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Abstract

This paper analyzes Peru's structural change in the last 16 years (2001-2016) through the labor market indicators' lenses. The paper's assessment of the past 16 years is somewhat bitter sweet. On the positive side, there has been a major reallocation of labor resources away from agriculture into the rest of the economy without any major disruption in wages, unemployment levels and inflation as it had been in previous resource booms. Yet, most employment created during that period—notably in commerce and transport and communication—has been in jobs paying wages that are roughly equal or below the economy's average. Wages in these sectors have been increasing broadly in line with productivity growth, thus keeping unit labor costs (ULCs) largely unchanged despite underlying inflation. The inertia of ULCs growth should have, in principle, spurred a tighter growth of households' real income, consumption and savings than otherwise.

The findings from this paper are consistent with the world trend towards precarious labor conditions, especially for those youngsters entering the labor force. In a way, the emerging *gig* economy in the United States and other industrialized countries has been the Peruvian labor market's reality for decades to date. From a cyclical condition, widespread underemployment has become a structural condition in the country's economic reality. Policies to secure adequate health care and pension benefits are a latent concern for the country authorities and will require bold decisions in devising and implementing lasting changes for the benefit of the society, overall.

Key words: Peru, employment, underemployment, unit labor costs

1. Introduction, overall assessment & policymaking challenges

This paper reviews Peru's strong macroeconomic performance in the last 16 years (2001-2016) through the labor market indicators. The country's exceptional macroeconomic performance is usually measured by the all-times-high domestic investment/GDP ratios and very rapid economic growth against the background of a surge in external terms of trade and mineral exports in the early/mid 2000s (Table 1). The resource extraction boom was complemented by prudent fiscal and monetary policies that positioned the domestic economy in sound footing through the hardships of the 2008/09 financial crises and its aftermath. At the end of the day, however, references to macroeconomic indicators could be somewhat abstract for the average

person, who is usually more concerned as to the nature of his/her work, the industries/sectors he/she is employed in, job security and average wages received.

Concerns over employment and wage issues have come to the front around the world in recent years, and are very much declared guiding posts for policy making together with standard macro indicators of inflation and growth performance. In particular, wage inflation is currently a preoccupation of many central banks around the world, as wage growth has remained subdued following the 2008/09 crisis, with precarious employment conditions multiplying across the economy. The latter refers mainly to the growth of the *gig* economy, in which employees have very limited social protection in terms of health and unemployment insurance and other traditional job benefits. All in all, concerns over labor market conditions (wages and employment figures) have brought back a renewed emphasis on matters of unemployment and underemployment trends, which are now core policymaking challenges. There is abundant theoretical literature and empirical analysis on the topic.ⁱⁱ

In the case of Peru, much real-time information on standard macroeconomic indicators and labor market condition is readily available on the web. While local and international observers duly analyze GDP and inflation trends, data on labor market conditions and their linkages to the performance of the economy from a long-term perspective are seldom analyzed.ⁱⁱⁱ It is in this context that this paper aims at contributing to a sounder economic debate nationwide.

The paper's main contents are as follows. Labor market developments during 2001-2016 are first analyzed using annual data published in the National Institute of Statistics and Information, INEI's 2017 Statistical Compendium. The note then briefly covers most recent labor market developments using higher frequency data published in INEI's monthly Employment Bulletin. A section on the macroeconomic effects of the labor resource reallocation of recent years and its resulting challenges for policymaking completes the note.

Table 1. Peru: Selected Macroeconomic Indicators, 2000-2017

(Annual averages)					
		2000-2007	2008-2010	2011-2014	2015-2017
Real GDP growth rate 1/	✓	4.6 ✓	6.2 ✓	5.2 ✓	3.3
Consumer price inflation rate 1/	✓	2.3 ✓	3.4 ✓	3.3 ✓	3.3
Changes in terms of trade 1/	✓	4.3 ✓	1.5 ✓	-1.4 ✓	0.1
Savings-Investment Identity 2/					
Investment	✓	19.7 ✓	24.2 ✓	25.7 ✓	22.7
Savings		19.7	24.2	25.7	22.7
Domestic	✓	19.1 ✓	22.0 ✓	22.3 ✓	19.8
<i>o/w Public sector savings</i>	✓	2.3 ✓	5.6 ✓	7.0 ✓	2.8
External		0.6	2.2	3.4	2.9

