

Argentina Was Not the Productivity and Economic Growth Champion of Latin America

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ABSTRACT

The Kirchner administration (2002-2015) claimed that under their leadership Argentina experienced record-breaking GDP growth. However, this article shows that Argentina's GDP growth was underwhelming. Statistical estimates produced by the new Argentine government support the ARKLEMS project's evidence that the Kirchner administration overstated growth. Distortions were large and discretionary and affected all industries, independent of the downward bias of the Consumer Price Index and the Wholesale Price Index. New stylized facts counter the claims of the Kirchner administration. First, real GDP growth in the 2002-2015 period was weaker than in the 1990-1998 period. Second, GDP only grew in the sub-period 2002-2007 because of the commodities boom. Third, GDP growth in Argentina was second lowest among ten Latin American countries in the 1998-2015 period. Fourth, GDP growth during the 2002-2015 period was extensive in nature, based on factor accumulation, not total factor productivity, so was not sustainable.

The commodities price boom at the beginning of the 21st century enabled Latin America to experience substantial GDP growth following the crisis that hit the region at the end of the 1990s. Metals, agricultural and energy commodities exported by Latin America showed strong price increases between 2002 and 2012. Favorable terms of trade and consistent monetary and fiscal policies resulted in substantial improvements of social and macroeconomic indicators in many Latin-American countries.

Argentina was a unique case within the region. GDP grew at Chinese rates from 2002 to 2007, taking advantage of tail winds from the export price boom and "advantages" from the recovery

effects following the worst recession of the last century, which lasted from 1998 to 2002.

In 2002, Argentina abandoned the Currency Board "Convertibility" regime: a fixed exchange rate of 1 Argentinean peso to 1 dollar that had been in place since 1991. What followed was a mega-devaluation of the domestic currency of 300 per cent in only three months. Wages increased only by 50 per cent, and income redistribution from savers to debtors exacerbated unemployment and poverty rates. The drastic depreciation of the Argentinean peso and the consequent improvement in terms of trade, however, ushered in a remarkable economic recovery from 2003 to 2007. But the social cost

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associated with placing half of the population under the poverty line generated institutional instability.

After the 2002 crisis, economic policy shifted dramatically. Trade openness, privatization, deregulation, and supply-side policies (promoted by the Washington consensus) were replaced with demand-driven policies. By 2005, these demand-driven policies as well as the administration's ambition to stay in power, began to generate substantial economic distortions: high fiscal deficits, restrictions on exports and imports; price and exchange-rate controls and high inflation.

The Kirchner administration (2002-2015) decided to hide inflation from 2007 to the end of their term in 2015 by manipulating the official Consumer Price Index (CPI), the Wholesale Price Index (WPI), and results from household and other surveys produced by the National Institute of Statistics and Census of Argentina (INDEC). Public opinion and academics analysts have estimated that the rate of increase of the CPI was considerably higher than officially reported. The former administration opened "a Pandora-Box" by distorting the measurement of the main macroeconomic and social indicators, such as GDP, the trade balance, the poverty rate, and measures of income distribution.

Based on the indicators that were politically manipulated by the Kirchner administration between 2007 and 2015 (referred to as the INDEK estimates in this article), the Kirchners spread several myths during their time in office:

- Argentina reduced poverty and increased real wages to Nordic European levels;

- Argentina had an impressive long-term positive trade balance; and
- Argentina experienced the highest economic growth in its history and was the growth champion of Latin America.²

The evidence of manipulation of official statistics motivated the development of alternative GDP estimations by the ARKLEMS project with the purpose of producing more accurate estimates of GDP for the Argentine economy.³ On December 2015, the new Macri administration ended political intervention at INDEC. The National Statistical Office then produced revised estimates of GDP which affirmed the ARKLEMS project's evidence of the Kirchner's statistical manipulation.

The objective of this article is to summarize the evidence of GDP tampering and its impact on Argentina's GDP profile during the 2007-2015 period.

The article has four sections. First, we present the background and main findings of ARKLEMS and new INDEC real GDP estimates and compare them with the earlier GDP estimates from the National Statistical Institute (INDEK). The second section discusses the realities of Argentina's economic growth record. Section three analyses the impact of these new estimates on Argentina's productivity growth. The final section concludes.

Background

Political interference with the statistical estimates produced by national statistical offices is a not a new phenomenon. Manipulating official data to show favorable political results, mostly on GDP, have been well documented for China,

2 See articles by *The Economist* (2012), *La Nación* (2013), and *Clarín-Economía* (2013) for more information.

3 ARKLEMS+LAND or ARKLEMS is a research project that measures the productivity and competitiveness of the Argentine economy. It is the Argentinean counterpart of the WORLD KLEMS Initiative led by Dale Jorgenson (Harvard University), Marcel Timmer (Groningen University) and Bart Van Ark (Conference Board and Groningen University). The ARKLEMS project is organized by a team of Argentine academics and researchers from the Centre of Studies of Productivity (CEP) at the University of Buenos Aires, specialists in national accounts and input-output analysis. The project is overseen by a prestigious academic committee.

by Maddison and Wu (2008) and Jorgenson and Vu (2001). Statistical offices in other countries have also experienced political intervention. Sturgess (2010) reports distortions related to the measurement of public debt and public finance indicators in Greece to show a fiscal deficit figure below the 3 per cent required to enter the Euro zone.⁴

There are two well-documented cases of CPI manipulation in Latin America by military regimes. Chile and Brazil's official CPI were manipulated to "manage" wage negotiations with trade unions during periods of high inflation as reported by Cortázar and Marshall (1980 and 1987) and Streb (2010). Lula, the former president of Brazil, as leader of the metallurgic labour union during the 1970s, began his political career by accusing the military regime of distorting the CPI, which was confirmed by the World Bank.

