

-RESEARCH ARTICLE-

ASSESSING THE IMPACT OF INTEREST RATE, CATERING, AND FAST-FOOD INCOME ON EMPLOYMENT IN THE SOCIAL SERVICES INDUSTRY

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Abstract

The employment rate is one of the economic indicators that determine a country's economic conditions. It plays a crucial role in social welfare and national development. South Africa is currently one of the countries experiencing a growing unemployment rate owing to inefficient macroeconomic performances, such as high interest rates and low income which contribute to economic instabilities. This paper intends to analyse the effect of the real interest rate, and producer income from fast-food and catering industries on social services employment in South Africa. To achieve this objective, the study applies various statistical and econometric approaches. These approaches include the unit root test, the Wald test, the error correction model, and the Toda-Yamamoto Granger non-causality test. Findings suggested a cointegration among the underpinned variables. A positive relationship was found between social services employment and income from both fast-food and catering industries. However, the interest rate was found to have a negative long-run impact on employment growth. The short-run outcome revealed that the employment level within the social services industries may also be influenced by the lagged values of the interest rate and income from catering and fast-food industries. Grounded on these findings, the study suggests government support (subsidies and interest rate reduction) as a strategy to assist in sustaining fast-food and catering industries and creating more jobs for low-skilled workers.

Keywords: employment, fast food, take away, interest rate, social services, South Africa

Citation (APA): Habanabakize, T., (2020), Assessing The Impact Of Interest Rate, Catering, And Fast-Food Income On Employment In The Social Services Industry, International Journal of Economics and Finance Studies, 12 (2): 534-550. Doi: 10.34109/ijefs.202012218

JEL Classification: C2, E43, J21.

1. INTRODUCTION

Employment growth is the backbone of any country's economic and social development (World Bank, 2014). In South Africa, due to a deficiency in sustainable employment, more than 40 percent of households depend on government grants to support household members (Schüssler, 2013). Since the introduction of a democratic government in 1994, a growing unemployment rate has been the major concern of the new government and policymakers.

Diverse strategies aimed at economic growth and job creation, were introduced over different periods. These policies and strategies included the Reconstruction and Development Programme (RDP) in 1994; the Growth, Employment and Redistribution (GEAR) strategy in 1996; the Expanded Public Works Programme (EPWP) in 2004; the Accelerated and Shared Growth Initiative for South Africa (ASGISA) in 2006; the Industrial Policy Action Plan (IPAP) in 2007; the New Growth Path (NGP) framework in 2010; the National Development Plan (NDP) in 2012; and the Employment Tax Incentive in 2013. Although these strategies achieved their goal to a certain extent, they appeared not to fully provide the anticipated results as the unemployment rate escalated from 17 percent in 1994 to 29.1 percent in 2019 (Stats SA, 2013; Stats SA, 2020). One of the causes of the exacerbating unemployment rate was, and still remains, the mismatch between labour demand and labour supply as the South African labour force retains a large number of low- and unskilled people (Mateus *et al.*, 2014). Additionally, the high interest rate experienced by commercial banks and individual borrowers over a long period may have had a negative repercussion on South African employment growth.

Since the aforementioned policies and strategies proposed and implemented by the government did not bring adequate solutions to the unemployment issue, it is imperative to consider solutions that may come from the private sector. The social services industry is one of the private industries that is able to employ lesser skilled and unskilled labour. A decline in the interest rate is also regarded as a factor that can facilitate cash flow and thus job creation within various economic sectors. Due to their competitiveness features, the catering and fast-food industries play a vital role in the South African labour market (2018). For this reason, the current study aims to assess the impact of the interest rate, and catering and fast-food income on employment in the social services industry.

2. LITERATURE REVIEW

2.1. Brief on income and employment theory

Through the ages, employment theory remained a crucial question for economists and other economic practitioners. Schools of thought and individuals have incessantly acknowledged that employment changes depend on income and economic fluctuations (Mazorodze & Siddiq, 2018; Stirati, 2012). A theoretical link between income and employment can be established through the Classical and Keynesian employment theories which elucidate that income, output, demand and supply can stimulate employment growth. However, the response to the pertinent question of unemployment provoked disparities between these two theories (Stirati, 2012). For instance, according to Say's law and other Classical economists, supply creates its own demand: unemployment growth or a fall in employment levels is determined by production and supply levels (Kates, 2005; Mkhize, 2019).

