

A Technical Case for Affordability-Based Pricing of Cigarettes

Nishan de Mel & Nilangika Fernando

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Nishan de Mel
Nilangika Fernando

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ABSTRACT

By 2014, tax revenue from cigarettes accounted for over 4.9% of total government revenue. However, thus far, Sri Lanka's tax adjustments have been ad hoc, and driven by political and bureaucratic discretion rather than a logical, transparent, and systematic policy. This paper aims to develop a framework that aligns three non-convergent interests: the social, industry, and fiscal, by (i) exploring the criteria by which the prices of cigarettes should be updated; (ii) developing a formula for benchmarking the price of the cigarette with the highest market share, using 20 years of price data from 1980–2000; and (iii) forming a coherent method for price differentials between the different length categories of cigarettes manufactured in Sri Lanka.



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INTRODUCTION

Sri Lanka consumed 3.6 billion cigarettes in 2014. Excise tax on these cigarettes amounted to LKR 57.5 billion (or about LKR 15.97 per cigarette) (National Dangerous Drugs Control Board, 2014). As a percentage of the budget and government revenue, these taxes are highly significant. They represent almost 5.1% of the recurrent expenditure budget and over 4.9% of total government revenue in 2014. For the sake of government revenue, society, and the industry, the policies and methods by which cigarette prices and taxes are calculated and administered deserve careful calculation and regular calibration.

Apart from the economic importance of tobacco taxes, there is an important health implication. The World Health Organisation (WHO) contends that ‘tobacco kills nearly six million people each year, of which more than 600,000 are non-smokers dying from breathing second-hand smoke’ (WHO, 2013). It also recognises tobacco usage as one of the largest epidemics in the world, with one person dying every six seconds from a tobacco-related disease. This number is equivalent to one in every ten adults in the world. Over 40% of children globally have at least one smoking parent and 28% of deaths caused by second-hand smoking are those of children (WHO, 2014). The WHO also recommends taxation as a primary method of curbing the epidemic. Increasing taxes influence the price of cigarettes, which in turn reduces the affordability of cigarettes and thereby reduces consumption.

Sri Lanka has a monopoly producer and marketer of cigarettes, the Ceylon Tobacco Company (CTC). While the government does not set prices, it sets the excise taxes in terms of absolute value—through Section 3 of the Excise (Special Provisions) Act, No. 13 of 1989. Thereby, the government is also able to determine the minimum price for cigarettes of each length category, while CTC is free to set a higher price.

Taxes and prices affect different interests. Higher taxes increase government revenue, but higher prices do not. For CTC, it is different. As long as the price elasticity of demand remains less than one-to-one, increasing prices by more than the percentage increase in taxes, will increase the profits of the industry, even though it does also discourage the long-term take-up of the consumption habit by those who have not yet started to consume cigarettes. But price increases of less than the percentage increase in tax will decrease its profits.

This means, for any level of consumption, the benefits to the industry operate differently in a monopoly market than in a competitive market. In a competitive market, the industry is interested in having the lowest possible tax, and the margin between tax and price is bid down through the competitive process (between different producers). In a monopoly market, there is no bidding down of price. A monopoly industry has an incentive to seek a higher differential between the price and the tax, even by increasing prices. For example, a price elasticity of demand of less than 1 implies that



it can be preferable for a monopoly producer to have a cigarette priced at LKR 20 with a tax of LKR 10 than to have the same cigarette priced at LKR 15 with a tax of LKR 8. Therefore, contrary to popular wisdom, it is not always in the industry's interest to keep prices low.

In short, when the media announces increases in the price of cigarettes, this is not necessarily against the interest of the producer or in the government's interest—it matters how the tax increases compares to the increase in price. Contrary to popular wisdom, it is not always in the industry's interest to keep prices low. **In Sri Lanka, media coverage focuses on the price adjustment but not the associated tax adjustment, though the latter is the crucial policy decision with regard to government revenue.**

It is also the role of government to protect the long-term interests of society. This is not the same as the short-term interest of increasing revenue. Given the preponderance of the evidence that has been built up over the years on the health and social consequences of smoking in many countries, **it is becoming common for countries to adopt strategies that discourage smoking and reduce the rate of cigarette consumption in the population.**

The *Mathata Thitha* slogan within *Mahinda Chinthanaya* articulates such a policy of social concern by reducing *Matha*, which includes the consumption of cigarettes. Such attempts require a multi-pronged strategy, covering advertising regulations, warnings on cigarette packs, and discouraging low-cost entry-level cigarettes. It is clear then that the pricing and taxation of cigarettes can only be one component of giving expression to the interests of the government, society, and industry.

Despite the multiple implications of tobacco consumption on health and economic activity, a systematic policy for the pricing and taxation of tobacco is yet to be developed. This paper develops such a policy for Sri Lanka.

RESEARCH OBJECTIVE

A research opportunity is created by the fact that **(i) there is no known method by which cigarette pricing and taxation are adjusted periodically** and **(ii) no known logical basis for the differentials in pricing and taxation between different cigarettes of different length categories.**

The goal of the present analysis, therefore, is to develop benchmarks as well as a consistent and rational methodology that can transparently set the pricing and taxation of cigarettes in Sri Lanka.

Methodological Approach

The present methodology and analysis represent a comprehensive response to resolving price and tax calibration problems arising in Sri Lanka's unique context and developing a transparent, consistent, and logically reasoned method for regulating prices and taxes of cigarettes in Sri Lanka.

The approach taken in this study is predicated on the present context, in which the tobacco industry remains legal, and subject to the normal expectations of a coherent regulatory regime.

The methodology developed in this paper is based on a framework of being transparent, consistent, and logical, and taking into consideration the balancing of multiple interests: of society, industry and government. The fact that interests are balanced will mean that there can be arguments from each of the interested groups for changes in the normative framework that push the stakes in its favour. Such arguments are best evaluated based on what improvement they can provide to a transparent, consistent, and logically derived method.

A key insight that arises from this analysis is that ad hoc adjustments that depend on bureaucratic or political discretion rather than a transparent and well-reasoned method have not resulted in a systematic policy. As numerous economic studies have shown, and common sense concurs, the lack of transparency and unhinged discretion are too often vulnerable to multiple pressures including the oiling of palms and dishonest lobbying, which are best pre-empted through a transparent method.

Ultimately, however, the precise pricing and taxing regime adopted (i.e. the specific calibration of variables in a transparent method) will depend on government policy because whether cigarette consumption should be encouraged or discouraged in the country is a matter for government policy. The current methodology, therefore, further provides a means of evaluating what the actual adopted government policy is and whether it is consistent with what is publicly articulated.

The methodology developed here provides a framework for balancing three non-convergent interests: (a) the social interest: there are several known harmful effects of



cigarette consumption; (b) the industry's interest: its sustainability and future depend on the policies adopted; (c) the fiscal revenue interest: the income from taxing cigarettes is significant.

There are three methodological challenges in setting the price of cigarettes:

1. To develop the criteria on which the price of cigarettes should be updated.
2. To develop a benchmark price for the most consumed type of cigarette.
3. To develop a coherent method for price differentials between different types of cigarettes.

All three challenges are addressed in this study. The question of criteria for the updating of cigarette prices is dealt with through the application of consumer theory in economics. The question of a benchmark price is addressed through historical and empirical analysis of pricing, which augments the application of consumer theory. The issue of a coherent method is addressed using measurable differences and existing conventions to supplement the guidance that emerges from consumer theory.

The fact that prices are targeted through taxation means the government would need to arrive at a price-to-tax ratio and use it to target the minimum price. The tax ratio would need to take into consideration the cost of producing a cigarette as well as the economic sustainability of cost recovery for the producer. Each of these three challenges are addressed in Sections I, II and III of this paper.



I. THEORETICAL CRITERIA FOR UPDATING THE PRICE OF A CIGARETTE

Economic consumer theory provides two analytical handles for calibrating the pricing and demand for cigarettes: the 'income effect' and 'substitution effect'.

Income Effect

'Income effect' is the term used in consumer theory to measure the effect on consumption as a result of the consumer experiencing greater buying power. The basis is that greater buying power will tend towards an increase in the consumption of all 'normal goods'.

Empirical studies confirm that consumer demand for cigarettes responds as it would to a 'normal good': when buying power increases, consumption increases and when buying power decreases it decreases (Hsieh, Hu & Jeff Lin, 1999). However, if cigarette consumption becomes addictive, the demand decline response (price elasticity of demand) to an increase in price will tend to be lower than for other non-essential goods.

Substitution Effect

'Substitution effect' in consumer theory denotes the tendency to substitute from one consumption item to another due to an increase in the price differential between the two. There are two kinds of substitution effects to be aware of when it comes to cigarettes: (i) the substitution between different brands of cigarettes; and (ii) the substitution between cigarettes and other goods.

If the goal is to prevent substitution between brands, then increases of cigarette prices should follow the same rate of increase across all brands at the same time; this ensures the price differential between the two (the number of cigarettes of one brand you have to give up to purchase a cigarette from another brand) remain unchanged.

The second type of substitution effect (substitution away from cigarettes to other goods) is prevented when prices of cigarettes are adjusted in line with other prices in the economy (which the consumer inflation index is designed to measure). In such a scenario, there is no overall substitution effect between cigarettes and other consumption goods.

Managing Income and Substitution Effects

Therefore, if the goal is to prevent the increased consumption of a particular cigarette as GDP (income) increases, there are at least three considerations that are material to managing income effects and substitution effects:

(1) Increasing prices to offset the effect of real income increase (direct income effect¹) towards purchasing more cigarettes;

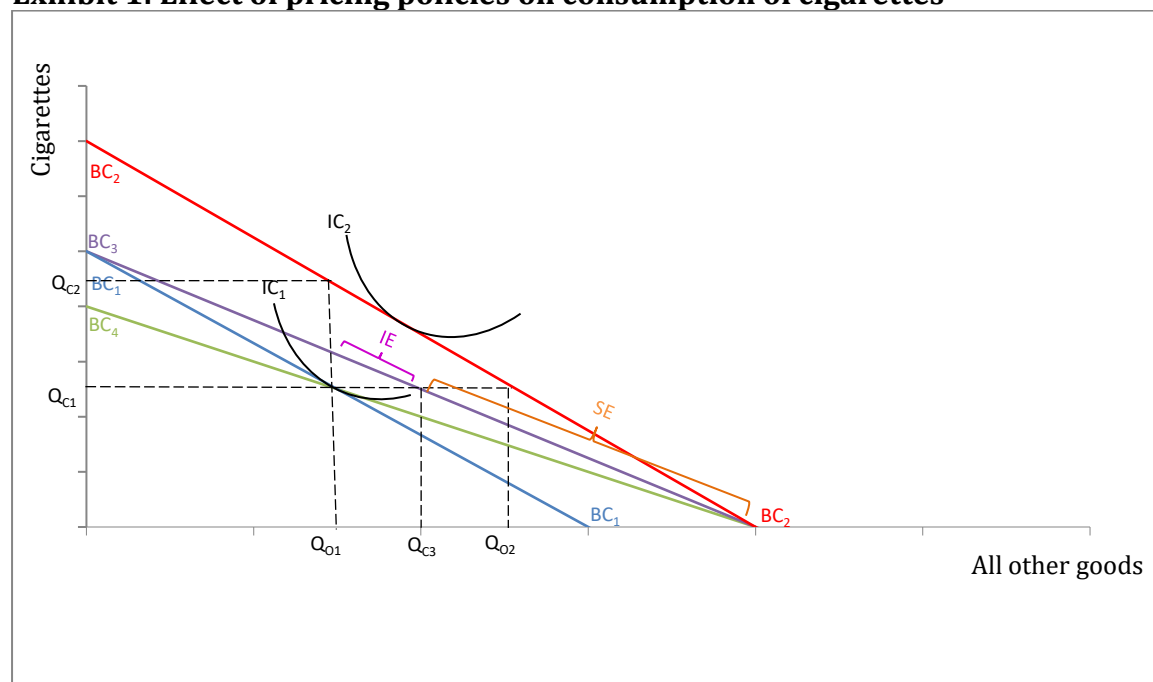
(2) Creating a positive differential between the increase in cigarette prices and general inflation so the negative substitution effect on cigarettes counters the positive indirect income effect towards purchasing more cigarettes;² and

(3) Ensuring that the percentage increase in price for higher-priced cigarettes is the same as lower-priced cigarettes to prevent substitution away from the higher-priced to the lower priced cigarettes.