Source: IMF

1/ In percent

2/ In percent of GDP

The assessment of the past 16 years is somewhat bitter sweet. On the positive side, there has been a major reallocation of labor resources away from agriculture into the rest of the economy without any major disruption in wages, unemployment levels and inflation as it had been in previous resource booms. Yet, excluding public administration and defense, most employment created during that period—notably in commerce and transport and communication—has been in jobs paying wages that are roughly equal or below the economy's average. Wages in these employment-booming sectors have been increasing broadly in line with productivity growth, thus keeping unit labor costs (ULCs) largely unchanged despite underlying inflation. The inertia of ULCs growth should have, in principle, spurred a tighter growth of households' real income, consumption and savings than otherwise. Also, the welfare and policy implications of such economic environment have not been insignificant.

Shortening our lenses to look at recent labor market developments highlights an increase in Lima Metropolitana unemployment rates to 8 percent by February 2018, a decline in “adequate employment” along increases in underemployment, a decline in working hours per-week and reductions in real wages across the economy. An indeed it is defiant economic environment for policymakers.

The challenges for macroeconomic policymaking are threefold. For one, the labor reallocation into relatively low-productivity-low-wage commerce and services activities is a structural rather than a cyclical feature of the Peruvian economy. Also, assessing the degree of excess capacity of the economy demands looking beyond standard unemployment rate estimates to the extent that those underemployed are considered employed for official statistical compilation purposes, thus blurring the standard analysis of the degree of economic slack. A better indicator is the amount of hours worked per-week per-worker, complemented with a systematic monitoring of macroeconomic expectations about employment creation and the economy's performance three months ahead which have been highly synchronized with the actual behavior of the unemployment rate for Lima Metropolitana. Dissonance between expectations and actual events has been the exception to the rule rather than the observed pattern in the last 16 years. Finally, on top of the urgent need to raise labor productivity, an open policy question is how to address the lasting stagnation of unit labor costs in employment-booming sectors (despite underlying inflation) that puts a downward bias on the growth of households' disposable income. The problem appears magnified by the relative long-term real appreciation of the Peruvian sol compared to other Latin American currencies, which hampers, in principle, the potential growth of non-mineral export-led sectors and reduces the creation of formal/full-time/adequate employment in those sectors.

In sum, the structural changes occurred in the economy in the last 16 years--as measured by a changed composition of the GDP and the substantial reallocation of labor resources into underemployment in the tertiary sectors--call for a new complementarity between policies aimed at improving labor productivity and creating adequate employment opportunities nationwide. Such policies should support a less volatile share of household disposable income

in GDP and higher household saving and consumption than otherwise.

The findings from this paper are consistent with the world trend towards precarious labor conditions, especially for those youngsters entering the labor force. In a way, the emerging *gig* economy in the United States and other industrialized countries has been the Peruvian labor market's reality for decades to date. From a cyclical condition, widespread underemployment has become a structural condition in the country's economic reality. Policies to secure adequate health care and pension benefits are a latent concern for the country authorities and will require bold decisions in devising and implementing lasting changes for the benefit of the society, overall.

2. Methodology and data description

Labor market developments during 2001-2016 are analyzed using annual data published in INEI's 2017 Statistical Compendium and its monthly Employment Bulletin. The period under review has been the longest sustain and high growth period of the Peruvian economy since independence in 1821. Review of the period has been facilitated by widespread data availability on the authorities' webpages. Local literature on labor market analysis and economic performance is however nonexistent, thus the paper's important contribution to Peru's economic history.

Variables, sources, period, and data frequency used in this research are listed below:

- Variables: Employment rate, unemployment rate, economically active population (EAP), economy-wide wages, wage index, relative monthly wage, minimum wages, productivity index, consumer price index, employment to working-age population
- Source of data: Peruvian National Institute of Statistics and Information (INEI) and Central Reserve Bank of Peru (BCRP)
- Period: 2001-2016
- Frequency: annual, Peruvian National Institute of Statistics and Information (INEI)'s 2017 Statistical Compendium.
- Monthly: INEI's monthly Employment Bulletin

Built indicators:

- Unit labor costs = the ratio of average wages to labor productivity
- Dispersion in employment growth rates= standard deviation of sectorial employment annual growth rates