The Classical theory argues that income acquired by households is utterly spent to create equilibrium between production and expenditure values. This theory asserts also that the economy operates at full employment as the total income is spent on produced goods, and jobs are available for people in need of employment (Hoover, 1995; Pettinger, 2019a). Therefore, there is no existence of unemployment within the economy and even when it happens it is for a short term as the disturbance in employment level is automatically fixed through wage-price flexibility and market laws (Basu, 2008; Grieve, 2017). However, the *laissez-faire* strategy of the Classical model is criticised to produce what is known as a 'general glut': a situation created by the imbalance between production and demand levels leading to a decline of employment and output. Thus, despite its effort to describe the relationship between income and employment, the Classical theory failed to provide a real solution to the unemployment issue (Keynes, 1936; Grieve, 2017).

Contrary to the Classical theory, the Keynesian theory argues that the economy fluctuates over both the short term and the long term. Thus, it always operates below full employment (Chappelow, 2020; Keynes, 1936). The economy cannot operate at full employment because besides involuntary unemployment (caused by the disparities between the number of job seekers and available job vacancies), wage rigidity can also cause unemployment growth. Considering the relationship between supply and demand, the Keynesian theory argues that demand creates its own supply and the former is one of the core solutions to the unemployment issue

as it creates income for businesses (Tcherneva, 2008; Temitope, 2013). If more quantity is demanded, production must be increased and more labour is therefore needed to meet a higher level of demand. Thus, output (production), income and employment are determined by the aggregate demand for goods and services. Holding other factors of production constant, an increase in demand for goods and services requires an increase in labour to meet the higher demand levels and more demand generates more income for businesses (Graetz, 2019; Keynes, 1936).

Keynes also argues that the Classical economist did not consider the effect of voluntary employment which makes the economy to operate always under full employment (Hoover, 1995). Besides, the aggregate income is not spent on consumption, as a portion of income is either saved or invested for future consumption and production (Keynes, 1936). The solution to unemployment, according to Keynes (1936) and IMFblog (2016), can be attained if the relationship between income, output and expenditure is well established, as one person's income depends on the other person's expenditure. Keynesian theory asserts that more income leads to job creation.

2.2. Overview of the South African fast-food industry

Owing to a great evolvement, the South African fast-food industry which was previously characterised by an oligopolistic market structure is now comprised of autonomous individuals and chain restaurants (Nair, 2016). The South African fast-food industry account for more than 8,661 fast-food restaurants, and this industry up to 2014 was one of the most frequented as around 25 million people used fast-food restaurants in a year (Green, 2014). With more than 771 branches distributed across the country, Kentucky Fried Chicken (KFC) is considered to be the biggest player among other established fast-food brands (Sullivan, s.a.).

The fast-food industry plays an important role especially in South African urban areas. More than 60 percent of the South African population live in urban areas and due to their busy lives, a large number of them rely on fast-food products (Allied Market Research, 2019). Additionally, in 2018 the South African fast-food industry earned R587 billion contributing 13 percent to the country's GDP; the industry's revenue has improved as the number of fast-food cravers has increased (Agrela, 2019, Niselow, 2018). In 2018, South Africa had more than 4,776 fast-food stores and the number of franchises was still growing (Niselow, 2018).

Other things being constant, an increase in demand for fast-food products results in an increase in demand for labour; and thus, employment growth. Figure 1 presents the best known fast-food industries and their franchises. According to

South African Market Insights (2020), the top ten fast-food industries with a large number of franchises are KFC with 885 franchises, Steers with 581 franchises, Debonairs with 546, Wimpy with 478 franchises, Nando's with 340 franchises, McDonald's with 240 franchises, Fishaways with 240 franchises, Roman's Pizza with 230 franchises, The Fish & Chip Co. with 161 franchises, and ChesaNyama with 141 franchises.

By January 2019, the South African fast-food industry generated income of more than R2.1 billion and the catering industry generated around R660.2 million (South African Market Insights, 2020). Within six years, between 2006 and 2012, the fast-food industry's revenue increased by 160 percent, from R516.3 million in 2006 to R1,342.9 million in 2012 (Stats SA, 2014).