Consumer theory in economics provides a framework from which the question of cigarette pricing and its impact on consumption can be rigorously analysed.

The principal policy question here is on what the pricing policy should be directed towards and there are several choices: (1) A pricing policy that envisages the consumption of cigarettes increasing in line with the increased consumption of all other goods; (2) A pricing policy that strongly discourages the increase of tobacco consumption without ensuring its decrease; and (3) A pricing policy that ensures a decrease in cigarette consumption over time.

Exhibit 1: Effect of pricing policies on consumption of cigarettes



These three pricing policies can be explained by the alternatives presented in Exhibit 1. The first budget constraint (BC1, in blue) depicts the initial state before per capita GDP

¹ Direct income effect here refers to the income effect that arises from the change in income in relation to change in the price of cigarettes.

² Indirect income effect here refers to the income effect that arises for cigarettes from change in income in relation to the change in prices of other goods.



(income) growth. The second budget constraint (BC2, in red) depicts the second state at a higher per capita GDP growth when relative prices are unchanged, as it would be for instance when all prices are increased only in line with inflation (it is a parallel shift in the budget constraint). The third budget constraint (BC3, in purple) depicts the second, higher per capita GDP, state when the relative price of cigarettes are increased, as it would be if cigarette prices are increased to real GDP growth, above and beyond an increase in line with inflation. Even with budget constraint BC3, cigarette consumption can increase. The fourth budget constraint (BC4, in green) depicts a more aggressive relative increase in the price of cigarettes, which ensures that cigarette consumption will not increase, and will decrease, in the second state of higher per capita GDP.

(1) A pricing policy that envisages the consumption of cigarettes increasing in line with the increased consumption of all other goods.

The indifference curve IC2 depicts the expected consumption result if prices of cigarettes are adjusted in line with the price increase of all other goods (inflation). This ensures there is no substitution effect between cigarettes and all other goods, implying that only the income effect applies. The resulting consumption would be within the area demarcated Q_{C1} to Q_{C2} and Q_{O1} to Q_{O2} where both the consumption of cigarettes and the consumption of all other goods would increase.

That is, adjusting cigarette prices to inflation only is tantamount to pricing that envisages the consumption of cigarettes increasing in line with increased consumption in a growing economy.

(2) A pricing policy that strongly discourages the increase of tobacco consumption without ensuring its decrease.

The budget constraint BC3 depicts an increase in cigarette prices at the same rate as per capita GDP growth. This means if a person was spending all their income on cigarettes, then, as their income increased, the adjustment in cigarette prices would be such that they would not be able to buy any more cigarettes than before their income increase.

However, not even the strongest addict spends all their cash on cigarettes. There will be a consumption mix between cigarettes and all other goods. Therefore, even though cigarette prices are increased at the same rate as per capita GDP, there will be an income effect because, with the increased income, the consumption mix a person can purchase has improved. In other words, alongside the same quantity of cigarettes as before, they can also consume more of all other goods (i.e. they have more consumption power).

At the same time, however, the disproportionate increase in cigarette prices in relation to all other goods implies a substitution effect. That is because cigarettes have become relatively more expensive than other goods, there will be a tendency to substitute away from the former to the latter. The final outcome in the consumption of cigarettes, therefore, will depend on whether it is the substitution or income effect that dominates

in the matter. If the income effect dominates, the consumption of cigarettes and other goods will increase simultaneously. If the substitution effect dominates, the consumption of cigarettes will shift towards all other goods.

Exhibit 1 displays the consumption mixes when cigarette prices increase at the same rate as per capita GDP depending on the effect that dominates. The section of the budget constraint BC3 demarcated as IE (in purple) denotes the possible consumption mixes when the income effect dominates, and that demarcated SE (in orange) denotes the possible consumption mixes where the substitution effect dominates.

That is, adjusting the cigarette prices in step with the per capita increase in GDP growth will not ensure a reduction in cigarette consumption, but it will apply much stronger brakes to the increase in cigarette consumption than just an inflation adjustment.

(3) A pricing policy that would ensure that the consumption of cigarettes would decrease over time

The budget constraint BC4 depicts a price increase greater than the increase in per capita GDP. Here the price increase is calibrated in a manner that a consumer who does not change the quantity of cigarettes he purchases will have no more cash than they had earlier to buy other goods, despite the increase in income.

This requires a very aggressive increase in the price of cigarettes, and the level of aggression must increase as the proportion of income spent on cigarettes gets smaller. That is, if a person spends 100% of their income on cigarettes, this increase is the same as the inflation increase plus real income growth (i.e. real per capita GDP growth). But for a person who spends half his or her income on cigarettes, the increase in price would be twice that of the real per capita GDP in addition to inflation. Similarly, for a person who spends a quarter of their income on cigarettes, the required increase would be four times the growth in income. The precise equation for the required increase in cigarette price is as follows:

$$P_n = P_c \times (1 + i) \times \left\{ 1 + r \times \left(\frac{1}{B_c} \right) \right\}$$

where P_n = new price of cigarette

P_c = current price of cigarette

i = rate of inflation

r = real per capita GDP growth

B_c = ratio of income budget spent on cigarettes



For example, consider a person who earned LKR 60,000 a month and spent LKR 12,000 a month on cigarettes. If inflation is 6% and real GDP growth is 5%, the inflation-only adjustment implies just a 6% increase in cigarette prices; together with the income growth, the adjustment implies an 11% increase in cigarette prices. However, an increase in prices designed to ensure a decrease in cigarette consumption would require a 32.5% increase in cigarette prices.

II. DERIVATION OF A PRICING BENCHMARK FOR THE MOST CONSUMED CIGARETTE

Given Sri Lanka's unique situation, with a single monopoly supplier and government-regulated pricing, coming up with a reasonable benchmark price is a non-trivial exercise. de Mel (2010) developed a methodology to benchmark price for the most consumed cigarette, which was the cigarette branded as John Player Gold Leaf (JPGL), based on the history of price changes from 1980.

The paper grappled with the question of which year's price, in this history, should be the benchmark on which affordability adjustments are applied. The methodology in de Mel (2010) was based on a **recurring convergence in affordability** measured in terms of per capita GDP. That is, it found that prices kept converging in the 1990s, and even in 2000, to the same level of affordability as that which existed in 1980. Therefore, the convergent price in 1980 was used as the benchmark.

This paper uses a more rigorous approach to pinpoint a benchmark year by testing every single year between 1980 and 2000 for its suitability as a benchmark. It takes each year in the period as a benchmark for pricing and calculates how much actual price increases diverged, on average, during the period, from being a perfect fit with the rate of increase in per capita GDP. It then selects the year that gave a divergence closest to zero as the benchmark year. Another way to explain this is to say it is the actual price point that is most consistent with evaluating past prices from 1980 to 2000 as having been, on average, adjusted in line with the per capita increase in GDP.

Let P_t be the price of a JPGL cigarette, and I_t be the per capita GDP in year t where $t \in 1980, 1981, \dots, 2000$. Then, for any k selected as a benchmark year, where $k \in 1980, 1981, \dots, 2000$, the divergence between P_t and I_t is given by D_t^k , where

$$D_t^k = \left(\frac{P_t}{P_k} \times 100 \right) - \left(\frac{I_t}{I_k} \times 100 \right)$$

Then, the selected benchmark year k^* minimizes the following expression for all t

$$\sum_{t=1980}^{2000} D_t^k$$

The year selected by this **least net divergence** method is 1981. It gives a divergence of 0.65% which is the closest to zero. The proximity to zero, in the differential between per capita GDP and cigarette price increases when 1981 is taken as the base year, provides an additional historical justification for the use of per capita GDP as the link index for updating cigarette prices. It shows that historically, since 1981, price increases have taken place *as if* they were based on per capita GDP increases. The results of this analysis are shown in Appendix 1.



This price benchmark is lower than what is derived from the *recurring convergence* method adopted in de Mel (2010). The results give a benchmark price that is 8.84% less than the 2010 method.

The JPGL cigarette pricing data was selected for this analysis for two reasons: (i) it is one of the longest-running brands in Sri Lanka and the author is able to find data on its pricing since 1980; and (ii) it is the most popular and predominant brand of cigarettes in Sri Lanka, accounting for 83.6% of cigarettes consumed in 2013.

III. COHERENT CRITERIA FOR PRICE DIFFERENTIALS BETWEEN DIFFERENT TYPES OF CIGARETTES

In Section II, we derived a pricing benchmark only for the most consumed cigarette, denoted as JPGL. It is then necessary to develop a logical criterion by which the targeted price for all other cigarettes can also be derived. There are not many candidates for criteria that can be consistently and logically applied. It is, for instance, possible to differentiate prices by quantity/weight of tobacco, by nicotine content, or by length.

This paper proposes the length of cigarettes as the criterion for differentiating the targeted price between different types of cigarettes. The length, as a differentiating criterion has already been established by Excise (Special Provisions) Act, No. 13 of 1989 in differentiating the excise taxes on cigarettes, which are the main instrument through which the government targets prices. Current government policy regulates the excise taxes of cigarettes by length, not by brand. The Sri Lankan government has established five length categories as follows:

1. Cigarette length not exceeding 60 mm
2. Cigarette length exceeding 60 mm but not exceeding 67 mm
3. Cigarette length exceeding 67 mm but not exceeding 72 mm
4. Cigarette length exceeding 72 mm but not exceeding 84 mm
5. Cigarette length exceeding 84 mm

Cigarette brands have been subject to regular changes in the last two decades. Bristol, for instance, was made obsolete, and many new brands such as Viceroy, Pall Mall, and Wills have been periodically introduced. Some of them have also been taken out of the market in a short period. A length-based targeted price-setting method allows adaptation to all such innovations without confusion, and with an important element of predictability for the producer's purposes of planning as well.

Therefore, given the establishment of a benchmark price for JPGL, the variations in length is perhaps the most readily identifiable criterion that can be applied logically and consistently in setting targeted prices for all other brands of cigarettes.

Then the targeted price P_L of a cigarette in any length category L , with an upperbound length UB_L (in mm), is given by

$$P_L = P_{MC}^* \times \frac{UB_L}{UB_{MC}}$$

where P_{MC}^* is the derived benchmark price for the most consumed cigarette (which is JPGL at the present time), and UB_{MC} is the upperbound length of the most consumed cigarette (in mm).

Currently, there are no cigarettes being sold in the market in Sri Lanka that falls into the last length category (exceeding 84 mm). However, internationally there are two lengths



that cigarettes over 84 mm commonly fall under, 100 mm and 120 mm. Hence, if a cigarette with a length exceeding 84 mm is introduced into the Sri Lankan market, one of these two lengths can be applied as the upperbound (depending on whether the cigarette in question is less than or more than 100 mm).

The above formula provides guidance on what the targeted price should be for any cigarette given the price of the most consumed cigarette. As discussed, the primary instrument that the government uses for targeting cigarette prices are excise taxes. Hence, in order for targeted prices to be realised, the formula must be extended to the government's calibration of excise taxes.

IV. APPLICATION OF PROPOSED PRICING AND TAXATION POLICY

In its 2014 World No Tobacco Day Campaign, the WHO highlights the importance of taxation to reduce consumption (WHO, 2014). The Framework Convention on Tobacco Control (FCTC) notes that nations that have ratified the agreement should ensure that the tax policy takes account of the health objectives of reducing tobacco consumption (FCTC, 2003).

Cigarettes have been taxed as a product in Sri Lanka from 1990 onwards via the Excise (Special Provisional) Act No. 13 of 1989. Prior to this, the Tobacco Tax Act No. 27 of 1956 (which was amended and is currently operational as the Tobacco Tax Act No. 8 of 1999) was used as the primary form of taxing all tobacco products including cigarettes. Cigarette excise taxes are set in absolute rupee terms and not as a relative proportion of the price. Calculations indicate the current tax is 59.32% of the retail price. This is significantly lower than in previous years; tax as a share of price was as high as 71.73% in 1995 and 81.2% in 1989 (when the tax was applied based on the weight of the tobacco content in the cigarettes only).

The WHO encourages countries to increase or maintain cigarette taxes at least at 60–70% of the retail price. In Sri Lanka, from 1995 till 2007 (except 1999), taxes on JPGL cigarettes were maintained at above 60%. However, in November 2007, the tax adjustment reduced the tax-price ratio to 59.39%. This figure further reduced in 2008, and while it increased slightly in 2009, it fell once again in 2010. In the period 2011–2012, there was a marginal improvement of 60.54%. However, from October 2012 onwards, taxes have remained below 60%. The variance in tax rates shows the importance of a tax policy that is transparent and helps maintain the tax revenue to the government.

