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Abstract: This paper examines the impact of structural adjustment programs and minimum wages on average wages and employment in Malawi. Since 1981, the Malawi government has been implementing a series of structural adjustment programs in response to an economic crisis that burst in 1979 and 1980. Several policy reforms, in a phased approach, have been introduced in the economy to induce production in all sectors of the economy. Using data on wages and employment in the formal sector, we examine the impact of minimum wages and structural reforms on average wages and employment in the economy. The test between means shows that employment and real wages significantly declined during the adjustment period. Regression results show support for a cointegrating relationship between average wages, minimum wages, inflation and openness. Minimum wages are positively associated with average wages, while we find no significant association between minimum wages and employment.

Key words: Structural Adjustment; Labour Market; Minimum Wages; Employment Policies

JEL Classification: E24, J23, J42

1. Introduction

The economic crisis that burst in 1979 through to 1981 in Malawi led to the adoption of World Bank and International Monetary Fund (IMF) sponsored structural adjustment programs (SAPs) in 1981.[1] Apparently, the performance of the economy was impressive in the late 1960s and 1970s. Real gross domestic product grew at 5.9 percent per annum between 1970 and 1979, with exports growing at 21.1 percent per annum and imports growing at 17.4 percent per annum. Employment in the formal sector in the 1970s increases by 9.5 percent per annum, with private sector employment increasing at 11.5 percent per annum compared to 3.7 percent per annum in the government sector.

The impressive performance of the economy was rather short-lived. The turbulent developments in the international economic environment in the late 1970s in form of dramatic changes in international commodity prices, interest rates, financial markets and trading conditions created serious problems in the agro-based Malawian economy. In 1979, Malawi was hit by its first major problem due to her landlockedness through the closure of the Beira route, which served

[1] See Mhone (1992) and Kaluwa et al. (1992) for a review of economic and political developments from independence to the emergence of an economic crisis.

as a gateway to international markets, because of intensification of the civil war in Mozambique. Rapid economic progress of the 1970s was interrupted in 1979 with a sharp reduction in growth, rising fuel costs, deterioration of terms of trade, deteriorating financial position of public and private enterprises, and persistent balance of payments problems for three years (Malawi Government, 1987). These problems resulted in weakening internal demand. Real growth rate in gross domestic product fell from 8.3 percent in 1978 to 3.9 percent in 1979 and for the first time, the economy registered negative growth rates of -1.1 percent in 1980 and -4.7 percent in 1981. This economic crisis is what initiated a series of structural adjustment programs as a solution to restoring economic progress similar to that witnessed in the first fifteen years of independence.

The main purpose in the paper is to evaluate the effects of structural adjustment programs and labour market specific reforms on employment creation in Malawi. Malawi stands as one of the countries in Africa that has been on the World Bank/IMF package of structural adjustment reforms for a long period. This paper is organized as follows. Section 2, focuses on the theoretical issues on the relationship between structural adjustment and labour markets and the relation ship between minimum wages, average wages and employment. Section 3 reviews structural adjustment policies, labour market specific policies and institutional developments in Malawi. Section 4 describes the methodology and the data used in the study. Section 5 reports and discusses the results on the impact of structural adjustment programs and minimum wages on wages and employment creation. Finally, Section 6 provides concluding remarks.

2. Structural Adjustment Policies and Employment Creation

2.1 The Link between Structural Adjustment Programs and Employment

Many developing countries have embarked on structural adjustment programs, but the impact of economic reforms on employment remains an issue of considerable debate. Toye (1996) notes that most governments have neglected the adverse effects of structural adjustment on employment, poverty and inequality. For instance, structural adjustment programs may unnecessarily contribute to unemployment and underemployment, lower real wage of labour, and therefore add to poverty and worsen income distribution. Others have observed that a key

problem often encountered in economic reform programs is that job destruction in uncompetitive activities occurs immediately whereas job creation in new competitive activities comes more slowly (ILO, 1996). Agenor (1996) emphasizes the importance of labour market flexibility in the effectiveness of structural adjustment programs has largely been ignored in the design of reforms.

Addison and Demery (1993) provide a theoretical link between structural adjustment programs and labour markets and poverty. They argue that in order to understand the effects of policy adjustments on labour markets it is vital to first understand the effects of such adjustment measures on the product market. In a two-sector model of a small country that produces tradables and non-tradables, Addison and Demery (1993) show that in perfectly competitive labour markets structural adjustment (fiscal and monetary restraint) reduces domestic demand and therefore the price of non-tradables. The relative price ratio of tradables to non-tradables increases, thereby causing capital and labour to switch from production of non-tradables to production of tradables. The rise in the price of tradables implies that the real product wage in the tradables falls, therefore encouraging more employment. The fall in the price of non-tradables lead to an increase in the real wage in the sector, and hence employment falls.

When workers consume both goods, the final change in the real consumption wage becomes ambiguous. However, the fall in the real consumption wage is more likely, the more tradables relative to non-tradables which workers consume. Addison and Demery (1993) and Toye (1995, 1996) also assert that if poverty is concentrated in the non-tradable sector and the switch of labour to the tradable sector is large enough, poverty will not increase and the poverty index will tend to decline. This conclusion does not change under assumptions of a dualistic labour market (formal and informal market segmentation).[2]

The empirical evidence on the impact of structural reforms on employment and wages is limited. The World Bank study on trade reforms in developing countries suggests that total employment in the manufacturing sector either fell or remained stable after liberalization (Papageorgiou et al.,

[2] The formal market which is usually subjected to government regulations such as minimum wages is assumed to have an inflexible money wage while the informal market is assumed to have a flexible wage.

1990). Rama (1994) finds no evidence on the impact of tariff reforms on wages, but a negative impact on employment in the Uruguayan manufacturing sector. The study by Ravenga (1994) cited in Agenor (1996) also shows that a reduction in tariffs led to a much smaller reduction in aggregate employment and an increase in average wages in the manufacturing sector in Mexico. UNCTAD (1995) notes that in structural adjustment policies of privatization and civil service reforms employment is perhaps the most visible and sensitive social aspect in many countries. However, the employment impact of privatisation has varied across countries. For instance, Haskel and Szymanski (1994) estimates that employment fell by 26 percent in industries due to privatisation between 1980 and 1988. On contrary, Hachette and Luders (1993) contend that privatisation does not seem to have had negative effects on the persons employed in Chile, and observe that overall employment increased in privatized firms, and more so in the manufacturing sector.

2.2 Statutory Minimum Wages and Labour Markets

The literature also emphasizes the role of labour market flexibility and institutions in the transmission process of adjustment policies in developing countries in the literature (see Agenor, 1996; Garibaldi and Brixiova, 1998). The orthodox view is that institutional interventions in labour market such as job security regulations, social security contributions, minimum wage laws, unemployment benefits and trade unions are distortions in otherwise perfectly functioning competitive markets. The immediate impact of these distortions is to raise the cost of labour in the formal sector and therefore reduce labour demand, exacerbate inequalities between formal and informal sectors, impede adjustment to economic shocks by reducing employment and wage flexibility (ILO, 1996). However, this orthodox view has been a subject of considerable debate, with other authors raising doubts about the existence of excessively high and discretionary regulations in the labour markets of developing countries and advance broader benefits of market regulations.[3] For instance, others stress that labour market institutions and policies help to reduce poverty, improve productivity and foster economic growth, and thus enhance social welfare in developing countries.