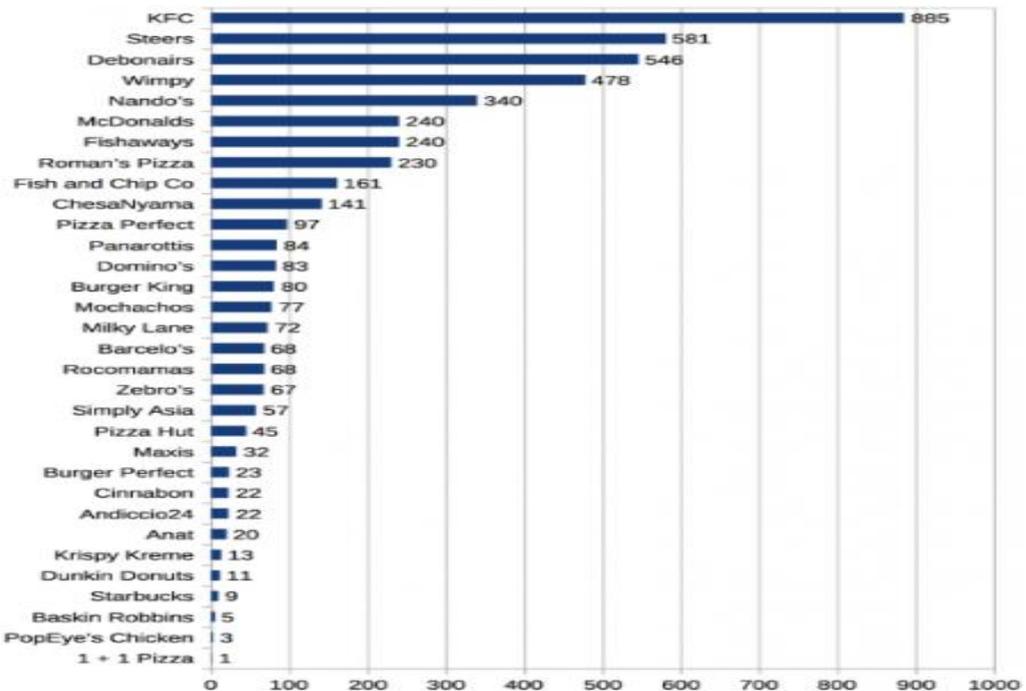


Figure 1: South African fast-food franchises

Source: BusinessTech, 2019.

The fast-food industry in South Africa has been experiencing significant growth in both the number of franchises and total revenue. The growth of the fast-food industry and its revenue lead to households' income growing and more jobs being created, especially for low-skilled individuals (Mackay *et al.*, 2013; Roberts-

Lombard 2009). Despite this, many fast-food franchises are closing their doors due to a high rate of competition, high taxes, labour costs and high interest rates (LaMarco, 2018; Maumbe, 2012; Statistics South Africa (Stats SA, 2016). Consequently, in 2018 the fast-food industry suffered job losses as more than 665 workers lost their jobs due to economic contraction.

2.3 Interest rate versus employment

Businesses' ability to perform different activities depends on the availability of funds. Businesses acquire funds from various sources that include equity shares, bonds or debentures, and loans from financial institutions (Shrotriya, 2019). Raising funds and maintaining a positive cash flow for businesses is sometimes a difficult game to play.

A rising interest rate is considered as one of the major cash flow constraints for new and well-established businesses in the fast-food industry. The unexpected rise of the interest rate is more likely to curb the industry's production capacity resulting in 'bad debts' and the reduction of a significant number of current and future employees within the industry (Mtsweni *et al.*, 2018).

The sustainability of the fast-food industry depends also on consumption levels: the higher the demand for products, the higher the production and the more the industry's revenue which raises employment levels. In this process, the interest rate plays a noteworthy role. Low interest rates reduce borrowing costs, allowing an increase in households' spending and consumption, and generating revenue for industries (Gavin, 2013).

On the other hand, a rise in interest rates causes falls in both consumption and investment. Thus, a high interest rate leads to a decline in or a loss of business confidence (Pettinger, 2019b). High interest rates severely affect low-skilled labour within the labour force (Feldmann, 2013). Nonetheless, the effect of the interest rate on the labour market is often ignored in academic studies.

The foregoing substantiates why the role played by the interest rate in social services employment is considered in this study.