The methodology proposed in this paper applies the adjustment of cigarette pricing to the increase in per capita GDP. The application of this criterion is adaptable to the selected policy approach of the government—whether it is to simply maintain affordability or to discourage consumption. The application of this criterion is based on a clear historical relationship between GDP per capita and cigarette pricing and shows that the price of cigarettes can be logically determined through the stated formula. It also provides a logical method to determine prices for all types of cigarettes based on length and benchmark pricing to the dominant JPGL brand.

This methodology also allows for regular adjustment in pricing, removing the ad hoc nature of the current system where the tax increases have varied by rate and time. Changes to price and tax at regular intervals will benefit both the government and the manufacturer as the changes will be based on a logical and transparent policy. This can also help to reduce the undue exercise of bureaucratic and political discretion in taxation policy.



CONCLUSION

This paper introduces a methodological approach that can be used to address the inconsistencies in Sri Lanka's taxation of cigarettes, which at present is driven by political and bureaucratic discretion rather than a logical, transparent, and systematic policy. The paper develops a framework for updating the price of a cigarette based on the desired government policy (to either maintain affordability and consumption or to reduce consumption over time). It finds that the price adjustments for the most popular cigarette, John Player Gold Leaf (JPGL) have kept pace with growth in per capita GDP in the 1980s and 1990s but has diverged thereafter. Consequently, the paper uses the **least divergence method** to establish 1981 as a benchmark year against which to index the affordability going forward. Further, it also provides a logical method in setting the prices of all other cigarettes by using the variation in length as the criterion for the variation in price.

Together, these methods present a comprehensive and rational policy framework that can be applied consistently and transparently for tax increases on cigarettes. Adopting this approach will enable Sri Lanka to maintain taxes at the WHO recommended levels and also benefit social, industry and fiscal revenue interests.

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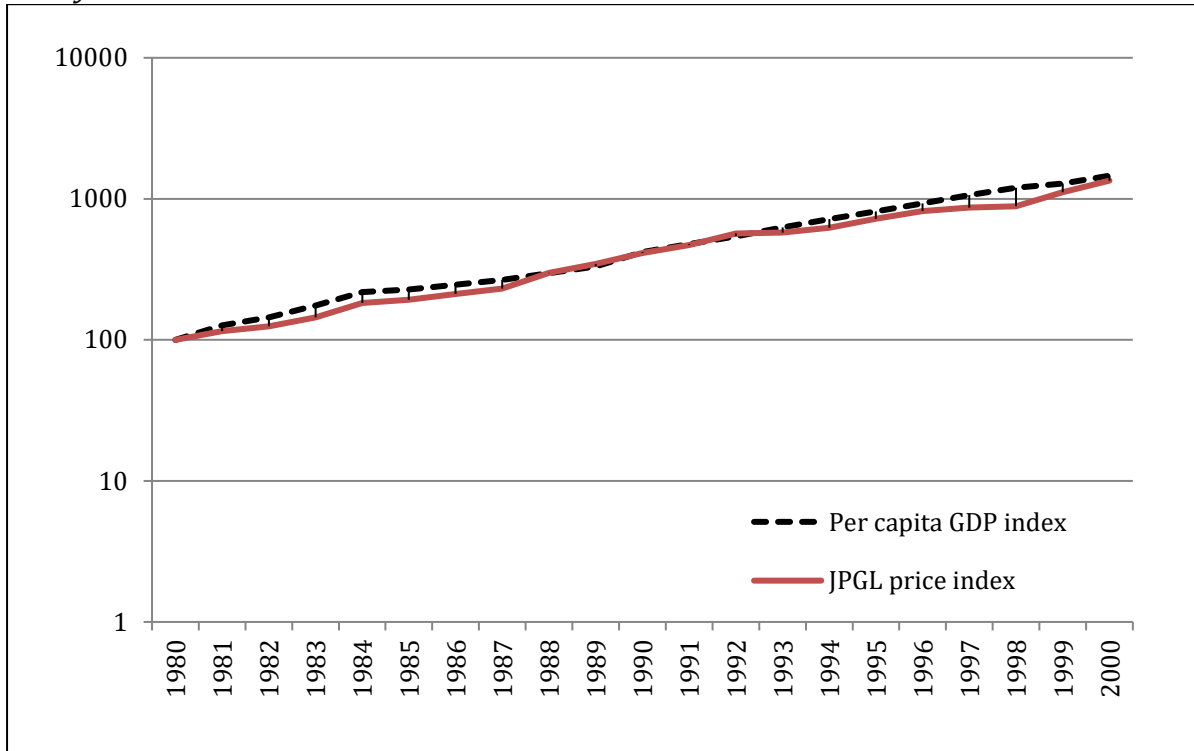
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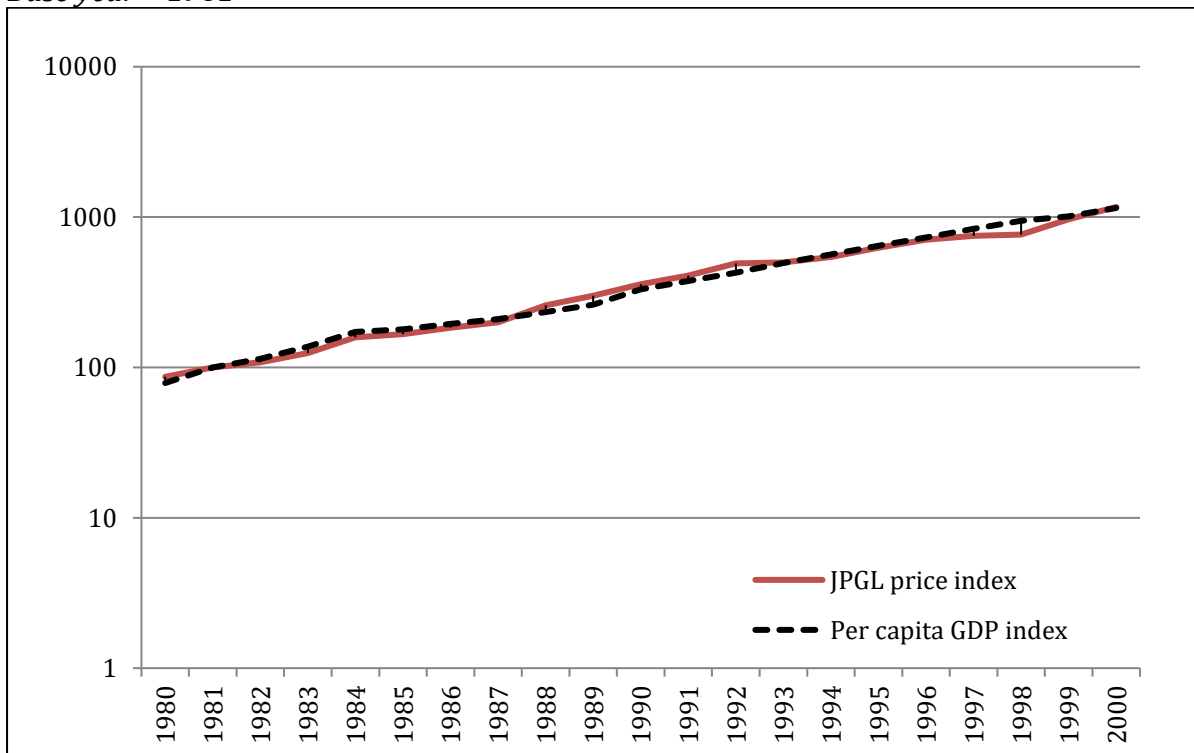
Appendix 1: Net Divergence Between JPGL Price and per capita GDP for Benchmark Years (1980–2000)