[3] See Agenor (1996) and ILO (1996) for a review of the relative importance of labour market institutions and regulations.

One of the labour market institutions and policies that has received more attention in the inflexibility of the labour market is the imposition of minimum wages. Theoretically, the effects of minimum wages on employment and wages depend on the structure of labour markets. In competitive labour markets, an effective minimum wage reduces the quantity of labour demanded and hence lead to unemployment. On this basis, proponents of the free labour market mechanism argue that minimum wages in developing countries are set too high relative to average income and other wages in the economy, thus raising production costs in the formal sector and discouraging employment (see Brown et al., 1982; Agenor, 1996). However, when employers have monopsony power (in monopsonistic labour markets) minimum wages raise average wages and increase employment.

The available evidence does suggest that minimum wages in developing countries are set at relatively low levels and lax enforcement and incomplete coverage characterize minimum wage regulations. ILO (1996) indicates that the level of minimum wages was as low as 33 percent of the average wage in Chile, Argentina, Mexico and Korea, and ranged from 61.7 percent to 75.8 percent in Thailand. Agenor (1996) notes that minimum wages in most developing countries increased less rapidly than average wages or income per capita and have declined in real terms in many countries, particularly in Africa and Latin America.

The empirical evidence on the employment effects of minimum wages is rather mixed (see Brown et al. (1982) for a review). Recent studies of the employment effects of minimum wages mostly do not support the competitive market prediction of a negative relationship. In a study of the fast food industry in New Jersey and Pennsylvania, Card and Krueger (1994) find no evidence that the rise in minimum wages reduced employment but find evidence that the increase in minimum wages increased employment. Machin and Manning (1994) find that the toughness of the minimum wage regulation imposed by the Wage Councils in U.K. declined in the 1980s and this change contributed to the rising wage inequalities, while they find no evidence that an increase in adult employment resulted from a decline in the effectiveness of the Wage Councils. Dickens et al. (1999) find strong evidence that minimum wages had compressed the distribution of earnings and no evidence their negative impact on employment in Great Britain. Jones (1998) finds a significant and negative effect of the minimum wage on formal sector employment in a study of the labour market in Ghana.

3. Structural Adjustment and Labour Market Reforms in Malawi

3.1 Structural Adjustment Policies and Employment

Structural adjustment programs in Malawi were first implemented in 1981, after an economic crisis that burst in 1979 and 1980.[4] Among other factors, causes of the crisis included the slow growth of smallholder exports, the narrowness of the export base and increased dependency on tobacco, the increasing budget deficits of the late 1970s, and the inflexible system of government-administered prices and wages (Harrigan, 1991). These internal structural weaknesses were reinforced by exogenous shocks of the late 1970s which include a dramatic worsening of terms of trade; a sharp rise in international interest rates; drought conditions in 1979-80; and disruption to Malawi's traditional trade route to international markets.

Within eighteen years of structural adjustment programs Malawi has drawn seven structural adjustment loans (SALs) and sectoral credit packages from the World Bank to support her policy reforms towards a market system.[5] Short-term IMF stabilisation facilities have supplemented these loans, augmenting the resources from the World Bank mainly to address balance of payments problems. In essence, these structural adjustment programs were designed to give incentives for the production of tradables, rationalise government taxes and expenditure, and strengthening key sectors and institutions with a view to setting the stage for sustainable macro-economic growth. The expansion of output that is expected from these adjustment measures would have a positive impact on employment creation.

The main policy measures that are likely to have a direct effect on employment that have been implemented include fiscal and monetary policies such as removal of subsidies and financial sector reforms, and domestic and international trade liberalization policies such as decontrol of prices for selected industrial products, tariff reductions, removal of non-tariff barriers to trade

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[4] See Mhone (1992), Kaluwa et al. (1992) and Harrigan (1991) for the analysis of the economic crisis that led to the adoption of structural adjustment programs in Malawi.

[5] Chirwa and Chilowa (1997) provide a more rigorous discussion of the sequencing, policy actions, negotiation and impact of structural adjustment measures. World Bank (1996) provides an outline of structural adjustment loans and sectoral credit facilities provided to the Malawi Government.

such as export and import licensing, periodic devaluation of currency and floatation of the Malawi Kwacha.[6] Other policies include investment promotion through investment incentives, abolition of monopoly rights in the manufacturing sector in 1988 and deregulation of industrial licensing in 1992, enactment of the Export Processing Zones Act in 1995 as an institutional framework for the promotion of both domestic and foreign investments. In addition, the government has been privatizing state enterprises since 1984,[7] and promote small and medium scale enterprises.

3.2 Labour Market Policies and Reforms

Government intervention in the labour market has been limited in its scope. Within a few years of independence, Malawi introduced the National Wages and Salaries Policy in 1969 with the objectives of containing wages for unskilled and semi-skilled workers in order to encourage labour absorption and create employment opportunities and to restrain domestic inflation in order to stabilize labour costs and maintain international competitiveness (Bose and Livingstone, 1993). Two related policies were in place to support the National Wages policy.

First, the Regulation of Minimum Wages and Conditions of Employment Act of 1958, which was inherited from the colonial administration, stipulates minimum wages that ensure that employees earn a living wage. The Act also provides for the establishment of the Wage Advisory Board for unskilled labour in general and Wage Advisory Councils for semi-skilled workers for specific industries to recommend changes in the minimum wage. Accordingly, the Wage Advisory Board and six Wages Advisory Councils were established and existed for many years. However, as Bose and Livingstone (1993) note, these institutions were very ineffective and often the government made changes to the minimum wage without consulting the Board and Councils.

The problem with the minimum wage policy is that minimum wages are not enforceable and employers that pay employees below the minimum wage are not penalized for violating the

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[6] Chirwa (1998) provides a detailed analysis of the impact of agricultural marketing reforms on food policies and Chirwa (1999) for financial sector reforms in Malawi. See Khan et al. (1989) for the price decontrol programme.

[7] See Adam et al. (1992) for details of privatization in Malawi.

minimum wage regulation. Many employers pay unskilled labour far below the statutory minimum wage. The other problem is the government's inflexibility in adjusting minimum wages to changing economic conditions. Minimum wage adjustments have been very infrequent, and with increases in the price level has meant that real wages have fallen substantially in Malawi. For instance, between 1965 and 1992 minimum wages were reviewed 9 times with a maximum of 7 years interval (see Bose and Livingstone, 1993).

