given as 14.7% (ILO, 2017). A membership survey report by the Trades Union Congress (TUC) in 2002 shows that the unionization rate in terms of the formal sector employees was 73.8% and 100% percent of unionized workers had collective bargaining coverage (Gockel & Vormawor, 2004). The report also showed that 55.39% of the public sector employees were unionized. Osei-Boateng and Ampratwum (2011) noted that 80% of the workforce in Ghana was employed in the informal sector and had uncertain work relationship. They noted that it has been challenging for the trade unions to organize employees in this sector and secure a collective bargaining certificate due to resistance from employers. The formal sector comprises public establishments and private enterprises. Though employment in the formal sector is a smaller share of employment in Ghana as indicated in the statistics, the unionized employees of this sector tend to lead the agitation for improved terms of employment by virtue of their unionized voice and collective bargaining certificates. Osei-Boateng and Ampratwum indicated that the Ghana TUC's policy advocacy actions such as one that advocated for tax exemption for employees earning the minimum wage benefits employees in the informal sector as well. It was also assumed that unionized employees were most likely to embark on a strike over wage disputes since they have the mandate to do so by virtue of their collective bargaining certificates. Workers embark on strikes for a variety of reasons which may include political reasons. It was assumed that all strikes considered in this research study occurred primarily because of the high cost of living and inadequate real wages. It was also assumed that strikes were led by unions and not politicians. Actions of union leaders may influence labor strike outcomes, but the focus of this research was the relationship between inflation as well as real wages and collective labor strikes. Real wages were derived from minimum nominal wages using a formula with CPI as a factor and it was assumed also that the formula used is most suitable for the conversion. Another assumption was that policy makers will respond positively to the findings of this research study.

Scope and Delimitations

The volume of strikes is a measure of strike activity that is calculated based on certain parameters including the duration of the strike and number of employees involved. Data on the number of labor strikes was much more available than data on the parameters so data on strike activity measurements was limited to the number of strikes. Data on the number of labor strikes was therefore collected. The primary measures used in macroeconomics are real GDP, unemployment and inflation. However, this research study was delimited to inflation and CPI. Real wages were calculated from CPI. It stands to reason that CPI data was used for this purpose.

This research study focused on the frequent labor strikes in Ghana, a developing country. This indicates that the scope limits generalization to developing countries with characteristics like that of Ghana. Ghana bears characteristics like countries in West Africa like Nigeria, Cote D'Ivoire, and Togo. The study would provide knowledge to officials engaged in economic planning, trade unions and their members, as well as employers in Ghana. Secondary data was obtained and analyzed for the study so no human subjects were used. A decade of macroeconomic data as well as data on strike activity spanning 1986 to 2021 was obtained from domestic and international repositories.

Limitations

Data limitations were expected in the study, but the economic data have been computerized into databases of the World Bank, the International Monetary Fund, and the ILO. Given this positive development in data collection, there may be more dependable sources of data that would apply to the study. Challenges that were encountered in this research included the limited availability of scholarly sources for developing the literature base in a less researched area on Ghana. I made every effort to access available literature related to the study.

Significance of the Study

A country's economic stability is said to be dependent on inflation rate (Dolca & Nicolov, 2013). They noted that economic instability of developing countries has been found to influence the labor market. When the country's inflation rate increases, it has a significant impact on the wage-consumer price relationship. Horodecka and Vozna

(2016) asserted that unsatisfactory wages and consumer price index demotivates workers. Based on these facts, this research study examined the relationship between the inflation rate as well as real wages and number of labor strikes.

Burns (2012) indicated that the satisfaction of workers has a correlational relationship between compensation. Burns considered compensation to be a very important tool for motivating workers. It is important to note that workers may be dissatisfied with their compensation if the level of purchasing power is low and consumer price index in the market is high (Bėraud, 2013; Dolca & Nicolov, 2013). When a country's economy is unstable, the situation discourages investment in that country. Also, unemployment rate is increased and consumer purchasing power is decreased (Burns 2012; Feng 2014). The decrease in purchasing power was said to kindle socio-political issues. They asserted that the situation may compel companies to increase the prices of goods and services in order to at least break even whilst workers may respond to the situation by strike actions to demand better wages due to the high cost of living. Workers were said to embark on a strike to demand improvement in their standard of living through better wages and a sustainable price index. It was envisaged that the solution of the problem of frequent labor strikes in Ghana may lie with understanding the relationship that exists between number of labor strikes and inflation as well as real wages.

Purchasing power may be defined as the value of the currency measured in terms of the quantity of goods and services that can be purchased by one unit of currency (Bėraud, 2013). The standard of living of a country's population affects the socio-economic and political stability of the country (Dolca & Nicolov, 2013). Haas (2013) noted that a weak economy may result in undermining or disrupting the socio-political and socioeconomic stability of other countries as well. Under the circumstances of a weak economy, migration of people to countries with better economies may be expected.

Horodecka and Vozna (2016) found that inflation rate and consumer price index influence the satisfaction of workers. It may be argued that wages are likely to kindle labor strikes when the cost of living appears to be relatively high (Burns, 2012). This tendency for workers to embark on a strike was said to result from low purchasing power of their wages.

Sociopolitical stability and effective macroeconomic policies shape economic development (Escaleras & Kottaridi, 2014). They noted that economic instability may lead to higher cost of living which drives workers' agitation for better wages.

Significance to Theory

The potential contribution of the study is that it may add to the body of knowledge involving theories that are related to collective bargaining. It was expected that if a correlation was found to exist between collective bargaining labor strikes and the macroeconomic factors studied, the importance of the theories that form the framework of this research study may be complemented. The managerial theory of collective bargaining emphasizes the need to involve leadership of workers' union in organizational decision-making. The establishment of a correlation between macroeconomic factors and collective bargaining labor strikes may therefore encourage the application of the managerial theory since the union may have evidence from the study to justify their strike actions. In other words, strikes may occur when an employer does not listen to workers' concerns such as the need to improve wages due to economic hardship.

Significance to Practice

The study was expected to advance the practice of collective bargaining and provide an opportunity for a better understanding of the causes of collective bargaining outcomes being experienced in the country. It was also envisaged that the findings of the study may drive governmental response or interventions that would result in positive changes in socioeconomic conditions of the people.

Significance to Social Change

It was expected that when socio-economic conditions of Ghana were improved in response to the likely outcome of this study, workers would experience an improvement in their real wages such that the frequent strikes will be curtailed. Consequently, an improvement in the GDP of the country may occur. When policy makers gain better understanding of the relationship between the frequent labor strikes and inflation rate as well as real wages, they are likely to implement measures that will improve the level of inflation such that it will be reflected in purchasing power that is adequate enough to enable workers meet their basic needs satisfactorily. It was envisaged that this research study would be an intervention that may make a positive social change in the lives of the workers and people of Ghana as a whole. Of particular concern was the interruption of healthcare and educational services when workers in these sectors embark on strikes. If the issues were resolved, patients and students would benefit from less interruption.

Summary and Transition

This research study sought to examine the relationship between inflation as well as real wages and number of labor strikes in Ghana. Unsatisfactory wages appear to be the primary reason that workers resort to strikes in developing countries (Burns, 2012). Workers were said to gain a better standard of living through improved purchasing power. According to Dolca and Nicolov (2013), inflation rate correlates with the economic stability of developing countries. This assertion may likely apply to Ghana since it is a developing country. Knowledge of the relationship between inflation rate and number of labor strikes would provide a better understanding of Ghana's circumstances. The primary points of the study have been addressed in this chapter and they showed that there was the need to find a solution to the frequent labor strikes in Ghana. Using a quantitative correlation research method, the focus of the study was on ascertaining the correlational relationship that exists between macroeconomic factors of inflation as well as real wages and collective bargaining labor strikes.

Chapter 2 is a review of literature relevant to the study. It was expected that the information from literature and research findings would enable policy makers in government as well as international partners of Ghana to understand the relationship that exist between inflation as well as real wages and number of labor strikes in Ghana.

Chapter 2: Literature Review

The problem to be addressed by this research was the lack of evidence on the relationship between inflation as well as real wages and collective labor strikes in Ghana. The purpose of this quantitative correlational research was to investigate the relationship between inflation as well as real wages and collective bargaining labor strikes in Ghana. Workers and employers often interact on the labor market through collective bargaining where negotiations for better wages and working conditions occur in exchange for labor output. Employers may be willing to pay higher wages if they expect that the level of output will translate into profits.

Literature Search Strategy

I researched and reviewed literature that was relevant to this study with a focus on those published within the last five years in order to ensure that the study was developed on existing knowledge of scholars. The literature served the purpose of placing the study within the body of developing knowledge. I employed the keyword search technique to search for existing research on inflation, consumer price index, real wages, labor unions, labor strikes, macroeconomics, quantitative and statistical analysis.

The review of literature involved synthesizing macroeconomic theories as well as management concepts on collective bargaining and labor strikes. I used Google scholar, EBSCO, Ohio Link, and the Walden University library database as well as books related to the study. Some of the articles the databases yielded were published beyond five years since the area of study has not been well researched and published in peer-reviewed articles. The key words used in the search include *collective bargaining, collective* *bargaining theories, collective bargaining agreements, trade union, inflation, real wages, and labor strikes in Ghana, labor negotiations, economic trends in Ghana*. I accessed several databases through the Walden Library including, *ABI/INFORM complete, EBSCO, ProQuest, Business Source Complete, SAGE Premier and Academic Search Complete*. I searched for journals through the Walden library including *Collective Bargaining, Industrial and Labor Relations Review Labor Studies Journal, Employee Relations Law, Employee Rights and employment Policy Journal of Economy and Society, Journal of Labor Research and Industrials Relations*. I used Google Scholar to access the articles resulting from the search for journals.

Theoretical Foundation

Collective Bargaining Theories

Most of the theories on collective bargaining were developed to help explain, control, and predict outcomes of the concept (Richardson, 1977). The main theories described included Webb's Classical Approach that was developed by Sydney and Beatrice Webb in the latter end of nineteenth century. The Webb's approach held a view of collective bargaining as being associated with mutual insurance by which unions tend to protect and strive towards improving the conditions of work of their members. They considered trade unions as essential in organizational building activities and providing benefits to their members as well as bargaining collectively with employers on behalf of their members. They viewed collective bargaining as an economic process whereby employers and employees try to achieve outcomes in their best interest.

Hameed (1970) described the industrial relations theory of collective bargaining as the most valid of all the theories on collective bargaining because representatives are considered as partners with the employer in the management of the organization. It is a functional relationship where unions get a hand in shared governance. Chamberlain's managerial theory depicts collective bargaining as an industrial management system for managing industrial relations whereby the union interacts with management to reach decisions on labor matters. The relationship was said to be of a functional nature. Other theories that were relevant to this study include the marketing theory of the sale of labor and the governmental theory of procedures for settling disputes. Hameed explained that the marketing theory seeks to position labor on an economically competitive pedestal of compensation. The marketing theory portrays collective bargaining as a market where an exchange relationship is pursued subject to the voice of the organized workers being a focal point in the matter pertaining to the sale of labor. Chamberlain's marketing theory of collective bargaining bears a similarity to Webb's view of collective bargaining as an economic process. Chamberlain focused on the contract or exchange relationship as the pathway for determining the terms for the supply of labor to an enterprise. The governmental theory seeks to use political influence on union members to achieve its objectives. This theory was said to promote industrial democracy in workplaces. The result of the process of collective bargaining is the contractual feature and this occurs by the joint negotiation of the union and management. In other words, the contract is the agreement by which the union and management jointly rule the organization. Armstrong (2006) and Obeng-Fosu (2007) discussed the procedural and substantive rules of industrial relations. They noted that procedural rules take the form of articles or clauses in the collective bargaining agreement and concerns steps to be taken to settle disputes between employers and employees. Substantive articles in collective bargaining agreements relate to issues of wage rate, working hours as well as terms and conditions of employment.

Salamon (2000) noted that the importance of the social action theory of industrial relations is that emphasis is placed on the individuals' right to retain at least some freedom of action. Social action is said to arise out of the expectations, norms, attitudes, values, experiences, situation and goals of the individuals working in the system. Knowing that individuals in an organization may act collectively based on their experiences may help in understanding their reactions to economic impacts.

The behavioral theory on labor negotiations was laid down by Walton and McKersie (1991) and comprised of a four- stand process for understanding collective bargaining negotiations. The first stand is integrative bargaining, which is a collaborative form of agreement used to form an agenda based on mutual understanding between the opposing parties in the negotiation. In this sphere, most of the work occurs behind the scenes and each party presents their grievances or strains on the table. The second is the distributive bargaining which assumes that an organization is interlaced with its employees, even though their interest or views might be opposed. In the nutshell, the organization is grown out from the employees and the employees are also grown out from the employers and both employees and employers need each other for their survival. In the end, both parties will enter negotiations with the impression of what their final agreement will reach in terms of money, workforce, or working conditions and resources. The third stands by Walton and McKersie is the intra-organization bargaining. In this sphere, the representatives of the union and management officials act on behalf of the opposing parties such as union versus management, to resolve the need of the stakeholder. This is to ensure that the total interests of the respective constituents are represented. Walton and McKersie suggested that negotiators for management and labor should engage in an intra-negotiation process before engaging in an inter-negotiation process with each party. The last stand of Walton and McKersie is the attitudinal restructuring. This is where the opposing parties establish their viewpoints and insight among each other and provide a prescription that will provide an outcome for the current negotiation that affects future negotiations. In addition, if the opposing parties are not able to resolve their differences within their own bargaining units it will have tradeoffs made during integrative or distributive bargaining.

The behavioral theory of collective bargaining relates to this research study by highlighting the role collective bargaining plays in trade union and employer negotiations for better conditions of service. The managerial theory relates to the research study by highlighting the collaboration between trade unions and employers in ensuring productivity and commensurate compensation. The social action theory relates to the research study by explaining the tendency of workers to engage in collective action such as in strikes.

Motivation Theory

One of the most important theories that is essential in promoting industrial harmony is the motivation theory because well-motivated workers are less likely to embark on strike. Rajput et al. (2011) noted that motivation may be defined as the desire of an individual to behave in a way that shows a willingness to make more effort at achieving an objective. Motivation may also be defined as a factor that is present in an individual with the ability to drive his strength, eagerness, and energies towards work. Psychologists hold a view of motivation as a measure of the preparedness and determination of an organization to pursue a specific goal (Dessler, 2001; Mullins 2010). Dessler perceived motivation as an intense desire with which a person does an activity whereas Mullins had the view that motivation explains the behavior of people under certain factors. It may be seen from the definitions that there are factors that promote positive performance whilst others drive workers to agitate and strike.