3. DATA AND METHODOLOGY

To assess the relationship between the study variables, the author employed quarterly time series data for the period, 2005 to 2019, from Quantec EasyData.

The sample period was selected due to data availability. Employment in the social services industry (community employment) is the dependent variable, while interest rate and income of the catering and fast-food industries are the explanatories.

The long-run relationship among variables was tested using Autoregressive Distributed Lag (ARDL) as proposed by Pesaran *et al.* (2001). This approach was selected based on three main strengths and advantages associated with it. Firstly, the ARDL model evades the issue of the integration order associated with conventional procedures, such as Johansen’s likelihood approach (Johansen & Juselius, 1990). Secondly, contrary to many conventional multivariate cointegration approaches whose results are valid only for large sample sizes, the bounds test procedure is appropriate for both small and large sample sizes (Pesaran *et al.*, 2001). Thirdly, ARDL offers unbiased long-run estimations and valid t-statistics regardless of the inclusion of endogenous regressors (Harris & Sollis, 2003).

The following ARDL model was formulated to assess cointegration among variables:

$$\Delta LSERVEMP_t = c_0 + \delta_1 LSERVEMP_{t-1} + \delta_2 LINCCAT_{t-1} + \delta_3 LINFAS_{t-1} + \delta_4 LINTER_{t-1} + \sum_{i=1}^p \alpha_i \Delta LSERVEMP_{t-i} + \sum_{j=0}^{q1} \beta_j \Delta LINCCAT_{t-j} + \sum_{l=0}^{q2} \gamma_l \Delta LINFAS_{t-l} + \sum_{k=0}^{q3} \varphi_k \Delta LINTER_{t-k} + \varepsilon_t \quad (1)$$

Where c_0 denotes the intercept, δ_i represents the long multipliers and ε_t is the white noise error term.

Bounds testing was applied to Equation 1 to determine the existence or absence of long-run relationships among variables. This was achieved by conducting an F-test to assess the joint significance of the multipliers (coefficients) of the lagged variables. The following hypotheses were tested for cointegration and no cointegration:

$$H_0 : \delta_1 = \delta_2 = \delta_3 = \delta_4 = 0 \text{ for no cointegration}$$

$$H_1 : \delta_1 \neq \delta_2 \neq \delta_3 \neq \delta_4 \neq 0 \text{ for cointegration}$$

The test normalises on $LSERVEMP$ by $F_{LSERVEMP} (LSERVEMP | INCCAT, LINFAS, LINTER)$. The conclusion on the existence or absence of cointegration between variables is made based on the comparison between values of two critical bounds when the explanatory variables are I(d) [in this case $0 \leq d \leq 1$]. The lower bound values suggest that the explanatory is I(0) and the upper bound values suggest that the explanatory is I(1). The null hypothesis (H_0) is rejected to confirm

the presence of cointegration among variables if the F-statistics is larger than the upper bound critical values. The H_0 is not rejected if the values of lower bounds are larger than the computed F-statistics. Lastly, the results are inconclusive if the computed F-statistic is higher than lower bound critical values and smaller than the upper bound critical values (Pesaran *et al.*, 2001).

Once the long-run relationship among variables is established, the following conditional ARDL (p, q1, q2, q3) cointegrating model for $lnSERVEMP_t$ can be estimated:

$$LSERVEMP_t = c_0 + \sum_{i=1}^p \delta_1 LSERVEMP_{t-i} + \sum_{j=0}^{q1} \delta_2 LINCCAT_{t-j} + \sum_{l=0}^{q2} \delta_3 LINFAS_{t-l} + \sum_{k=0}^{q3} \delta_4 LINTER_{t-k} + \varepsilon_t \quad (2)$$

The subsequent step is to estimate the parameters of short-run dynamics through the error correction model (ECM) concomitant to the estimated long-run relationship. This is expressed as:

$$\Delta LSERVEMP_t = \mu + \sum_{i=1}^p \alpha_i \Delta LSERVEMP_{t-i} + \sum_{j=0}^{q1} \beta_j \Delta LINCCAT_{t-j} + \sum_{l=0}^{q2} \gamma_l \Delta LINFAS_{t-l} + \sum_{k=0}^{q3} \varphi_k \Delta LINTER_{t-k} + \vartheta ec_{t-1} + \varepsilon_t \quad (3)$$

Where α , β , γ and φ are the coefficients of the short-run dynamic and ϑ represents the speed of the adjustment towards the long-run equilibrium.