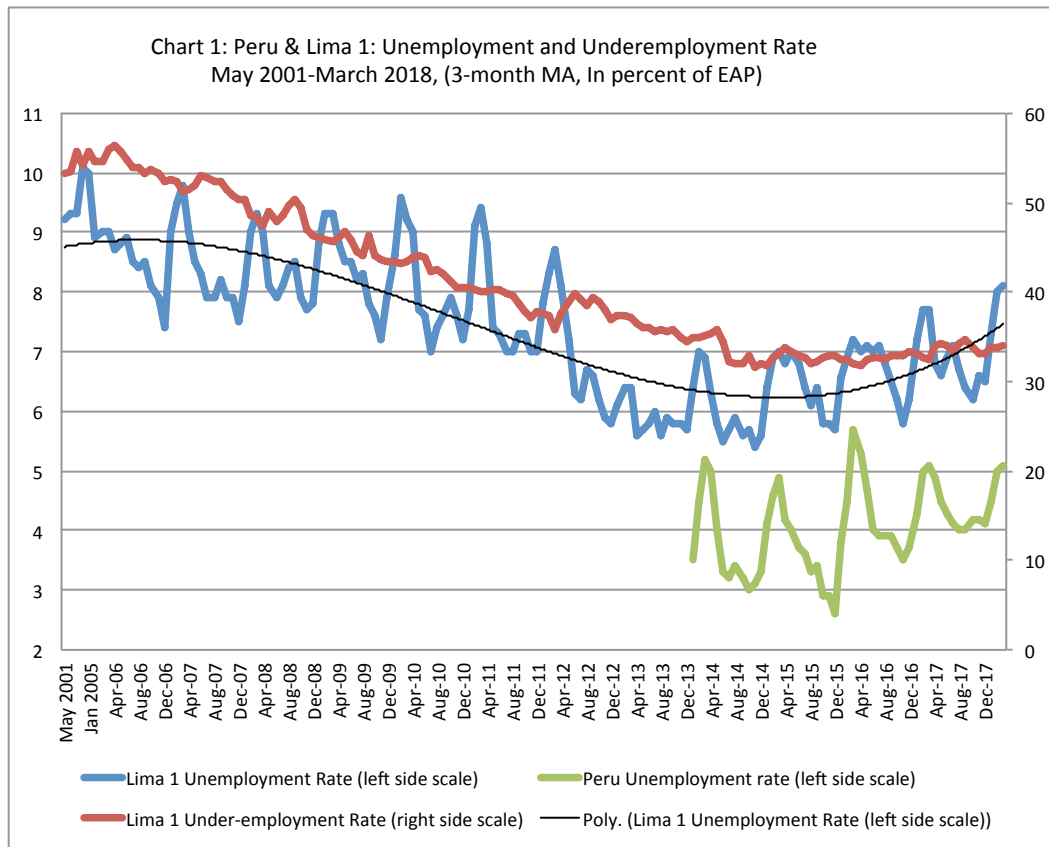
3. Discussion & results

3.1 Looking over the past 16 years

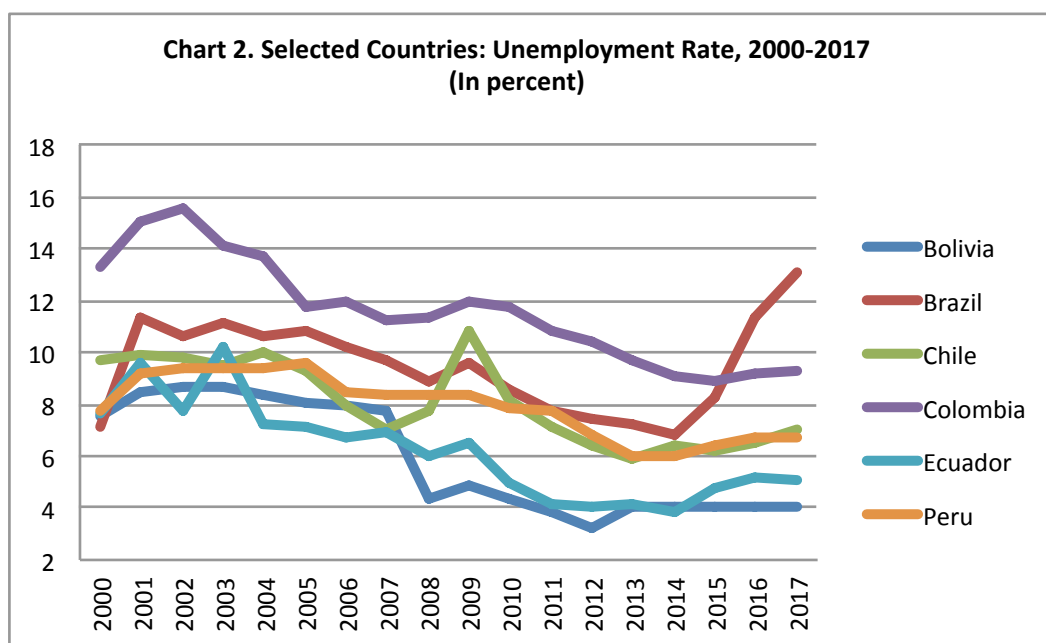
The unemployment rate of Lima Metropolitana (i.e., Lima 1) is INEI's leading labor market benchmark indicator, which is published on a monthly basis with much detail as of its underlying components. Lima 1 is the nation's largest center of economic activity and employment source. While mineral extraction takes place in coastal areas away from Lima and desolated sites in the highlands, Lima 1 produces about 75 percent of the national GDP and has an economic active population (EAP) of about 5.5 million people out of a total of 16 million people of working age nationwide. Labor indicators for Lima 1 have been compiled since 2001, while those for the country as a whole (compiled on a high frequency basis) date only from 2014 onwards. Historically, Lima 1 has had unemployment rates that are roughly 2.5 percentage points higher than the average for the rest of the country on account of internal migration and other economic and political factors affecting the relative size of this large urban center. Yet, changes in the unemployment rates for Lima 1 and the country as a whole are highly correlated (Chart 1).

During the last 16 years, there has been a significant decline in Lima 1 unemployment rate, with concurrent sharp declines in underemployment (Chart 1).^{iv} The unemployment rate declined from around 9.5 percent of the EAP in the early 2000s to below 6 percent in late 2014, before starting to rise again and reach 6.5 percent in late-2017, as overall economic growth decelerated. These reductions in unemployment were unprecedented for Peru and represented a gain of 1.6 million