Historically, Argentina has been a leader in Latin America for the publication of reliable statistics, including national accounts. But INDEC experienced political intervention by the Kirchner administration starting in 2007. First CPI estimates were manipulated,⁵ then GDP estimates, followed by the quarterly Labour Force Survey and the National Household Expenditure Survey. Official GDP estimates were under suspicion after the media reported on the

ARKLEMS findings that official GDP growth was positively biased by discretionary manipulation (as described by Coremberg (2014)). Academics and public opinion began to use non-official estimations. Moreover, leading official institutions such as the Treasury and the Central Bank requested alternative estimations to track Argentine economic trends. In 2014, Congress began to publish an estimate of the CPI, and later of GDP, based on an average of alternative indicators.⁶

After ARKLEMS publicly released estimates of GDP by sector in 2013, public opinion recognized that the government would be overpaying GDP warrants as a result of the overestimation of GDP growth.⁷ The Kirchner administration responded by publishing a "new INDEK GDP 2004 base year series" in only one week, when, such statistical re-estimation usually takes no less than two years.⁸ The statistical office revised earlier estimates for real GDP growth in 2013 from 5 per cent to "new" estimates of 3 per cent to avoid payment of the 2013 warrants.⁹

The new administration ended the political intervention at INDEC in December 2015. Official revisions confirmed that all of the estimates in the official statistical system were manipulated in accordance with the political interest of the Kirchner administration.

4 The International Association of Research in Income and Wealth sent a letter in 2016 to the Greek government regarding the integrity and independence of official statistics and the prosecution of the former head of the Greek national statistical office. <http://iariw.org/ScannedLetter11-16-16.pdf>.

5 Argentine CPI distortion is reported in Cavallo (2012). An important and methodological consistent alternative CPI estimation was made by G. Bevaqua, former Director of CPI at INDEC. During the period of political intervention, there was an important involuntary "brain drain" from INDEC. The government fined consultants and experts who published inflation figures that showed official figures were being manipulated. The Argentinian court of justice has only recently dropped charges against the fined experts after more than eight years of court cases.

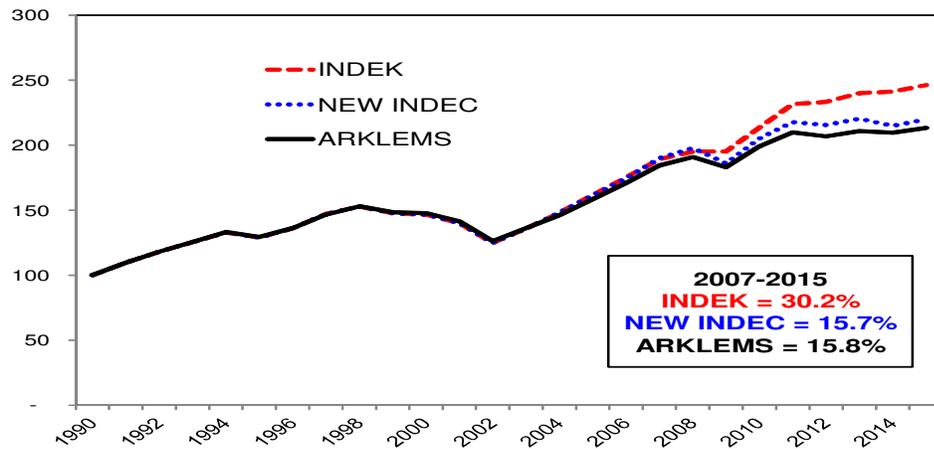
6 Alternative indicators had been estimated by academic institutions and consultants.

7 A GDP warrant is a financial instrument or bond that is directly linked to real GDP official figures. The warrant promises to pay a return, in addition to amortization, that varies with GDP growth. Argentina issued GDP warrants in 2005 after the debt restructuring of the 2002 default.

8 As pointed out before, INDEK revised the 1993 base series to a new 2004 base series. Both are quite similar as they were manipulated in the same way. This article reports manipulation of the INDEK 2004 base series. The political manipulation of the 1993 base series was reported in Coremberg (2014).

9 See Coremberg and Wierny (2014) and Morgan Stanley (2016).

Chart 1: Index of GDP in Argentina, 1990-2015, (1990=100).