From the perspective of psychologists, motivation may be classified as either intrinsic or extrinsic. Intrinsic motivation is one that comes from within a person and drives him or her to pursue something (Brown, 2012). Brown noted that the intrinsic or internal factors of motivation include freedom to act, development of skills and the scope to use it, job satisfaction, challenging jobs and development opportunities. Intrinsic motivators influence the quality of life and tend to have a long-term effect (Rajput et al, 2011). Extrinsic motivation was said to be exhibited in situations and circumstances such that participation result in tangible or intangible external benefits such as rewards or punishment. Tangible benefits may include a prize or reward whilst intangible benefits may include recognition, adoration, and praise. Measurement of the external factors may be monetary such as wages and benefits, as well as promotions, but could also be disciplinary action.

Needs may be transformed into positive or negative behaviors. Two process theories that explain these tendencies are the equity and expectancy theories. The equity theory supports the notion that there should be “equal pay for equal work done.” Equity and fairness are the factors that influence employee motivation as well as job satisfaction in the workplace. The equity theory was said to be based on the assumption that through a cognitive process when people observe the effort other people make in their work and the resulting rewards, they pursue that effort as well (Mullins, 2010). It stands to reason that when workers become dissatisfied with their work conditions, they would join forces to agitate and embark on a strike. Equity theory may be considered as a very important tool in studying and understanding motivation at the workplace (McKenna, 2000). Equity was said to be achieved when the outcomes of an employee relative to inputs equals that of other employees. If an employee experiences a situation where the wages he or she receives are not commensurate with the effort he or she puts in the given work, demotivation would influence his or her output performance.

The expectancy theory was originally developed by Victor Vroom in 1964 as an approach to explaining the concept of motivation. He considered motivation as resulting from the value that a person anticipates in an action. Vroom based his expectancy theory on three variables: valence, instrumentality and expectancy. Valence was described as the feeling a person has about a specific outcome. Instrumentality may be described as the likelihood that a given level of performance will result in a specific outcome. The probability that a given behavior will lead to a successful outcome was termed expectancy.

The Endogenous Growth Theory

Since its development, endogenous growth theory has enabled insights into the sources of economic growth development. The theory emphasizes the concept that economic growth results from rational economic decisions. Lucas (1998) noted that firms utilize resources to develop profitable innovations that make them competitive. Also, the aggregation of the individual decisions makes the economic growth rate variable that can be impacted by government tax policies. Though Grossman and Helpman (1991) as well as Lucas supported the endogenous economic growth process, economic growth was also said to be dependent on exogenous technological development in the neoclassical growth model. However, the endogenous growth theory emphasizes that to raise productivity, the labor force must be continuously provided with adequate resources that include physical, capital, human and knowledge.

Literature Review

The Macro economy of Ghana

It was anticipated that frequent labor strikes in Ghana may be linked to economic conditions in the country. This made it prudent to examine the macro economy of the country. Ghana is in the West African subregion and has enjoyed a relatively stable political climate compared to other states in the region. The system of government may be described as unitary since decisions on major political and economic policy initiatives follow a top-down approach. A World Bank report in 2017 estimated the labor force in

Ghana at 14 million. The World Bank report in 2017 also classified Ghana as a middle-income country with a GDP per capita of $1,513. The United Nations has classified Ghana as a developing country. The World Bank (2017) reported an unemployment rate of 5.5 percent and an income per capita of $4,301. The income level may be considered as an indicator of the health of the Ghana economy. The economy of Ghana had a slow but steady growth from 1990 to 2016,

Wages and the Macro economy of Ghana

The situation of wages in the country may help us to understand the role they play in the macroeconomics of the country and for that matter, how it affects unionized labor actions. In an unstable economy, firms may base the wages of workers on criteria that include education qualification, skills, experiences, and age (Cabral & Mollick, 2017; Christl et al., 2016). They noted that the criteria used by employers put young adults at a disadvantage since most of them lack criteria such as skills and experience. The labor market was both shared between government and private enterprises, but the government had a predominant share in key areas such as health, education, administration, and industry. Cabral and Mollick noted that the forces that influence the level of real wages are the demand for and the supply of labor. Araujo and Paz (2014) supported the proposition that wages depend on the profitability of firms. They argued that firms are likely to pay higher wages when the return on their investment is high. They implied that firms will not increase wages just because of macroeconomic conditions but rather will increase wages based on the firm’s performance. Okolo and Attamah (2018) argued that in Nigeria, increases in minimum wage in response to agitation of labor union caused a reduction in labor productivity by 12.33%, a decrease in capital productivity by 4.59%, and a reduction in growth of real output 2.56% over a period of 33 years. They noted that within the period a raise in the tax burden generated an increase in labor productivity, capital productivity, and growth in real output of 12.26%, 6.95%, and 1.71% respectively. They asserted that the effect of the tax burden was aligned to the United Nations sustainable development goal of building strong infrastructure, encouraging inclusive and viable industrialization, fostering innovation. One may expect that increasing wages should help motivate workers to improve or sustain productivity. A negative effect may indicate that other factors such as the type of negotiation of the collective bargaining may hinder this realization. This study included a discussion of the types of negotiations to highlight how the type of negotiation adopted for collective bargaining may influence its outcomes. The managerial theory of collective bargaining appeared to align with the need for labor productivity to increase with wage increases.

Inflation and the Macro economy of Ghana

An important indicator that is effectively used as a measure of inflation in the economy of a country is the CPI. It is used by economists to do a comparative analysis of the purchasing power and the market price of goods and services. Bundey (2015) asserted that CPI should include household expenditure to make it more precise and a better indicator of inflation. The GDP and CPI may be used to assess the rate of inflation (Church & Akin, 2017). They asserted that CPI and the producer price index (PPI) affect the employment cost index (ECI). They noted that when the CPI changes, it results in a change in compensation cost as well and that requires an increase in wages. The implication is that employers must take the compensation cost into consideration in wage negotiation to avoid workers embarking on a strike. In order to control inflation during economic crisis and economic reform, the real exchange rate needs to be stabilized (Su et al., 2017). They reiterated that stabilizing the real exchange rate leads to improvement of the economy. It stands to reason that economic recovery would help mitigate strike activity since many developing countries like Ghana depend on imports which in turn drive up demand for foreign exchange. Bohlman et al. (2015) and Thornton (2016) asserted that ineffective fiscal and monetary policies, high inflation rate, and labor strikes lead to economic instability in developing countries. Amassoma et al. (2018) studied the influence of money supply on inflation in Nigeria and found that money supply did not affect inflation much because the country was experiencing recession. They recommended that the central bank needed to regulate interest rate such that it will attract private as well as foreign investors to invest in industries in Nigeria. Also, the government needed to keep down importation by promoting the production of goods and services locally. Boamah (2019) studied the inflation dynamics of Ghana’s economy, and the findings align with that of Amassoma et al. Boamah noted that money supply had some influence on the rate of inflation in the long run, but short-run dynamics indicate insignificant impact on the inflation rate. It may be deduced that the implementation of the initiatives by the government may help control inflation. High inflation may have an impact on the goods and services that workers can afford with their wages. It stands to reason that when inflation is controlled, workers’ wages will have better purchasing power.

Purchasing Power and the Macro economy of Ghana

The purchasing power of consumers may be described as a measure of the impact of inflation on the ability of consumers to purchase goods and services that they need. Economists often use the parity of CPI and purchasing power to determine the level of household inflation (Bundey, 2015; Tack, 2017). There is a correlation between purchasing power, CPI, and the standard of living of consumers, and workers may embark on a strike if economic conditions deteriorate (Halka & Lyziak, 2015). They asserted that perception of consumers about inflation depends on the impact of CPI and purchasing power on their income. When the purchasing power of consumers is low, it results in reduced household income and that in turn has a negative impact on society (Bechtel, 2012; Stanciu & Mihailescu, 2014). Furthermore, low purchasing power of consumers has a negative impact on consumer demand for goods and services leading to lower standards of living of consumers. Bechtel (2012) explained that low purchasing power of consumers may impact on their political perceptions and social satisfaction. Kaya and Kaya (2016) reiterated that other factors that may influence consumer purchasing decisions include socio-economic as well as socio-cultural factors. Amoah and Aziakpono (2017) suggested that the Ghana government needed to monitor the equilibrium of the foreign exchange rate of the country and implement changes when needed. Monitoring of the foreign exchange rate was to enable the government to be proactive in controlling the rate to keep it at a favorable level.

Analysis of Economic Growth in Ghana

The economy of Ghana improved slowly but steadily from 1990 to 2016. The economic growth rate averaged 4.27% for the period 1990 to 1999 and increased to 5.78% over the period 2000 to 2010. Adom et al. (2015) noted that Ghana achieved a remarkable growth rate of 14.05% in 2011 and this was due to crude oil exportation derived from newly exploited oil fields along the coast of Ghana and favorable prices for commodity exports from Ghana on the international markets. Adom et al. asserted that the improvements were short-lived as GDP dropped substantially from 2014 to 2016 as a result of electric energy crises that disrupted the operations of industries in the country. Analysis of the sectors of the economy of Ghana comprising of agriculture, manufacturing, industry, and service showed that agriculture which used to be the mainstay of the economy, had dwindled due to structural changes in the economy. The statistics indicate that from 2010 to 2016, the contribution of the agricultural sector to GDP decreased from 30.83% to 19.60%. The service sector was observed to have reached 52.24% accounting for over half of GDP in 2016. Alagidede et al. (2013) attributed the growth to better trade performance, and improvement in hospitality and financial operations. Baah-Boateng (2013) recommended that policies that attract investment in agriculture and manufacturing need to be promoted because they will lead to higher output from employment. The contribution of industry to GDP improved from 16.86% in 1990 to 28.16% in 2016. The industry sector was said to have moved from third position to second position after the service sector. The agriculture sector followed suit. Baah-Boateng noted that most of the growth in the industry sector was due to increased activities in the mining and construction subsectors of the economy. The contribution of the manufacturing sector to GDP was 9.81% in 1990 and improved a little bit to an average of 10.11% between 1993 and 2002 but decreased to 5.63% in 2012. It may be noted that the poor performance of the agriculture and manufacturing sectors may increase the country's dependence on imports to augment the domestic supply of agriculture and manufacturing products. Bonga-Bonga and Ahiakpor (2016) reported an economic growth rate averaging 8% for Ghana over the period 2001 to 2014 and noted that keeping up the growth was the challenge facing the country. They asserted that the ability to meet these challenges require adequate knowledge in finding the drivers of Ghana's economic growth. They found that these drivers include population density, crop production, labor force, inflation rate, and current account balance. They also recommended that government employs inflation targeting as the focus of Ghana's monetary policy.

Ghana's Fiscal Policy Development

Developing countries like Ghana that rely mostly on export of primary commodities are characterized by government expenditure with an increasing and decreasing cyclical trend (Adam & Mihalyi, 2017). They explained that the fiscal policy adopted by the government initially takes the form of high spending to give a boost to economic activities and increase total output. The government pursued high spending to promote output despite its impact on interest rates, exchange rate and inflation. Ghana's debt situation deteriorated as a result of budget deficits between 1990 and 2016. The debt-to-GDP ratio reached a peak of 111.95% in 2000 resulting in a fiscal crisis coupled with an increase in inflation to as high as 25.19%. In that year, GDP decreased from a value of 12.56 billion dollars in 1999 to 8.11 billion dollars.

Asiamah et al. (2019) reported that an intervention by the Ghana government managers of fiscal policy together with the International Monetary Fund (IMF) was able to reduce the debt-to-GDP ratio from 111.95% in 2000 to 26.22% in 2006. The intervention was short-lived as the debt-to-GDP ratio increased again to 31.04% in 2007 and further to a high value of 73.41% in 2016 accompanied by adverse conditions of output, interest rates, exchange rate, and inflation. Contrary to expectation, the Ghana government's expansionary fiscal policies did not improve revenue. The main source of revenue was taxation of personal and corporate income as well as tax levied on goods and services from commercial ventures. Alagidede et al. (2013) noted that Ghana's central bank, the Bank of Ghana (BOG), has a monetary policy committee with the responsibility of crafting a monetary policy that sustains a stabilized inflation and exchange rates and also enables equilibrium of balance of payments to be achieved. The committee periodically assesses the position of the macroeconomic targets and indicators to make informed decisions in its review of monetary policy. The economy of Ghana has experienced many instances of hyperinflation despite the BOG's efforts at bringing inflation and exchange rates under control. They recounted instances of this in 1981 and 1983 when the inflation rate was 116.5% and 122.9%, respectively. There have been some successes at bringing down the inflation rate, but it has been very challenging to the monetary policy committee and the rate has fluctuated over the years 1990 to 2016 with an average rate of 20.41%. Alagidede et al. and Baah-Boateng (2013) asserted that low revenue and budget deficits resulting from the government's fiscal policies account for the problematic high inflation rate. Baah-Boateng noted that Ghana adopted the floating exchange rate system in 1983 with the implementation of its structural adjustment program and subsequently the currency has been very unstable and deteriorated in performance. Some scholars have attributed the high inflation rate to the poor performance of Ghana's currency, the cedi, against that of major trading partners. Adu et al. (2015) reported that the exchange rate for the cedi was 0.01 Ghana cedis to one U. S. dollar in 1986 but depreciated in value by 98.7% to 3.34 Ghana cedis in 2015. A 2007 Bank of Ghana report indicated that the cedi was redenominated in 2007 as a measure to deal with the hyperinflation situation in the country by redeeming the value of cedi in the exchange rate. In this policy, 10,000 cedis old currency was exchanged for one Ghana cedi new currency. By this government action, the foreign exchange rate was reset to 0.94 Ghana cedis to one US dollar. Without the government making changes to the key economic variables, any gains expected from the redenomination was short-lived and from 2008, the cedi depreciated after the new rate was realized. The cedi depreciated by as much as 28.74% over 2013 and 2014, and further depreciated by 15% in 2015. Amoah and Aziapkono (2017) noted that since its redenomination in 2007, the Ghana cedi continuously depreciated against major foreign currencies such as the US dollar. They found that the Ghana cedi was undervalued before the redenomination exercise and overvalued thereafter. They recommended that a balance between the two extremities may be achieved by adopting a floating exchange system where the exchange rate is allowed to be driven completely by market forces with no control from the Central Bank.

Ghana depends on imports for many goods such as automobiles, manufacturing equipment as well as necessities including food. Overreliance on imports was said to be an economic issue facing the country.