Secondly, the Wage Restraint Policy requires the employers to seek approval from Wages and Salary Restraint Committee of the Minister of Labour and Manpower Development for salary increases in excess of 5 percent per year. Others have argued that by 1972, the Wages Restraint Policy successfully led to increases in formal employment and minimised inflation and rural-urban income differentials (Banda et al., 1996).

The government introduced reforms in the labour market rather late. Most structural adjustment programs implemented in Malawi were not designed to remove distortions in the labour markets. The 1990s witnessed a major change in labour policy after the political-cum-labour riots in major urban centres in Malawi (see Newell, 1995). The unfair distribution of wealth and the payment to labour services were among the central issues that justified the need for political change in Malawi in 1992 (Catholic Bishops, 1992). Reforms in the labour market have been in the form of reviewing the basis for minimum wage fixing from static and *ad hoc* reviews to wage indexation. The new policy implies that minimum wage reviews are necessary when either the cumulative change in retail price index reaches 20 percent or at least every two years. In addition, the government has been encouraging collective bargaining through the promotion and strengthening of trade unions and employer's organisations since 1992.

3.3 Structural Adjustment and Labour Market Institutions

Since independence through to the early 1990s labour market institutions in Malawi, both on the supply and demand sides, were weak and ineffective. The activities of trade unions were heavily controlled by the government and the process of wage bargaining did not effectively exist. The employers were effectively protected by government restrictions on trade union activities. The employers organisation, the Employers' Consultative Association of Malawi (ECAM) was more

organized, well equipped and consultative among its membership than the employees association, the Trade Union Congress of Malawi (TUCM). The trade union movement was very weak and negotiations on employment conditions were made on case by case basis.

The main provisions for the formation of trade unions are legislated in the Trade Union Act of 1965 which derives from the ILO Convention No.98 on the Right to Organize and Collective Bargaining, which the Government ratified in 1965. The Act provides a channel of communication between workers and employers to enable the two parties negotiate on wages and terms and conditions of employment. However, despite the provisions in the Act, for more than 30 years after independence and before democratization, the trade union movement has been dormant. According to Banda et al. (1996) after independence, government policy was to consolidate its political power to stifle the labour movement and trade union activities and meaningful collective bargaining. As a result all trade unions were systematically eliminated leaving only five in the services, agriculture, transport and building and construction sectors. These unions through their umbrella organization, the Trade Union Congress of Malawi, were affiliated to the ruling Malawi Congress Party.

This obviously resulted in the ineffectiveness of trade unions in influencing labour relations in Malawi. Bose and Livingstone (1993) note that trade unions in Malawi are very weak and do not have any significant role in dialogue, negotiations and bargaining with employers on wages or in settlement of disputes over working conditions. Accordingly, labour unionization was very low, standing at 56,000 out of the 488,000 paid employees in 1991. The demise of effective trade union activities was partly strategic in the implementation of the Government's Wages and Incomes Policy which essentially focused on minimizing labour costs.

The social impact of economic reforms, and the democratization process since 1992 led to the rebirth of the active trade union movement. Under structural adjustment programs through policy actions such as the devaluation of currency, public deficit spending and transport bottlenecks, the purchasing power for many workers had dwindled through the increases in the price level, employees are recognizing the need for stronger collective bargaining. In 1992, most employees were on strikes that in some cases resulted in riots, which were resolved through tripartite meetings between the government, employee representatives and employers.

The positive outcomes from negotiations between employee representatives and employers encouraged the formation of trade unions. Some 12 unions became active, elected office bearers and were affiliated to the revitalized Trade Union Congress of Malawi. The unions include Transport and General Workers Union; Railways Workers Union; Local Government Employees Union; Tea and Plantation Workers Union; Teachers Union of Malawi; Commercial Insurance Union; Building and Construction Workers Union; Textile, Leather and Garments Union; Hotels, Food and Catering Union; Civil Servants Union; Customs Union and Sugar Employees Union. Apart from these, many employees have standing representatives to bargain wage increases and better employment conditions with their employers.

On the demand side of labour, the Employer's Consultative Association of Malawi (ECAM) was founded in 1963 to promote private sector interests and as a channel for business consultation with Government. It has a membership of individual companies and associations of companies. ECAM is involved in tripartite negotiations between employees, employers and the Government on labour relations and wage policies. Consultation between Government and ECAM has been very strong, and this has resulted in the marginalisation of the weak and ineffective trade unions.

Structural changes that have occurred in labour market institutions are more a result of the democratization process that began in 1992 and not as part of a policy package to remove distortions in the labour market. The restoration of trade unionism and their emerging effectiveness and the political clout of trade unions implies a promising balance of power between employers and employees. Trade unions are participating in almost all issues that affect them in tripartite forums organised by the government on issues such as labour relations, minimum wages and the economic situation in the country.

4. Methodology and Data

This study uses aggregate employment data between 1970 and 1995 in the formal sector in Malawi. Our empirical analysis is in two parts. First, we assess the impact of structural adjustment programs on employment and real wage developments using the test of the difference between two means. We divide the sample period into the period before structural adjustment programs (1970-1979) and the adjustment period (1980-1995). Secondly, we investigate the

impact of minimum wages on employment and nominal wages using econometric techniques. In the latter, we follow the existing literature (see Brown et al., 1982; Jones, 1998; Dickens et al., 1999) and estimate the following equations:

$$\ell n(AVEW_t) = \beta_0 + \beta_1 \ell n(MINW_t) + \sum_{i=2}^{m} \beta_i X_{it} + \varepsilon_t \quad (1)$$

$$\ell n(EMPI_t) = \beta_0 + \beta_1 \ell n(MIAVW_t) + \sum_{i=2}^{m} \beta_i X_{it} + \varepsilon_t \quad (2)$$

where for year t, AVEW is the average formal sector wage, MINW is the legally imposed minimum wage, EMPI is the measure of employment, MIAVW is the minimum wage normalized by the average wage[8], X is a set of macro variables that control for business cycles and shocks and ε is the error term. The macro variables include real gross domestic product (RGDP), the consumer price index (CPI), and the trade openness indicator calculated as the ratio of the sum of imports and exports to nominal gross domestic product (OPEN). In equation (1), we also include the rate of unemployment (UNLF), as a control variable measured as the ratio of the labour force outside the formal sector to the total labour force. We use three alternative measures of employment - the number employed in the formal sector (EMPL), the ratio of employment to total labour force (EMLF) and the ratio of employment to total population (EMPO).

If the data is consistent with the competitive labour market model, we expect the minimum wage to be positively associated with the average wage and negatively associated with the level of employment. On the other hand, we expect a positive relationship between the minimum wage, average wage and the level of employment if the data is consistent with the monopsonistic labour market model.

