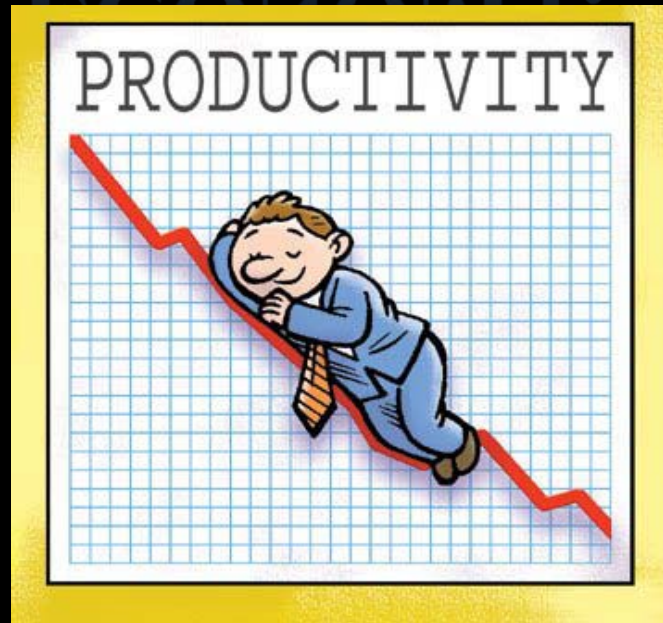


# WAGES, INFLATION AND GROWTH IN A SMALL OPEN ECONOMY.



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# OVERVIEW

- Introduction
- Review of Literature
- Methodology and Data
- Findings and Discussion
- Conclusion

# MAIN OBJECTIVE

- To examine the relationship among wages, inflation and productivity in Trinidad and Tobago. The aim is to improve the knowledge of these variables, given the complexity of the interaction among them. This can be important for our understanding of Macroeconomic policy toward wage negotiations, among other things.



# INTRODUCTION

- Within Trinidad and Tobago economy, there have been recent debates on wage and productivity increases which have generated different views from the government, trade unionists, employers and local economists.
- Productivity is considered to be the single most critical factor that determines a country's competitiveness, as well as, the standard of living of its people.




# INTRODUCTION (CON'T)

- A commonly used concept of productivity is labour productivity which is simply defined as output per worker. Labour productivity is important because it gives information about the potential of the economy to raise the standard of living.
- Literatures have stated that keeping the growth of real wages in line with labour productivity is widely viewed as a necessary condition for long-term macroeconomic stability as it helps preserve country competitiveness while limiting inflationary pressures and risk of a wage-price spiral.




- Wages and productivity are usually deemed to have a positive relationship.
- However, uncertainty lies in the direction of causality.
- Another issue that is that has been discussed is the relationship between wage growth and inflation.


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- It is commonly viewed by the government that wage growth leads to price inflation particularly because they view growth in workers' effort to be less than that of wages.
  - Recognition and strong evidence of real wages, inflation and productivity interrelationships can help shape policy formation for productivity enhancement, inflation control or consumption stimulation.

# REVIEW OF LITERATURE

- Efficiency Wage theory
- Marginal Productivity or Traditional Wage theory.
- Keynesians “Cost Push” theory of inflation.



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- Studies have shown that there is a positive relationship between wages and productivity. Wakeford (2004) stated that higher real wages increase the opportunity cost of job loss, which would stimulate greater work effort to avoid redundancy.
  - Stiglitz (1986) examined the wage-productivity relationship in developing countries with dual labour market framework
  - Narayan and Smyth (2009) used panel cointegration techniques to examine the relationships between inflation, real wages and productivity growth for the G7 countries over the period 1960-2004.

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- Strauss and Wohar (2004) examined the long run relationship between inflation, real wages and productivity for a panel of 459 US manufacturing industries between 1956-1996.
  - However, there are few literatures making reference to the relationship among wages, inflation and productivity in the Caribbean, particularly Trinidad and Tobago.