Exhibit A1: Indexed Net Divergence Between JPGL price and per capita GDP

Base year = 1980

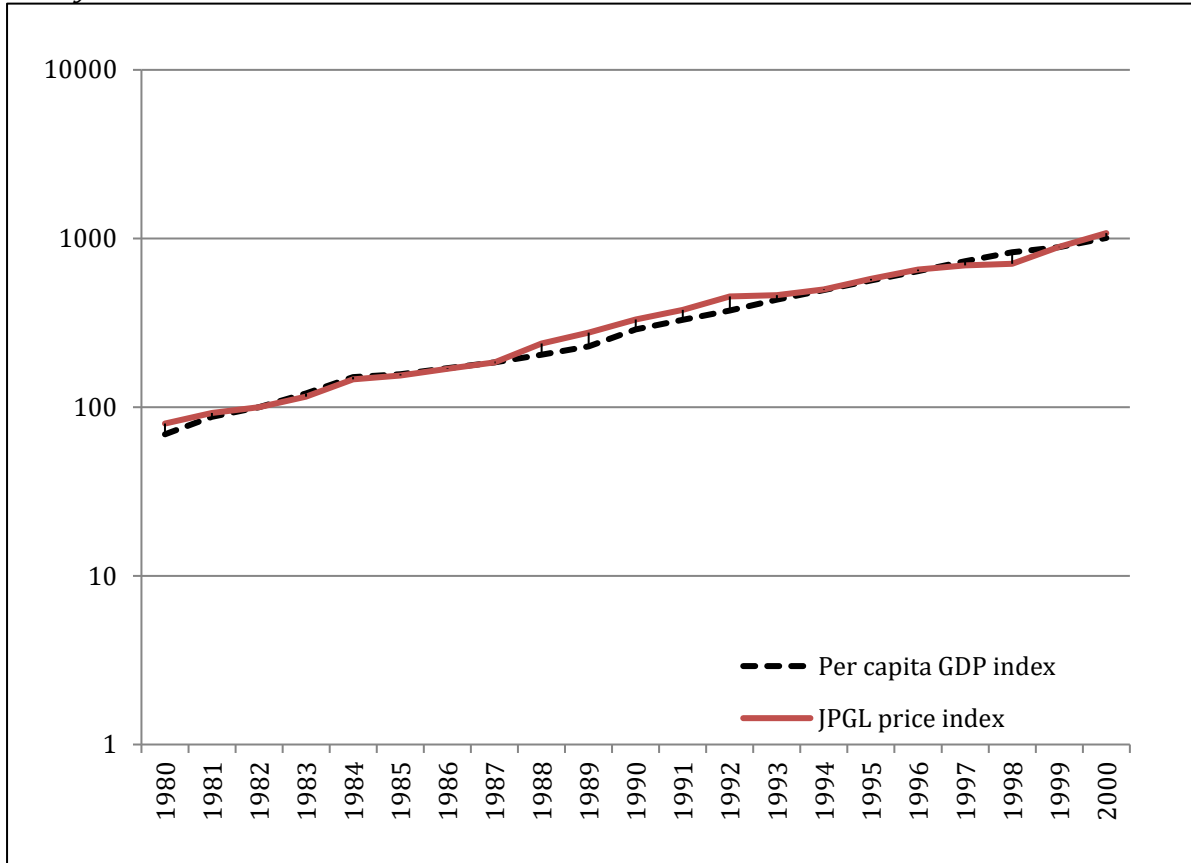


Base year = 1981

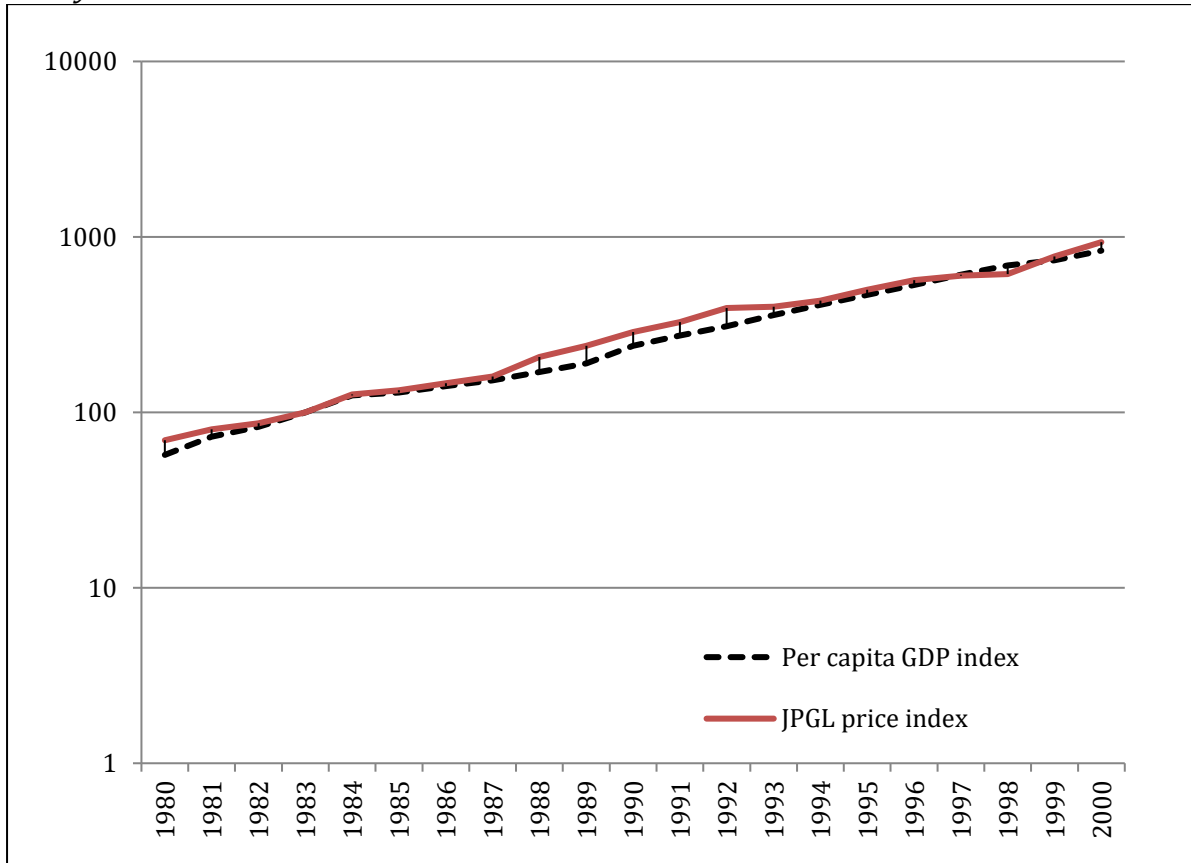




Base year = 1982

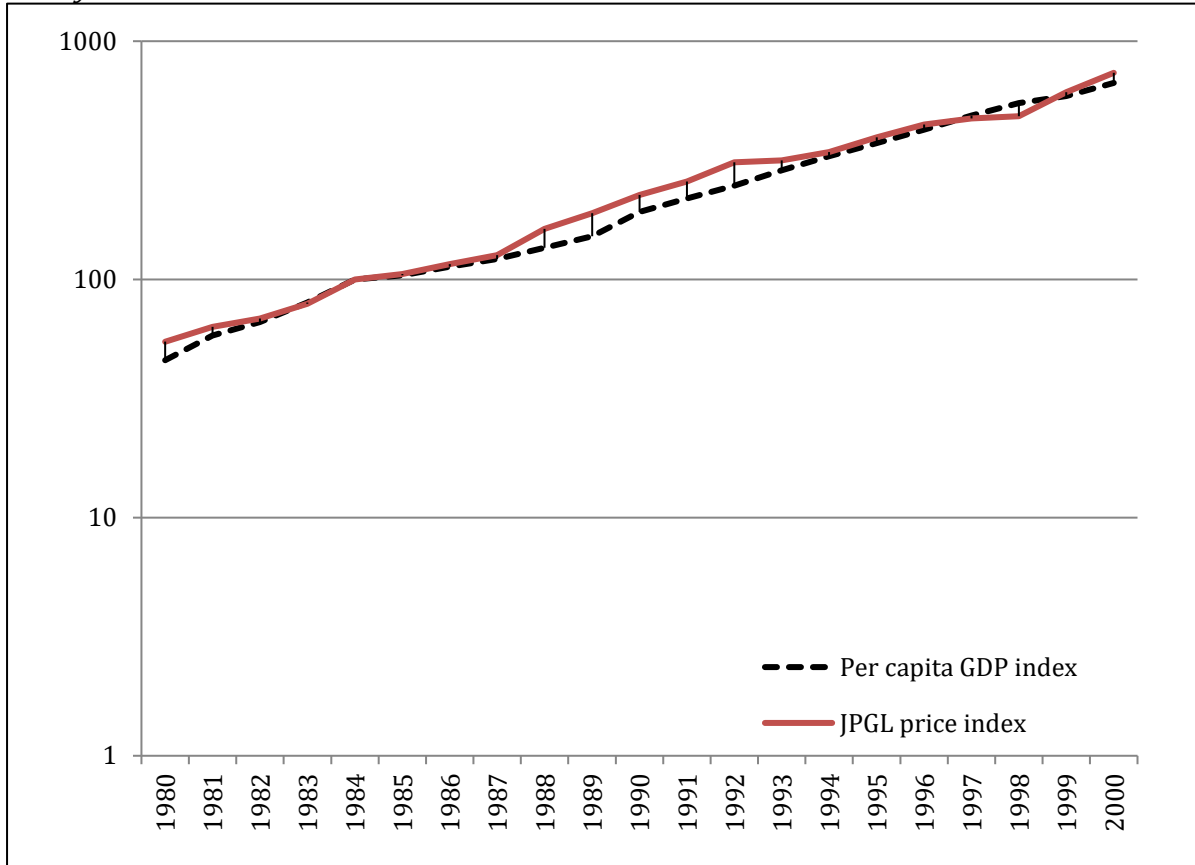


Base year = 1983

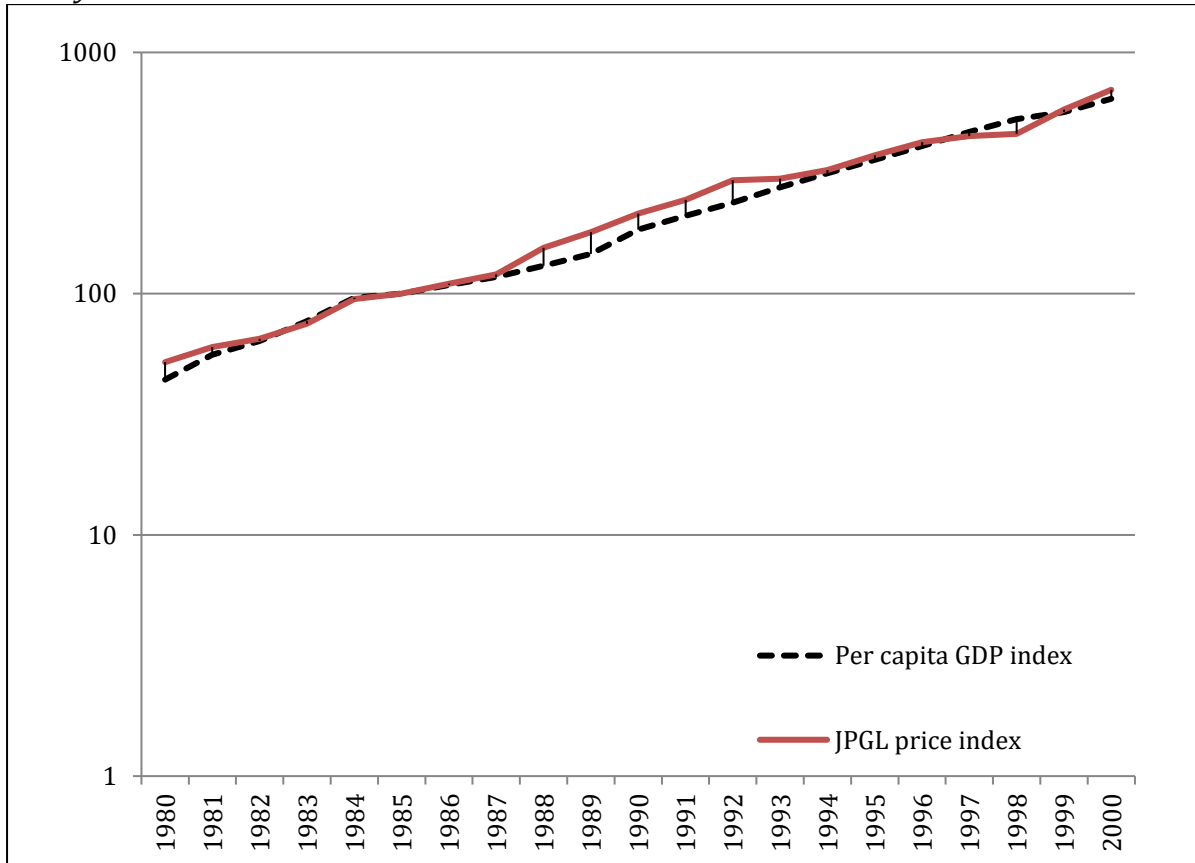