employment posts in Lima 1, alone, between 2001 and 2017. At the same time, Lima 1 underemployment rate--covering those working less than 35 hours a week, but wishing to work more hours (*subempleo visible*), and those working 35 hours or more, but earning insufficient income to purchase the minimum consumption basket (*subempleo invisible*)--dropped from about 55 percent of Lima's PEA in early 2001 to around 32 percent in the late 2014, before increasing again to 33.5 percent in late-2017. The decline in underemployment broadly mirrored an increase in "adequate employment," which, for INEI's statistical compilation purposes covers those working 35 hours or more per-week and earning incomes above the minimum consumption basket, as well as those working less than 35 hours per-week, but without wishing to work more hours per-week.

By international standards, Peru's (i.e., Lima 1's) employment gains during 2001-2016 were substantial and very much comparable to those occurred in neighboring countries (Figure 2). Same as Chile, another copper producing nation, the unemployment rate of Lima 1 declined from about 9.5 percent in early 2000s to 6.5 percent in recent years despite the outbreak of the global financial crisis in 2008/09 and the economic deceleration suffered by both countries during 2014-16. Other neighboring countries also managed to significantly reduce their unemployment rates during the last 16 years, although the employment situation in Brazil has deteriorated significantly since 2015/16 due to the economic recession. The resilience of Peru's relatively low unemployment rate despite the volatility of the external environment has been a welcome development in the eyes of domestic and foreign analysts.