# METHODOLOGY AND DATA

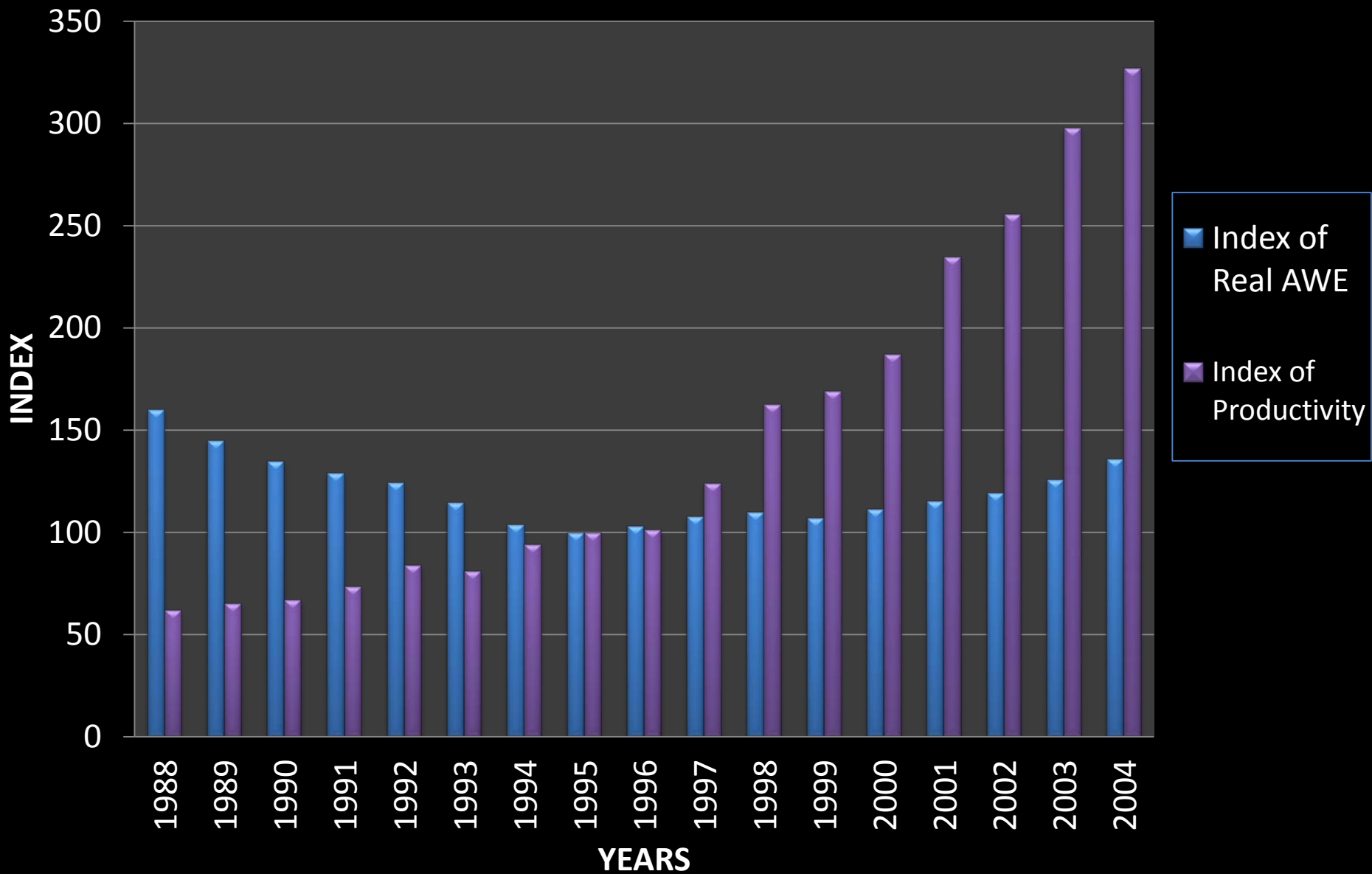
- Data for these variables were obtained from the Central Statistical Office of Trinidad and Tobago and the Central Bank.
- Data was also sourced from the International Labour Organisation, World Bank and Inter-American Development Bank.
- Studies conducted in different countries will be used as a guide for the research.
- Different econometric testing procedures such as cointegration and Granger Causality testing, were used.