4. EMPIRICAL ESTIMATION AND DISCUSSION

4.1. Unit root tests

The first step in the ARDL application is to perform the unit root test to ensure that none of the variables integrated at the second order. In case any of the underlined variables are integrated at the second order I(2), the conclusion made on basis of the F-statistics proposed by Pesaran *et al.* (2001) is not valid as the ARDL analysis is built on the assumption that variables are either I(0), I(1) or a combination of the two (Habanabakize & Muzindutsi, 2017). Consequently, to evade the spurious outcome, the Augmented Dickey Fuller (ADF) unit root test was employed to determine the integration order for the study series. The ADF results are exhibited in Table 1 and they suggest a mixture of I(0) and I(1). None of the variables is I(2), henceforth ARDL is the appropriate model.

Table 1: ADF unit root results

Variables	Level		1 st Difference	
	Without trend	With trend	Without trend	With trend
LSERVEMP	0.7919	0.0229**	0.0000***	0.0000***
LINCCAT	0.4421	0.0521*	0.0007***	0.0025***
LINFAST	1.0000	0.9993	0.0562*	0.0045***
LINTER	0.2153	0.7551	0.0000***	0.0000***

Note: ***, ** & * p-value significant at 1%, 5% and 10% respectively

4.2 Test for cointegration

The long-run relationship or cointegration among variables was assessed using the ARDL approach. The bounds test results are provided in Table 2. As given in the table, the F-statistic is greater than the upper bound critical value at the 5 percent level. Thus, the null hypothesis of no cointegration is rejected. The conclusion from this result is that a long-run relationship exists between interest rate, catering income, fast-food income and the South African employment level.

Table 2: Bounds testing based on Equation 1

F-statistic	4.233251	
Critical Value Bounds		
Significance	I(0) Bound	I(1) Bound
10%	2.37	3.2
5%	2.79	3.67
1%	3.65	4.66

4.3. The long-run elasticities of employment

Following the model presented in Equation 1, the elasticity of the employment level is determined by the coefficients of interest rate and revenue of both catering and fast-food industries. The results given in Table 3 suggest that both revenues from catering and fast-food industries possess a positive effect on employment. Thus, a 1 percent increase in catering revenue would result in a 0.069 increase in employment level while a 1 percent increase in the fast-food industry's revenue would lead to a 0.208 increase in the level of employment.

In contrast, the findings show an inverse relationship between employment level and interest rate. A 1 percent increase in the interest rate causes employment to

decline by 0.118 percent in the long run. Looking at the results in Table 3, one can conclude that revenue from the fast-food industry impacts more on the employment level in comparison with other explanatory variables. These results are in line with other findings that revealed a positive cointegration between income and employment growth (Jardim & Van Inwegen, 2019; Mazorodze & Siddiq, 2018) and a negative relationship between interest rate and employment (Jordaan, 2013).

Table 3: Long-run coefficients

Variable	Coefficient	Std. Error	t-Statistic	Probability
LINCCAT	0.068915	0.107615	0.640388	0.5251
LINCTAFA	0.207511	0.043728	4.745487	0.0000
LINTER	-0.117987	0.071600	-1.647871	0.1062
C	13.334396	0.624423	21.354764	0.0000

4.4. Employment short-run elasticities

The short-term elasticity or responsiveness of employment towards changes in the interest rate and revenue of both catering and fast-food industries is shown in Table 4. As one can see, none of the coefficients of the regressors is significant at the 5 percent level to influence changes in the level of employment. In other words, changes in interest rate, catering revenue and fast-food revenue have no significant effect on the employment level in the short term. This result makes sense as there is no such thing as quick job creation. Jobs are not created overnight; it takes time to create new jobs.