The Role of Government in Inflation Control

Government has a responsibility to ensure that inflation is kept under control to improve the living standards of consumers. Guerrero de Lizardi (2017) suggested that the government could raise the minimum wage based on the level of the inflation rate in order to improve the real wage level. It is the responsibility of government in conjunction with the central bank to find solutions to high rate of inflation if monetary and fiscal policies fail to work to control it (Hung and Thompson, 2016). In the same vein, Gong et al. (2017) supported the argument that government needs to select the appropriate policy that may be used in stabilizing the market prices of goods and services to improve the standard of living of consumers. Gong et al. emphasized that the most appropriate monetary policy should target the inflation rate associated with prices of semi-finished goods and services, and the relative gaps in price as well as finished goods and gaps in outputs of the goods. Ma and Park (2017) argued that the effect of inflation on the purchasing power of consumers may be mitigated using effective monetary policies.

Ghana’s trade policy is one of liberalization that allows the goods and services to be traded between Ghana and other countries. The trade openness was 116.05 percent of GDP in 2000 but the average was 75.65% between 1990 and 2016. Baah-Mintah et al. (2018) noted that trade is at the core of economic growth, and this applies to Ghana as well. A predominant source of Ghana’s national income is derived from primary export of natural resources and commodities include cocoa beans and gold, and crude petroleum. Ikpesu (2020) discussed the interaction of aid, inflation, and exchange rate in sub-Saharan Africa and explained that the variables are integrated in terms of having a long-run relationship with one another. They found that when aid is increased, it may result in higher investment and export whilst a shock applied to aid may cause imports to be raised. Amoah and Aziakpono (2017) studied the exchange rate problem in Ghana and recommended that the government needed to boost economic activity by creating a business environment that will promote private investment in the production of competitively high quality for export and domestic consumption. When economic activity flourishes it may have some impact on the purchasing power of workers and for that matter, their real wages.

Real Wages and Labor Strikes

The purchasing power of consumers may be linked to their real wages, a term that denotes wages adjusted for inflation. Real wages contrast with nominal wages or unadjusted wages. Workers may become dissatisfied with their real wages when the purchasing power of consumers is low. Data on economic factors that include inflation rate, CPI, consumer purchasing power, conditions of work, labor market demand and supply and fringe benefits may be used in negotiations between unions as representatives of workers on one hand and government and corporations on the other hand as employers. Government and corporations have different goals in the economy. The government seeks to ensure socio-economic development and maintain political stability as well as increase GDP by enabling consumption of goods and services and promoting investment whilst corporations seek to maximize profits and minimize costs. Unions seek to ensure that employers meet the interests of the workers they represent in terms of wages and favorable terms of employment. Baah-Mintah et al. (2018) observed that economic growth has an impact on the reduction of poverty through the labor market. In the same vein, the minimum wage was said to play a role in poverty reduction via improvement of the incomes of workers with low wages.

Labor Legislation in Ghana

Individuals in Ghana have the right to freely belong to a union or association as they seek their economic wellbeing in accordance with the Labor Act of 2003, also called Act 651. The act is in conformity with the requirements of the ILO. Collective bargaining through unionization is both a constitutional as well as a fundamental human right. Unionization of labor is encouraged in some countries whereas in others, it is suppressed.

Mauleon et al. (2014) found that when there is an increase in the integration of product markets, strike activity was reduced. On the other hand, when the product markets open to encourage competition, strike activity increases. Market integration may occur when prices at different locations of goods that are related follow a similar pattern. Their findings appear to support the proposition that increase in unionization affects strike activity. Governments need to enact laws and regulations that protect workers' rights and streamline collective bargaining between workers and their employers. Though having collective bargaining legislation may not prevent strikes, Campolieti et al. (2014) asserted that it may influence strike duration and facilitate wage resolution.

There seemed to be a correlation between wages and collective action (Gose & Sadrieh 2014). They noted that employers generally do not support uniform wages. From an employer's perspective, wage bargaining should be based on the employee's level of productivity. Employees' level of productivity may increase with the expected individual reward. Employers may adopt an aggressive strategy to earn a high return on investment by reducing the share of labor in income (Burger, 2015). Burger noted that in their strategy to increase their capital, employers may employ more workers at low costs, or they may reduce their labor costs by using technology. Therefore, it is important to ensure that employers do not take advantage of their employees due to absence of union support. It therefore stands to reason that governments may need to play a role in promoting collective bargaining by enacting and effecting laws and regulations that protect the rights and interests of both employers and employees.

Trade Union Collective Bargaining and Labor Strikes

Some countries have laws that support union activity whilst others have laws that restrict union activities and limit their power and effectiveness. Government has a responsibility to protect workers' rights and enable adequate representation through collective bargaining. Legislation that promotes collective bargaining by trade unions may not prevent strikes but may reduce strike duration and the time taken for wage settlements (Campolieti et al., 2014). Amoako-Gyampah (2015) studied the strike activities of the National Association of Graduate Teachers (NAGRAT) between 2005 and 2006 and found that the source of the labor strikes was primarily a result of governments' reluctance to respond to the union's requests.

Amoako-Gyampah (2015) indicated that labor strikes were often influenced by the government’s apathetic attitude to addressing the issues presented by the union. He posited that collective bargaining could result in legal pressure on the government and had the potential to develop into political instability if the concerns of the union were ignored. Dimitriu (2017) noted that unions enable employees to express their discontentment with their employer by providing support and fostering solidarity with the employees for the purpose of getting better wages and conditions of work. Unions are known to wield a lot of power in the labor market, but governments try to limit it through laws and regulations. Dimitriu explained that unskilled labor is disadvantaged in many sectors of the economy due to technological innovations, free market competition, and the global labor market. The impact of technology on the labor market is characterized by increases in capital productivity whilst the employment of unskilled labor is decreased. If employers deem that labor cost arising after a strike is more costly than acquiring automation equipment, they may resort to more automation by acquiring the equipment to reduce labor cost and improve productivity of the enterprise since they cannot dismiss striking union members.

Collective bargaining agreements provide a framework for unions and management to address the concerns of employees and minimize adversarial tendencies between the two parties and mitigate the need to strike (Marginson, 2015). Marginson and Galetto (2016) noted that unions may present the voice of their members to management based on the power of collective bargaining agreements but there is no guarantee that there may be cooperation in negotiation between the two parties. Gil and

Meyer (2013) argued that collective bargaining enables the unions and management to negotiate the employment conditions to the letter and allows conflict resolution where the contract is breached. In Africa, several countries have similar experiences of labor strikes as Ghana. Ajewole (2014) indicated that Nigeria experienced several labor strikes in the country's public universities which disrupted academic activities to the extent that the gates of the universities were locked. Other countries that bear a similarity to Ghana such as South Africa and Zambia have had similar experiences.

The History of Strike Action in Ghana

Strike actions have occurred in Ghana dating back to 1919 when miners in the country embarked on the first industrial strike (Adeniji, 2015). Ghana, then called the Gold Coast, was under British colonial rule at the time. The strike action paved the way for collective industrial strikes in the subsequent years, which were successful. Adeniji stated that the colonial government outlawed strikes in the country in order to curb the strike actions. In 1941, the Trade Union Ordinance was passed, and this made the formation of trade unions legal. The British government perceived that a national trade union would Kofi Abrefa Busia control the rampant labor agitations in the country encouraged its formation. On September 8, 1945, the Gold Coast Union Congress was established with a membership of 6,030 and 14 affiliates. However, the TUC pressed the government for improvement in the conditions of service and the politicians calling for independence of the country joined forces with them. Adeniji explained that when the politicians for independence were arrested in 1948, the TUC embarked on a nationwide strike to secure their release. In 1957 Ghana became independent and the name GCTUC was changed to TUCG and later to TUC. The Industrial Relations Act was passed in 1958 to give legal backing to the TUC and collective bargaining at workplaces. The government of Ghana at the time passed the Industrial relations Act in 1965 to replace that of 1958 which required all local unions to be registered with the TUCG. Adeniji recounts that in 1969, there was widespread inflation coupled with a tax levy under the presidency of Dr. Kofi Abrefa Busia. This created hardship for workers such that there were numerous strikes which eventually led to his overthrow by the military government called the National Liberation Council. The government promoted agriculture to improve food sufficiency in the country but its political ambitions to r a Union government was strongly opposed by groups such as student organizations in tertiary institutions. The rampant strikes continued and students in the nation's tertiary institutions supported the actions of the TUCG. A palace coup brought another military head of state to power, but inflation was still high, and the Supreme Military Council government was subsequently overthrown by the AFRC which handed power to a civilian government following democratic elections shortly afterwards. The military took over the reins of government once again through a coup that brought the PNDC to power. The PNDC attempted to weaken the TUC by encouraging infiltration of the ranks and file of the organization. The government established the Labor Commission to help settle labor disputes, but the rampant strikes persisted.

Collective bargaining strikes have been a major issue in Ghana for a long time. When issues affecting workers are not resolved properly by management, the workers become dissatisfied, and they may leave to look for other jobs elsewhere or they may stay on but adopt measures such as labor unrest or industrial action to seek redress for their dissatisfaction. Seniwolibah (2013) asserted that worker satisfaction enhances economic growth. When workers are satisfied with their conditions of work, it would result in an increase in productivity. There are several labor unions in Ghana that represent workers in various professions. They include the Ghana National Association of Teachers (GNAT), the University Teachers Association of Ghana (UTAG), the National Association of Graduate Teachers (NAGRAT), the Federation of Universities Senior Staff Association (FUSSAG), the Industrial and Commercial Workers Union (ICU), the Pharmaceutical Workers Union (PWU), The Teachers and Educational Workers Union (TEWU), Timber and Woodworkers Union (TWU), Ghana Registered Nurses and Midwives Association (GRNMA) and the Ghana Medical Association (GMA). A TUC (2015) report indicated that the unions have resorted to strikes by their members many times to demand better terms and conditions of service as well as pay raises.

Collective Bargaining Agreement

A collective bargaining agreement (CBA) is a set of variables that are negotiated by representatives of labor and management to provide a framework for determining and administering wages, benefits, and conditions of work. CBA may be defined as a precept of labor-management relations with the aim of securing appropriate salaries, better working conditions, and legal backing in case of a breach of the terms agreed upon (International Labor Organization, 2016). Rolfsen (2013) also described CBAs as a collaborated framework made between labor and management to create a contract that results in an agreement covering a specified period and expected performance. It is also important to include a statement by King (2013) that unions employ CBAs in negotiating general conditions of work with employers in unionized organizations. Besamusca and Tijdens (2015) studied collective bargaining agreements obtained from 11 developing countries including Ghana to determine the extent to which clauses related to wage and remuneration, working hours and arrangements for paid leave and work-family were included in the agreements and whether there was a cluster of bargaining topics present. They found wage clauses in 98% of the agreements but without specification of the wage level. They found also that clauses on social security, working hours, and work-family arrangements were 71%, 89% and 84% respectively. Furthermore, all four clauses will most likely occur together so it could be concluded that there is no tradeoff between their inclusions on the agenda of the collective bargaining.

Human capital may be viewed from three perspectives (Wright et al., 2014). They noted that the first perspective was based on an individual’s characteristics that enable him or her to immerse him or herself in an organization’s culture and develop a value to the benefit of the employee the organization. In the second perspective, the characteristic of an employee is such that he or she avails himself or herself to give his or her best value as a result of a satisfactory environment that drives the release of his or her ability. In the third perspective, Wright et al. (2014) perceived human capital as a composition of knowledge, talents and skills and obligation of the human resource base of an organization. This implies that human resource needs to be valued and management needs to recognize this attribute of human resources,

Labor Strike Action

Labor strike actions may be described as the refusal of workers to work normally to press the employer to meet their unresolved grievances and socio-economic demands. A strike may be defined as a collective action of temporarily withholding labor with the aim of obstructing proceedings of work to compel the employer to address their demands (Bendix, 2019). Bendix explained that a strike action is intended to be temporal, and the aim of the workers is to get their needs met.

The Ghana Labor Act (GLA) of 2003, No 651, section 175 states that a strike may be defined as:

> *any action taken by two or more workers acting in concert, which is intended by them to restrict in any way the service they normally provide to the employee or diminish the output of such service with a view to applying coercive pressure upon the employer and includes sympathy strike and those activities commonly called a work-to-rule, a go-slow or a sit-down strike* (Official Gazette, 2003 pp. 1-69).

It is important to note that this definition includes a term that shows that a collective action is required in a strike by workers. It stands to reason that a cessation of work by an individual is not recognized as a strike under the GLA definition.

Types of Labor Strikes

There are several types of labor strikes. They are described subsequently. A wildcat strike may be described as a rapid, impromptu work stoppage without the approval of union leadership (Bendix, 2015). Without the consent and support of the union leadership, the strike may be considered a violation of their collective bargaining agreement. Bendix noted that this type of strike, considered to be the most popular of labor strikes all over the world, occurs with no advance notification. It often arises in situations of unfair dismissal or pent-up discontent with existing dispute between workers and management which erupts in labor strikes. Odeku (2014) asserted that the strike occurs when a faction of the workers seeks redress from the employer for their grievances. Adavbiele (2015) indicated that a wildcat strike is usually orchestrated by a faction of the workers in an organization who are dissatisfied with the administration of the collective bargaining agreement.

Economic strike is another type of strike that is common worldwide. An economic strike usually occurs when employers refuse or fail to meet workers' demand for better wages, benefits and conditions of employment (Dessler, 2008). This type of strike is related to economic issues and is very common in developing countries such as Nigeria and Ghana (Adavbiele, 2015; Seniwoliba, 2013). Nel et al. (2013) indicated that workers resort to an economic strike when their demands for improvement in their conditions of employment including wages and benefits are left unresolved by employers. The strike action tends to be sustained by the workers until they get some economic concession from their employer. Most labor strikes that occur in Ghana are economic strikes.

Sympathy strike, also called a secondary strike is one that workers led by their trade unions usually embark on in most parts of Africa (Clark, 2012). This strike may be regarded as one that involves a solidarity action because it is usually carried out by workers who are not directly involved in the initial dispute. Clark explained that trade unions usually engage in a sympathy strike to offer moral support for other workers who are already on strike and to mount pressure on the employer to meet the demands of the employees. Clark asserted that the solidarity that is built up in this type of strike puts indirect pressure to compel the employer to yield to the demands of the workers. This type of strike may also be described as an action where employees of one organization support their colleagues in another organization who have embarked on a strike and consolidate the pressure on the employer to yield to their demands (Adavbiele, 2015). An example may be cited of the TUC in Ghana which embarked on a secondary strike in solidarity with the Ghana Jubilee Field workers who had resorted to a strike in 2015 as a result of poor conditions of employment. Adavbiele reported that the Non-Academic Staff Union of Universities embarked on similar strike action in Nigeria in 2014 in solidarity with striking members of the Academic Staff Union of Universities.