The data used for the time-series analysis are based on various sources. Data on employment and average wages in the formal sector were taken from various issues of the *Economic and Financial Review* published by the Reserve Bank of Malawi and *Year Book of Labour Statistics*

[8] Dickens et al. (1999) and Machin and Manning (1994) refer to this as the toughness of the minimum wage legislation.

published by the International Labour Office. The labour force figures were taken from the *World Bank Tables*. Population, nominal and real gross domestic product, exports, imports, price level data were taken from various issues of *International Financial Statistics* of the International Monetary Fund. Data on minimum wages were obtained from various issues of the *Malawi Statistical Year Book* published by the National Statistical Office, and from Chirwa and Chilowa (1997) and Bose and Livingstone (1993).

5. Structural Adjustment, Minimum Wages and the Labour Market in Malawi

Although structural adjustment programs commenced in 1981, reforms in the labour market are quite recent. In any case, there were less controls in the labour market in Malawi. The minimum wage legislation was not enforceable such that employers were free to set wages and salaries of unskilled labour. Interventions in skilled, technical and professional labour markets did not exist and trade unions were poorly organized. Otherwise, salaries and wages of skilled labour have always been flexible. Since structural adjustment programs seek to alter the structure of production and correct market distortions that provide incentives towards output growth and hence employment, we first look at macroeconomic developments.

5.1 Structural Adjustment Programs and Macroeconomic Performance

Malawi has been on structural adjustment programs almost for two decades now. However, after such a long period of structural adjustment measures in Malawi, the economic progress that the country witnessed in the 1970s has not been restored (see Table A1). The growth in real gross domestic product grew at an average rate of 3.5 percent per annum between 1970 and 1997. The economy recorded a higher growth rate of 5.9 percent in the period before adjustment compared with a growth rate of 2.7 percent per annum during the structural adjustment period. The growth rate in gross domestic product has been erratic during the adjustment periods, with a combination of positive growth in some periods and negative growth rates in other periods, and only minor changes have occurred in the sectoral composition of gross domestic product. During the period before adjustment, per capita income grew at an average rate of 5.2 percent compared to a negative growth of -0.7 percent during the adjustment period. The average annual rate of inflation more than doubled and reached 22 percent in the adjustment period compared with 8.4

percent in the pre-adjustment period. Gross savings as a proportion of gross domestic product fell from an average of 12.1 percent in the period before adjustment to 5.7 percent in the adjustment period. Similarly, gross domestic investment as a proportion of gross domestic product also fell from an average of 27 percent during the period before adjustment to 18.8 percent during the adjustment period.

The government deficit as a proportion of gross domestic product, however, fell marginally from 7.4 percent in the pre-adjustment period to 6 percent in the adjustment period. The rate of growth in nominal deficit was much slower in the adjustment period compared with the period before adjustment. The ratio of broad money supply to GDP shows that little improvements in financial deepening, from 17.2 percent before adjustment to 18.4 percent during the adjustment period. However, while SAPs were first implemented in 1981, financial sector reforms only began in 1988. Chirwa (1999) reports a significant increase in the ratio of money supply to GDP after financial sector reforms compared to the period before financial sector reforms.

Structural adjustment programs seem to have encouraged international trade, with the trade balance marginally falling in the adjustment period. Exports as a proportion of gross domestic product increased from 18.1 percent in the pre-adjustment era to 21.8 percent in the adjustment period. However, the composition of exports has not changed as a result of structural adjustment programs. Chirwa and Chilowa (1997) report that 47.7 percent of export earnings originated from tobacco in the pre-adjustment period. The share of tobacco in export earnings increased to 54 percent in the 1980s and to 68.7 percent between 1990 and 1994. The share of other traditional exports such as tea fell from 21.2 percent in the 1970s to 9.6 percent in the first half of the 1990s. Similarly, the share of sugar, groundnuts, cotton and manufactured products declined substantially. This shows that structural adjustment programs have failed to facilitate the diversification of the export base. Imports as a share of GDP also fell from an average of 32 percent in the pre-adjustment period to 30.6 percent during the adjustment era.

The macroeconomic performance indicators apparently do not show an impressive performance and structural changes in the economic base of the country, despite a long period of pursuing structural adjustment programs. Most economic indicators point in the opposite direction contrary to the expectations of those that advocate structural adjustment programs. The growth

in national output has been slow and erratic, inflation has been very high, savings and investment have fallen, the export sector is becoming less diversified while imports are on the increase.

5.2 Structural Adjustment Programs and the Labour Market

5.2.1 Employment Trends Under Adjustment

We have observed above that the economic performance during the adjustment period has not been as impressive as that recorded in the first fifteen years of independence. Now, we turn to what has happened to formal employment as a result of adjustment programs. We use the test between two means to establish the statistical significance of the changes that have taken place in the labour market. The population of Malawi was estimated at 4.44 million people in 1971 which increased to 6 million in 1980 and 8.8 million people in 1990. According to Banda et al. (1996), in 1980 the total labour force was estimated at 2.8 million with 44 percent being female but almost doubled to 4.1 million in 1990 with the percent of females in the total labour force declining to 41 percent. Formal employment has only taken a small proportion of this labour force. In 1971 only 172,273 people were employed in the formal sector with the private sector accounting for 69 percent and 33 percent were employed in the agricultural sector. In 1980 only 359,825 people out of a labour force of 2.8 million were employed in the formal sector with the private sector accounting for about 80 percent. Similarly in 1990, the formal sector only employed about 11.6 percent of the total labour force.

Table 1 shows the composition and growth of formal sector employment in the formal sector between 1971 and 1995. The agriculture sector dominates the composition of formal sector employment, accounting for 40.6 percent before adjustment and 48.6 percent during adjustment. The financial and business services sector also shows a significant increase in the share of formal employment. The increase in the share of formal employment in manufacturing sector, electricity and water, transport and communications has been modest. Nonetheless, we observe significant declines in the share of formal employment in four of the nine sectors. Overall, the share of private sector formal employment has significantly increased while that of the public sector has declined in the adjustment period.

[Table 1 about here]

In terms of average growth rates, formal employment increased at 9.45 percent per annum between 1971 and 1979 resulting in a net employment generation of 179,990 jobs. However, the rate at which the formal sector generated employment opportunities significantly declined to 2.96 percent per annum in the adjustment period. The data also shows that most sectors, except mining and quarrying, experienced a decline in the growth rate. While employment in the agriculture sector grew at an average rate of 16.1 percent per annum in the pre-adjustment period, growth significantly slowed to 3.7 percent per annum during the adjustment period. The growth rate of formal employment also significantly fell in the financial and business services sector from 27.8 percent per annum to 6.7 percent per annum. Private sector employment experience decline in the growth rate from 11.54 percent per annum in the pre-adjustment period to 2.88 percent per annum in the adjustment period, while growth in formal employment in the public sector remained more less stable at 3.7 percent per annum. The rate at which the formal sector has created jobs has been significantly slower during structural adjustment programs compared with the period before adoption of structural adjustment programs.