Table 4: Cointegration form

Variable	Coefficient	Std. Error	t-Statistic	Probability
D(LINCCAT)	0.004069	0.038798	0.104887	0.9169
D(LINCTAFA)	0.011680	0.030328	0.385130	0.7019
D(LINCTAFA(-1))	-0.047587	0.027635	-1.721964	0.0918
D(LINTER)	-0.074955	0.063477	-1.180825	0.2437
ECT	-0.452554	0.094454	-4.791254	0.0000*

Note: * denotes a significant p-value at 5 percent level of significant

4.5. Error correction model

As discussed, and presented by Equation 3, the presence of cointegration requires the application of the ECM. The general rule is that the error correction term should be negative and significant. The error correction term (ECT) presented in Table 4 met the aforementioned requirements; it is significant at 1 percent level and it is negative (-0.452554). The coefficient of the ECT which indicates the speed of adjustment suggests that 45 percent of employment shocks are fixed each quarter. In other words, the fluctuations in the model are quickly adjusted as it will only take approximately two and a half quarters ($1/-0.452554$) to fully reach the long-run equilibrium.

4.6. Causality relationship

The short-term relationship among variables can also be established using Granger causality or Toda-Yamamoto Granger non-causality tests. In this study, the causal relationship was achieved through the Toda-Yamamoto approach. Table 5 displays the Wald test results. Taking employment as the dependent variable, all regressors are statistically insignificant to predict employment behaviour in the short run. This finding suggests that none of the explanatory variables has the power to influence employment in the short run.

Additionally, these results confirm the short-term elasticity of employment, as presented in Table 3, where none of the independent variables are statistically significant to impact on employment. Nonetheless, employment can be used to predict the revenue in the fast-food industry, while revenue of the catering industry can predict short-term changes in interest rate.

Table 5: Block Exogeneity Wald tests (Chi-square and P-values)

Dependent Variable				
Excluded lags	LEMP	LINCCAT	LINCTAFA	LINTER
LEMP	-----	5.279064 (0.0714)	14.89062 (0.0006)	0.871603 (0.6467)
LINCCAT	1.499386 (0.4725)	-----	1.342332 (0.5111)	7.370050 (0.0251)
LINCTAFA	1.913214 (0.3842)	0.537812 (0.7642)	-----	3.828793 (0.1474)
LINTER	0.297530 (0.8618)	1.094588 (0.5785)	2.649865 (0.2658)	-----

Note: P-values in brackets

4.7. Diagnostic tests

Eventually, the validity and robustness of the study model were tested through different diagnostic tests. These tests included the Breusch–Godfrey Lagrange multiplier (LM) test for serial correlation, the White test for heteroscedasticity and the Ramsey regression equation specification error test (RESET) for the model fitness. Based on the probability values in Table 6, none of the null hypotheses was rejected. Consequently, the employed model was fitted to elucidate that the relationships between the underpinned variables and the residuals were homoscedastic and serially uncorrelated. In other words, all the procedures followed were robust.

Table 6: Diagnostic results

Test	Null hypothesis	Probability	Decision
LM	No serial correlation	0.3920	Fail to reject the H_0
White	No conditional heteroscedasticity	0.2209	Fail to reject the H_0
Ramsey RESET	The model is correctly specified	0.2094	Fail to reject the H_0

5. CONCLUSION AND RECOMMENDATIONS

This paper assessed the impact of the interest rate, and catering and fast-food revenues on the social services industry employment in South Africa. To achieve the primary objective of the study, various statistics and econometric approaches and procedures were employed. These approaches included the unit root test, the ARDL model, ECM, and Toda-Yamamoto Granger non-causality and diagnostic tests. From results of the Wald test for cointegration, it is evident that the interest rate, and catering and fast-food revenues possess a significant impact on the long-run behaviour of social services employment.

While income of both catering and fast-food industries positively impacts on social services employment, an inverse relationship exists between social services employment and the long-run high interest rate. The short-run results indicate that employment is independent of changes in interest rate and income in the catering and fast-food industries. That is, changes in interest rate and income of both catering and fast-food industries are not statistically significant to influence social services employment.

Based on the findings of this study, it is recommended that monetary policies that favour low interest rates should be implemented. This would lead to a lower cost of borrowing and increased access to funds that would enable social services

industries to extend their businesses and employ a larger number of workers. It is also recommended that the government should provide both financial and skills support to both individuals and businesses in the social services industries in the early stages. A cautious implementation of these two recommendations can assist the South African government in addressing the growing unemployment rate. Despite the sound results obtained, the main limitation of this study was the use of a low number of independent variables and a small sample. Future studies may consider including other economic indicators, such as investment, exchange rate, poverty index and technology changes; and extending the sample size.

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