A general strike is a mass action involving workers in all or most trades and industries across a country. It is used by recognized trade unions in a country to press employers and the government to meet the demands of all employees within the country (Odeku, 2014). Odeku explained that the purpose of a general strike is to put political pressure directed towards the government in power and not necessarily at a particular employer. Adeniji (2015) gave an example of a general strike in Ghana in 2014 led by all trade unions where all workers embarked on a nationwide strike to protest poor employment conditions in the country.

Sit-down strike is another type of strike that is common worldwide. It may be described as one whereby employees show up for work but do not work to protest existing employment conditions (Adavbiele, 2015). When workers show up at work during a sit-down strike action but are not working, it makes it practically difficult for the employer to substitute the striking employees during the strike (Clark, 2012). Since the workers in effect occupy the workplace, there is less chance that their jobs will be taken over by strike breakers. Seniwoliba (2013) reported a 2013 sit-down strike by the Ghana Medical Association, Pharmaceutical Society of Ghana, University Teachers Association of Ghana and the National Association of Graduate Teachers in protest of unsatisfactory conditions of employment.

A strike action that is sometimes embarked on by organized labor is the go-slow strike. This type of strike is a tactic that is used by workers whereby they show up for work but deliberately decrease their efficiency and output rate resulting in very low productivity (Adavbiele, 2015). The go-slow strike may also be described as a strategy used by employees to press their employer to meet their demands by slackening the rate production without grounding operations (Carrel & Hatfield, 2000).

Sick-out or in-strike is a strike action whereby employees and trade unions may embark on another type of strike known as sick-out or in-strike. Adavbiele (2015) described this type of strike as one whereby employees and trade unions claim illnesses and do not report for work on a given day resulting in a loss of productivity. The absence of a significant number of employees from work signals to the employer that a protest is developing. This type of strike was said to bring the employer quickly to the negotiating table. Adavbiele explained that the sit-down strike does not violate any organizational rules since workers are entitled to sick leave.

Work stoppage is another type of strike and may be described as a work stoppage whereby workers temporarily lay down their tools during their working hours for reasons other than conditions of employment. This type of strike may be a response by the employees to the employer’s unfair treatment of employees in the organization or abnormally dangerous conditions of work. Bendix (2019) noted that a work stoppage occurs when workers collectively refuse to do work that they have been contracted to do legally. Also included in this type of strike is the event of workers collectively refusing to work overtime.

Work-to-rule is another type of strike action that needs to be mentioned. Akhmadullin and Fatkhullina (2021) indicated that in this type of strike action, employees ensure that they do just the minimum required by the terms of their contract. This type of strike action tends to cause a slowdown and a decrease in productivity. It is perceived to be only as effective as the number of participants and the consistency of the participants.

Negotiation in Collective Bargaining

Negotiation may be described as the process by which parties engage in a back-and-forth communication to jointly reach a decision (Klingel, 2003). Fisher et al. (2011) shared the same view and complemented that negotiation serves as a basic means by which a party gets what they need from the other party. They asserted that the back-and-forth approach in communication is designed for the purpose of reaching an agreement under the circumstances of each party having similar interests as well as opposing interests. The success of negotiations was said to be contingent on choosing the right communication approach as well as doing so at the right time. Fisher et al. explained that a good negotiation approach needs to be efficient and result in a prudent decision and agreement. The outcome of the negotiation should improve relations between the parties and not strain them. Klingel indicated that there are external variables to consider when selecting a bargaining strategy. These variables include the bargaining rights of the parties, the existing economic situation, and the bargaining unit's demographics.

Traditional bargaining is one of two main negotiation approaches. It is also called positional or distributive approach. Fisher et al. (2011) described traditional bargaining as an approach whereby each party to the negotiation assumes a position for arguing their case and makes some concessions or compromises in order to reach an agreement with the other party. They explained that this form of bargaining involves each party preparing a written draft of the changes it wants to make to the existing contract and presenting it to the other party. The two parties then engage in discussions of the proposals until an agreement is reached. The process may be regarded as proposal bargaining. Klingel (2003) concurred with the view of traditional bargaining and noted that the process involves distributive tactics that require asserting the negotiator's power and the opposing party and trying to influence the other party's expectations. Walton et al. (2000) asserted that in distributive bargaining, each party tries to take a position in their interest and to their advantage and the expected outcome is an agreement acceptable to the negotiating parties though it may be a win-lose. They asserted that distributive bargaining tactics could result in unpleasant side issues that include hostility, uncertainty, fear and negative attitudes. Wanton et al. explained that the core dimension of strategic negotiations is that there are two contracts: a substantive contract and a social contract. The social contract was said to represent reciprocal understandings which may be regarded as quid pro quos of the relationship. Fisher et al. added that paying attention to negotiating position causes the parties to lose sight of real underlying issues of the parties and noted that negotiations of the distributive approach tend to be ineffective when the number of people is large. They explained that negotiators may find themselves in a dilemma in terms of choosing to negotiate soft or hard. They noted that soft negotiators tend to avoid conflict and readily make concessions seeking amicable resolution of the issues being negotiated but they may end up exploited and bitter. Hard negotiators were said to pursue negotiations as a contest of wills whereby he or she seeks to win but the negotiation may take an adversarial dimension such that the relationship between the parties may be harmed.

Interest-based bargaining (IBB) has been found to be a much more effective alternative compared to the adversarial approaches (Stepp & Bergel, 2008). They explained that the alternatives provided by the IBB involve a different structure and process as well as patterns of behavior of the parties. They described the IBB as a principled and integrative alternative to the traditional bargaining in terms of its structure (Klingel, 2003). Fisher et al. (2011) noted that the position adopted by negotiators in IBB is neither soft nor hard. Stepp and Bergel described the IBB as a negotiation process that provides negotiators with a way to identify the issues to be negotiated, relevant detailed information that includes history of the issues being negotiated as well as the associated interests. They reiterated that the negotiating parties work together collaboratively to brainstorm available options to solve the issues. They also mentioned that IBB is known by several other descriptions such as mutual gains bargaining and Win-Win Bargaining. Hargrove (2010) noted also that interest-based bargaining offers an advantage to organizations that adopt the approach in negotiating their collective bargaining agreements which includes better working relationships between workers and management as well as providing lasting solutions to issues and problems.

Inflation and Exchange Rate in Ghana’s Economy

Ghana’s economy depends highly on imports consisting of mainly of primary products. This dependence makes the Ghanaian economy very much susceptible to significant adverse external shocks. The problem is compounded by the volatility of the exchange rate. Adu et al. (2015) asserted that the removal of controls on exchange rate, interest rate, as well as credit ceilings transitioned the Ghanaian economy to a market-oriented one. The transition from a controlled monetary form to a liberal form resulted in the macroeconomic variables becoming controlled by demand and supply forces. They explained that the liberalization of the macroeconomic variables has impacted on the exchange rate as well as the credit rate such that the exchange rate has depreciated against major currencies including the US dollar except a few instances where the currency has appreciated.

The Bank of Ghana set a medium-term target band for inflation in Ghana at 8 ± 2% based on the annual consumer price index (CPI) rate (Abango et al., 2019). This target was aligned with the objective of achieving a long-term average growth in Ghana. The Ghana central bank utilizes monetary policy rate to maintain the rate of inflation within the set target range. The monetary policy rate is selected with respect to inflation forecast. The Bank of Ghana uses the inflation forecast model that employs an error correction model. Bawumia et al. (2008) noted that Ghana, like several other countries, targets the CPI. The CPI measures the average monthly price of a fixed basket of goods and services that households consume in Ghana. The CPI is a variable that may be considered to measure how effective the inflation targeting intervention by the bank of Ghana is functioning to reduce inflation. It may be explained that the main reason for the bank of Ghana's adoption of inflation targeting is to reduce the inflation and the reduction of inflation rate should result in a decrease in CPI. Furthermore, a decreasing inflation rate increases the local currency's external value. An increase in domestic investment to improve the growth of the private sector is likely to result in an increase in trade surplus which may in turn result in appreciation of the local currency. Money supply may be defined as the total amount of money circulating in an economy at a given time. The broad concept of money includes currency outside the banks, savings, demand deposit, time deposits, and foreign currency deposits of residents other than central government, bank as well as travelers' checks. Also included in the money supply are securities including certificates of deposit and commercial papers. The purpose of the central bank in inflation targeting is to achieve low and stable prices by reducing money supply growth. It may be noted that when growth of money supply is reduced, it in turn results in a reduction in inflationary pressures.

Summary and Conclusions

The literature reviewed showed that many of the researchers shared similar views on the probable factors linked to collective bargaining labor strikes. Researchers appeared to be of the view that the primary factor linked to labor strikes was wage issues, but other factors include unfavorable conditions of work. Another factor that has been associated with strikes in other research has been inflation. Kaufman (1981) did a regression analysis of time-series strike activity data on American manufacturing for the period 1954-75 and the outcome showed that the upsurge in strike rates in the manufacturing industry in the 1970s was due to inflation. Along the same vein, I examined inflation as a variable in the study of collective bargaining strikes in Ghana. The literature review portrayed the economic instability experienced by developing countries like Ghana. Ghana and other countries in sub-Saharan Africa appeared to be using some policies to control the depreciation of their domestic currency, reduce inflation, raising wages, and reducing unemployment but despite these economic policies, poverty and labor strikes had continued to persist. The implication of the findings of the authors of the literature reviewed was that governments in developing countries may be taking some measures to develop the economy but the policies were not effective in checking inflation and mitigating the labor strikes. Gains made in the macroeconomic factors at some point in the economic development of Ghana were quickly lost. It stands to reason that further research was required to throw more light on whether labor strike activity is impacted by the macroeconomic factors of inflation and real wages selected for this study. The literature review showed that the economic dilemma as well as the rampant unionized labor strikes was known. Some of the authors of the literature reviewed had made recommendations of measures that the government needs to take to improve the economic situation of the country. It was anticipated that if the outcome of this study aligns with the existence of statistically significant correlation between unionized labor strikes and macroeconomic factors in the country, it would complement the recommendations made and help consolidate answers to the problem.

Chapter 2 covered a discussion of the literature relevant to the analysis of collective bargaining and the macroeconomic effect pertaining to Ghana. The literature reviewed indicated that collective bargaining labor strikes have been a frequent occurrence alongside macroeconomic trends and economic instability. Chapter 3 involves the discussion of how the research was conducted with respect to the research method used in data collection and the research approach employed.

Chapter 3: Research Method

The purpose of this quantitative correlational research was to investigate the relationship between inflation rate as well as real wages and collective bargaining labor strikes in Ghana. To address this gap, I employed statistical inferential techniques of correlation and regression analysis in this research to analyze secondary data from sources that included the National Labor Commission, the Labor Department, the Fair Wages and Salaries Commission, the World Bank, the International Monetary Fund, International Institute for Social Research, and the UWC databases.

The theoretical framework and literature review were the focus of the previous chapter. However, the focus of this chapter is the methodology that was used in the research for the analysis of data on strikes in Ghana. In this chapter, the research design, research population, sample and sampling technique, source of data and data collection methods, and data analysis method of the study are discussed.

Research Design and Rationale

Quantitative methodology enables a researcher to quantify social phenomenon by collecting and analyzing quantitative data as well as examining the relationships between variables (Tuli, 2011). The structure of this research included the plan of the data to collect, from whom, how and when to collect the data. In this study, I obtained quantitative data on the recorded number of strikes that had occurred in Ghana as well as records of inflation and wages to examine the anticipated relationship between the independent and dependent variables. The inflation rate and the real wage were the independent variables whilst the number of strikes was the dependent variable. This quantitative study involved using correlation analysis to explore the relationship between the independent and the dependent variables. For each year, data on the number of labor strikes was collected.

The research method used by a researcher should depend on the goal of the research (Easterby-Smith et al., 2012). A research design depicts the entire plan of how the researcher will conduct the study. The research design forms the foundation for the study and outlines the various methods used in addressing the research problem, highlighting information pertaining to the research problem and other aspects of the study such as the scope, duration, and budget (Sekaran & Bougie, 2013). A research design may be viewed as a “blueprint” for addressing the research questions and hypotheses testing systematically (Bhattacherjee, 2012). Easterby-Smith et al. (2012) noted six research methods that include observational method, case study, survey, correlational, and quasi-experimental. Descriptive methods include observational, case study, and survey whilst predictive methods include correlation and quasi-experimental designs.

Easterby-Smith et al. (2012) explained that if a researcher wishes to focus on observing the behavior of human and animal subjects in their natural habitat or a controlled environment, the method to use is observational. When a researcher wishes to study subjects in depth without the need for predictions, the method to use is a case study. When a researcher wishes to predict how one variable behaves against another, a quasi-experiment may be used. When a researcher wishes to assess the relationship between two variables, a correlational method is used. The goal of this study was to evaluate the relationship between inflation as well as real wages and the number of labor strikes. No interview or survey was used in this research and the method I found to be most suitable was correlational. This research on Ghana may enable other researchers to replicate the findings in developing countries like Ghana.

Methodology

The methodology of this study involved a review of the literature as well as a discussion of the collection and analysis of secondary data. The methodology was structured to include a research strategy that involves the sampling technique and data analysis method to be used. ILO (2016) indicated that it is important to collect data on collective bargaining and strikes and lockouts because it provides governments as well as their social partners with information enabling them to understand the evolution of industrial relations trends better. The collection of data on industrial relations by the ILO has enabled the organization to develop a database, IRData, that contains data on collective bargaining rates, strikes, and lockouts compiled for about 100 countries. The ILO noted that the number, frequency, duration, and scope of strikes and lockouts tend to have a great impact on the labor market, the economy and the well-being of workers. This assertion by the ILO buttresses the importance of having statistics to assess the socio-economic effect of work stoppages and to enable better understanding of trends to identify dispute resolution challenges and promote the design of appropriate campaign and governmental policies.

Population

Bennet et al. (2017) noted that the population in a research study is the entire set of people or things being studied. The target population was the number of collective labor strikes that had occurred in Ghana. Data for inflation rate and real wages were also used. A subset of the population data was obtained for all the variables in the study comprising of number of strikes, inflation rate, CPI, and minimum wages.