Base year = 1984

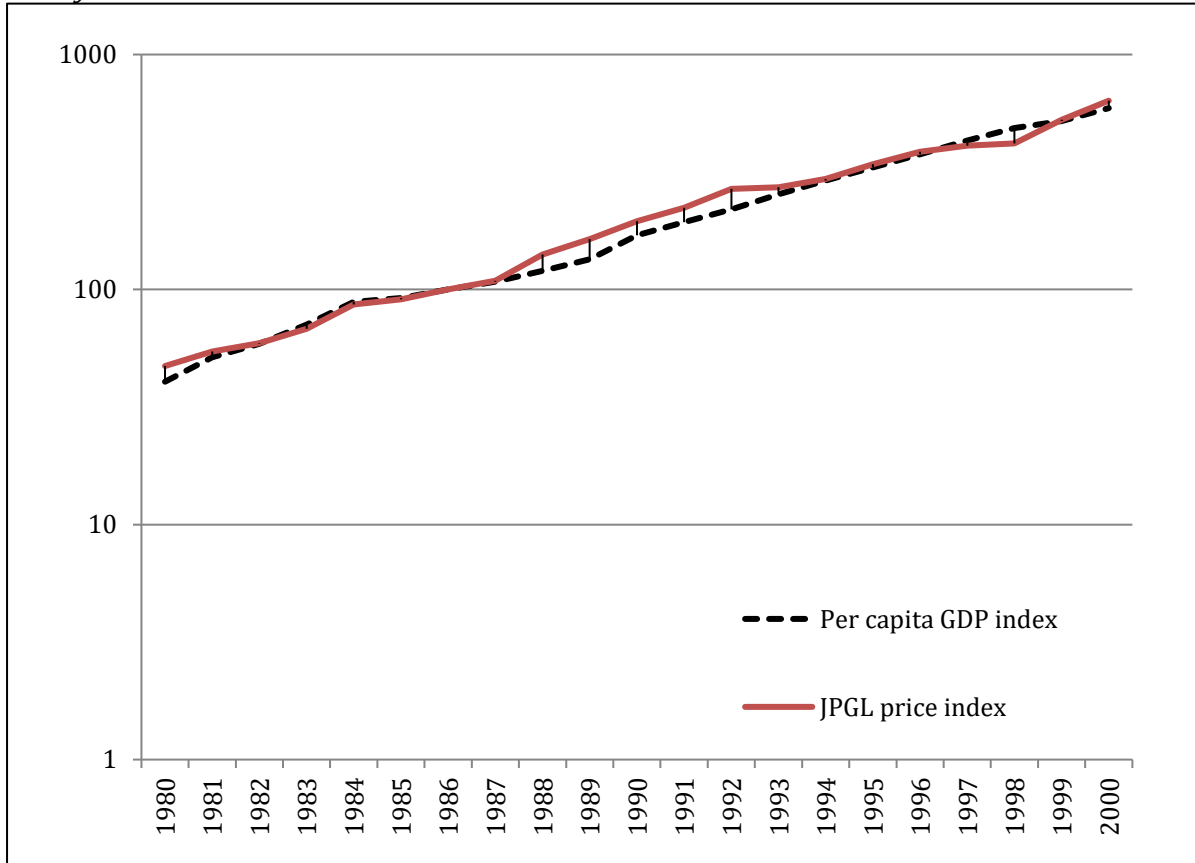


Base year = 1985

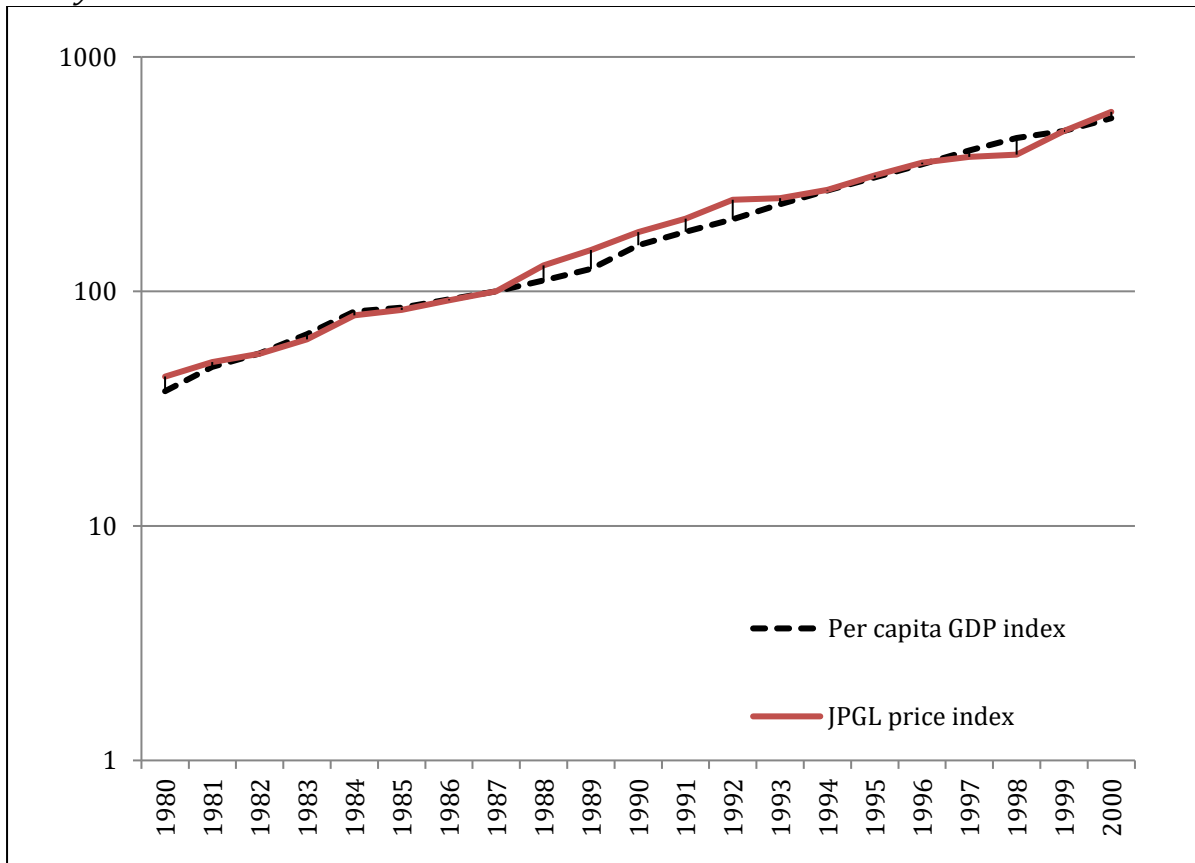




Base year = 1986

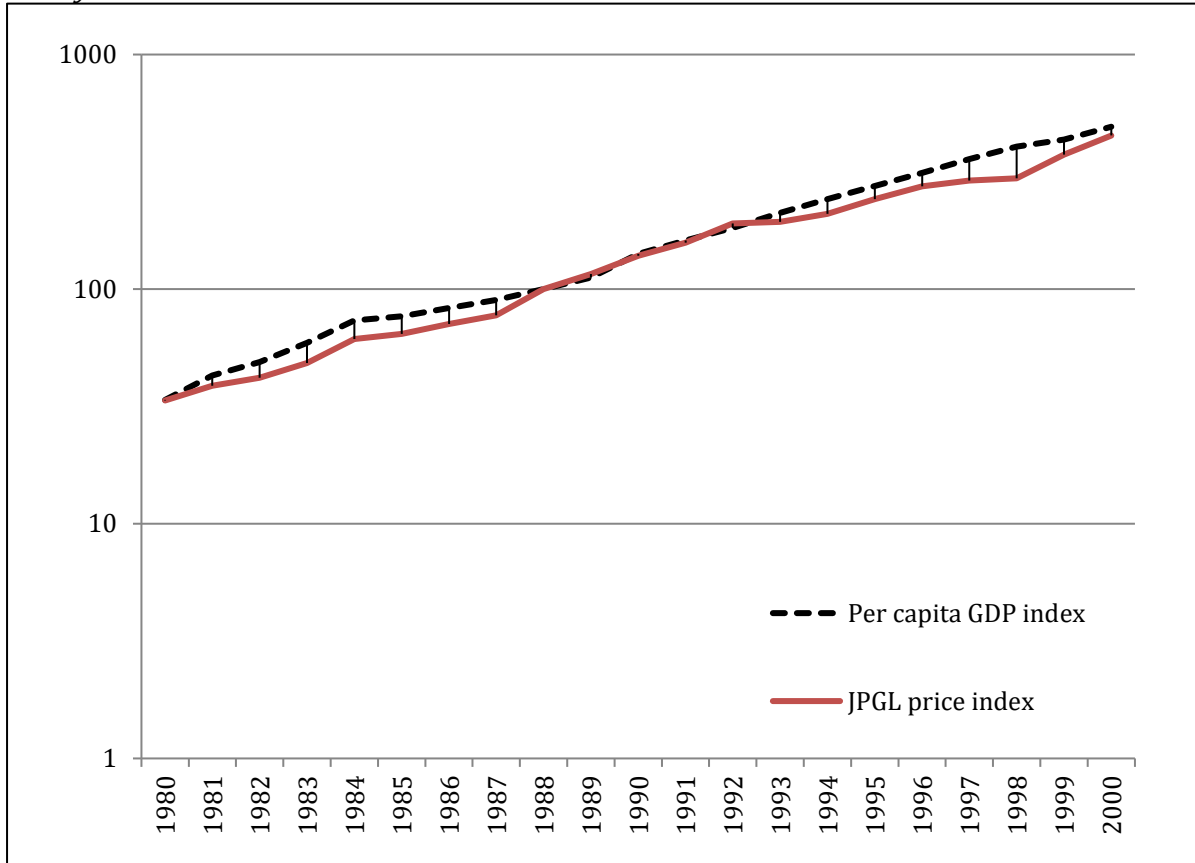


Base year = 1987

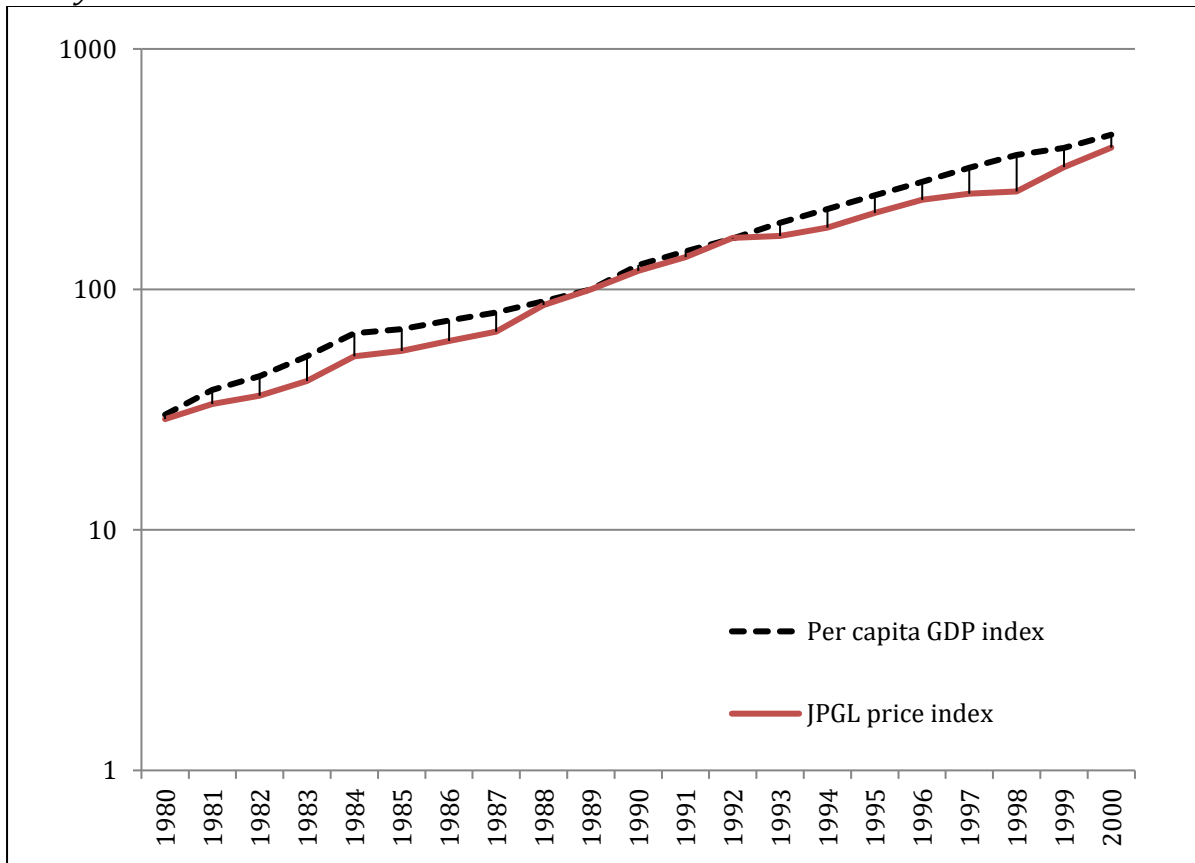




Base year = 1988