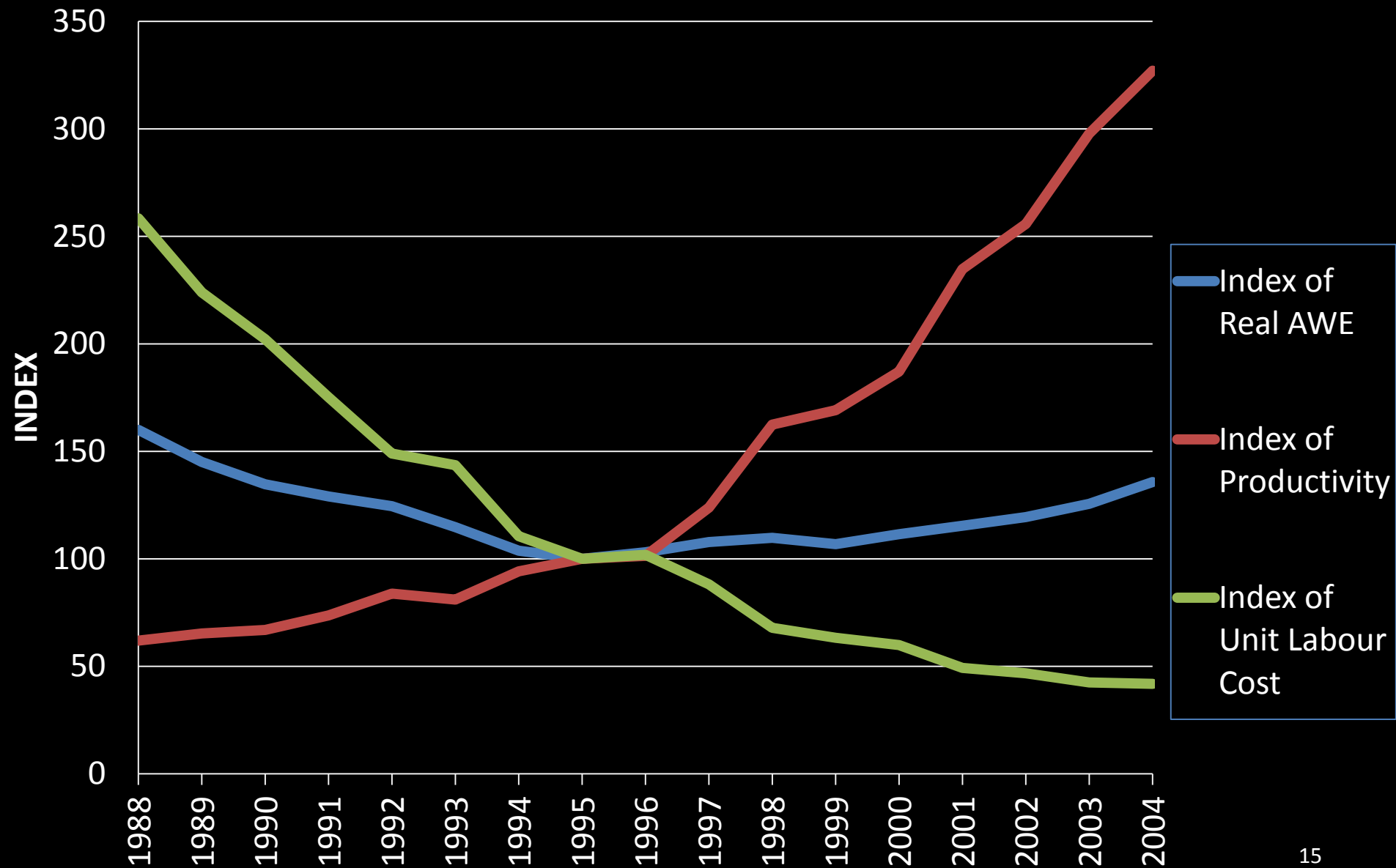
# FINDINGS AND DISCUSSION

 Years	Index of Real AWE	Index of Productivity	Index of Unit Labour Cost	Inflation Rate (%)
1988	159.97	61.96	258.4	7.8
1989	145.04	65.3	223.92	11.4
1990	134.71	66.9	202.17	11
1991	129	73.71	175.16	3.8
1992	124.51	83.81	148.96	6.5
1993	114.76	81.05	143.56	10.8
1994	103.76	94.19	110.53	8.8
1995	100	100	100	5.3
1996	103.09	101.36	101.85	3.3
1997	107.84	123.84	88.12	3.7
1998	109.77	162.42	67.9	5.6
1999	106.84	169.17	63.28	3.4
2000	111.48	187.09	59.9	3.6
2001	115.38	234.76	49.25	5.5
2002	119.44	255.78	46.73	4.2
2003	125.56	297.82	42.51	3.7
2004	135.72	327.08	41.84	3.7