Sampling and Sampling Procedures

The sampling strategy involved using a convenience sample of collective labor strike data over a 36-year span. All data used was secondary data and no human subjects were used. A sample of time-series data for a period of 36 years was used for convenience. The span of 36 years covers at least eight terms of the country's administration, so the data was expected to reflect any possible changes in strike activity with changes in macroeconomic effect arising from fiscal policies of successive administrations in the selected period. Data on collective labor strikes was obtained from the Labour Department, the National Labour Commission of Ghana, and the International Institute for Social Research (IISH), and UWC database. The sample size selected was based on the central limit theory (CLT). The CLT is based on the statistical premise that the distribution of sample means may assume a normal distribution with increase in sample size. A key aspect of the CLT is that means, and standard deviations average out to be equivalent to the mean and standard deviation of the population. Sample sizes that are equal to or greater than 30 are sufficient for the CLT to hold. Ross (2017) indicated that the general rule is that sample sizes around 30-50 are considered sufficient for the CLT to hold. I used the G*Power software to calculate the minimum sample size for the research study. I selected 0.3 as the effect size for a medium effect. I selected 0.05 and 0.8 as the alpha level and power respectively in accordance with the standard practice in social science research. I used the exact test family and linear multiple regression random model settings as well as the A priori power analysis to compute the required sample size at the given, alpha, power, and effect size. Using 2 as the number of predictors and a two-tailed test, the G*Power resulted in 34 as the minimum sample size required to achieve statistical validity. Based on the G*Power result, I selected a convenient sample of 36 time-series data for inclusion in the study.

Archival Data

Archival research methods are a range of activities that are used to facilitate the examination of textual materials and documents compiled by organizations (Mohr & Baum, 2017). They explained that in the classical sense, archival methods involve studying historical documents or documents that were created in the past. These methods enable access that a researcher would not otherwise have to the events or individuals that collected the data. Mohr and Baum noted that scholars may use archival methods for non-historical studies including analyzing digital texts such as databases, web pages and emails. Data from the databases of the ILO, Ghana Statistical Service, the Labour Department, the National Labor Commission, the Fair Wages and Salaries Commission, the IISH, the UWC, the World Bank, and International Monetary Fund were accessed.

Data Analysis Plan

The statistical package for social sciences (SPSS) was used to process the data collected. I analyzed the data using both descriptive and inferential statistics. Descriptive statistics used included the means and standard deviations for the strike activity dataset as well as correlation analysis between the independent and the dependent variables.

Groebner et al. (2014) noted that descriptive statistics is used to describe a dataset using charts and numerical measures such as the mean which is a measure of center or the standard deviation which is a measure of the variation in the dataset. They noted also that inferential statistics involves drawing references about a population data based on sample data. Inferential statistics that will be used include hypotheses testing.

In this study, I used a quantitative method to determine whether a statistically significant relationship exists between rate of inflation as well as real wages and the number of labor strikes in Ghana. The research questions were:

RQ1: Does a statistically significant relationship exist between inflation rate and collective bargaining labor strikes?

$H_0$1: There is no statistically significant relationship between inflation rate and collective bargaining labor strikes.

H_a1: There is a statistically significant relationship between inflation rate and collective bargaining labor strikes.

RQ2: Does a statistically significant relationship exist between real wages and collective bargaining labor strike?

$H_0$2: There is no statistically significant relationship between real wages and collective bargaining labor strikes.

H_a2: There is a statistically significant relationship between real wages and collective bargaining labor strikes.

RQ3: Does a statistically significant relationship exist between real wages and inflation as independent variables and collective bargaining labor strikes as dependent variable?

$H_0$3: There is no statistically significant relationship between real wages and inflation as independent variables and collective bargaining labor strikes as dependent variable.

H_a3: There is a statistically significant relationship between real wages and inflation as independent variables and collective bargaining labor strikes as dependent variable.

For RQ1, the independent variable that was studied was the inflation rate and the dependent variable was the number of strikes over the same period. For RQ2, the independent variable and the dependent variable that were studied were real wages and number of strikes respectively. For RQ3, both independent variables were examined together for their correlation with collective bargaining labor strikes as the dependent variable. Secondary statistical data on inflation and CPI were collected from the World Bank database. Data on minimal nominal wages was collected from the Fair Wages and Salaries Commission to compute the real wages. Data on annual number of strikes was obtained from the National Labor Commission of Ghana, the Labor Department and the ILO.

A simple correlation and linear regression analysis was conducted to investigate the research questions. The independent variable was the predictor whilst the dependent variable was the outcome. If the predictor variable was found to be statistically significant based on a 95% confidence interval, the null hypothesis would be rejected and the alternative hypothesis would be accepted (Groebner et al., 2014). An SPSS function was used to determine the sample correlation between the independent and dependent variables. A two-tail hypothesis t-test for correlation involving bivariate distributions of two continuous variables was used to determine whether the sample correlation value was statistically different from zero. Also, a linear bivariate regression involving one group was conducted to determine whether the slope for a predictor variable was significantly different from zero. The results were interpreted as a mean number of strikes and standard deviation for descriptive purposes. The mean gave an idea of the frequency of strike activity in the country on average. To answer the relational research questions, the sample correlation coefficient was computed from the datasets to indicate whether the relationship between the independent variable is positive or negative, strong or weak. Furthermore, the correlation was tested for statistical significance.

Threats to Validity

External Validity

Validity may be described as the extent to which the research findings are valid as a result of the tests conducted measuring what it is expected to measure (Lameck, 2013). Venkatesh et al. (2013) noted that validity is an assessment of the extent to which an instrument measures what it is designed to measure. Houghton et al. (2013) asserted that a researcher needs to establish transferability of his or her research study by enabling readers to see the possibility of replicating the study in a similar context. Akobeng (2008) noted that once the internal validity of the research study has been established, the researcher can proceed to assess the generalizability of the results of the study. A lack of external validity implies that the results are not generalizable. Akobeng asserted that external validity may be increased by using a broad inclusion criterion that led to a study population that resembles real-life population by choosing feasible interventions. External validity was established by selecting a sample that was a good representation of the population. Detailed documentation of data was done to help ensure transferability and validation of the results of the research. The results of the study were anticipated to be transferrable for application to countries in Sub-Saharan Africa like Ghana.

Internal Validity

Akobeng (2008) noted that internal validity is the extent to which findings about a population the researcher is studying is free from methodological errors. Akobeng asserted that internal validity indicates that the results observed are not due to methodological errors. He noted further that factors such as errors in measurement or in selecting participants for the study may threaten its internal validity and a researcher needs to avoid them. Internal validity may be maximized in four ways (Wallen & Fraenkel, 2013). They outlined them as:

1. The conditions for carrying out the research study may be standardized to minimize threats to internal validity due to instrumentation and history.
2. Adequate information about the participants in the research study needs to be obtained as much as possible to minimize threats to internal validity that may stem from selection and mortality.

3. Adequate information about the details of procedures of the research study may be obtained as much as possible to minimize threats to internal validity due to instrumentation and history.
4. Research design appropriate for the study may be chosen to control other threats to internal validity.

Archival research methods comprise of a range of activities for investigating documents that have been produced by organizations or for organizations (Ventresca & Mohr, 2017). They noted that archival methods are applicable to analysis involving digital texts such as electronic databases and web pages. Secondary data were obtained for the study from databases of the NLC, Labour Department, Fair Wages and Salaries Commission World Bank, International Monetary Fund, ILO, UWC which are well-established and recognized institutions. Caution was exercised when entering the data into the processing. system. I used SPSS to calculate the correlation coefficient involved so the accuracy needed of the data analysis results was ensured.

Construct Validity

The threat to construct validity will be minimized by using a t test for correlation and multiple regression analysis. Hypothesis test of correlation using a t test will result in a valid statistical conclusion (Groebner et al., 2014). I used correlation and regression analysis to determine whether inflation and real wages were correlated with number of labor strikes. Grobner et al. noted that the coefficient of determination, R squared, is the proportion of the dependent variable that was explained by the independent variable. The coefficient of determination was determined to assess the reliability of the model that may be used in predicting the values of the dependent variable based on given values of the independent variable. The research data was uploaded for analysis in SPSS Version 28. The data was screened for outliers such that data points with standardized z scores more than 3.29 standard deviations from the sample mean would be treated as outliers and removed in accordance with Tabachnick and Fidell (2012). They noted that evidence and theory would be supportive of the interpretations of test results if the data used is reliable as well as the tests for processing the data. I used multivariate regression analysis to ascertain if inflation and real wages as independent variables were together strong predictors of the number of labor strikes. Multiple regression enables the study of the overall fit of the regression model as well as the relative contribution of each predictor to the total explained variation.

Ethical Procedures

Secondary data were obtained from institutions that had the recorded data. No human subjects were used to collect data so there were no ethical concerns involved in this study. Data was accessed from the databases of the Labour Department, the National Labour Commission of Ghana, the Fair Wages and Salaries Commission, the International Institute for Social Research, UWC, the World Bank, and the ILO. ILOStat data is publicly accessible but permission was required to access data in the databases of the Labour Department and the NLC. Ferrel et al. (2014) indicated that a researcher needs to address ethical issues in the research process irrespective of the research methodology used. Ferrel et al. asserted that business research requires researchers to conform to ethical standards and to be objective. No ethical issues were encountered in the collection of data since secondary data were used for the study. The sources of the data are reliable organizations. I do not work for these organizations so there was no influence of a relationship on the outcomes of the study. Since the study was limited to the use of secondary data, confidentiality and consent of participants as required by the IRB was not applicable. However, approval was sought from the IRB. The IRB approval number was 06-14-22-0580876. Ferrel et al. (2014) noted that data and other information materials collected for research need to be secured. Upon this note, the data was stored in a secured password protected format to be sustained for at least five years following publication of the research study.

Summary

This chapter included details of the methodology that was used for the study. The research design, study population and sample, the sampling technique, source of data and the data collection method employed, as well as the data analysis method, were discussed. The research design in the data collection was selected with the objective of ensuring that the purpose of the research is met. The choice of research design was to also ensure that research biases were minimized. It was expected that challenges associated with the data collection would not undermine the reliability of the data.

Chapter 4 involves an analysis of results that were obtained using quantitative methodology as the research design. SPSS was used to analyze the data. Descriptive statistical procedures were used to describe the data whereas inferential statistical procedures were used to draw inferences from the data. The data were described using charts, graphs, figures, and numerical measures. Inferential statistical procedures include testing the hypotheses for correlation and regression between the independent and dependent variables.

Chapter 4: Results

The purpose of this quantitative correlational research was to investigate the relationship between inflation rate as well as real wages and collective bargaining labor strikes in Ghana. I sought to determine the strength and direction of the correlational relationship between the rate of inflation as well as real wages and the number of labor strikes in Ghana for the period 1986 to 2021.

Wage is an important factor that appears to influence consumer purchasing power and labor strikes. Workers engage in strike actions to seek improvement in their standard of living and to press policy makers to create an economy with sustainable consumer price index (Burns, 2012). Burns indicated that the main causes of labor strikes stem from unsatisfactory wages. However, there is need to examine the situation in Ghana and provide evidence if a correlational relationship exists between wages and number of strikes. The research questions and hypotheses that I sought to address were:

RQ1- Does a statistically significant relationship exist between inflation and collective bargaining labor strikes?

$Ho1$: There is no statistically significant relationship between inflation and collective bargaining labor strikes.

H_a1: There is a statistically significant relationship between inflation and collective bargaining labor strikes.

RQ2- Does a statistically significant relationship exist between real wages and collective bargaining labor strike?

H_O2: There is no statistically significant relationship between real wages and collective bargaining labor strikes.

H_a2: There is a statistically significant relationship between real wages and collective bargaining labor strikes.

RQ3- Does a statistically significant relationship exist between inflation and real wages as independent variables and collective bargaining labor strikes as dependent variable?

H_O3: There is no statistically significant relationship between inflation and real wages as independent variables and collective bargaining labor strikes as dependent variable.

H_a3: There is a statistically significant relationship between inflation and real wages as independent variables and collective bargaining labor strikes as dependent variable.

For Research Question 1 (RQ1), inflation rate is the independent variable whilst number of strikes is the dependent variable. For Research Question 2 (RQ2), real wage is the independent variable whilst number of strikes is the dependent variable. For Research Question 3 (RQ), both inflation rate and real wages are the independent variables, and the number of strikes constitutes the dependent variable. My objective in this chapter was to describe the data collection process and the study results.

Data Collection

The quality of the data collected in terms of validity and reliability was.

ensured by obtaining them from the appropriate sources. I obtained secondary labor strike data (2006-2021) on Ghana from the National Labor Commission and the Labour

Department. The organizations retrieved the data from their databases for me upon request as I was unable to access it from their websites. I compared the labor strike data from the records of the organizations to triangulate for consistency. At the instance of the Labour Department, the Fair Wages and Salaries Commission sent me secondary data on minimum wages in Ghana (1986-2021). I extracted additional labor strike data (1995-2004) from Ampratwum (2016) after retrieval from the database of the International Institute of Social History (IISH). Ampratwum stated that the Labour Department and the National Labour Commission have collected strike data at the micro level. Additional labor strike data (1986-2004) was extracted from Adu-Poku (2006) after retrieval from the UWC database. Adu-Poku had indicated that the strike actions were recorded by the Ghana Labour Department. I compared the labor strike data extracted from the sources for consistency. None of the sources of strike data had a value for 2005 though I found from an article by Amoako-Gyampah (2015) where he examined the strike actions that the National Association of Graduate Teachers (NAGRAT) embarked on in 2005 and 2006. I input the missing data by linear interpolation. Huang (2021) described linear interpolation as a method of estimating a data value based on the two data points that are adjacent to the missing values in the data sequence. I therefore found the mean of the adjacent values and used that as strike data for 2005.

I sourced data on inflation rate and consumer price indices on Ghana from the database of the World Bank. The ILO database and the Ghana Statistical Service website were also explored for macroeconomic data, but the data were inadequate. The independent variables for which data was needed were primarily inflation rate and real wages whilst the dependent variable on which data was needed was primarily number of strikes. I converted the collected data records on minimum daily wages to real daily wages.

I derived the real minimum daily wages from minimum daily wages with inflation factored in as CPI. Real minimum daily wage data were calculated from daily minimum wage data and CPI data using the formula;

Real Minimum Wage = (Minimum Wage / CPI) x 100.

The formula is an alternative to that used by the U. S. Bureau of Labor Statistics (BLS):

Equation 16. Real Earnings in 1982-84 Dollars

$RAWE_i = (AWE_i \ / CPI_i) \times 100$

Where,

i = month

RAWE = Real Average Weekly Earnings

CPI = Consumer price index for all urban consumers for real earnings of AE or consumer price index for urban wage earners and clerical workers for real earnings of PE

The formula is applicable to wages of any unit of time, be it hourly or daily (BLS, 2022). I calculated the real wage using *Excel* and I imported the output into SPSS for analysis. Real wage was one of the independent variables whose effect on the number of strikes was tested. Since CPI and inflation are related, inflation also affects the value of the real wage.