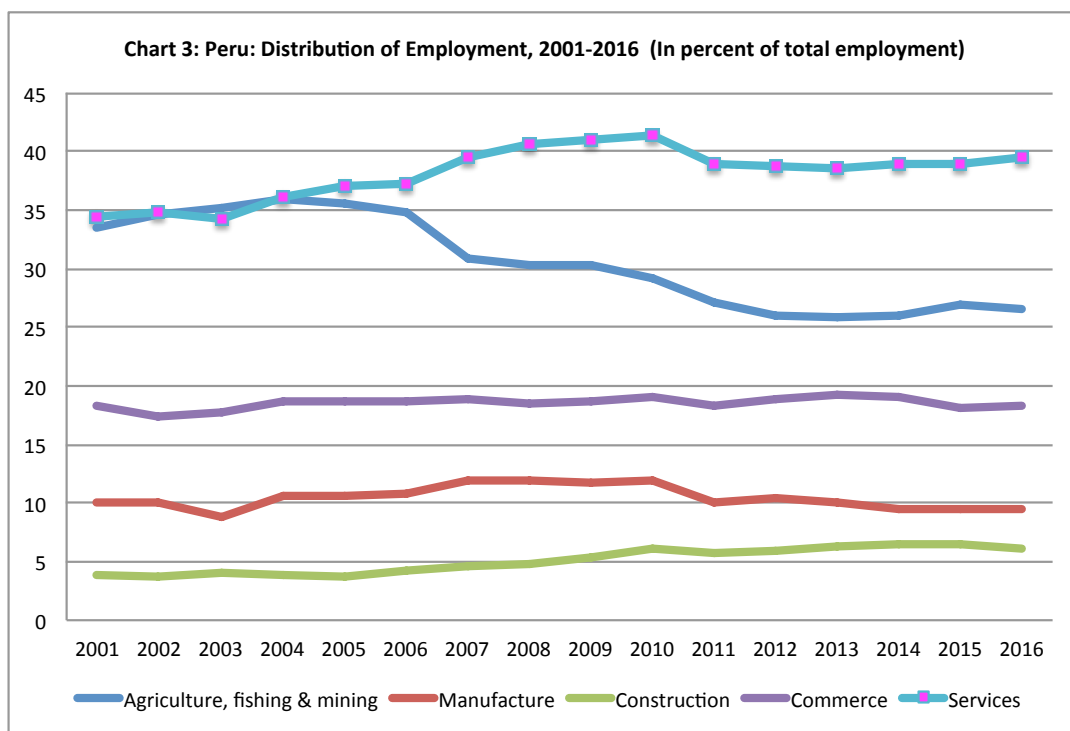
Reductions in Lima 1 unemployment rate have been accompanied by a significant and successful reallocation of labor resources nationwide:



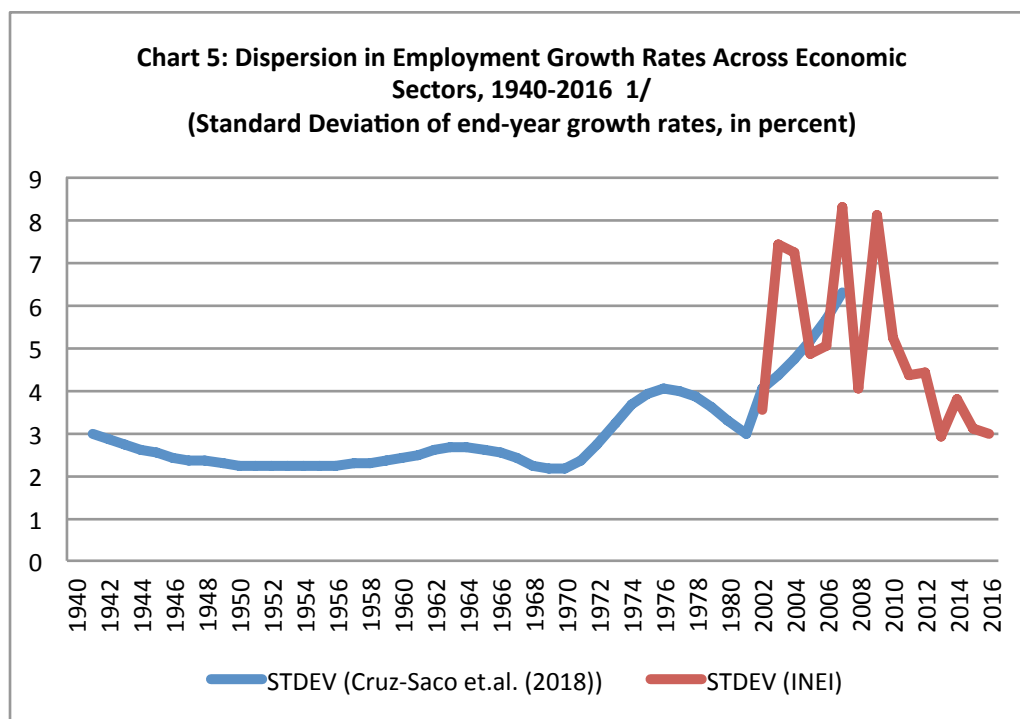
Source: IMF

First, for the economy as a whole, there has been a surge in employment in the services sector, including public administration and defense, while employment in the primary sectors (i.e., agriculture and fishing) and manufacture waned (Charts 3 & 4). Specifically, during 2001-2016, out of total employment gains of about 4.3 million nationwide, about 815,000 jobs were created in the public administration and defense, while a total of 2.3 million jobs were created in commerce, transportation and communications, and other services. By contrast, there were around 500,000 job losses in the primary sectors between 2003 and 2013 that have been only partially reversed in recent years. According to some analysts (e.g., Webb (2017)) reverse migration in agriculture is related to the improved physical and digital infrastructure connecting rural and urban areas, which has improved living conditions in the countryside and the Andes. The manufacturing sector was also a weak performer during the period and, by end-2016, employment in the sector was some 85,000 people lower than in 2012, with job losses continuing to date. Employment in the construction has also been declining as of recent, although sector was an important source of occupation during the last 15/16 years due to booming residential and business construction in Lima and other urban centers on the coast.

Second, the reallocation of labor resources across the economy was not smooth and, in fact, it was the bumpiest in the last century (Chart 5). This labor force reshuffle could be assessed by examining the historical dispersion (i.e., the standard deviation) in employment growth rates across the eight economic sectors, which shows that such dispersal has never been higher than in 2002-2012. The strong economic growth of the early 2000s must have triggered a high rate of job turnover and opened an array of job opportunities in various sectors of the economy, while, at the same time, other jobs ceased to exist. In sum, while there is always a degree of structural change occurring, the evidence suggests that the labor market changes during that period have no historical precedent.