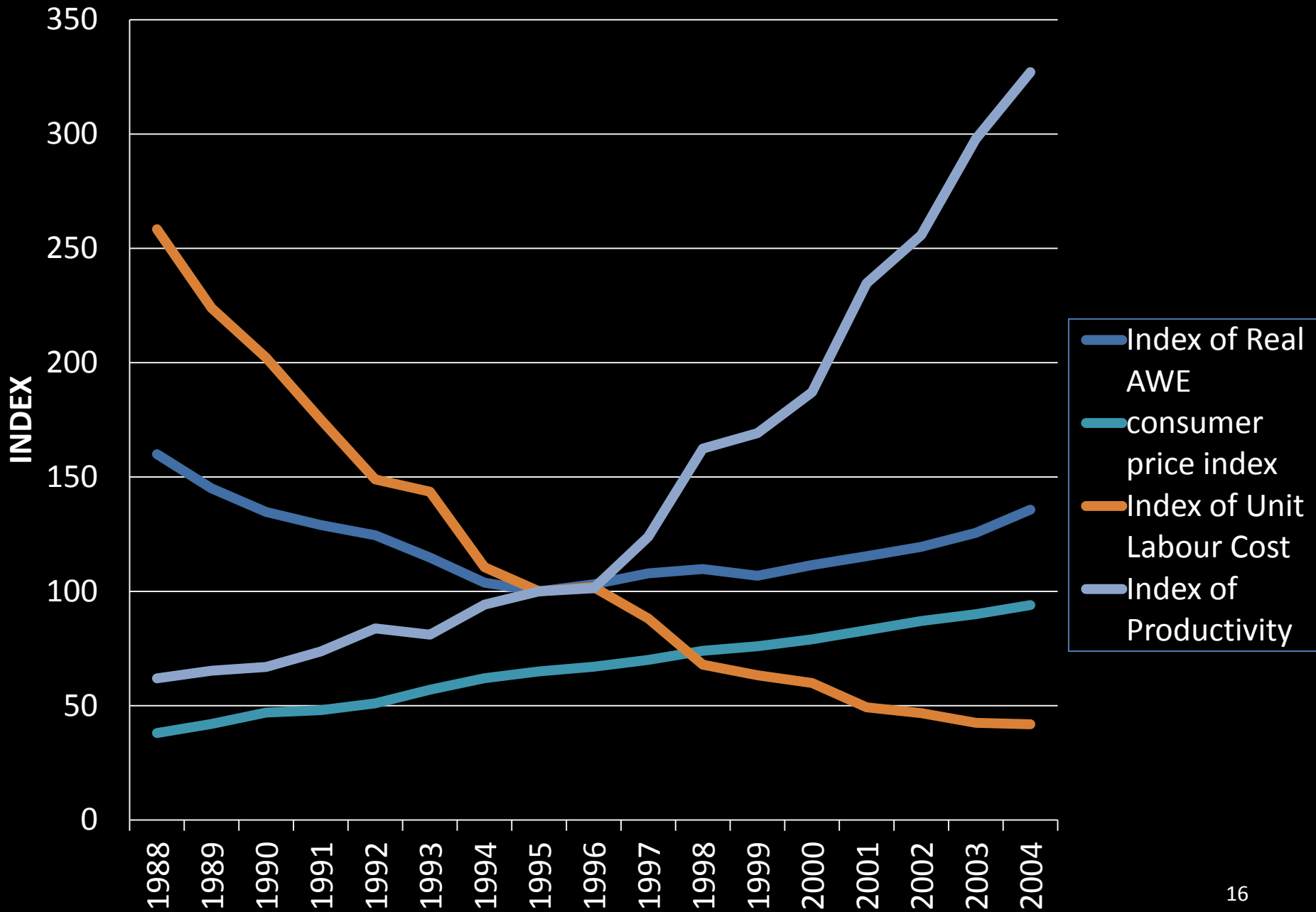
# INDEX OF AVERAGE WEEKLY EARNINGS COMPARED TO INDEX OF PRODUCTIVITY FOR MANUFACTURING SECTOR (1988-2004)