5.2.2 Real Wage Developments Under Adjustment

Although nominal average monthly earnings in the formal sector show increases in the adjustment period, due to increases in the general price level, real wages have experienced a downward trend. In the pre-adjustment period nominal monthly earnings in the formal sector were on average MK30.90 and significantly increased to MK95.51 in the adjustment period. Minimum wages increased from MK11.87 in the pre-adjustment period to K87.36 in the adjustment period. Table 2 shows changes in real wages in the formal sector in Malawi between 1971 and 1995. Average monthly earnings and minimum wages in real terms show that real wages have declined within the adjustment period compared to the pre-adjustment period. Real monthly earnings fell from MK51.87 in the pre-adjustment period to MK30.57 in the adjustment period. The decline is largely attributed to a decline in real wages in the private sector from MK48.28 in the period before adjustment to MK34.03 in the adjustment era. Similarly, real statutory minimum wages have fallen from MK20.26 to MK18.32 between pre-adjustment and adjustment periods. The decline in public sector real wages is not substantial.

[Table 2 about here]

While employment increased in the adjustment period, average monthly earnings in real terms have declined because of high rates of inflation during the adjustment period. We observe significant declines in real wages in the formal sector in all sectors of the economy. The trend in average monthly earnings and statutory minimum real wages in Figure 1 shows persistent declines in real wages since 1982. The statutory minimum wage is binding in the agriculture sector, otherwise, all other sectors have average monthly earnings much higher than the minimum wage. The gap between the real minimum wage and the agricultural sector earnings on one hand and the average wages of other sectors has become narrower during the adjustment period.

[Figure 1 about here]

The other aspect of the wage development in the adjustment period is the movement in monthly wages in other sectors of the economy relative to the agricultural sector wages. This gives an indication of the rural-urban wage gap since most formal agricultural activities are in the rural areas whereas manufacturing activities are in the urban areas. Table 2 shows that during the period before adjustment the real manufacturing wage was 3.44 times that of the agricultural sector wage but slightly increased to 3.49 times in the adjustment period. However, the relative wage in the wholesale, retail and hotels sector significantly increased from 4.04 in the pre-adjustment period to 4.49 during the adjustment period. All the remaining six sectors show average declines in relative wages during the adjustment period, but the decline is statistically significant only in the transport and communications sector. The marginal declines in relative wages point to the fact that adjustment programs have not been able to eliminate the wage gap between the urban and rural areas.

[Figure 2 about here]

Figure 2 shows the trend in relative wages. In both periods, the average earnings are higher in the financial and business services, transport and communications, wholesale and retail sectors. The high relative wage in the financial and business services sector reflects the skill content of the labour force, since most of the services require specialized skills compared to agriculture and

other sectors of the economy. The relative wages in the manufacturing sector are stable between 1971 and 1983, and fall in 1984 and 1985 and rise in 1986 and begin to fall again in 1991. The relative wages in the financial and business services sector initially show a declining trend between 1971 and 1985, but start to increase in 1985. The relative minimum wages are rather constant over the whole period, except for a sharp increase between 1992 and 1993. This represented the highest increase in nominal minimum wages that followed from industrial unrests and strengthening of union activities in 1992 that were part of the democratization process in Malawi. However, relative minimum wages have been mostly above one, an indication that the minimum wage regulation is effective and binding for the formal (large-scale) agriculture sector.[9] Otherwise, all other sectors pay above the statutory minimum wages.

The assessment of the impact of adjustment programs on informal employment is difficult because of data unavailability for such enterprises. However, given that the formal sector only employs about 10 percent of the total labour force, it is very likely that a larger proportion of the labour force is employed in the informal sector. Daniels and Ngwira (1992) estimate that Malawi had 570,000 micro, small and medium sized enterprises in the informal sector and employing over one million people. Activities in the informal sector have increased in the adjustment period as a survival mechanism or as a result of trade liberalization. The impact of the growth of informal activities on employment cannot be understated, and it is likely that self-employment in the informal sector has increased during the adjustment period. However, the real net income effects of these informal activities remain an empirical question. Informal labour markets are normally not affected by government policies and the wage rates are not bound by minimum wage legislation in most developing countries (Jones, 1998). Given these circumstances, and the trend in both minimum wages and formal sector wages, it is most probable that the standard of living of the many informal sector workers has substantially declined over the period of adjustment.

[9] Bose and Livingstone (1993) observe that the proportion of workers earning the minimum wage of MK33 or less per month on tea and sugar estates fell from 40 percent to zero after 126 percent increase in the minimum wage.

5.3 Econometric Results: Minimum Wages, Average Wages and Employment

This section uses econometric methods to establish the relationship between minimum wages and average wages and employment in the formal sector using time-series data between 1970 and 1995. We first test the variables specified in equation (1) and (2) for stationarity to avoid spurious regression results using the Dickey-Fuller and Phillips-Perron unit root tests. After establishing the stationarity of time series or order of integration, we test whether there are cointegrating relationships using the two-step Engle-Granger procedure. According to Engle and Granger (1987), when the series are integrated of the same order and are cointegrated, then there exist a long-run relationship between them, the Engle-Granger Representation Theorem states that the appropriate dynamic form of the model is an Error Correction Mechanism (ECM). For instance, if the variables are integrated of order one, then the short-run dynamic models are in first differences with the lagged error term (the error correction term) from the cointegrating equation included as an explanatory variable. The sign and size of the coefficient of the lagged error correction term reflects the direction and speed of adjustment in the dependent variable to temporary deviations from the long-run equilibrium. We estimate the long-run relationship in the first stage and for the stationarity of residuals from the long-run relationship in the second stage. If we reject the null hypothesis of a unit root, we conclude that the variables are cointegrated.

Table 3 report results of unit root tests for the variables (in natural logarithm) included in the regression analysis. The definitions and the descriptive statistics of the variables are reported in Table A2. All the variables, using both the Dickey-Fuller and the Phillips-Perron tests, contain a unit root in levels. We then differenced the series once to determine the order of integration. Stationarity is confirmed only by the Phillips-Perron test for LUNLF, LEMLF, LRGDP and DLCPI, while both tests confirm stationarity for the rest of the series. Therefore, at least one of the tests suggests that we can reject the presence of a unit root in the first difference. Hence, the variables are integrated of order one, I(1).

5.3.1 The Relationship between Minimum Wages and Average Wages

Table 4 reports estimates of the long-run relationship between average wages and minimum wages. The regression results show that in both equations average nominal wages are positively associated with nominal minimum wages and the coefficients are statistically significant at 1 percent level. We also observe a significant and positive relationship between average wages and national output as measured by real gross domestic product. The inclusion of the unemployment rate in the average wages equation reduces the statistical significance of real domestic product, and the coefficient of the unemployment rate is not significant. The change in the price level (DLCPI) though positively related is statistically insignificant in both equations. The trade variable, openness (LOPEN) has a negative sign, but it is statistically insignificant in both cases.