Source: INDEK, new INDEC, ARKLEMS

The new INDEC administration has published the following warning about the use of its statistical series (<http://www.indec.gob.ar>): "The statistical series published since January 2007 and until December 2015 should be referenced with caution, except those that have already been reviewed in 2016 and its disclosure is expressly stated. The INDEC, within the framework of the powers conferred by Decree 181/15 and 55/16, ordered the investigations required to establish the standard of quality of the procedures of data collection, processing, development of indexes and dissemination."

Once the new administration was in power, INDEC decided to review and re-estimate the INDEK GDP series. This series was the only one recalculated during the period of statistical manipulation in response to the release of public and independent series not produced by INDEC.¹⁰ The rest of the official statistics series based on primary surveys, such as CPI based on the Household Expenditure Survey, could not be revised based on the original data because these data had been lost or destroyed.

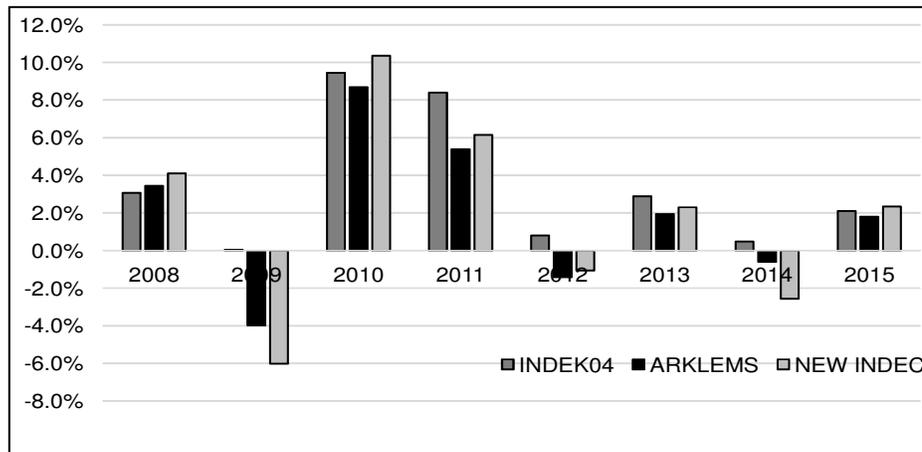
Main Findings

ARKLEMS produced estimates of real GDP in Argentina based on the traditional methodology used for national accounts in Argentina. Chart 1 compares the ARKLEMS estimates with the estimates produced by the national statistical office during the Kirchner administration (INDEK) and the revised estimates produced by this office under the new Macri government (INDEC). The chart shows clearly the political manipulation of the estimates.

ARKLEMS' estimates replicate almost exactly the official Argentine GDP growth from 1993 to 2007 (the first year of political intervention of the data). After that year, however, a significant gap appears. After 2007, the GDP INDEK series shows a significant positive gap in growth rates compared to the ARKLEMS GDP series. The new INDEC series, almost identical to the ARKLEMS estimates, confirms the statistical manipulation. It shows INDEK GDP growth was double the GDP growth reported by ARKLEMS and the new INDEC for the 2007-2015 period: 30.5 per cent "penciled-in rate" versus 15.7/15.9 per cent. Moreover, the ARKLEMS and INDEC show decreases in real

¹⁰ See Government of Argentina (1999) and Coremberg (2014) for detailed data sources.

Chart 2: Argentine GDP Growth, 2008-2015, annual rates



Source: INDEK, new INDEC, ARKLEMS.

GDP in 2009, 2012, and 2014, in contrast to increases in the INDEK series (Chart 2).

"Demythifying" Argentine GDP Growth

The "new" stylized facts have several implications for macroeconomic analyses and previous views about Argentine growth dynamics. It was commonly believed that:

- The strength of Argentine growth reflected a deflator issue. Argentine real GDP growth supposedly had an upward bias because value added at current prices was deflated with a biased Consumer Price Index.
- Argentina's economic growth during the commodities price boom was historically record breaking.
- Argentina was the Latin America growth champion with the highest growth rate of the region.

The Deflator Myth: Just Direct Manipulation

The most common methodological misconception in Argentina was that the upward bias in GDP growth was an indirect consequence of deflating nominal GDP by a CPI index in which

the rate of change exhibited a downward bias. But this is not the case.

The methodology for Argentina's GDP estimates is not to deflate nominal GDP by the CPI. Rather, GDP growth is based mostly on volume indicators. Nominal GDP is estimated by indexing GDP at constant prices to specific industry deflators. Table 1 summarizes the methodology for estimating real GDP by industry:

This methodology was adopted in traditional Argentine national accounts more than three decades ago at the detailed ISIC 4-5-digit industry level. The estimation of basic series, based on volume indicators (output or employment), and made directly or indirectly through commodity flow and income elasticity methods, are not undertaken by INDEC. Rather, they are carried out by other institutions based on representative public and private surveys (Coremberg (2014: Appendix)). As Table 1 shows, Argentine national accounts traditionally estimate real value added in most industries by Laspeyres volume index aggregation instead of deflating nominal values, except for financial intermediation.