Study Results

I used the Statistical Package for Social Sciences (SPSS) version 28 to conduct descriptive statistical analysis of the inflation rate, real wage, and the number of strikes. I also conducted multiple correlational analyses to examine the correlation between inflation rate and number of strikes as well as that between real wage and number of strikes. I performed regression analysis to ascertain the regression of number of strikes on both inflation rate and real wage. I then analyzed the regression of number of strikes on real wages to develop a regression equation for estimating the number of strikes for a given value of real wage. I used the SPSS to produce figures based on the data I collected. The data used in developing the figures were annual inflation rate data, minimum daily wage data and real minimum daily wage data, as well as number of strikes. It was anticipated that results from the analyses will form the basis for answers to the research questions in this study.

Table 1

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Inflation Rate (%)	36	4.9	59.5	20.606	12.9143
Real Wage GHc	36	1.4000	3.8815	2.735522	.8175586
Number of Strikes	36	4	44	20.69	11.546
Valid N (listwise)	36				

Descriptive statistics describe a variable’s central tendency and dispersion. [Comment: You need to state that N is the number of years of data available for your study during 1986 to 2021.] The mean inflation rate was approximately 21% for the period. The variation from the mean was approximately 13% with a peak value of 59.5%.

The mean minimum daily real wage was a very low value of 2.74 Ghana Cedis whilst the variation was 0. 818.The minimum daily real wage was 1.40 Ghana Cedis. The mean number of strikes was approximately 21 with a variation of approximately 12. The maximum number of strikes over the period of study was 44 whilst the minimum was 4.

Table 2

Correlations

		Inflation Rate (%)	Real Wage GHc	Number of Strikes
Inflation Rate (%)	Pearson Correlation	1	-.453**	.313
	Sig. (2-tailed)		.005	.063
	N	36	36	36
Real Wage GHc	Pearson Correlation	-.453**	1	-.591**
	Sig. (2-tailed)	.005		<.001
	N	36	36	36
Number of Strikes	Pearson Correlation	.313	-.591**	1
	Sig. (2-tailed)	.063	<.001	
	N	36	36	36

**. Correlation is significant at the 0.01 level (2-tailed).

From Table 2, the measure of correlation between inflation rate and number of strikes was 0.313. The correlation coefficient value may be considered as low. The positive value is an indication that the number of strikes increases as the inflation goes up. The p-value for the two-tailed test of the correlation between inflation rate and the number of strikes was 0.063 which was greater than the significance level of 0.05 and therefore not statistically significant.

The measure of correlation between real wages and number of strikes was -0.6 and was significant at the 0.01 level. The value of the correlation coefficient may be considered as moderate. The negative value of the correlation coefficient is an indication that there is an inverse relationship between real wages and number of strikes. The p-value for the two-tailed test of the correlation between real wages and number of strikes was less than 0.001 which was also less than the 0.05 significance level and therefore deemed to be statistically significant.

Table 3

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.601[a]	.362	.323	9.499

a. Predictors: (Constant), Real Wage GHc, Inflation
b. Dependent Variable: Number of Strikes

From Table 3, the R Square value was 0.323 or 32.3%. It is a measure of the proportion of the variation in the number of strikes that can be explained by the inflation rate and real wages. The standard error of the estimate was 9.499. It is a measure of the average distance that observed values deviate from the regression line. In this case the observed values deviate from the regression line by an average of 9.499 units.

Table 4

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1687.957	2	843.979	9.353	<.001[b]
	Residual	2977.682	33	90.233		
	Total	4665.639	35			

a. Dependent Variable: Number of Strikes
b. Predictors: (Constant), Real Wage GHc, Inflation Rate (%)

From Table 4, the value of the overall F statistic for the regression model was 9.353. The p-value associated with the overall F statistic was less than 0.001. The p-value is a measure for determining whether the regression model is statistically significant or not. Since the p-value is less than the 0.05 level of significance, the regression model can be deemed to be statistically significant. This implies that the inflation rate and real wages have a combined effect that has a statistically significant association with the number of strikes as the dependent variable.

Table 5

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	42.297	7.999		5.288	<.001		
	Inflation Rate (%)	.039	.140	.044	.278	.783	.784	1.28
	Real Wage GHc	-8.191	2.218	-.580	-3.693	<.001	.784	1.28

a. Dependent Variable: Number of Strikes

Collinearity between the predictor variables is considerable and confounding if the Value Inflation Factor (VIF) is 2.5 or higher so a lower value is desirable in multiple regression analysis (Johnston, Jones & Manley, 2018). From Table 5, the VIF for the predictor variables, inflation rate and real wage is 1.28 which indicates the absence of multicollinearity. The unstandardized coefficient B for the Constant was a measure of the average value of the response variable when both predictor variables are zero. In this case, when the values of both inflation rate and real wages are zero, the average number of strikes is 42.297 or approximately 42. The unstandardized coefficient B for Inflation Rate measures the average change in the number of strikes that is associated with a one unit increase in the inflation rate, assuming real wage is held constant. The results show that a unit increase in the inflation rate whilst the real wage is assumed to be held constant is associated with an increase of 0.039 in the number of strikes. The unstandardized coefficient for Real Wage is a measure of the average change in the number of strikes associated with a one unit increase in real wage, assuming that inflation rate is held constant. The results show that each additional unit of real wage is associated with a decrease of 8.191 strikes, assuming the inflation rate is held constant. The Sig. (Inflation Rate) is the p-value for the inflation rate. The value of 0.783 is greater than the 0.05 level of significance. We cannot conclude that the inflation rate has a statistically significant association with the number of strikes. The Sig. (Real Wage) is a p-value for the explanatory variable real wage. Because the p-value is less than 0.001 which is also less than the 0.05 level of significance, we reject the null hypothesis. We can conclude that real wages have a statistically significant association with the number of strikes. The regression equation can be formed using the values of the coefficients for the constant and the explanatory variables as: *Estimated number of strikes = 42.297 + 0.039*(Inflation rate) – 8.191*(Real Wage).* Since the regression between inflation rate and number of strikes was not found to be statistically significant, we may exclude it from the regression model and perform a simple linear regression using the real wage as the sole explanatory variable. The result of the regression analysis of the regression of number of strikes on real wage is shown in the tables below.

Table 6

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.591[a]	.349	.330	9.450

a. Predictors: (Constant), Real Wage GHc
b. Dependent Variable: Number of Strikes

The R Square value was 0.33 or 33%. This indicates that 33% of the variation in the number of strikes was explained by real wage as the independent variable. The standard error of the estimate of the dependent variable was 9.45. In this case, the observed values of the dependent variable deviate from the regression line by an average of 9.45 units.

Table 7

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1629.660	1	1629.660	18.251	<.001[b]
	Residual	3035.979	34	89.293		
	Total	4665.639	35			

a. Dependent Variable: Number of Strikes
b. Predictors: (Constant), Real Wage GHc

From Table 7 the F test statistic for the regression model has a value of 18.251. The p-value associated with the F statistic was less than 0.001. This value is less than the 0.05 significance level and this indicates that the regression model of the regression of number of strikes on real wages is statistically significant. The outcome of Table 8 is expected to conform to the outcome obtained in Table 7.

Table 8

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	43.883	5.524		7.944	<.001		
	Real Wage GHc	-8.477	1.937	-.600	-4.376	<.001	1.000	1.000

a. Dependent Variable: Number of Strikes

Table 8 shows the coefficients for the regression between real wage and number of strikes. The value of the intercept coefficient was 43.883 and the unstandardized B coefficient as a measure of the average change in the number of strikes associated with a one unit increase in real wage was -8.477. This implies that number of strikes decreases by 8.477 or approximately a decrease of 8 strikes with a one unit increase in real wage. We can construct the regression equation as:

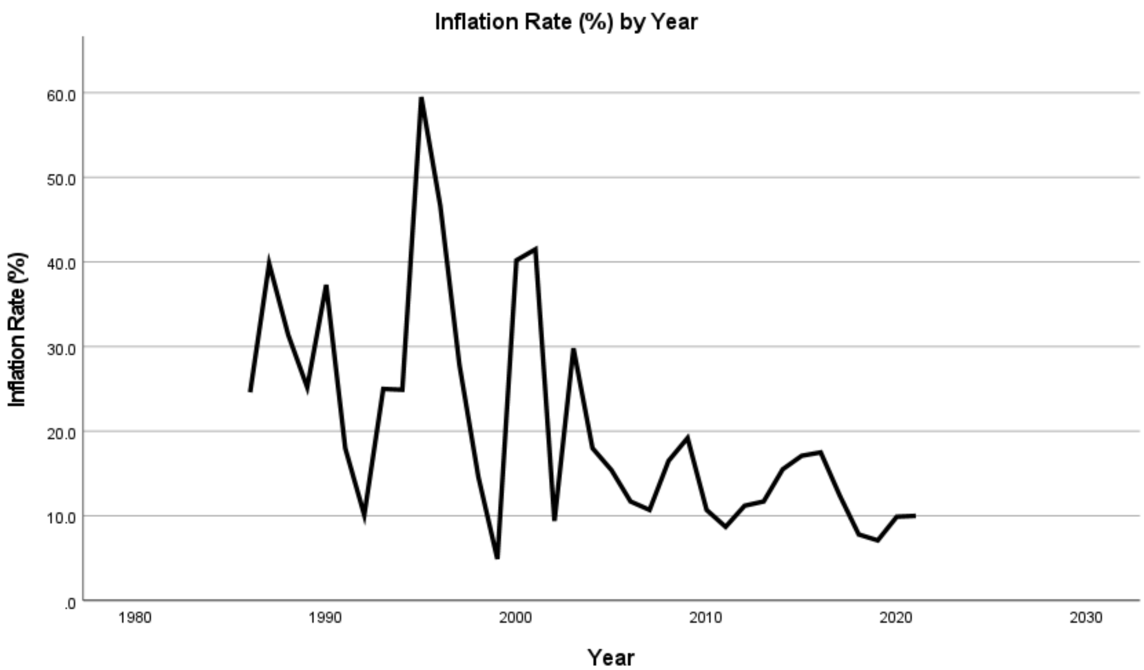
Estimated number of strikes = 43.883 – 8.477(Real wage).*

The preceding regression equation may be used to estimate the number of strikes for a given real wage.

Visualizations for the collected data would clarify the trend of the values of the variables studied. I used graphs to visualize inflation rate, minimum wage and real wage, and number of strikes. I used charts to visualize the correlation between inflation rate and number of strikes as well as the correlation between real wages and number of strikes.

Figure 1

Inflation Rate by Year (1986-2021)

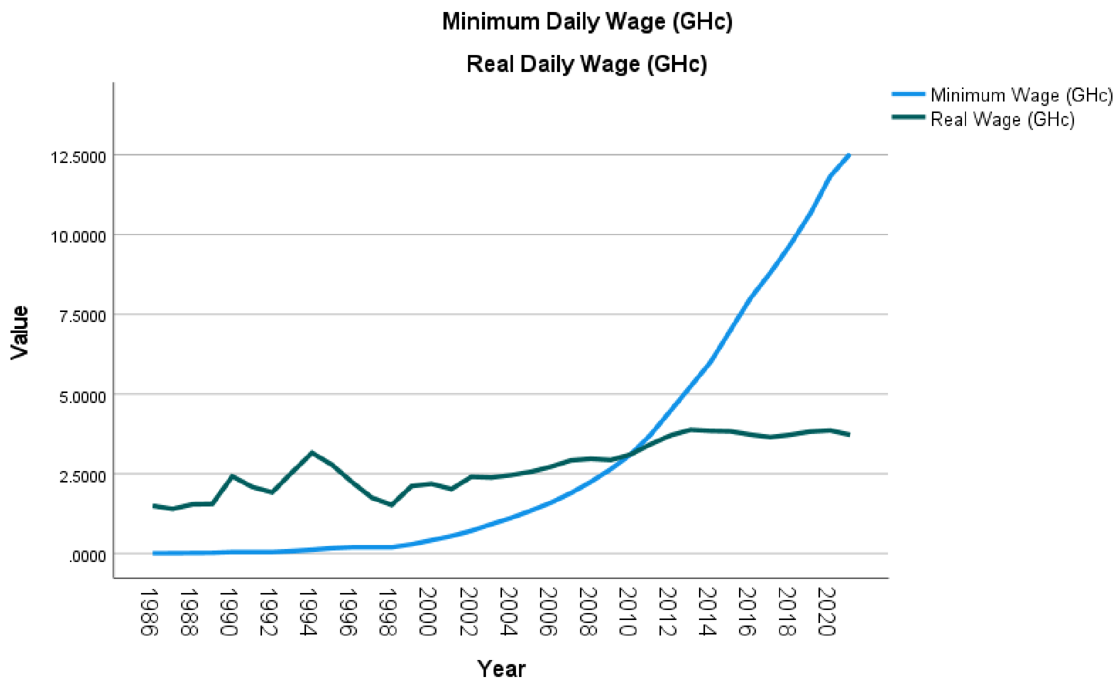


Source: The World Bank database (2022).

Figure 1 shows that the inflation rate for the period 1986-2021 reached a peak of 59% in 1995. The minimum inflation rate over the period was 7%. The inflation rate was erratic over the period, but the fluctuation was less over the last five years of the period.

Figure 2

Minimum Daily and Real Wage by Year (1986-2021)



Source: Fair Wages and Salaries Commission records.

Figure 2 shows that the real wage appears to be above the nominal wage from 1986 to 2010 which is an indication that the purchasing power of the minimum daily wage for these years were better than that of 2010, the base year used by the World Bank in the determination of CPIs for the period studied. Beyond 2010, the nominal wage continued to increase but the real wage lagged below it for the rest of the period. The gap between the nominal wage and the real wage continued to widen beyond 2010. It may be noted also that there were fluctuations in the real wage especially prior to 2010. With reference to Figure 1, labor strikes occurred also in the years that real wages were above the nominal wages. However, it may be argued that not only is the purchasing power an important factor in meeting the monetary needs of employees but the adequacy of the amount to meet basic needs is important as well. The larger the nominal wage, the larger the real wage.