[Table 4 about here]

The unit root tests for the residuals indicate that we can reject the null hypothesis of a unit root in the two equations using both the Dickey-Fuller and Phillips-Perron tests at 5 percent level of significance. We therefore, conclude that there is a cointegrating relationship between average nominal wages and the explanatory variables included in the models. This leads us to estimating error-correction models as shown in Table 5. In the first equation which excludes the unemployment rate, the growth in average wages (DLAVEW) is positively associated with the growth in minimum wages (DLMINW) and the coefficient is statistically significant at 10 percent level. The coefficient of growth of real domestic product (DLRGDP) has a negative sign and is statistically significant at 5 percent level. The coefficient of changes in the rate of inflation (DDLCPI) has a positive sign and is significant at 5 percent level.

[Table 5 about here]

In the second equation which includes the rate of unemployment, only the coefficient of changes in the unemployment rate statistically significant at 1 percent level and bears a positive sign. All the other variables are statistically insignificant. The coefficients of openness (DLOPEN) and the lagged error-correction term (ECT) have negative signs and are statistically insignificant in both equations. The latter imply absence of a feedback mechanism when nominal wages deviate

from their equilibrium levels. Therefore, the long run relationship does not affect the short run relationship. The diagnostic tests in both equations are satisfactory. The Chow test, with 1980 as the period that splits the sample, shows stability of the estimated relationship.

5.3.2 The Relationship between Minimum Wages and Employment

Table 6 presents results of the relationship between minimum wages and employment in Malawi using three measures of employment LEMPL, LEMLF and LEMPO. The estimated coefficients are stable where we measure employment as a ratio of the labour force and total population. The coefficient of the toughness of the minimum wage regulation (LMIAVW) has a positive sign when we use absolute employment and a negative sign when we use two alternative measures of employment rate, but in all cases the coefficients are statistically insignificant. The coefficient of real gross domestic product is consistently positive regardless of the measure of employment and statistically significant at 1 percent level.

[Table 6 about here]

The change in the price level (DLCPI) is positive in the first equation, and negative when we measure employment as a ratio. However, it is only statistically significant at 1 percent level in the second equation with an elasticity value of -0.53. The trade variable (DLOPEN) has a negative sign in the first equation and negative signs when we measure employment as a ratio, but the coefficients are statistically insignificant. The results of the unit root tests on the residuals from the regression models suggest the existence of long run relationships. We reject the null hypothesis of a unit root, hence accept stationarity of residuals at 1 percent in the first two equations and at 5 percent in the third equation using both the Dickey-Fuller and Phillips-Perron tests.

The acceptance of cointegrating relationships leads us to specify error-correction models as presented in Table 7. In the first and third short run relationships only changes in real gross domestic product (DLGDP) and the lagged error-correction term (ECT) are statistically significant at 1 percent level in the first case and 5 percent level in the third case. Growth in real output has a positive influence on the growth of employment. The significance of the coefficient

of the error-correction shows that the adjustment mechanism exists when the employment level deviates from its equilibrium level. The long run relationships affect the short run relationship with one year lag.

[Table 7 about here]

In the second short run relationship the coefficient of changes in real gross domestic product is positive and significant at 10 percent level. The change in the inflation rate (DDLCPI) has a negative sign and significant at 5 percent level while the coefficient of the lagged error-correction term is negative and significant at 1 percent level and shows convergence towards the equilibrium level. Changes in the toughness of the minimum wage (DLMIAVW) and changes in international trade openness (DLOPEN) do not have a significant effect on changes in formal employment. Most of the diagnostic tests for all the three models are satisfactory.

6. Concluding Remarks

The purpose of this paper has been to assess the impact of structural adjustment programs and minimum wages on employment and average wages. Structural adjustment programs in Malawi were first introduced in 1980/81 and continue to date. Our analysis of the difference between two means has shown that total formal employment and private sector employment significantly declined during the adjustment period. Real average monthly wages significantly declined in all sectors during the adjustment period while there was no significant decline in real statutory minimum wages. The evidence points to the negative effects of structural adjustment policies and employment and real wage developments in Malawi. Arguably, structural adjustment programs have a negative effect on the living standards of those in formal employment.

Our analysis of the impact of minimum wages on employment and wages suggests a positive relationship between minimum wages and average wages. However, long run relationships do not affect short run relationships. The effect of minimum wages on employment is sensitive to the measure of employment, positive when we use absolute employment levels and negative when we use employment rates, but there is no significant evidence that the toughness of the minimum wage affects employment in Malawi. This weak relationship may be due to the fact

that in most sectors apart from the formal agriculture sector, the minimum wage is not binding and that the minimum wage is not enforced, its coverage is incomplete and its adjustment is erratic in Malawi.

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Table A1 Macroeconomic Performance Indicators, 1971-1997

Indicator	Before SAPs	During SAPs	Growth Rate (percent)	
			Before SAPs	During SAPs
Real Gross Domestic Product (MK'000)	657.7	848.8	5.9	2.7
Real Per Capita GDP (MK)	115.9	110.9	5.2	-0.7
Consumer Price Index (1980=100)	61.5	426.2	8.4	22.0
Proportions of GDP (percent) *				
Broad Money	17.2	18.4	15.0	23.7
Gross Savings	12.1	5.7	27.1	-58.3
Gross Investment	27.0	18.8	16.7	26.0
Government Deficit	7.4	6.0	16.9	10.0
Exports	18.1	21.8	21.1	29.5
Imports	32.0	30.6	17.4	24.9

Source: Computed from RBM (Various) **Financial and Economic Review**

Note: * Growth rates of these variables are average annual growth rates of their nominal values.

Table A2 Definition of Variables and Descriptive Statistics

Variables		Definition	Mean	Std Dev	Min	Max
LAVEW	=	Natural logarithm of the average monthly nominal wages in the formal sector in Malawi Kwacha.	4.0431	0.6296	3.3164	5.3068
LMINW	=	Natural logarithm of the statutory minimum monthly nominal wages measured in Malawi Kwacha.	3.4085	1.0604	2.4336	5.7038
LMIAVW	=	Natural logarithm of the ratio of minimum wages to average monthly wages.	-0.6746	0.4986	-1.1381	0.7174
LUNLF	=	Natural logarithm of the rate of unemployment measured as a ratio of those unemployed in the formal sector to total labour force.	-0.1317	0.0232	-0.1694	-0.0812
LEMPL	=	Natural logarithm of the number of employees in the formal sector in millions.	-1.0249	0.3505	-1.7587	-0.5392
LEMLF	=	Natural logarithm of the ratio of employment in the formal sector to total labour force.	-2.1090	0.1790	-2.5517	-1.8592
LEMPO	=	Ratio of employment in the formal sector to total population in natural logarithm.	-2.9199	0.1400	-3.2738	-2.7291
LRGDP	=	Natural logarithm of real gross domestic product in millions of Malawi Kwacha.	8.2942	0.2361	7.7570	8.6262
DLCPI	=	The first difference of the natural logarithm of the consumer price index.	0.1505	0.1197	0.0356	0.6169
LOPEN	=	Natural logarithm of the ratio of the sum of imports and exports to nominal gross domestic product.	-0.5188	0.1368	-0.7324	-0.1786