# REAL WAGES, LABOUR PRODUCTIVITY AND UNIT LABOUR COST INDEX (1995=100)

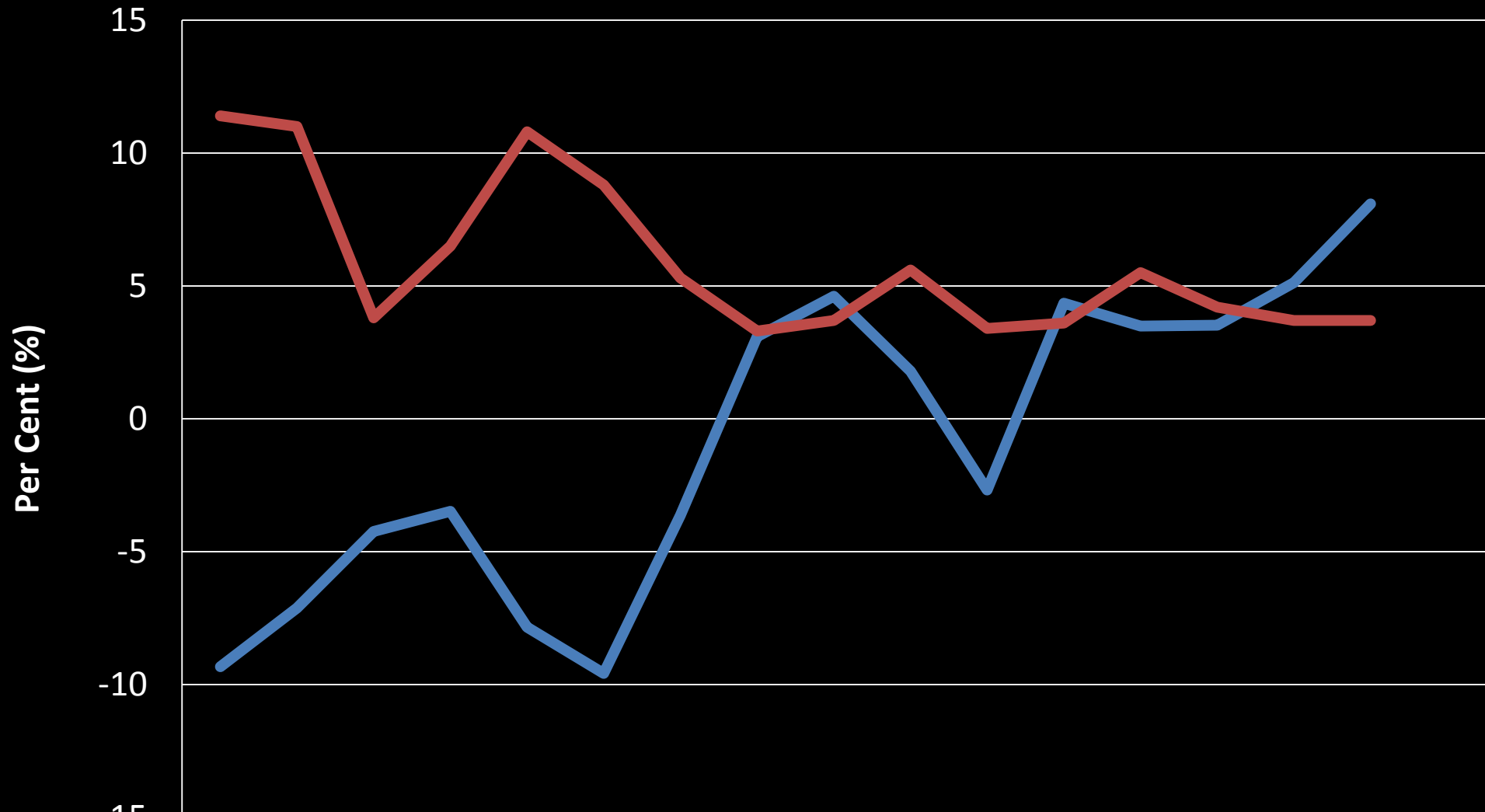


# INCLUSION OF CONSUMER PRICE INDEX



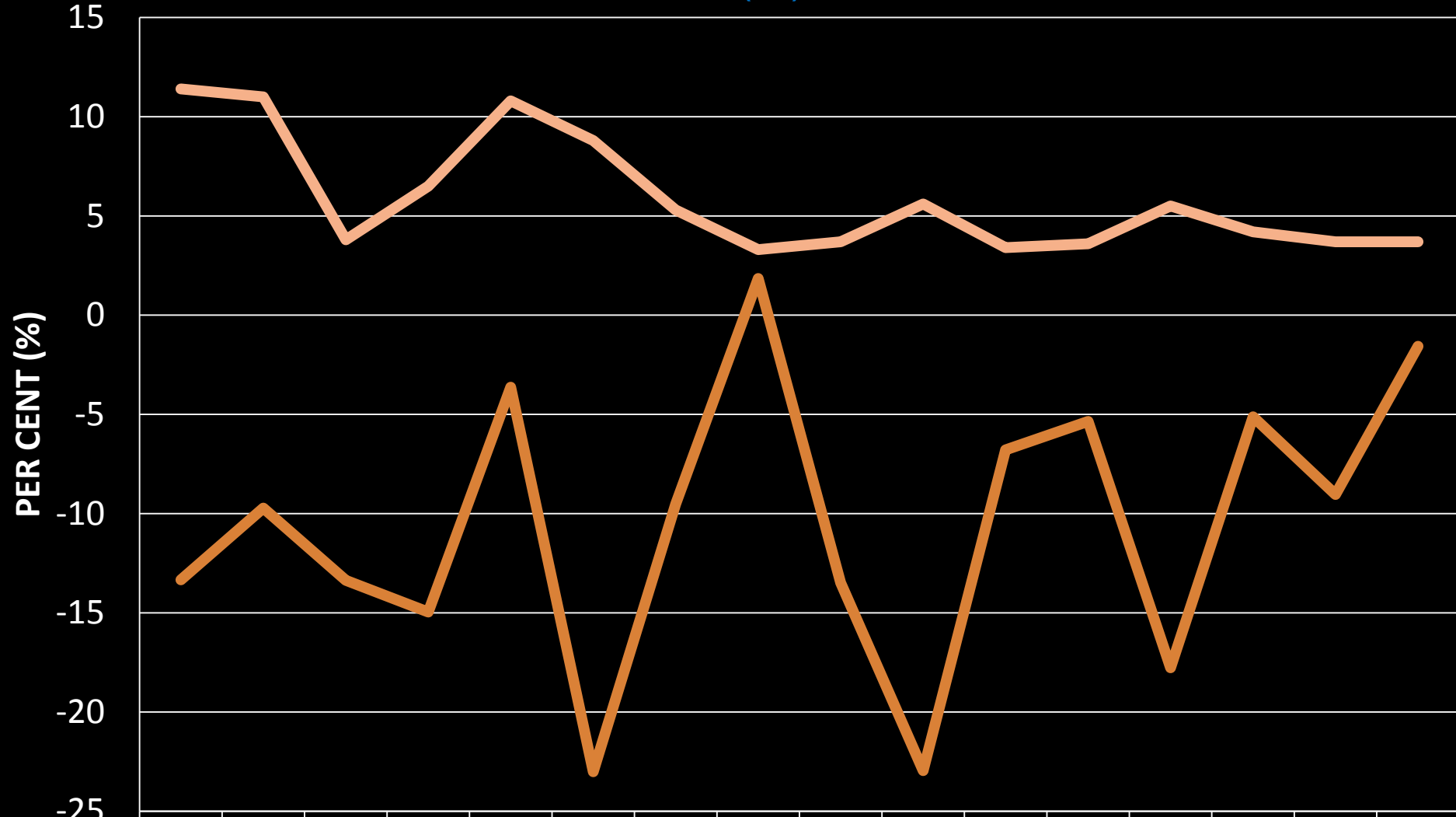


# REAL AWE (YEAR ON YEAR (%)) AND INFLATION



	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
IRawe	-9.3	-7.1	-4.2	-3.5	-7.8	-9.6	-3.6	3.09	4.61	1.79	-2.7	4.35	3.49	3.52	5.12	8.09
INF	11.4	11	3.8	6.5	10.8	8.8	5.3	3.3	3.7	5.6	3.4	3.6	5.5	4.2	3.7	3.7