We estimate the contribution of each industry to the GDP level gap in 2015 accumulated from the difference in the INDEK and the new INDEC real GDP growth rates between 2007

Table 1: Argentine GDP Growth: Traditional National Accounts Methodology by Industry

| | Volume Indicators | Commodity Flow | Demand Function* | Employment Indicators | CPI Deflator |
|--|-------------------|----------------|------------------|-----------------------|--------------|
| Agriculture, hunting, forestry and fishing | X | | | | |
| Agriculture Services | | X | | | |
| Mining and quarrying | X | | | | |
| Electricity, gas and water supply | X | | | | |
| Construction | X | | | | |
| Manufacturing | X | | | | |
| Trade | | X | | | |
| Transport and storage | | X | | | |
| Post and communication services | | X | | | |
| Financial intermediation | | | | | X |
| Renting of m & eq and other business activities | | X | | | |
| Hotels | X | | | | |
| Restaurants | | X | | | |
| Other community, social and personal services | | | X | | |
| Private households with employed persons | | | | X | |
| Public admin and defense; compulsory social security | | | | X | |
| Education | | | | X | |
| Health and social work | | | | X | |
| Real estate activities | X | | | | |
| Rental services of owner-occupied dwellings | X | | | | |

*(only unitary income elasticity)

Source: Government of Argentina (1999), INDEC (2001), Coremberg (2014).

and 2015 (Chart 3).¹¹ The contribution of each industry to the total gap is estimated by taking each industry-specific gap and weighing it by its share of GDP at basic prices.

Industries based on volume indicators account for most of the gap (72 per cent): trade (30 per cent), manufacturing (29 per cent), and positive gaps in construction, mining and services. Financial intermediation accounts for only 28 per cent of the total gap, the only sector where the CPI deflation method is applied.

The upward biases of the official INDEK GDP series are consequently not an indirect result of deflating nominal values by a down-

wardly biased CPI index. Instead, it was discretionary manipulation to internal non-public data sources and public series that produced the biased real GDP estimates.

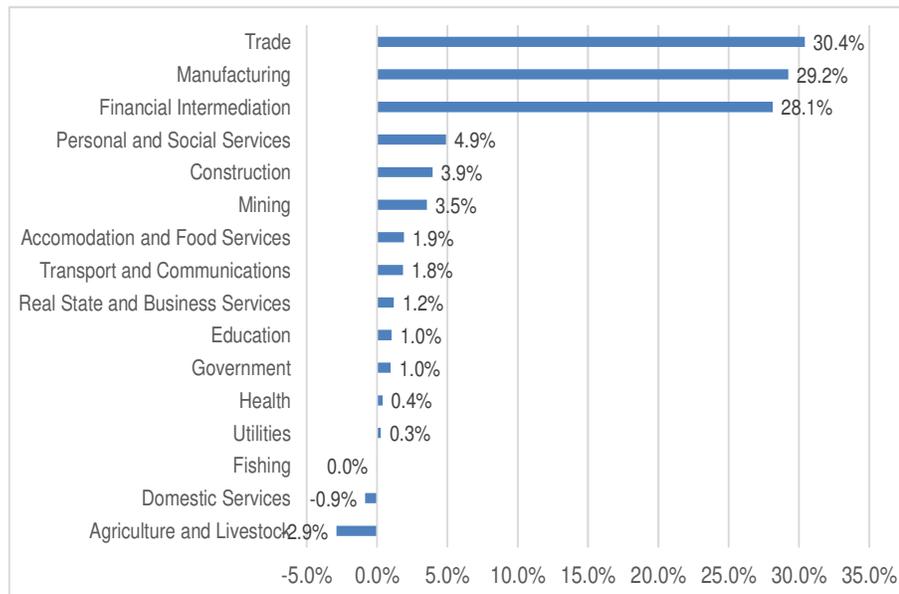
Argentina Did Not Experience Record GDP Growth

The Kirchner administration claimed that Argentina's growth during the commodities price boom was record breaking from a historical perspective. But this was not true.

The economic growth in Latin America and Argentina between 2002 and 2012 occurred after a profound economic depression during

¹¹ Similar results are found with the ARKLEMS series.

Chart 3: Industry Contributions to GDP Level Gap in 2015, (% of total)



Source: INDEK and new INDEC.

the 1998-2002 period. How much of the economic growth is actually due to the post-depression boom? By how much did GDP growth accelerate throughout the "Washington Consensus period" at the beginning of the 1990s? We conclude that the answers to those questions depend on the accuracy of the GDP series used.

The analysis of the GDP cycle is essential when studying whether an economy is recovering from a recession or a previous crisis and whether a growth acceleration process is beginning again. We identify GDP trends and short-run recoveries following Burns and Mitchell (1946) and Rostow (1965). Long-term GDP growth is calculated between GDP peaks.

Generally, GDP peaks coincide with an output level being near potential output, where all production factors are fully utilized. In general, the GDP growth between cyclical peaks is lower than during a recovery phase, because the former is based on productivity gains derived from innovation and other effects that shift the production possibilities frontier instead of

changes in capacity utilization, as explained by Coremberg (2008) and Jorgenson (2011).

We identify GDP cycles for Argentina according to the above method. Results are equivalent to GDP per capita cycle.

We distinguished two positive GDP phases in the medium run: 1990-1998 and 2002-2015. The 1998-2002 period represented the worst depression of the last century, worse than the 1930 crises. GDP peaks are for 1998 and the last year 2015. 1990 and 2002 represent troughs of the GDP cycle.