Table 1 Composition and Growth of Formal Employment, 1971-1995 (percentages)

Sector	Composition			Growth Rate		
	Before SAPs	During SAPs	Change	Before SAPs	During SAPs	Change
Agriculture, Forestry & Fishing	40.61	48.63	(+)*	16.05	3.72	(-)*
Mining and Quarrying	0.29	0.11	(-)*	0.21	8.86	(+)
Manufacturing	11.87	12.79	(+)	7.50	5.69	(-)
Building and Construction	9.22	7.53	(-)*	8.91	2.39	(-)
Electricity and Water	1.11	1.14	(+)	6.75	4.78	(-)
Transport & Communication	5.09	5.33	(+)	9.48	3.32	(-)
Wholesale, Retail & Hotels	8.05	6.17	(-)*	6.89	0.46	(-)
Financial & Business Services	1.38	3.31	(+)*	27.75	6.70	(-)*
Community & Personnel Services	22.36	14.98	(-)*	0.82	3.29	(-)
All Industries	100.00	100.00	.....	9.45	2.96	(-)*
Private Sector [a]	73.43	78.91	(+)*	11.54	2.88	(-)*
Public Sector [a]	26.57	21.09	(-)*	3.68	3.69	(+)

Source: Computed from RBM (Various) **Financial and Economic Review**, ILO (1997) **Year Book of Labour Statistics**

Notes : [a] this covers the period 1971 - 1990, data for 1991 to 1995 is not available.
() indicates type of change: decrease(-) and increase(+).
* indicates significant differences at 10 percent level.

Table 2 Average Monthly Earnings and Minimum Wages at 1980 Prices, 1971 - 1995

Sector	Average Monthly Earnings (Malawi Kwacha)			Relative Monthly Earnings Ratio (Agriculture = 1.00)		
	Before SAPs	During SAPs	Change	Before SAPs	During SAPs	Change
Agriculture, Forestry & Fishing	18.81	11.97	(-)*	1.00	1.00	...
Mining and Quarrying	42.12	24.75	(-)*	2.27	2.21	(-)
Manufacturing	64.73	42.19	(-)*	3.44	3.49	(+)
Building and Construction	53.19	27.04	(-)*	2.84	2.31	(-)
Electricity and Water	73.55	46.42	(-)*	3.93	3.79	(-)
Transport and Communications	101.69	50.99	(-)*	5.40	4.35	(-)*
Wholesale, Retail and Hotel	75.76	53.05	(-)*	4.04	4.49	(+)*
Financial and Business Services	208.89	126.11	(-)*	11.00	10.97	(-)
Community & Personnel Services	74.54	44.28	(-)*	3.95	3.64	(-)
All Industries	51.87	30.57	(-)*	2.75	2.56	(-)*
Private Sector [a]	48.28	34.03	(-)*	.....	.....	.....
Public Sector [a]	62.21	54.11	(-)*	.....	.....	.....
Statutory Minimum Wages	20.26	18.32	(-)	1.07	1.79	(+)

Source: Computed from RBM (Various) **Financial and Economic Review**, ILO (1997) **Year Book of Labour Statistics**

Notes : [a] This covers the period 1971 - 1990, data for 1991 to 1995 is not available.
() indicates the type of change: decrease (-) and increase (+).
* indicates significant differences at 10 percent level.

Table 3 Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) Unit Root Tests

Variables	Levels		First Difference	
	ADF	PP	ADF	PP
LAVEW	-1.78 (0.716)	-3.84 (0.896)	-3.02 (0.033)	-18.49 (0.017)
LMINW	-1.28 (0.893)	-5.066 (0.817)	-4.00 (0.001)	-24.47 (0.004)
LMIAVW	-1.51 (0.826)	-8.01 (0.583)	-4.24 (0.001)	-27.18 (0.002)
LUNLF	-1.67 (0.765)	-5.77 (0.764)	-2.11 (0.242)	-18.17 (0.018)
LEMPL	-2.45 (0.353)	-6.25 (0.725)	-3.19 (0.021)	-20.83 (0.009)
LEMLF	-1.53 (0.819)	-3.68 (0.904)	-2.07 (0.256)	-16.41 (0.028)
LEMPO	-2.42 (0.368)	-6.41 (0.713)	-3.25 (0.017)	-20.94 (0.009)
LRGDP	-2.79 (0.200)	-7.20 (0.649)	-2.08 (0.253)	-28.96 (0.001)
DLCPI	-1.22 (0.907)	-4.81 (0.835)	-2.24 (0.193)	-17.11 (0.024)
LOPEN	-1.37 (0.870)	-12.06 (0.313)	-3.37 (0.012)	-32.62 (0.000)

Figures in parentheses are probability values.

Table 4 Minimum Wages and Average Wages: Cointegrating Regression Models

Variables	LAVEW		LAVEW	
	coefficient	t-statistics	coefficient	t-statistics
Constant	-5.4267 [a]	-3.800	-7.9219 [b]	-2.710
LMINW	0.3535 [a]	7.276	0.3483 [a]	7.119
LUNLF	-	-	3.2133	0.978
LRGDP	0.9743 [a]	5.191	1.3346[b]	3.228
DLCPI	0.5281	1.620	0.2947	0.729
LOPEN	-0.2777	-1.330	-0.2443	-1.154
R^2	0.9655		0.9671	
RSS	0.3286		0.3128	
σ	0.1282		0.1283	
DW	1.93		2.11	
F	139.77		111.77	
	Unit Root Tests on ECT		*Unit Root Tests on ECT*	
ADF	-2.515 (0.012)		-2.419 (0.008)	
PP	-23.022 (0.001)		-25.871 (0.000)	

Notes: ECT is the error-correction term (residuals from the regression). The figures in parentheses are probabilities of rejecting the null hypothesis. The 1%, 5% and 10% level of significance is indicated by *a, b* and *c*, respectively.

Table 5 Minimum Wages and Average Wages: Error Correction Models

Variables	DLAVEW		DLAVEW	
	coefficient	t-statistics	coefficient	t-statistics
Constant	0.0863 [a]	3.721	0.0891 [a]	4.593
DLAVEW(-1)	0.0099	0.052	0.0007	0.004
DLMINW	0.0859 [c]	1.789	0.0694	1.613
DLUNLF	-	-	3.2142 [a]	3.021
DLRGDP	-0.6221 [b]	-2.167	-0.3304	-1.268
DDLCPI	0.3301 [b]	2.237	0.0929	0.625
DLOPEN	-0.1317	-1.229	-0.0819	-0.906
ECT(-1)	-0.1343	-0.900	-0.1173	-0.872
R^2	0.5008		0.6747	
RSS	0.0605		0.0394	
σ	0.0596		0.0496	
DW	2.21		1.78	
F	2.48		4.74	
		Diagnostic Tests		*Diagnostic Tests*
AR(1-2)		0.993 (0.319)		1.470 (0.225)
ARCH(1)		0.011 (0.917)		0.325 (0.569)
Normality		1.306 (0.627)		0.949 (0.622)
RESET		0.010 (0.921)		0.918 (0.353)
CHOW		0.554 (0.777)		1.561 (0.272)

The figures in parentheses are probabilities of rejecting the null hypothesis. The 1%, 5% and 10% level of significance is indicated by *a, b* and *c*, respectively.