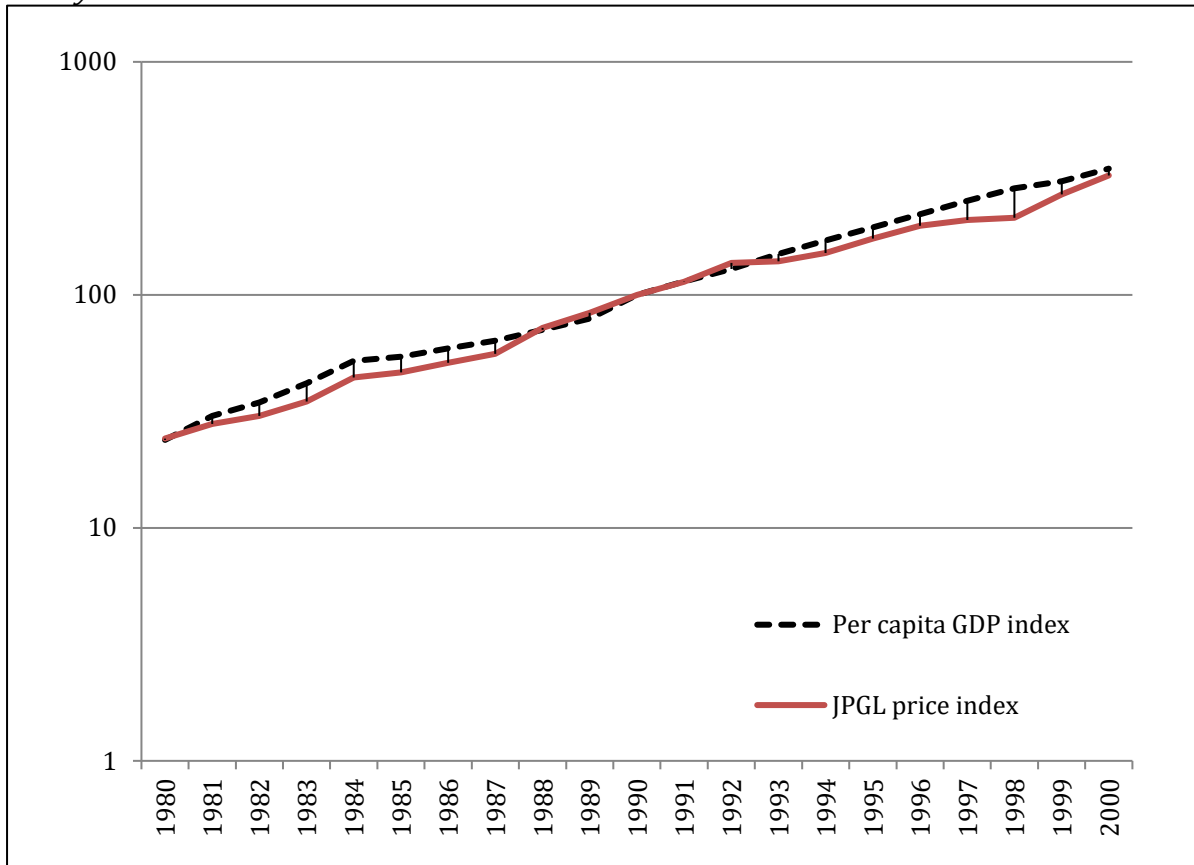


Base year = 1989

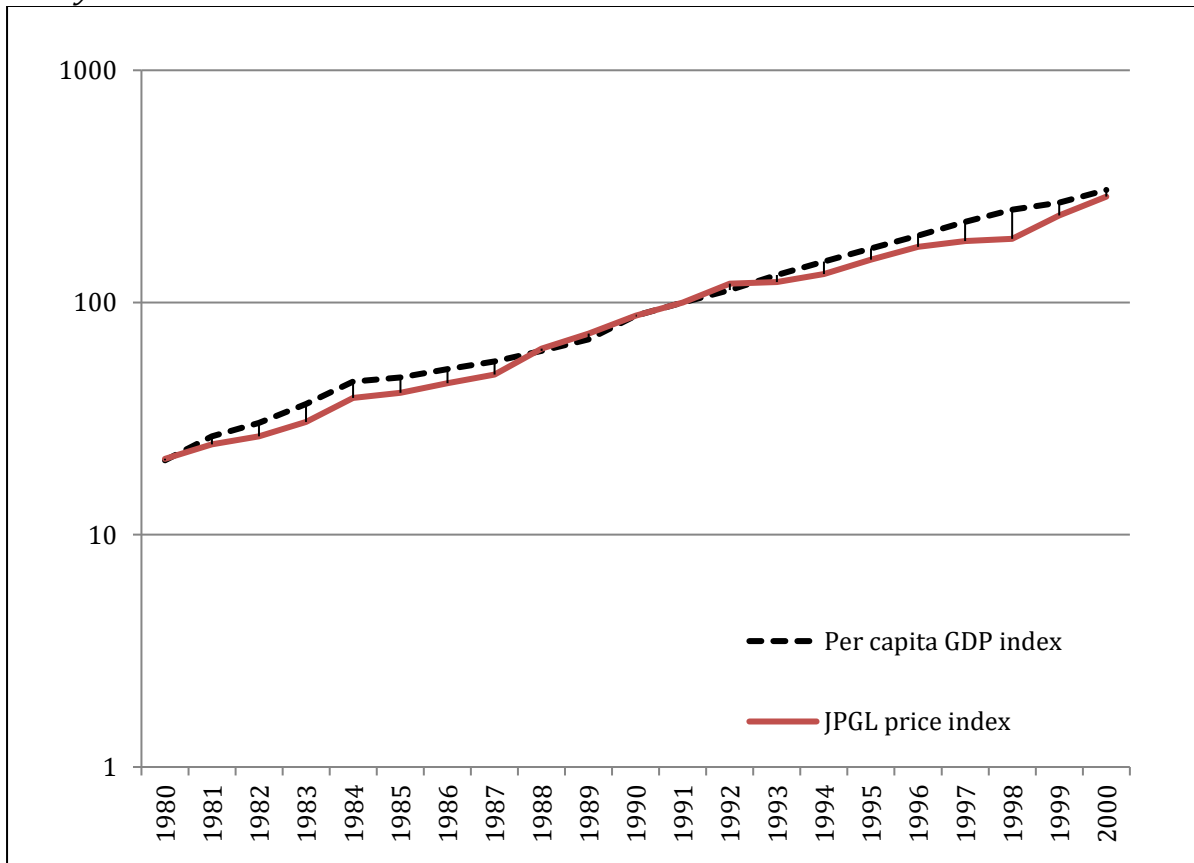




Base year = 1990

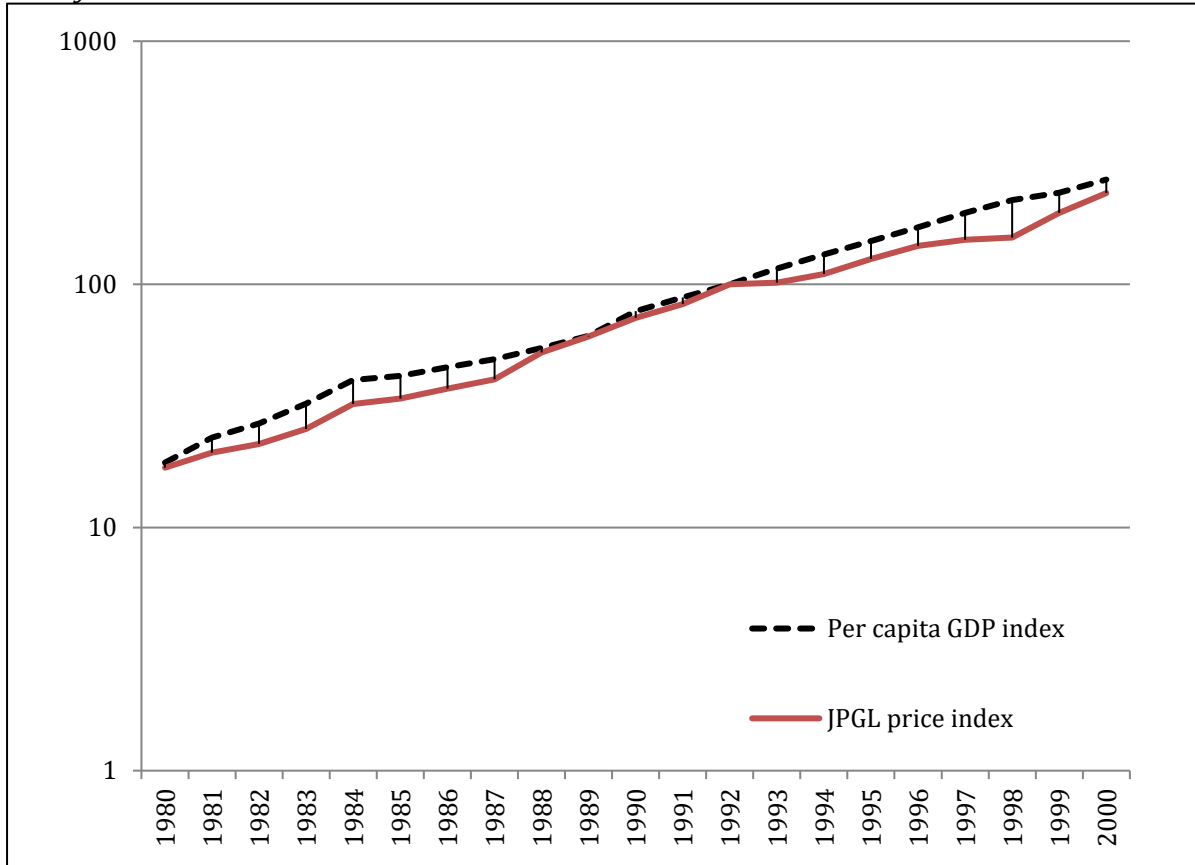


Base year = 1991

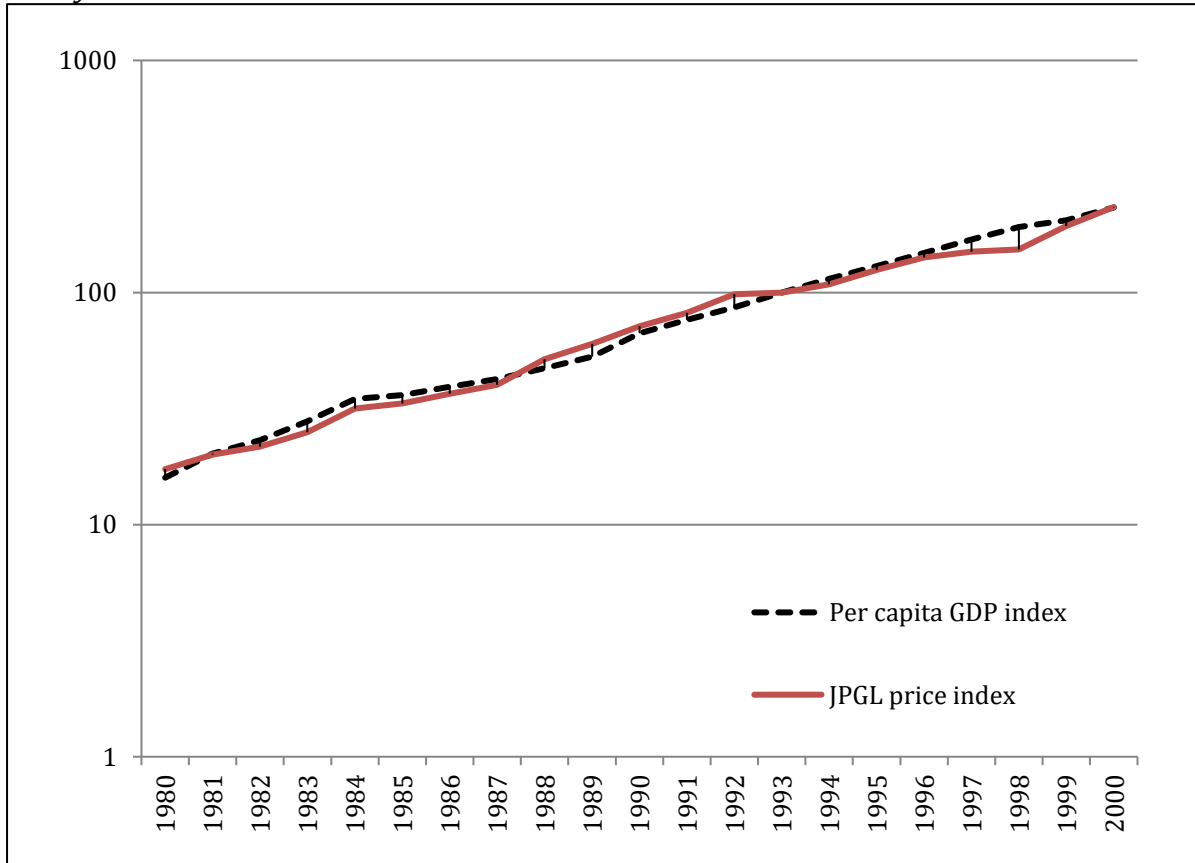




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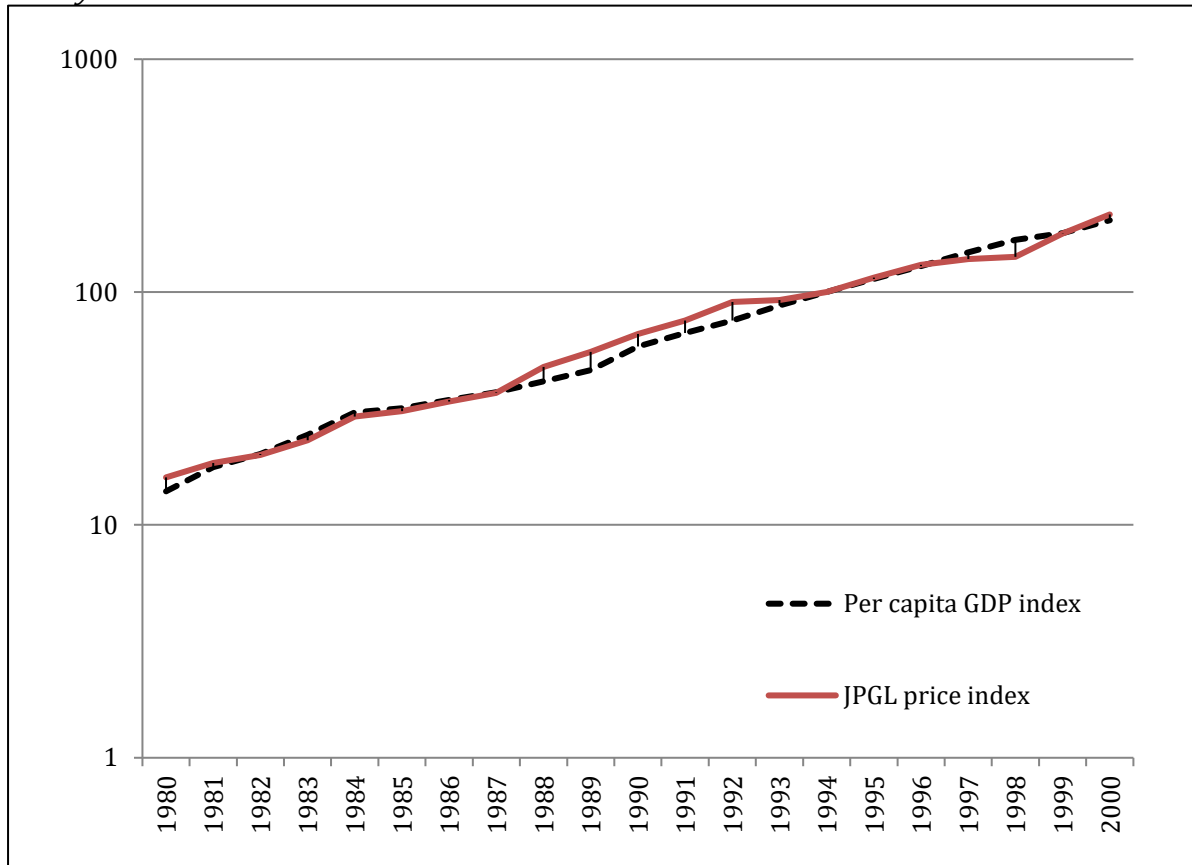