Figure 3

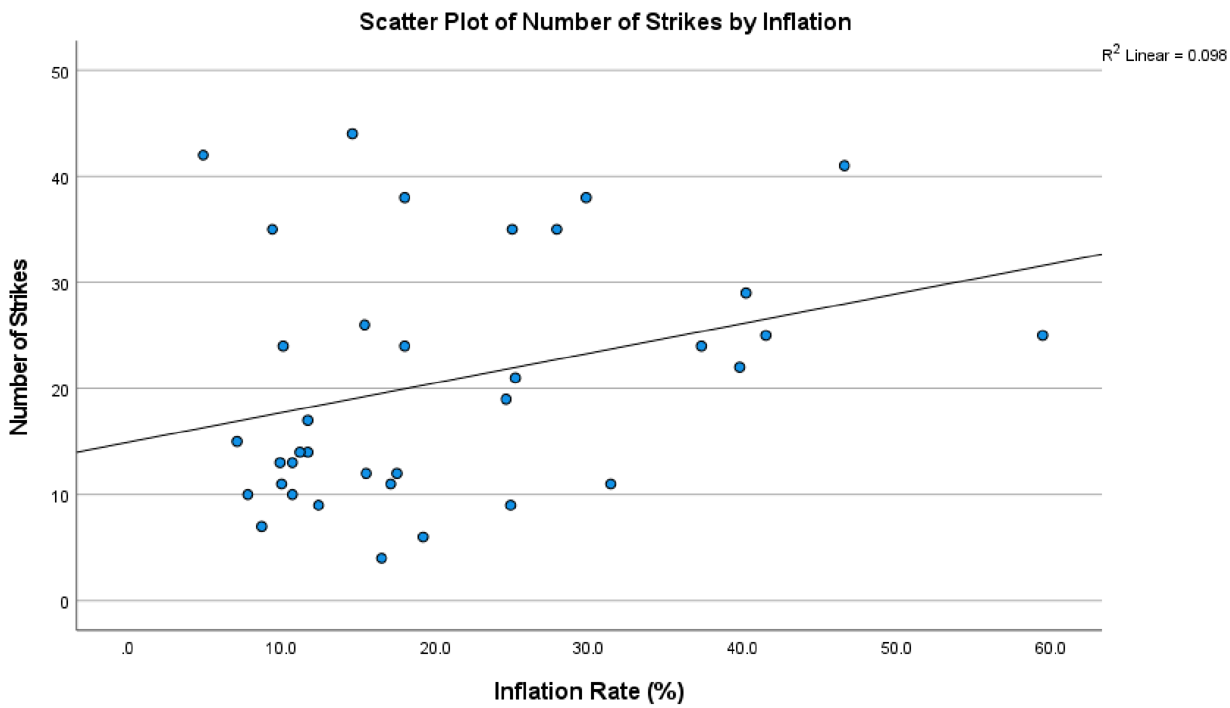
Number of Strikes by Year (1986-2021)

Source: 1986-2004 Ghana Labour Department recorded strike actions as reported by Adu-Poku (2006); 1995-2004 Ampratwum (2016); 2006-2021 Ghana Labour Department and Ghana Labour Commission records; 2005 interpolated data.

Figure 3 is an illustration of the number of labor strikes that occurred over the period 1986-2021. The chart shows that the number of strikes reached a peak of 44 in the year 1998. The minimum number of strikes was four in 2008. The chart shows that the number of strikes dropped after 1998 but continued erratically to 2021.

Figure 4

Correlation between Inflation Rate and Number of Strikes (1986-2021)

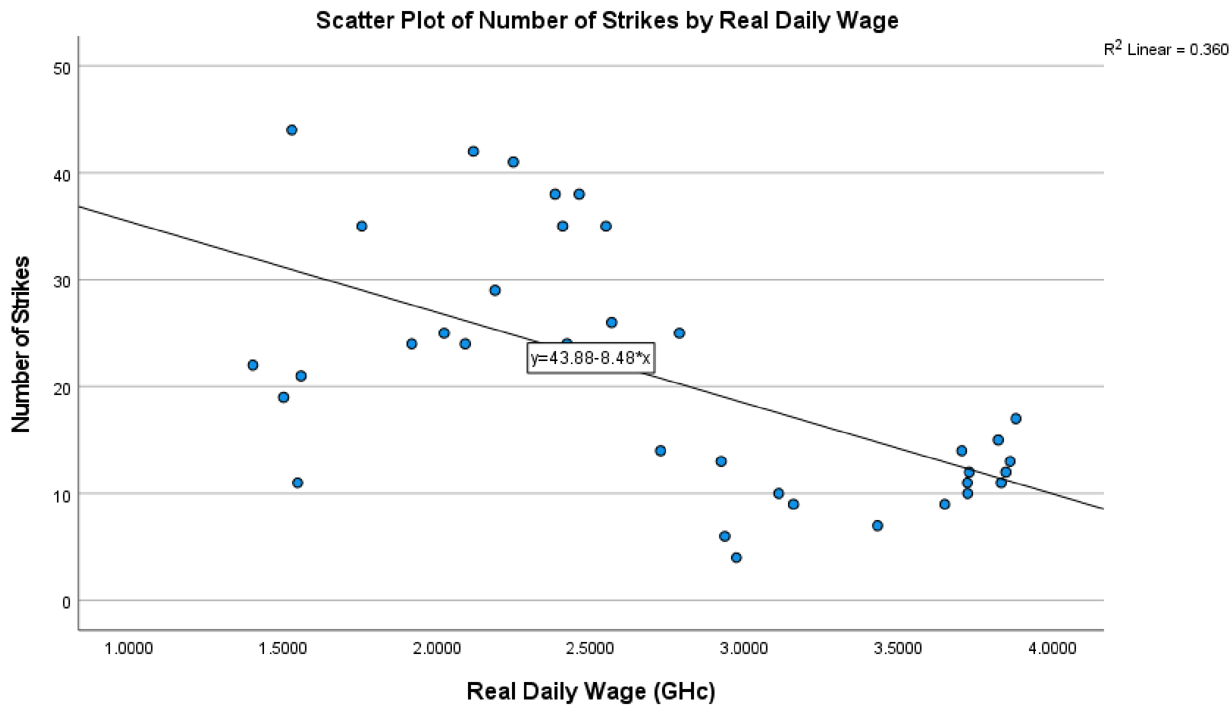


Source: Inflation data from the World Bank database; labor strike data from Ghana Labor Department and Labour Commission records.

Figure 4 shows a positive correlation between the inflation rate and number of strikes. This implies that the number of strikes increases as the inflation rate increases. However, the strength of the correlation may be described as weak since most of the points are dispersed from the trend line.

Figure 5

Correlation between Real Wages and Number of Strikes (1986-2021)



Source: Real daily wage data derived from minimum daily wage records of the Fair Wages and Salaries Commission; Labor strikes data from the Ghana Labour Department, National Labour Commission, Adu-Poku (2006), and Ampratwum (2016).

Figure 5 shows a negative correlation between real wages and number of strikes. This implies that the number of strikes decreases as the real wage increases. The strength of the correlation may be described as moderate since several points are moderately dispersed along the trend line.

Summary

The results of the quantitative correlational study have been shown in this chapter. The data analyses results indicate that a significant correlation exists between real wages and the number of strikes over the period examined. The correlation between both real wages and inflation rate as independent variables and number of strikes as the dependent variable was also significant as shown by the results of the multiple regression analysis. However, the correlation between inflation rate and number of labor strikes was found to be statistically insignificant and this outcome warranted a simple regression analysis that excluded inflation rate. A simple linear regression analysis of the regression of number of strikes on real wage yielded an equation that may be used in estimating the number of strikes that could occur for a given real wage. The line graphs show that real daily wage was above minimum daily wage for the period before the base year but lagged below minimum daily wage after the base year and continued to widen for the rest of the period studied.

In Chapter 5, I interpret the results highlighted in Chapter 4 and note the implications they have for a positive change with respect to the social problem of frequent labor strikes. I will make recommendations for further research beyond the outcome of this study that may help improve the problem. Chapter 5 also includes the conclusions of the study.

Chapter 5: Discussion, Conclusions, and Recommendations

The general problem that prompted this research study was the frequent labor strikes by unionized workers in Ghana which negatively impact on the productivity of their organizations and interrupts the supply of goods and services to the population. The Trades Union Congress (TUC) declared a nationwide strike to protest against hike in the prices of utilities (BBC, 2013). The Ghana News Agency reported in 2021 that the leadership of the Teachers and Education Workers Union (TEWU) met with the Fair Wages and Salaries Commission (FWSC) and other stakeholders on January 13, 2021, following a nationwide strike action . The specific problem that this research sought to address was the lack of evidence on the relationship between collective bargaining labor strikes in Ghana and inflation as well as real wages.

The purpose of this quantitative correlational research was to investigate the relationship between collective bargaining labor strikes in Ghana and inflation rate as well as real wages. In this study, a quantitative method was used to determine whether a correlational relationship exists between rate of inflation as well as real wages and the number of strikes in Ghana.

The key findings of this study were that the correlation between the inflation rate and number of strikes was not significant. The correlation between real wages and number of strikes was significant. Inflation rate and real wage had a combined effect on number of strikes that was significant. Though the results of the regression analysis of number of labor strikes on inflation rate and real wage showed that the relationship was statistically significant overall, the regression of number of labor strikes on inflation rate only was not significant. The regression of the number of labor strikes on real wage only was found to be statistically significant. The results showed that the number of labor strikes has an inverse correlation with real wages.

Chapter 5 is made up of five sections. The introduction above where the purpose of the study is stated, and a short summary of the results is given. The next section is the interpretation of the findings of the study where an attempt will be made to discuss the findings and build on the literature that relates to the findings. In the limitations section, the limitations of the study would be discussed and how the study has been affected. The recommendation section would include suggestions for further study. The last section is the implication section where the study outcome would be discussed in terms of how they lead to a positive social change.

Interpretation of Findings

The research questions and hypotheses on which this study was based were:

RQ1- Does a statistically significant relationship exist between inflation and collective bargaining labor strikes?

> *Ho*1: There is no statistically significant relationship between inflation and collective bargaining labor strikes.
>
> H_a1: There is a statistically significant relationship between inflation and collective bargaining labor strikes.

RQ2- Does a statistically significant relationship exist between real wages and collective bargaining labor strikes?

H_O2: There is no statistically significant relationship between real wages and collective bargaining labor strikes.

H_a2: There is a statistically significant relationship between real wages and collective bargaining labor strikes.

RQ3- Does a statistically significant relationship exist between inflation and real wages as independent variables and collective bargaining labor strikes as dependent variable?

H_O3: There is no statistically significant relationship between inflation and real wages as independent variables and collective bargaining labor strikes as dependent variable.

H_a3: There is a statistically significant relationship between inflation and real wages as independent variables and collective bargaining labor strikes as dependent variable.

The independent variable studied for RQ1 was inflation rate and the dependent variable was the number of strikes over the same period. For RQ2, the independent variable studied was real wages and the dependent variable was the number of labor strikes. Statistical data on inflation rate, Consumer Price Index (CPI) and minimum wage were collected. For RQ3, both independent variables were examined together for their correlation with the number of collective bargaining labor strikes as the dependent variable. The research questions and hypotheses were examined using an exploratory observational study of secondary data either directly or indirectly from the databases of the organizations related to the study.

Labor strikes are associated with low purchasing power of the currency of the country and inadequate wages (Burns, 2010; Murakami, 2015). The macroeconomic conditions and fiscal policies of the government influence the purchasing power of the country's currency (Ma & Park, 2017). Strike actions have a negative impact on the employment relationship (Selala, 2014). The cost of strike actions includes the employees' loss of their salaries and remunerations over the period of the strike irrespective of whether the strikes were protected by law or not (Odeku, 2014; Venter and Levy, 2014). Hameed (1970) noted that the managerial theory of collective bargaining addresses the issue of shared governance at the workplace between the employer and the union. The results of this study showed that the application of the theory is necessary to ensure that workers are productive and get their fair share of the cake.

Correlation between Inflation Rate and Number of Strikes

For RQ1, the focus was on the relationship between the macroeconomic variable of inflation rate and the number of labor strikes. The results indicated that there was a positive correlation between the inflation rate and the number of strikes. The correlation coefficient was 0.313 and the correlation between the two variables was not statistically significant ($p = 0.063$) at the 0.05 level of significance. We therefore do not reject the null hypothesis. The response to RQ1 is that there is not enough evidence to conclude that a relationship exists between inflation rate and number of strikes. This implies that though a correlation may be seen to exist as indicated in Table 2 and Figure 4, the correlation is weak and not statistically significant. Seniwoliba (2013) noted that when the economic resources of a country are managed profitably, the economy will be good for livelihoods. Seniwoliba argued that the precarious occurrence of labor strikes may be linked to high inflation in Ghana which may be the result of ineffective economic policies of the governments. High inflation causes the cost of living to be high and that agitates workers to press government and employers to act to relieve them of the economic hardship. Gyamfi (2011) argued that economic hardship may not necessarily lead to strike but when the concerns of workers are not addressed by government and employers, the situation escalates into a strike. The Fair Wages and Salaries Commission has the arduous task of addressing wage issues in Ghana, but the challenges of the task have constrained them from stopping the strikes. Governments make promises to resolve workers' complaints especially when elections are about to take place but they fail to keep their promises and this creates mistrust and constrains labor dispute resolution (Seniwoliba, 2013). Government is the largest employer of public sector workers such as health and education and when it fails to honor its agreements with them, this often leads to a strike by the workers. Seniwoliba further argued that workers' disputes arising from economic hardship require skillful negotiations and tact by representatives of employers and workers, but such skills appear to be lacking.

Correlation between Real Wages and Number of Strikes

For RQ2 the focus was on the relationship between real wages and the number of labor strikes. Factors that impact on the development of effective employment relations in Ghana include satisfactory wages and salaries (Odhong and Omolo, 2014). Oludele (2014) had a similar perspective and held the view that when workers are satisfied with their wages there would be less or no reason for agitations. Oludele noted that incentives, benefits, and good working conditions as well as a suitable work environment help promote sound employment relations, but wages and salaries are the primary variables that need utmost attention to curb worker agitation. Gyamfi (2011) asserted that inadequate wages was a factor in the rampant strikes that occur in Ghana and called upon the government to ensure that wages of workers were adequate. Braumann (2004) asserted that real wages tend to fall sharply under high inflation conditions. Alagidede et al. (2014) claimed that inflation persistence has been an issue for policy makers as well as academics. They noted that policy makers view a disinflation policy as critical whereas academics view the underlying dynamics of inflation and how the theory conforms to the facts.

The results of the study show that an inverse correlation exists between real wages and the number of strikes. A correlation coefficient of -0.6 was an indication that the relationship between the two variables was moderately strong. The correlation coefficient was found to be statistically significant ($p < 0.001$) at the 0.01 level of significance. We therefore reject the null hypothesis. The results support the conclusion that a relationship exists between real wages and the number of strikes.