Table 2 shows GDP growth for selected periods for INDEK, ARKLEMS and the new INDEC series. We also report the sub-periods 2002-2007 and 2007-2015, considering that 2007 is the first year of INDEK political intervention.

The last growth episode from 2002 to 2015, measured by GDP, is similar to the previous positive phase in Argentine history (1990-1998). There was no GDP acceleration during the commodities price boom compared to the 1990s Washington consensus era. The new INDEC

Table 2: Argentine Real GDP Growth, Selected Periods, compound annual growth rates

| | INDEK | NEW INDEC | ARKLEMS |
|-----------|-------|-----------|---------|
| 1990-1998 | 5,4 | 5,4 | 5,5 |
| 1998-2002 | -4,7 | -4,7 | -4,7 |
| 2002-2015 | 5,4 | 4,5 | 4,1 |
| 2002-2007 | 8,7 | 8,8 | 7,9 |
| 2007-2015 | 3,3 | 1,8 | 1,8 |
| 1998-2015 | 2,8 | 2,2 | 2,0 |

Source: INDEK, new INDEC, ARKLEMS.

series, as well as the ARKLEMS series, show a growth slowdown of 1 percentage point per year. GDP estimates show "Chinese rates," approximately 8-9 per cent annually, only during the period 2002-2007. But after 2007, Argentina suffered a significant GDP growth slowdown for every series.

As noted, there was no GDP growth acceleration in the period 2002-2015. The acceleration occurred only during the 2002-2007 period, but this period does not fulfill the rules put forth in Haussmann *et al.* for a sustainable growth episode.

Moreover, after 2007, the so-called "Chinese rates" were not sustainable, since GDP growth showed a substantial slowdown. Peak to peak, GDP grew only 2.2 per cent (0.7 per cent per capita) annual rate.

ARKLEMS GDP growth long-run series (Chart 4) show that there was no structural break of Argentina's long-run GDP growth as verified by econometric filters by Hodrik-Prescott, Kalman and others.¹² During the last century, there were several growth recovery episodes at Chinese rates experienced during different political regimes: Yrigoyen-Alvear (1917-1924), Frondizi (1959-1961), Illia (1963-1965), Menem (1990-1994) and Nestor Kirchner (2002-2007).

Argentina's GDP growth rate during the last commodities price boom between the 1998 and

2015 peaks, 2.0 per cent according to ARKLEMS estimates, was similar to the average growth rate (2.7 per cent) for the last century (1913-2015). These growth rates were around half of the long-term GDP performance of Australia and Canada (Maddison Project, 2015).

This fact demystifies the assertion that Argentina reached the growth rate of natural resource-based developed countries.

Argentina Was Not The Growth Champion of Latin America

According to the Kirchners' administration, Argentina was the growth champion in the Latin American region during the last decade.

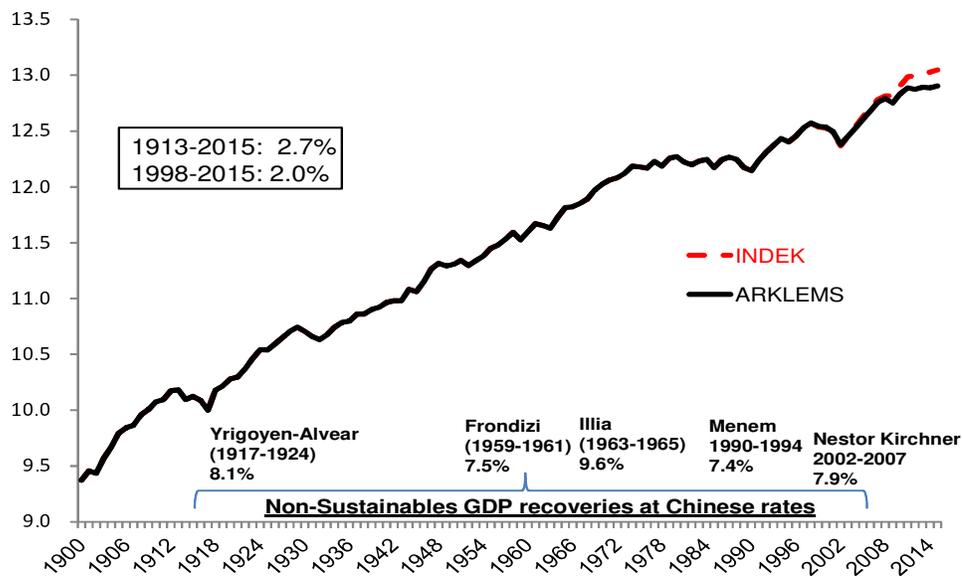
But, taking into account new INDEC and ARKLEMS series, Argentina had moderate GDP growth during the commodities boom (Chart 5). Although still higher than the average Latin America growth, the new estimates show that Argentina was far from being the growth champion of the region that the INDEK series claimed it to be.

The beginning of the commodities price boom in 2002 coincided with the end of the great economic depression in 1998-2002, which had affected Latin America. Notably, Argentina's GDP decline, during 1998-2002, was the deepest of the region, excluding Uruguay.