Table 6 Minimum Wages and Employment: Cointegrating Regression Models

Variables	LEMPL		LEMLF		LEMPO	
	coefficient	t-statistics	coefficient	t-statistics	coefficient	t-statistics
Constant	-12.6210 [a]	-23.902	-9.1683 [a]	-15.744	-8.2052 [a]	-14.528
LMIAVW	0.0451	1.428	-0.0357	-1.024	-0.0451	-1.334
LRGDP	1.4006 [a]	21.606	0.8646 [a]	12.094	0.6430 [a]	9.273
DLCPI	0.0421	0.311	-0.5305 [a]	-3.554	-0.2187	-1.511
LOPEN	-0.0069	-0.074	0.1076	1.050	0.0867	0.873
R^2	0.9781		0.8976		0.8427	
RSS	0.0647		0.0787		0.0740	
σ	0.0569		0.0627		0.0608	
DW	1.86		1.37		1.03	
F	222.80		43.84		26.78	
	Unit Root Tests on ECT		*Unit Root Tests on ECT*		*Unit Root Tests on ECT*	
ADF	-2.655 (0.008)		-2.928 (0.003)		-2.446 (0.014)	
PP	-21.904 (0.001)		-16.403 (0.005)		-12.189 (0.015)	

Notes: ECT is the error-correction term (residuals from the regression). The figures in parentheses are probabilities of rejecting the null hypothesis. The 1%, 5% and 10% level of significance is indicated by *a, b* and *c*, respectively.

Table 7 Minimum Wages and Employment: Error-Correction Models

Variables	DLEMPL		DLEMLF		DLEMPO	
	coefficient	t-statistics	coefficient	t-statistics	coefficient	t-statistics
Constant	0.0073	0.483	-0.0011	-0.066	-0.0065	-0.435
DLEMPL(-1)	0.1344	0.889	-	-	-	-
DLEMLF(-1)	-	-	0.2079	1.145	-	-
DLEMPO(-1)	-	-	-	-	0.1574	0.877
DLMIAVW	0.0382	0.986	0.0245	0.553	-0.0130	-0.312
DLRGDP	0.8900 [a]	4.526	0.5084 [c]	2.031	0.6337 [b]	2.600
DDLCPI	0.1539	1.115	-0.3148 [b]	-2.090	-0.0386	-0.271
DLOPEN	0.0050	0.061	0.1229	1.235	0.0354	0.374
ECT(-1)	-0.8910 [a]	-3.822	-0.8796 [a]	-3.909	-0.6226 [b]	-2.723
R^2	0.6820		0.7072		0.5816	
RSS	0.0356		0.0542		0.0489	
σ	0.0458		0.0565		0.0537	
DW	1.67		1.65		2.02	
F	6.08		6.84		3.94	
	Diagnostic Tests		*Diagnostic Tests*		*Diagnostic Tests*	
AR(1-2)	1.030 (0.310)		0.821 (0.365)		0.945 (0.331)	
ARCH(1)	0.787 (0.375)		0.222 (0.637)		0.420 (0.517)	
Normality	0.510 (0.775)		0.104 (0.949)		0.950 (0.622)	
RESET	0.402 (0.535)		5.741 (0.029)		0.047 (0.831)	
CHOW	0.352 (0.910)		0.225 (0.970)		0.178 (0.984)	

Notes: The figures in parentheses are probabilities of rejecting the null hypothesis. The 1%, 5% and 10% level of significance is indicated by *a, b* and *c*, respectively.

Figure 1 Real Wage Developments in Malawi, 1971 - 1995 (Malawi Kwacha, 1980 prices)

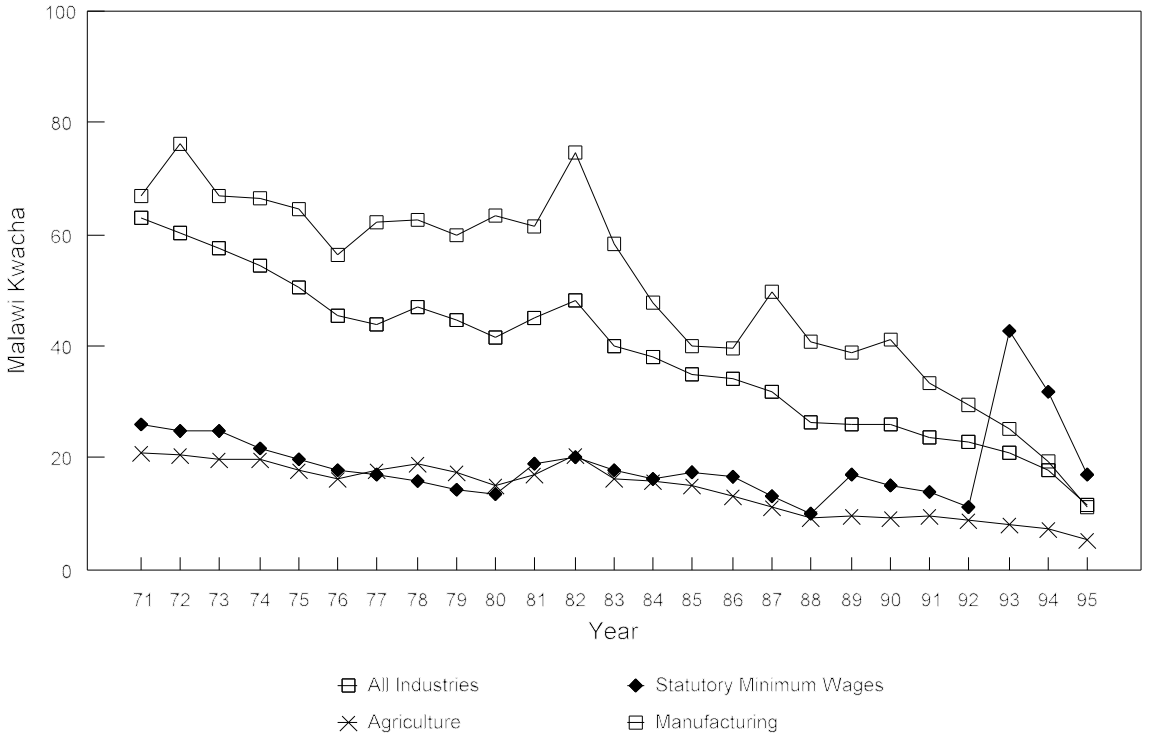

Figure 2 Relative Wages in Malawi for Selected Sectors, 1971-1995 (Agriculture = 1.00)