Regression of Number of Strikes on Inflation Rate and Real Wage

For RQ3, the focus was on determining whether the regression between inflation rates combined with real wages on the number of labor strikes was statistically significant. The results of the data analysis showed that the overall regression was statistically significant. However, the inflation rate component was not found to be statistically significant so it may be excluded from the regression model. A simple regression model based solely on real wage has a more significant effect on the number of labor strikes. The results from the simple regression analysis were that there was a decrease of 8.477 strikes or approximately 8 labor strikes for a unit increase in real wage.

When the purchasing power of money in a country is low, unsatisfactory wages may lead to workers' agitation and consequently labor strikes (Burns, 2012; Murakami, 2015). Their line of thought was that a relationship exists between wages and labor strikes. This supports my findings that a statistically significant relationship exists between real wages and the number of labor strikes. When inflation causes the purchasing power of the country's currency to be low, workers need more money to improve their real wages to be able to meet their needs.

Regression of Number of strikes on Real Wage

The results of the data analysis showed that the regression of the number of strikes on real wages was statistically significant. Real wage was found to explain approximately 35% of the variability in the number of strikes. When the demand and agitation for better wages goes unheeded by the government and employers, the workers resort to strikes. It may be noted that the magnitude of the real wage could also impact the tendency to embark on strikes since the higher the real wage the higher the purchasing power of the nominal wage paid to the employee. Strategies and policies need to be formulated by organizations to address the concerns of workers proactively over the long term rather than wait till agitations escalate into labor strikes before trying to resolve the dispute (Nyakwara & Gondera, 2014). Collective bargaining has been the tool used by the trade unions in Ghana to negotiate with employers on conditions of employment which primarily involves wages. Seniwoliba (2013) asserted that parties in collective bargaining negotiations need to demonstrate effective bargaining skills in order to avert a stalemate that could drag on to culminate in a strike action. Seniwoliba noted that strikes usually occur if the parties fail to resolve the dispute. Government as an employer must show commitment by honoring its agreements with labor unions to reduce labor strikes occurrences (Momodu et al., 2014). An understanding of the macroeconomic effect of real wages on collective bargaining may help the parties to achieve successful negotiations.

Collective bargaining is a tool that has been essential in addressing wage disputes between unions acting on behalf of workers on one hand and representatives of employers on the other hand (Ige, 2014; Odeku, 2014). Poor wages appear to be the primary cause of labor strikes in public educational institutions in Ghana (Seniwoliba, 2014). Healthcare professionals have also been noted to resort to strikes for the same reason of disputes about wages. The disruption of provision of these essential services has sometimes compelled governments to intervene and negotiate with the unions in order to get these professionals to restore their services. Government agencies that help to resolve labor disputes are the Labor Department, the National Labor Commission, and the Fair Wages and Salaries Commission. It may be noted that inflation impacts on the consumer price index and for that matter, the purchasing power of the wages of workers. The government has the responsibility for controlling inflation but other economic factors that may pose a challenge to controlling inflation are the foreign exchange rate of the cedi as well as the GDP. Ghana is a major importer of food products, so a holistic problem-solving approach is needed to improve real wages beyond just raising nominal wages.

Limitations of the Study

The research involved an exploratory observational study in which the relationship between inflation as well as real wages and number of labor strikes were examined. One of the limitations concerned the generalizability of the study. The focus of the study was Ghana, a developing country with frequent labor strikes and high inflation as well as low wages. The results of this study may only be applicable to countries with similar characteristics to Ghana. Another limitation was access to data on labor strikes. The labor strikes data was not available at the websites of the primary organizations and was only released upon request, which was a lengthy process. A third limitation was data availability. The initial plan was to collect data on the number of strikes, number of striking workers, duration of strikes and number of employed workers but the plan had to change because only the number of strikes had consistently been recorded. The strike data for 2005 was missing so interpolation was used to derive a value in lieu of it. There was evidence that labor strikes occurred in that year.

Recommendations

The outcomes of this study indicated that the correlation that exists between inflation rate and the number of strikes was statistically insignificant. This outcome of the research makes good grounds for further research to investigate the correlation between inflation rate and number of strikes in other developing countries with socio-economic characteristics like that of Ghana. It needs to be mentioned that the initial plan for this study was to determine whether a statistically significant correlation exists between inflation rate as well as real wages and volume of strikes, but the study had to be amended due to unavailability of data on the components of volume of strikes. The components of volume of strikes are the number of strikes, the duration of strikes, the number of striking workers, as well as the number employed workers of the organizations involved in the strikes. Of these components of volume of strikes, only number of strikes was consistently recorded in the databases of the organizations tasked with the responsibility for keeping records of data on labor. It is recommended that if these data become consistently available in the future, further research may be undertaken to investigate the relationship that pertains to inflation rate and volume of strikes.

The study was meant to reinforce extant research with evidence that a statistically significant correlation exists between real wages and labor strikes. In this study, real wages were found to correlate significantly with number of labor strikes in Ghana. It is recommended that further research be done to investigate the relationship between real wages and volume of strikes when the components of volume as mentioned earlier become consistently available in the future. It is recommended also that continued research be made to examine the relationship between real wages and number or volume of labor strikes in other developing countries with similar characteristics to that of Ghana. Such research would help consolidate the generalizability of the findings,

Further research may be carried out to use larger sample sizes to determine the regression of number of strikes on inflation to confirm the current findings whereby the regression was found to be insignificant. It stands to reason that workers would not embark on strike action just because inflation is high, but they may do so because of its impact on real wages. The government agency that is tasked with resolving wage issues in Ghana is the Fair Wages and Salaries Commission. The Ghana Labor Commission is also involved in labor dispute resolution. Further research may be done to determine the recurring disputes that the organizations deal with in helping to curtail the incidence of labor strikes.

Future research may address the limitations stated in this research. Access to digital data related to labor strikes was challenging. Research may be conducted on another developing country with socioeconomic characteristics like that of Ghana where digital data on strikes is much easier to access. Findings from future research on countries with labor issues like that of Ghana may be used for comparison to the findings from this study and other studies on different countries.

Implications

Government policy with respect to industrial relations has been to let employers and workers engage in direct negotiations at the workplace level. However, the government through the Labor Department may intervene to resolve disputes in order to prevent them from dragging on to adversely impact the production of goods and the provision of services. The government happens to be the primary employer for essential services such as health, education, administration, utilities, and security. Act 651 of the Ghana Labor Law 2003 permits strike by workers or lockout by employers. The law stipulates that the union or representatives of the workers give notice of intent to embark on a strike before doing so. Act 651 protects striking workers and employers' lockout and the employment relationship. The Act empowered the Ghana Labor Commission to adjudicate and settle labor disputes. The commission is autonomous and independent of the government, employers' association, and workers' union in the exercise of its functions. The country has structures in place for the adjudication and resolution of disputes yet disputes continually occur. This implies that labor strikes need to be curbed by dealing with the factors that give rise to the strikes and for that matter, the macroeconomic factors in this study.

Mitigation of Labor Strikes through Adequate Wages

Striking workers mainly demand better wages to improve their real wages. The agitation by workers has often been triggered by changing macroeconomic conditions such as high inflation that adversely impact the purchasing power of the currency resulting in a high cost of living. The results of this study showed that inflation correlates positively with the number of strikes. The study also showed that we are unable to predict the number of strikes based on inflation rate due to statistically insignificant regression between the two variables. The results also showed that real wages correlate inversely with the number of strikes and the regression between the two variables was significant. This is an indication that if the real wages of workers are improved, the frequency of labor strikes will be reduced as well. The real wages of workers can be improved by bringing down inflation and paying better wages. Workers may not resort to strikes because of high inflation but they may resort to strikes based on low unsatisfactory real wages and demand better wages to meet their cost of living. Satisfactory wages would help minimize the rampant strikes by workers in the country (Gyamfi, 2011).

There has been a governmental initiative of a new pay policy referred to as a single spine salary structure meant to address disparities in salaries in the public sector but its implementation has been fraught with challenges. Workers have resorted to strikes as a result of dissatisfaction with its implementation. Seniwoliba (2014) advocated that the Fair Wages and Salaries Commission which is the governmental agency charged with the implementation of the policy needs to carry out a public education exercise on the new pay policy in order to curtail situations of disputes and strike actions of workers due to misunderstanding the policy. If government, employers, and unions periodically discuss wages and salaries of sectors and industries periodically to ensure that the levels are adequate to offset the impact of inflation rate and consumer price index, the frequency of strikes may be brought under control. The results of this study showed that real wages for the most part of the span of years studied lagged below the nominal wage.

Mitigation of Labor Strikes through Management of the Economy

The results of this study showed that the correlation between inflation and number of labor strikes was statistically insignificant whilst that between real wages and number of strikes was statistically significant. It may be noted that inflation is linked to real wages through CPI which is a factor in real wage computation. Since real wages has been found to be linked to number of strikes, this implies that there is the need to control inflation to mitigate the number of strike actions. Seniwoliba (2014) recommended that the government needed to address the country's economic challenges that have resulted in the high cost of living. As has been mentioned earlier, the high cost of living may be linked to inflation. Low real wages are an exploratory variable for the frequent strike activity. Bohlman et al. (2015) and Cabral and Mollick (2017) asserted that labor strikes reduce productivity and negatively impact the economy. Okolo (2018) argued that raising wages of workers to meet their demands may reduce productivity unless there is an agreement by the workers to produce efficiently.

Conclusions

The main purpose of this study was to determine whether there was statistically significant correlation between inflation rate as well as real wages and number of strikes in Ghana or not. The results of the study showed that though there was a positive correlation between inflation and number of strikes, the correlation was statistically insignificant. Real wages correlated inversely with the number of strikes and the correlation was statistically significant. Another purpose of this study was to determine the regression of number of labor strikes on inflation rate and real wages together. The results turned out that the regression of number of strikes on inflation rate and real wages combined was statistically significant. However, only the regression of number of labor strikes on real wages was statistically significant whilst that on inflation was statistically insignificant. These findings indicate that the value of the minimum real wage may be used as a predictor of an estimate of the number of strikes for a given year. Real wages were found to mostly lag below the nominal wage. This implies that a raise in the nominal wage was needed to improve real wages and mitigate labor strikes in turn. It may be concluded that real wages inversely correlate with number of labor strike and that though the correlation of inflation with number of labor strikes was statistically insignificant, inflation is linked to real wages by virtue of its relationship to CPI, so it needs to be controlled in order to achieve better real wages.

Successful implementation of government initiatives on wages as well as skillful negotiations by employer representatives and unions may help minimize labor strikes. This study is expected to provide evidence of the link between the exploratory variables and the number of labor strikes. By virtue of the negative impact of labor strikes on productivity, a lasting solution is needed by way of controlling inflation to achieve an affordable cost of living. Government policies effective at reducing and controlling inflation may provide a more lasting solution to the frequent strikes as the link has been evidenced in this study.

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Appendix A: Inflation Rate and Consumer Price Index Data (1986-2021)

Year	Inflation Rate (%)	Annual Change (%)	CPI (2010 = 100)
1986	24.57	14.26	0.6
1987	39.82	15.25	0.8
1988	31.36	-8.46	1.1
1989	25.22	-6.14	1.4
1990	37.26	12.04	1.9
1991	18.03	-19.23	2.2
1992	10.06	-7.98	2.4
1993	24.96	14.90	3.1
1994	24.87	-0.09	3.8
1995	59.46	34.59	6.1
1996	46.56	-12.90	8.9
1997	27.89	-18.68	11.4
1998	14.62	-13.26	13.1
1999	12.41	-2.22	13.7
2000	40.24	35.38	19.2
2001	41.51	1.27	27.2
2002	14.82	-32.15	29.7
2003	29.77	20.41	38.6
2004	18.04	-11.73	45.5
2005	15.44	-2.60	52.6
2006	11.68	-3.76	58.7
2007	10.73	-0.94	65.0
2008	16.49	5.76	75.7
2009	19.25	2.75	90.3
2010	10.73	-8.51	100.0
2011	8.73	-2.00	108.7
2012	11.19	2.46	120.9
2013	11.67	0.48	135.0
2014	15.49	3.82	155.9
2015	17.15	1.66	182.6
2016	17.45	0.30	214.5
2017	12.37	-5.08	241.1
2018	7.81	-4.56	259.9
2019	7.14	-0.67	278.5
2020	9.89	2.74	306.0
2021	9.97	0.08	336.5

Source: The World Bank and International Monetary Fund databases (2022).

Appendix B: Minimum Wage and Real Wage Data Ghana 1986-2021

Year	MINIMUM WAGE (GH¢)	Real Wage
1986	0.0090	1.5000
1987	0.0112	1.4000
1988	0.0170	1.5455
1989	0.0218	1.5571
1990	0.0460	2.4211
1991	0.0460	2.0909
1992	0.0460	1.9167
1993	0.0790	2.5484
1994	0.1200	3.1579
1995	0.1700	2.7869
1996	0.2000	2.2472
1997	0.2000	1.7544
1998	0.2000	1.5267
1999	0.2900	2.1168
2000	0.4200	2.1875
2001	0.5500	2.0221
2002	0.7150	2.4074
2003	0.9200	2.3834
2004	1.1200	2.4615
2005	1.3500	2.5665
2006	1.6000	2.7257
2007	1.9000	2.9231
2008	2.2500	2.9723
2009	2.6500	2.9347
2010	3.1100	3.1100
2011	3.7300	3.4315
2012	4.4800	3.7055
2013	5.2400	3.8815
2014	6.0000	3.8486
2015	7.0000	3.8335
2016	8.0000	3.7296
2017	8.8000	3.6499
2018	9.6800	3.7245
2019	10.6500	3.8241
2020	11.8200	3.8627
2021	12.5300	3.7236

Source: Fair Wages and Salaries Commission; Real Wages calculated from wages.

Appendix C: Labor Strikes Data Ghana 1986-2021

Year	Number of Strikes
1986	19
1987	22
1988	11
1989	21
1990	24
1991	24
1992	24
1993	35
1994	9
1995	25
1996	41
1997	35
1998	44
1999	42
2000	29
2001	25
2002	35
2003	38
2004	38
2005	26
2006	14
2007	13
2008	4
2009	6
2010	10
2011	7
2012	14
2013	17
2014	12
2015	11
2016	12
2017	9
2018	10
2019	15
2020	13
2021	11

Source: 1986-2004 Adu-Poku (2006); 1995-2004 Apratwum (2016); 2006-2021 Labour Department and National Labour Commission records; 2005 interpolated.