Several reasons underlie the large impact of external shocks on Argentina at the beginning of

¹² The series is based on Tornquist index. See Coremberg *et al.* (2007).

Chart 4: Argentine GDP Growth, 1900-2015 (logs)



Source: INDEK, INDEC, ARKLEMS.

the 21st century: low resilience of the Argentine economy to external shocks due to fiscal deficits, a high public debt to GDP ratio, and a strong commitment to the Currency Board. But, as previously mentioned, tail winds from positive terms of trade, after 2002, allowed Argentina to achieve a remarkable resurrection. Long-run growth is defined between peaks of the GDP cycle. Panel C in Chart 5 shows that Argentina had the worst growth performance of the region in the 1998-2015 period, except for Venezuela.

Stylized Facts on Productivity

Argentina has experienced several structural changes during the last two decades in a context of high economic instability, which hampered the sustainability of long-run growth. The key variable that explains the sustainability of economic growth is productivity.

This section analyses Argentina's growth profile during the commodities price boom taking into account the new stylized facts. We estimate

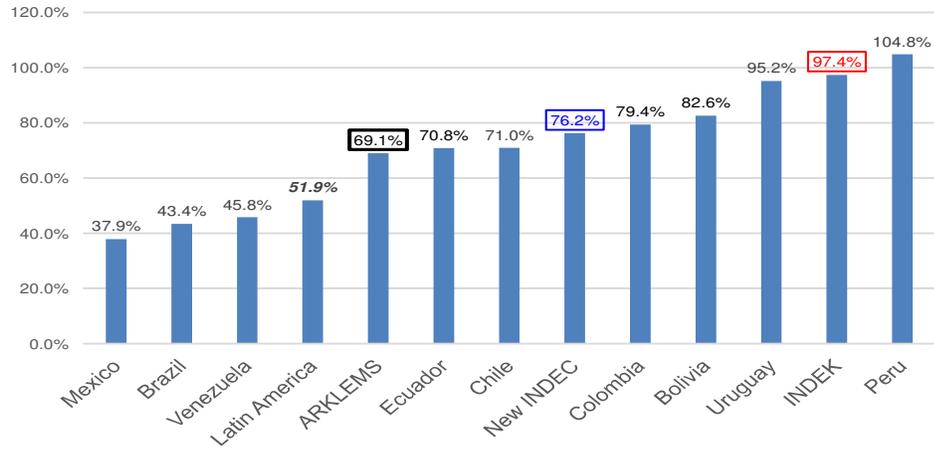
the source of growth taking advantage of ARKLEMS' database on capital and labour services. ARKLEMS follows KLEMS methodological standards developed by the OECD (2001, 2008) and EUKLEMS (2007). Capital input is measured by ICT and non-ICT capital services weighted by user costs. Labour input is composed of hours worked and labour "quality". Labour quality is measured by jobs composition weighted by relative wages by skills (gender, age, education and formal and informal labour workers).¹³ Total factor productivity (TFP) is computed as the difference between GDP growth and the contribution of capital and labour services. We compute TFP by taking into account ARKLEMS input series with the INDEK GDP series and the new INDEC GDP series.

As seen in Chart 6 and Table 3, the overestimation of GDP growth by INDEK generates a false TFP growth after 2007, the first year of political manipulation of official statistics.

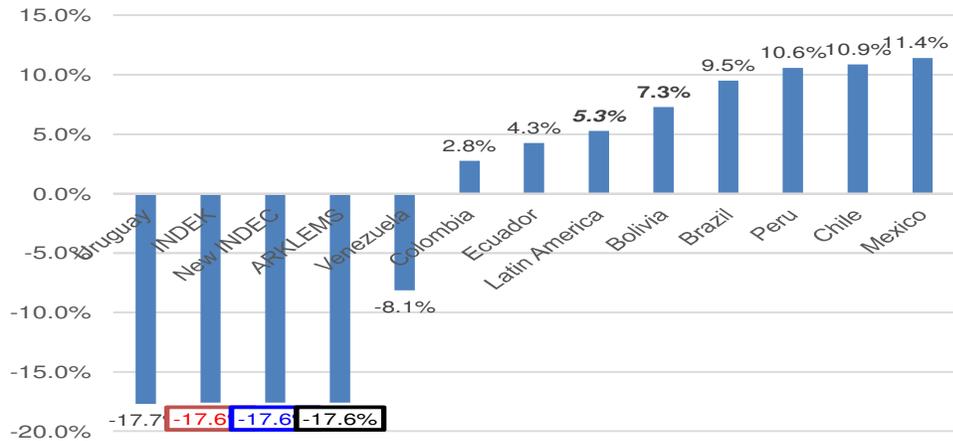
13 See Coremberg (2008) for more detail.