# UNIT LABOUR COST (%) AND INFLATION



	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
iulc %	-13	-9.7	-13	-15	-3.6	-23	-9.5	1.85	-13	-23	-6.8	-5.4	-18	-5.1	-9	-1.6
INF	11.4	11	3.8	6.5	10.8	8.8	5.3	3.3	3.7	5.6	3.4	3.6	5.5	4.2	3.7 <sup>18</sup>	3.7

# OLS Granger Causality for Wages and Labour productivity for Manufacturing Sector

## Pairwise Granger Causality Tests

Date: 07/31/11 Time: 01:25

Sample: 1988 2004

Lags: 1

Null Hypothesis:

Obs

F-Statistic

Prob.

LP\_DIFF does not Granger Cause IAWWE\_DIFF

15

0.06059

0.8097

IAWE\_DIFF does not Granger Cause LP\_DIFF

13.1892

0.0034



# OLS Granger Causality for Wage Growth and Inflation for Manufacturing Sector

## Pairwise Granger Causality Tests

Date: 07/30/11 Time: 23:23

Sample: 1989 2004

Lags: 1

Null Hypothesis:	Obs	F-Statistic	Prob.
Iawe_diff does not Granger Cause inf_diff	14	0.46106	0.5112
inf_diff does not Granger Cause Iawe_diff		7.01404	0.0227

# OLS Granger Causality for Unit Labour Cost Growth and Inflation for Manufacturing Sector

## Pairwise Granger Causality Tests

Date: 07/30/11 Time: 23:29

Sample: 1989 2004

Lags: 1

Null Hypothesis:

Obs

F-Statistic

Prob.