Base year = 1993

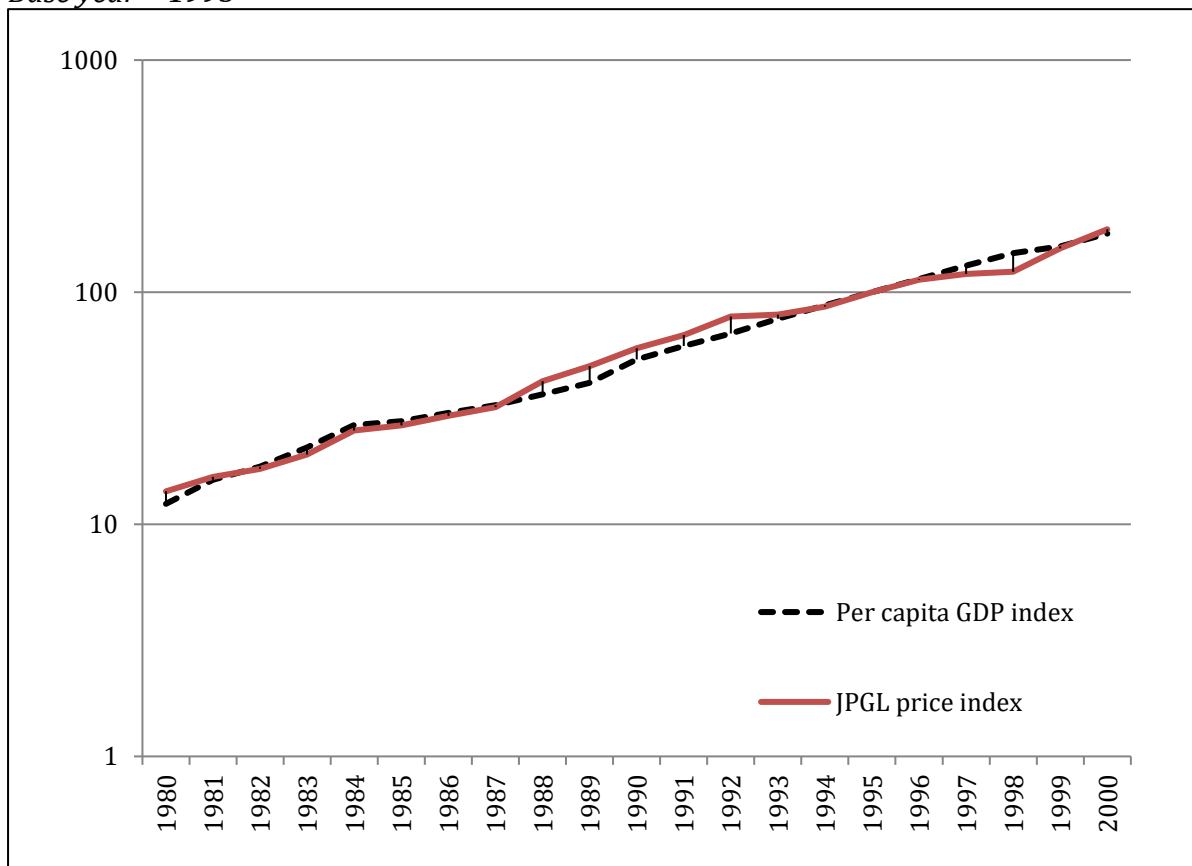




Base year = 1994

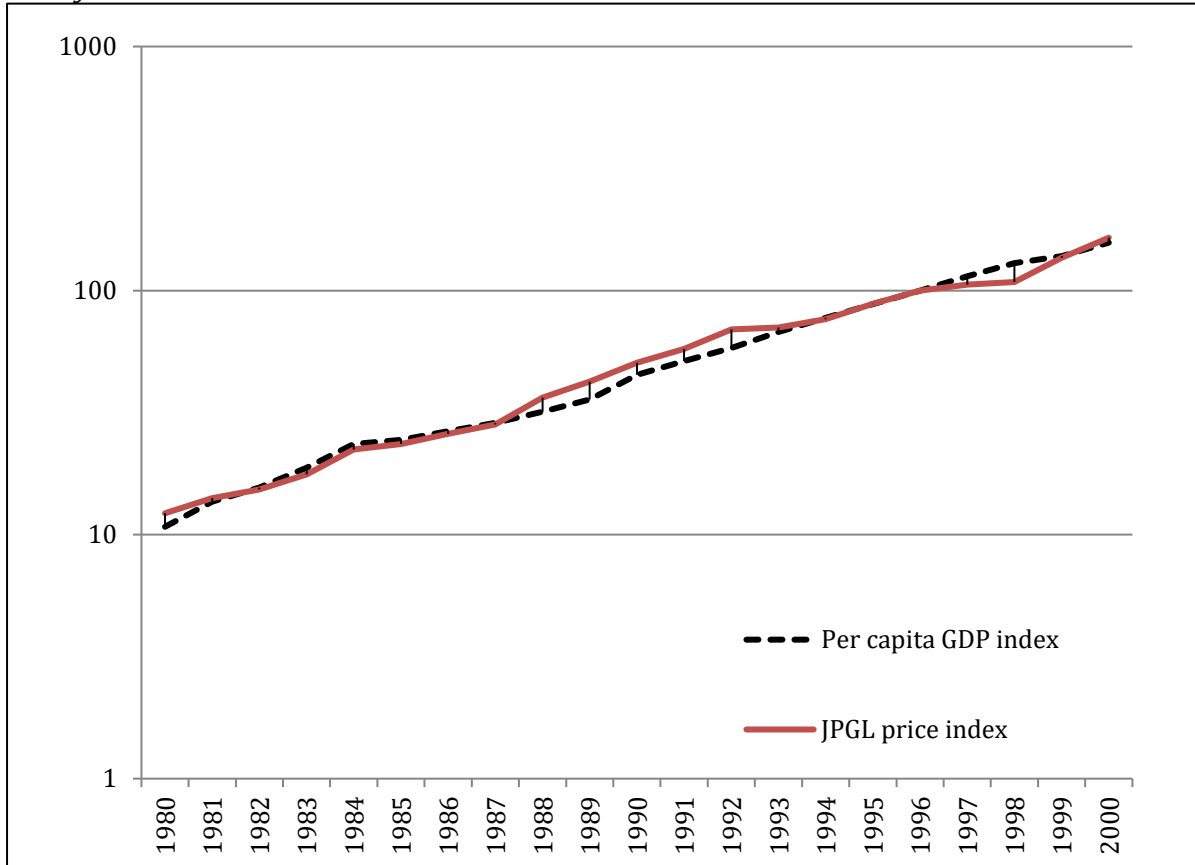


Base year = 1995

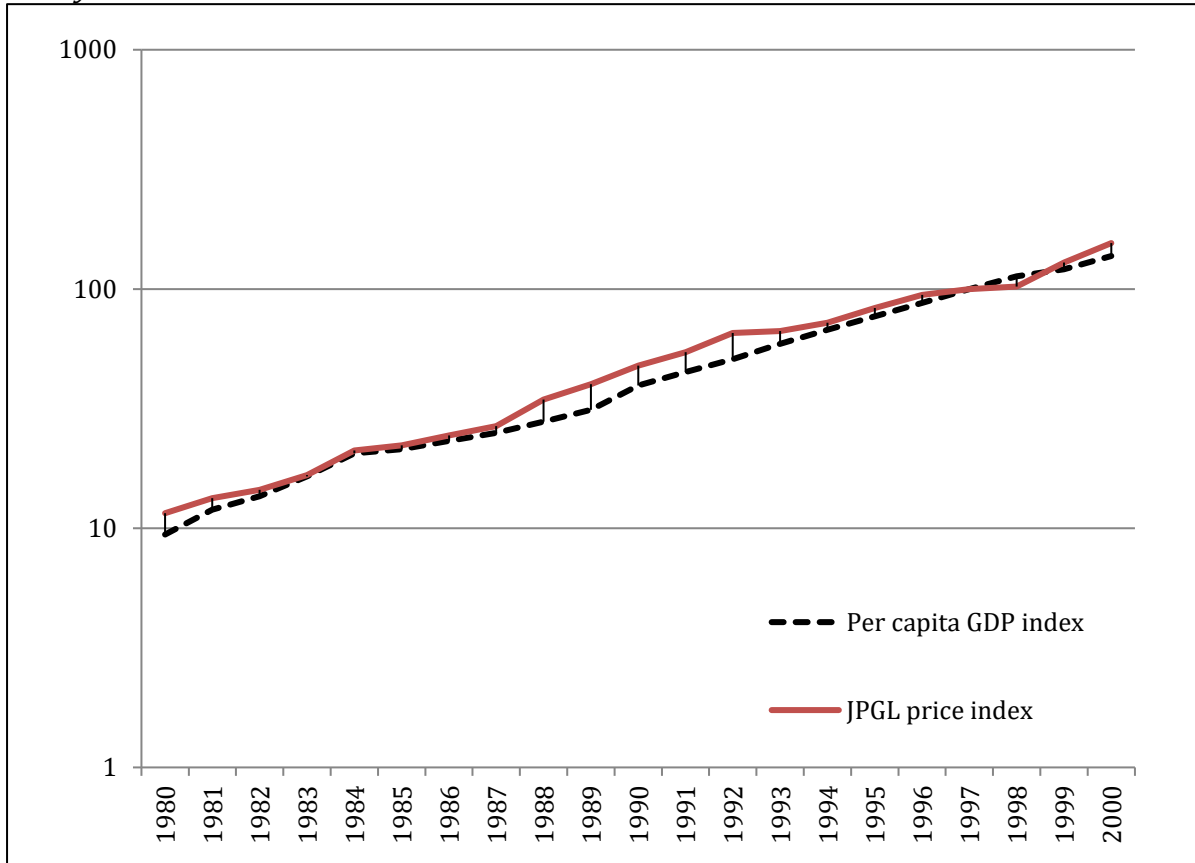




Base year = 1996

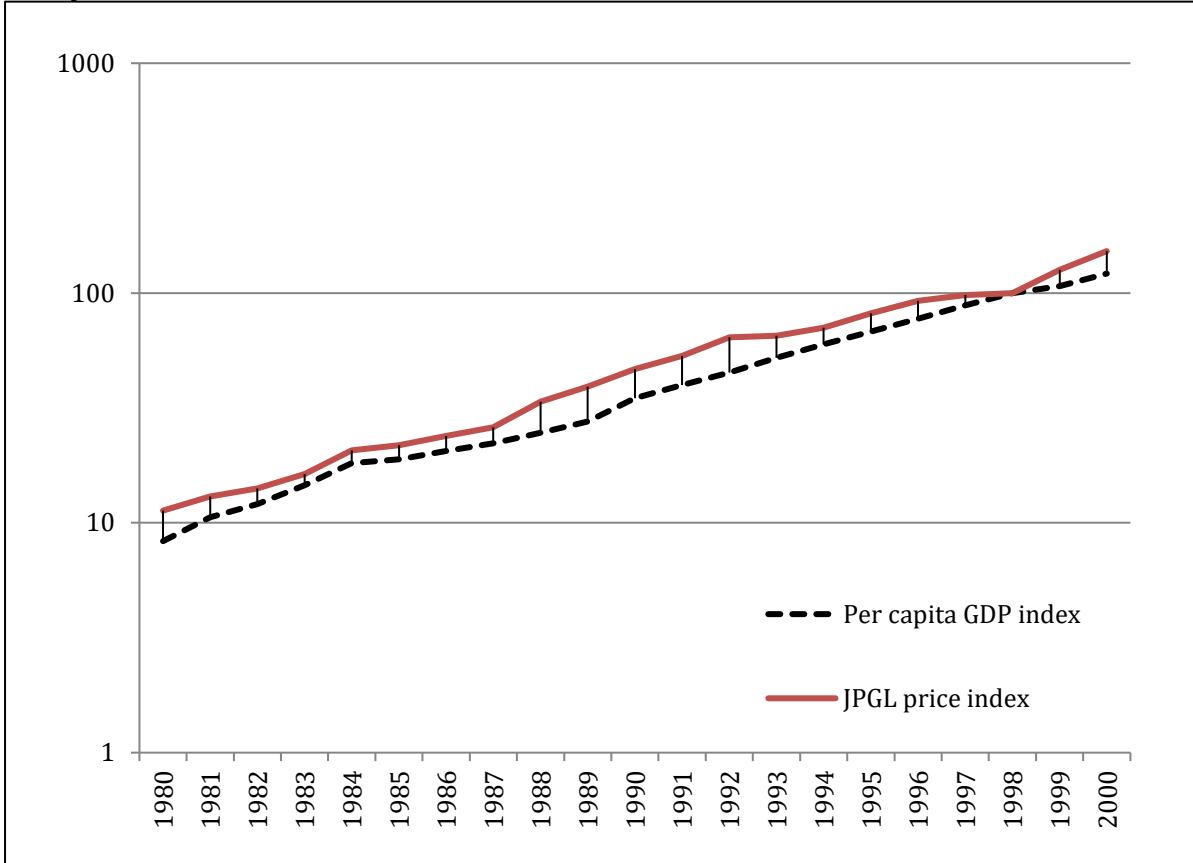


Base year = 1997

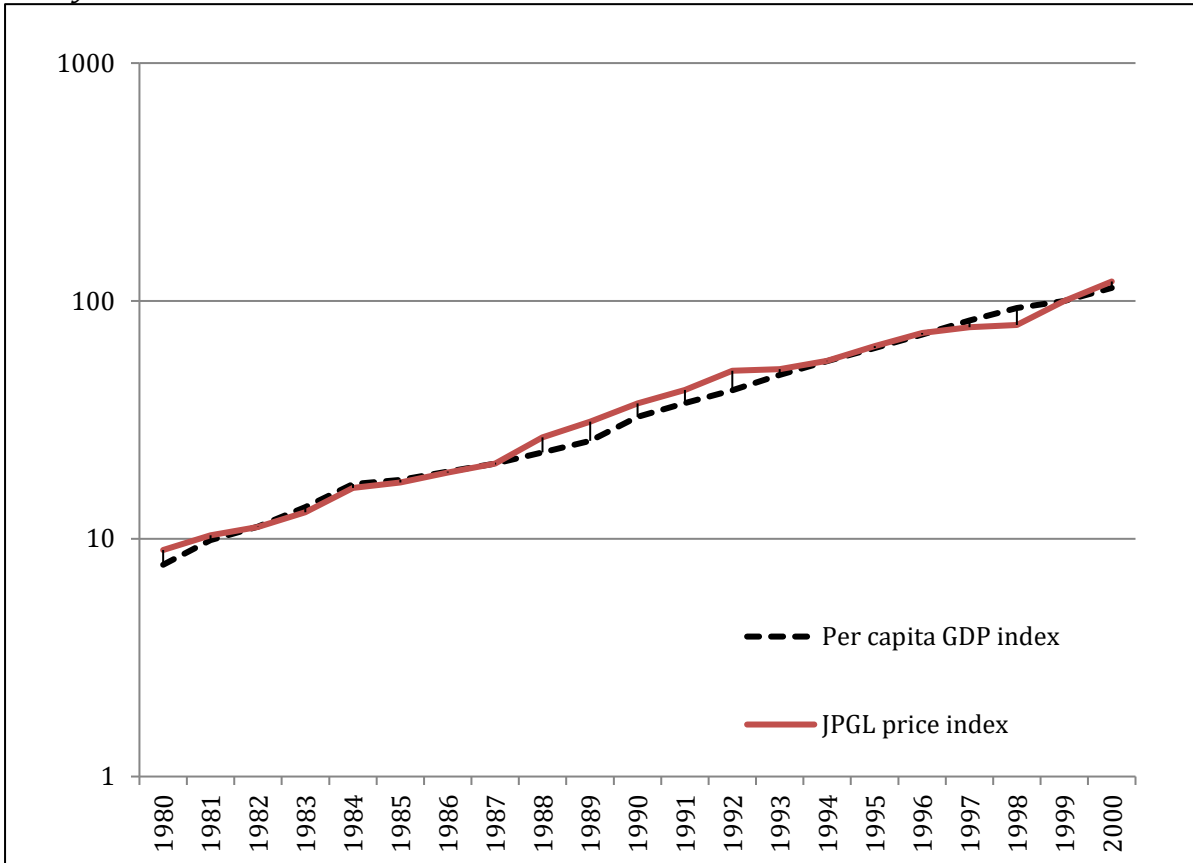




Base year = 1998

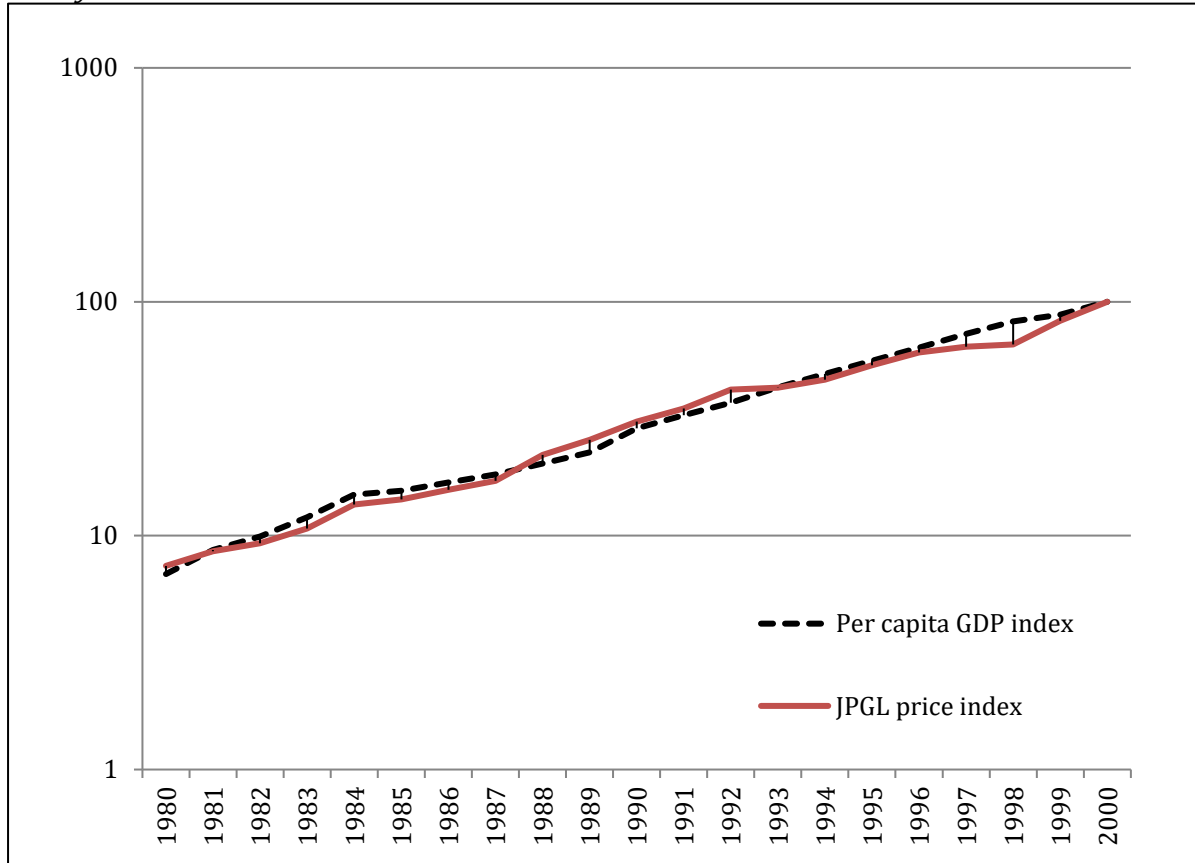


Base year = 1999





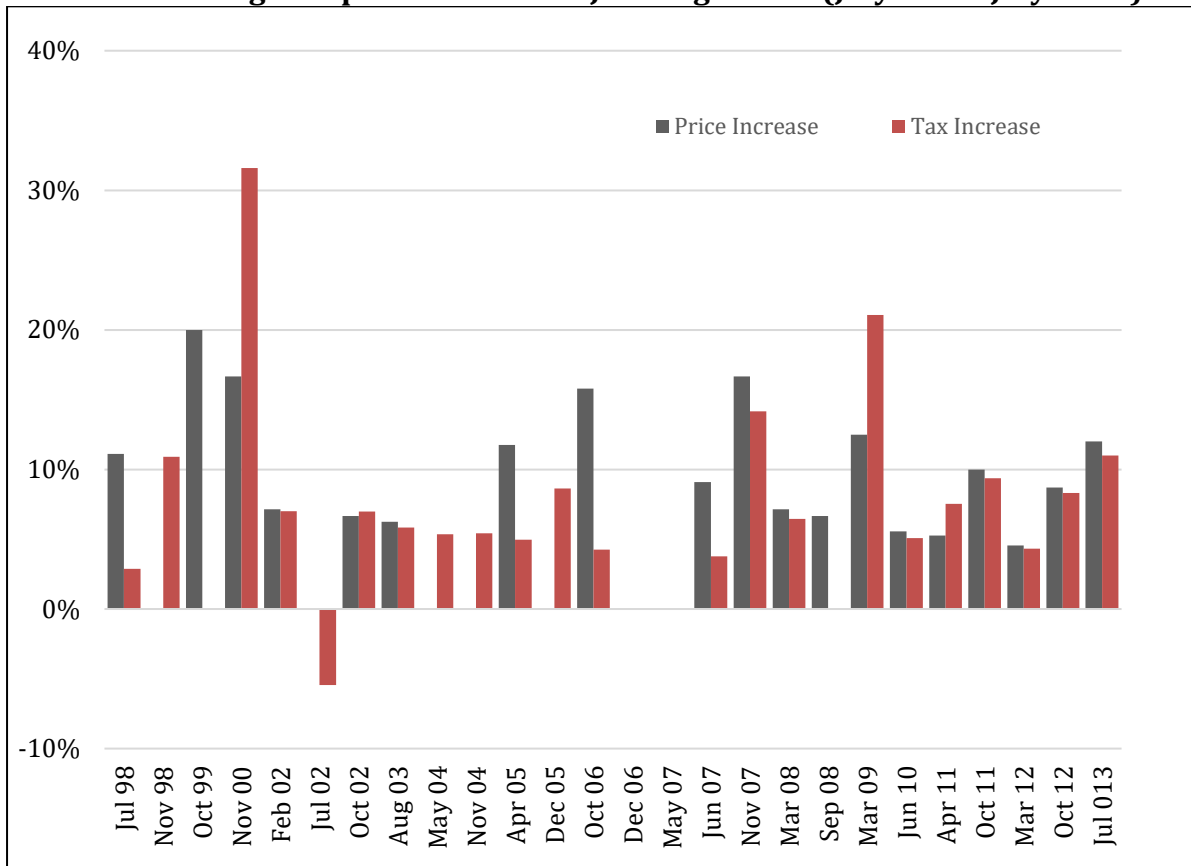
Base year = 2000





Appendix 2: Price and Tax Changes in JPGL Cigarettes (July 1998–July 2013)

Exhibit A2: Changes in price and tax for JPGL Cigarettes (July 1998–July 2013)





Appendix 3: Tax Percentage in Retail Price of JPGL Cigarettes (August 1989–July 2013)

The highlighted area from 1989 to 1990 in Exhibit A3 shows the period during which cigarettes were taxed only to its tobacco content. From November 1990 onwards, it shows the share of excise taxes applied as a share of the retail price.

Exhibit A3: Share of tax in price for JPGL cigarettes (August 1989–July 2013)