Chart 5: GDP Growth in Selected Latin American Countries

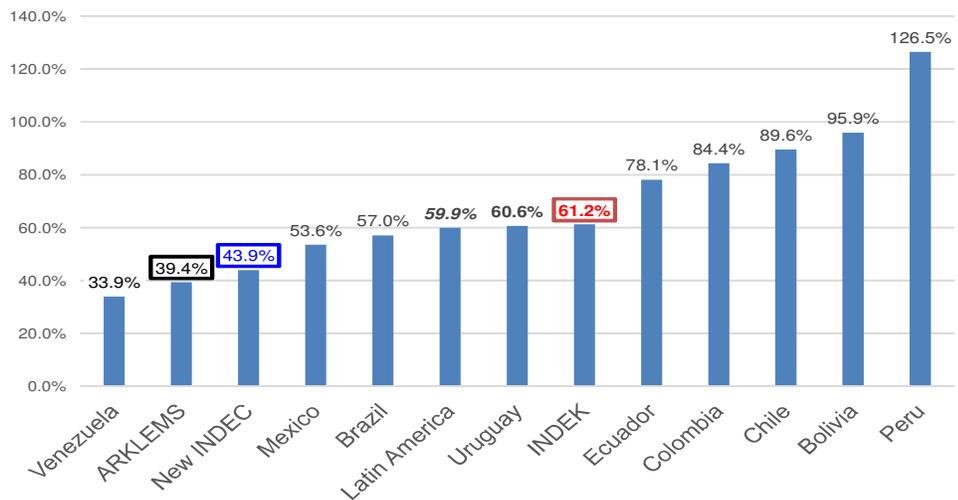
Panel A: 2002-2015



Panel B: 1998-2002

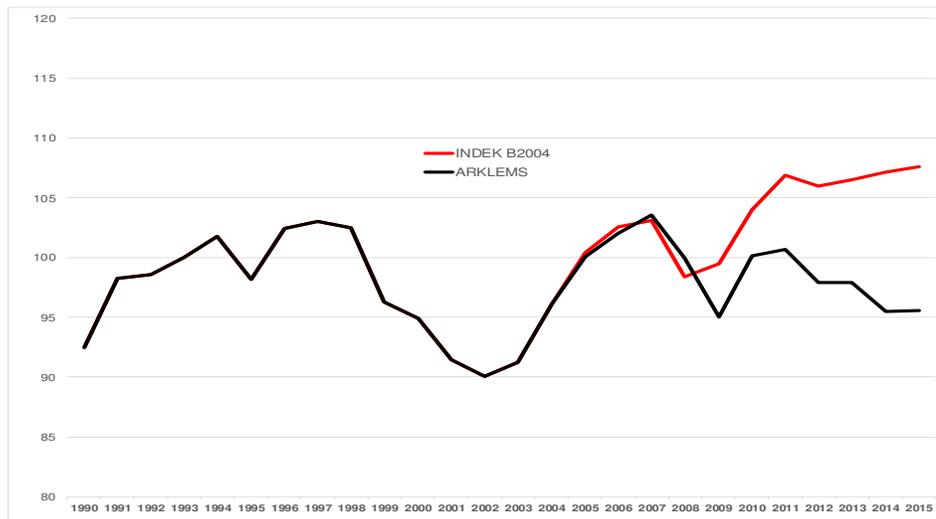


Panel C: 1998-2015



Sources: ARKLEMS and TED. The TED estimates come from ECLAC based on each country's official National Accounts except Argentina.

Chart 6: Total Factor Productivity in Argentina, 1990-2015 (base year=2004)



Source: ARKLEMS.

Table 3: Sources of Argentine GDP Growth, 1990-2015, (percentage point contribution)

| | 1990-1998 | 2002-2015 | 1990-2015 | 1998-2015 |
|---|-----------|-----------|-----------|-----------|
| GDP NEW INDEC | 5.6 | 4.5 | 3.2 | 2.2 |
| Capital (K) Contribution (ARKLEMS) | 2.5 | 2.6 | 2.0 | 1.8 |
| Labour (L) Contribution (ARKLEMS) | 1.7 | 1.5 | 1.2 | 0.9 |
| TFP (ARKLEMS) | 1.3 | 0.5 | 0.1 | -0.4 |
| TFPK (False) | 0.0 | 1.0 | 0.5 | 0.7 |
| GDP INDEC | 5.6 | 5.4 | 3.7 | 2.9 |

Source: ARKLEMS.

The new GDP stylized facts change Argentina's growth profile. If the INDEC's estimate is accepted, Argentina showed an intensive growth profile based on important TFP gains of 1 per cent per year over the 2002-2015 period, as shown in Chart 7, Panel A.