IULC\_DIFF does not Granger Cause INF\_DIFF

14

0.01408

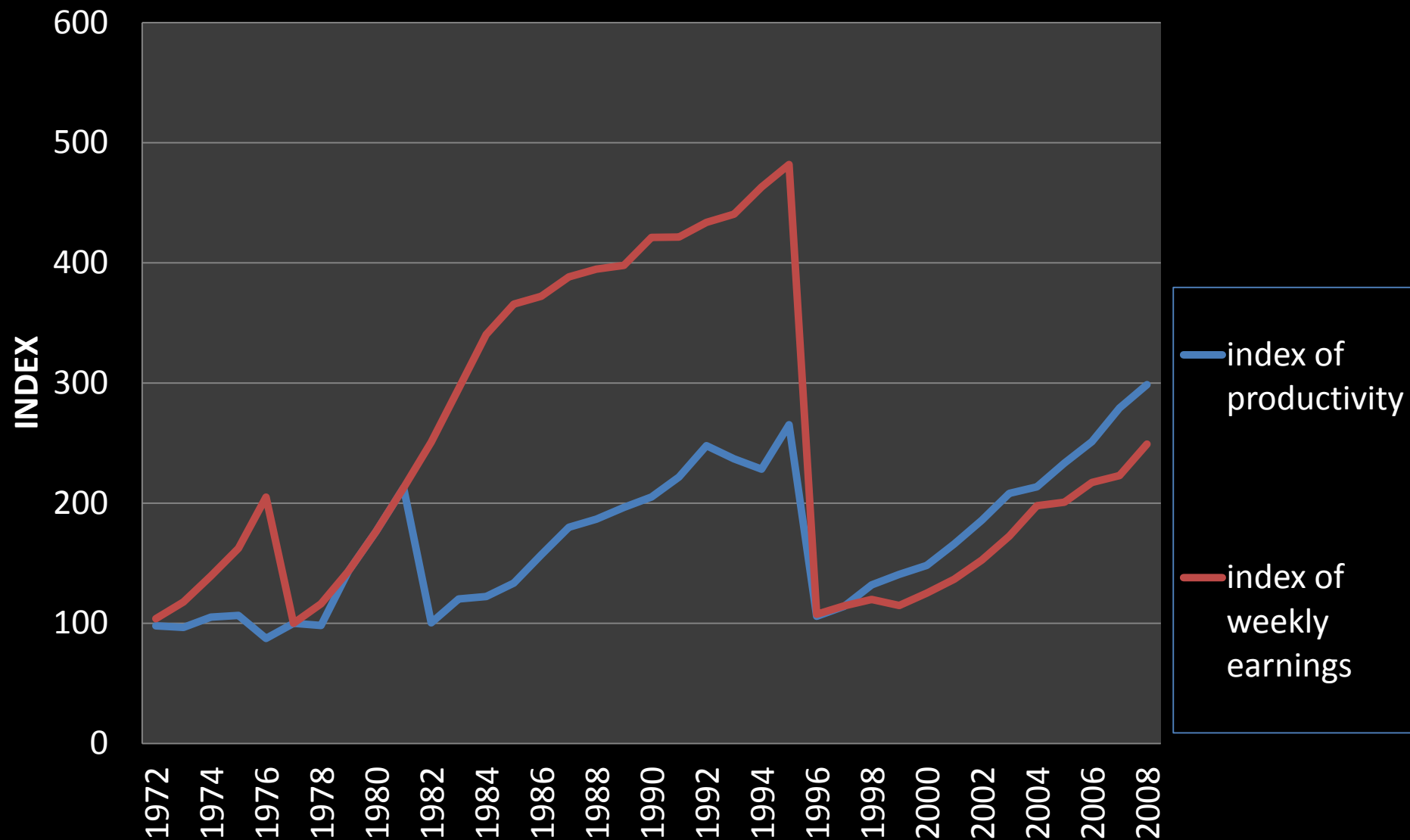
0.9077

INF\_DIFF does not Granger Cause IULC\_DIFF

0.17752

0.6816

# INDEX OF AVERAGE WEEKLY EARNINGS COMPARED TO INDEX OF PRODUCTIVITY (AGGREGATE) (1972-2008)



# OLS Granger Causality for Wages and Labour Productivity for all employees (1972-2008)

## Pairwise Granger Causality Tests

Date: 08/04/11 Time: 11:41

Sample: 1972 2008

Lags: 2

Null Hypothesis:

Obs

F-Statistic

Prob.

LP\_DIFF does not Granger Cause IAWWE\_DIFF

34

0.32828

0.7228

IAWWE\_DIFF does not Granger Cause LP\_DIFF

0.58012

0.5662

# OLS Granger Causality for Wages and Inflation for all employees (1972-2008)

## Pairwise Granger Causality Tests

Date: 08/04/11 Time: 16:56

Sample: 1972 2008

Lags: 2

Null Hypothesis:

Obs

F-Statistic

Prob.

Iawe\_diff does not Granger Cause Inf\_diff

34

0.71237

0.4989

Inf\_diff does not Granger Cause Iawe\_diff


1.88197

0.1704



# CONCLUSION AND RECOMMENDATIONS

- Granger causality results (manufacturing sector) suggests a one-way causal relationship between wages and productivity, that is, wages Granger causes labour productivity which corroborates efficiency wage hypothesis.
- At both the manufacturing sector and aggregated sectors, Granger causality results showed that wage growth is caused by inflation. Thus, it can be said that Keynesians theory of inflation does not hold.

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- Future research can identify other labour market variables which might explain changes in labour productivity other than real wages.
  - From the results obtained; if policy makers are to avoid demands for wage growth to stimulate economic recovery and avoid further fiscal deficit, keeping inflation low should remain a principal objective of the policymakers.

- Policymakers of Trinidad and Tobago can remove wage growth as an indicator of inflation. They can however; focus resources on determining other labour market variables that can help predict inflation.
- A study which examines the determinants of the wage-productivity gap itself (in full detail) for Trinidad and Tobago and for other developing countries, would be of great interest and utility to policy makers as a guide to minimising the gap.

**THANK YOU.**