But new GDP estimates, thanks to new INDEC data, confirm ARKLEMS' research, of an extensive growth profile based on factor accumulation. Almost all the GDP growth is explained by the contribution of capital and labour services with TFP growth of only 0.5 per cent. Thus GDP growth during the commodities price boom was moderate, and it did not

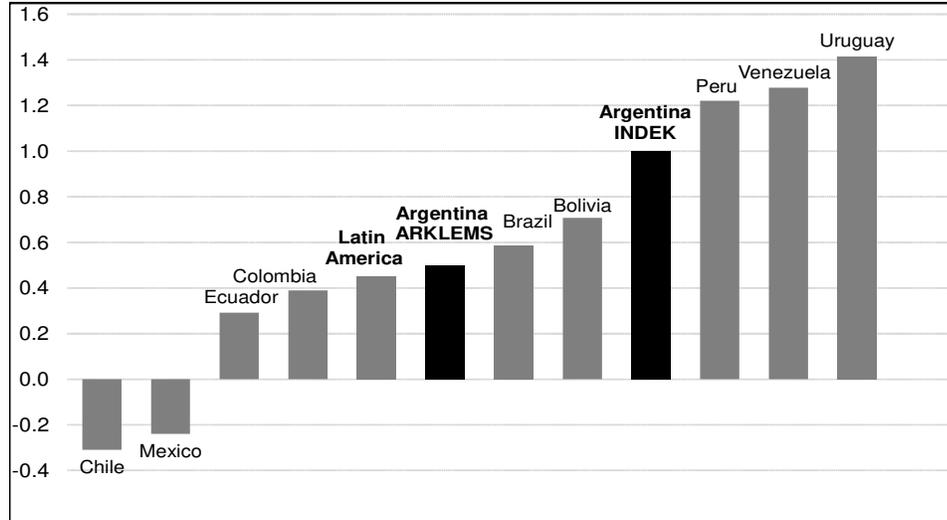
stem from strong TFP growth. First, most of the TFP gains during the recovery period were due to utilization effects, which are not sustainable in the long run. Short-run utilization effects took advantage of high unemployment and capacity under-utilization built up during the recession.¹⁴ Second, taking a long-run perspective, instead of false TFP gains due to GDP overestimation by INDEC, there were TFP losses (0.4 per cent per year) between the cyclical peaks of 1998 and 2015 (Chart 7, Panel B).

Argentina experienced moderate TFP growth, mostly due to recovery effects, during the recent commodities boom instead of being a

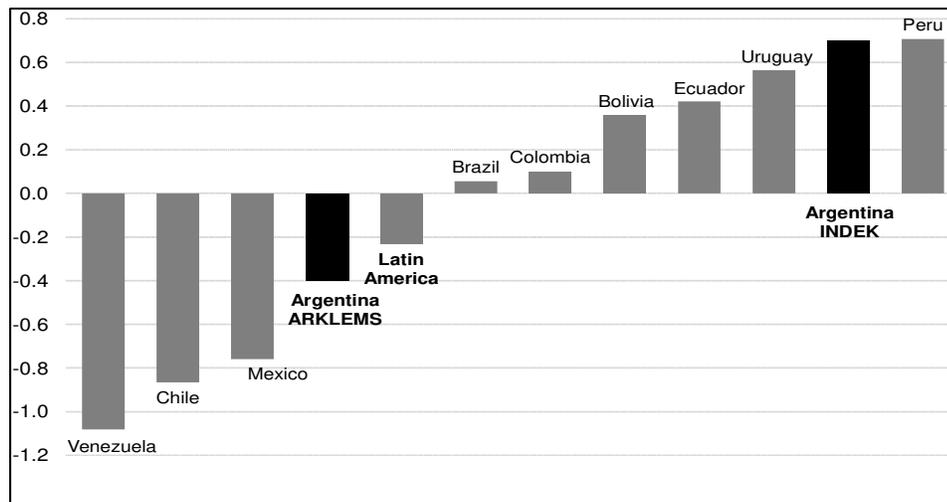
14 See Coremberg (2008) for more detail of Argentina's sources of growth for previous periods of political intervention at INDEC.

Chart 7: Total Factor Productivity (TFP) Growth in Selected Latin America Countries, (average annual rate of change)

Panel A: Recovery Period 2002-2015



Panel B: Long Run, 1998-2015



Source: INDEC, new INDEC, ARKLEMS, The Conference Board Total Economy Database.

productivity champion, as claimed by the Kirchner government.

Conclusion

The Argentine National Statistics Institute (INDEC) suffered political intervention from 2007 to 2015 during the Kirchner Administration. With a new government installed in Argentina in 2016, INDEC has published revised GDP estimates that confirm previous

ARKLEMS measurements and thus counter INDEC's GDP myths. These new estimates show that INDEC overstated GDP growth (30 per cent instead of 16 per cent) from 2007 to 2015, by discretionary manipulation.

Argentina showed a moderate recovery of GDP during the commodities price boom after 2002. Applying the NBER-Rostow and Hausmann *et al.* methodology, Argentina's GDP recovery at Chinese rates from 2002 to 2007 was

not sustainable. Argentina grew at the same rate during the commodities boom as the long-run trend of the last century. Argentina was the second worst GDP performer among ten Latin American countries in the long run, after Venezuela.

An analysis of the sources of growth also demonstrates that Argentina's growth was not sustainable during the recent commodities price boom. The GDP overestimation translated into false TFP gains. ARKLEMS series shows moderate GDP growth did not translate into strong TFP gains. Actually, Argentina had a negative TFP performance over the 1998-2015 period, instead of being the productivity champion of Latin America.

The credibility and reputation of official statistics is a critical issue not only for academic purposes but mainly for public policies that directly affect economic performance and the welfare of nations. According to the new stylized facts, Argentina could not escape from its development failure destiny based on decades of low productivity and economic growth.

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