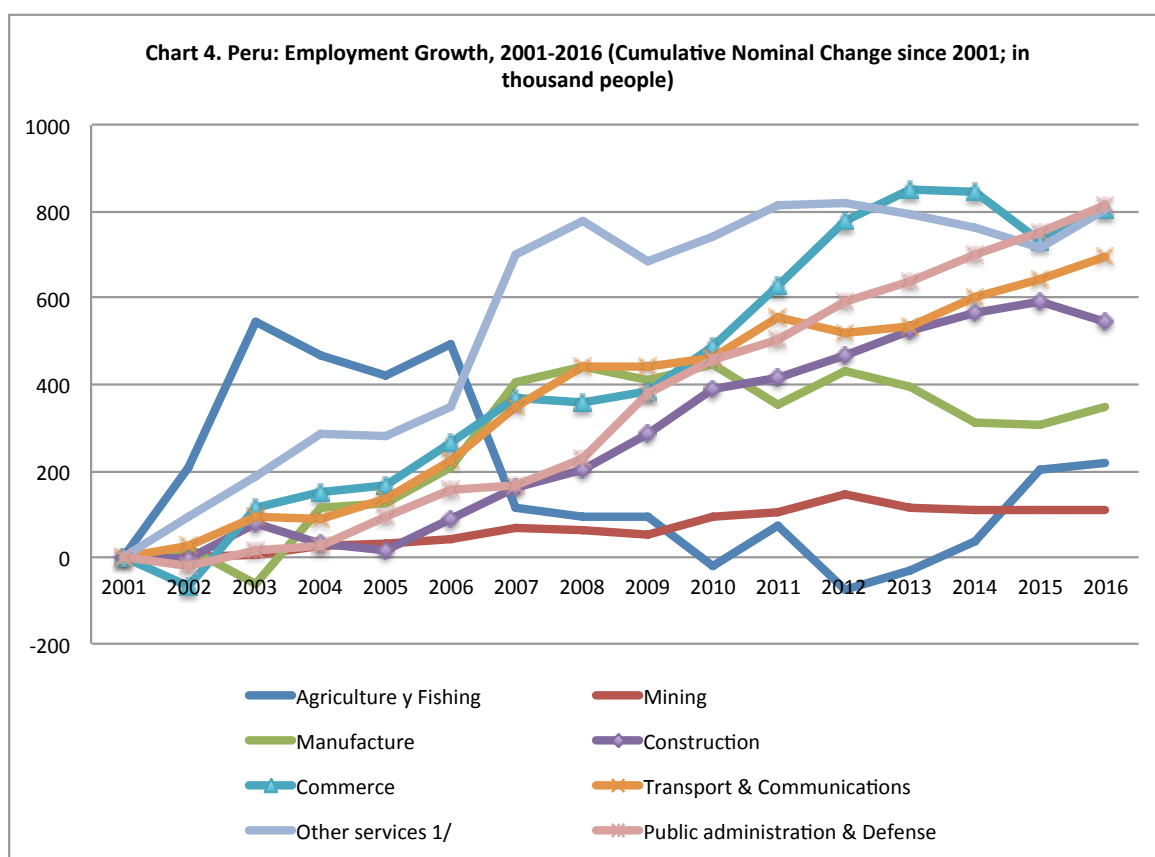


Source: INEI



Source: Cruz-Saco et. al.; INEI and authors' estimates.

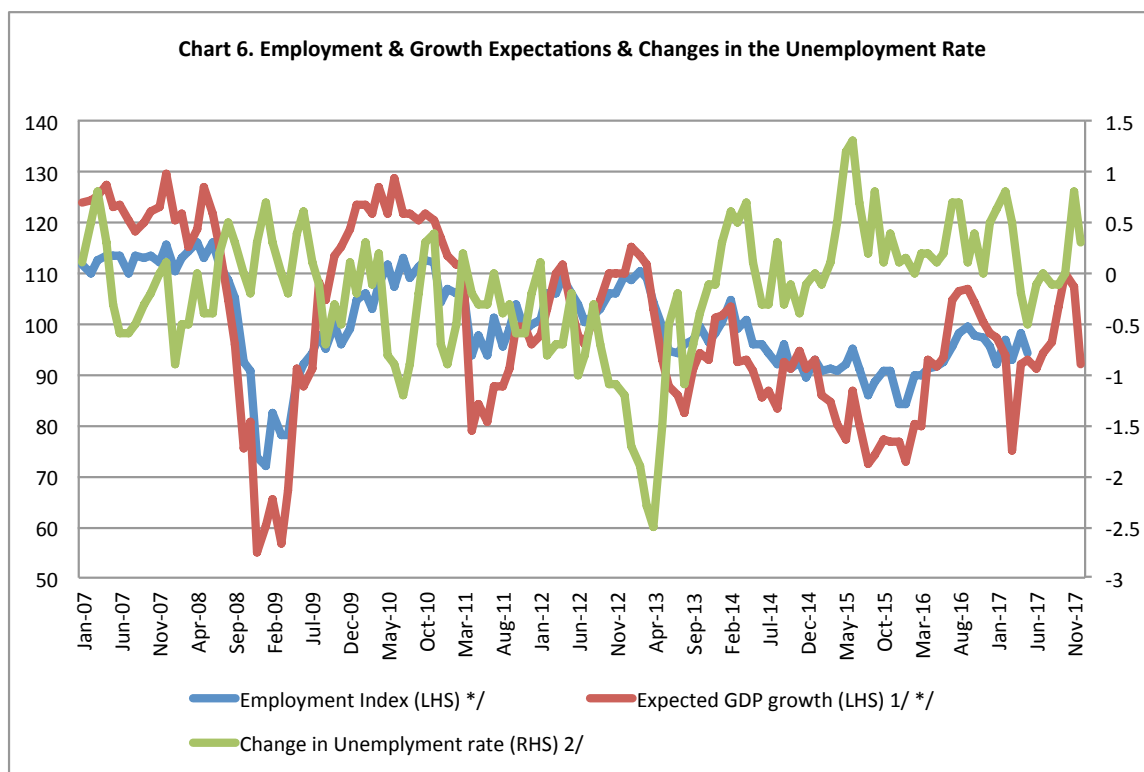
1/ Source data for 1940-2007 come from Cruz-Saco et. al. (2018). Data through 2016 come from the 2017 INEI Statistical Compendium.



Source: INEI and authors' estimates.

1/ Includes electricity, social security, hotels & restaurants, real estate, teaching, gas & water services, financial sector activities, and social services, in general.

But the significant variation of employment growth across sectors did not add to pessimism and/or uncertainty among key economic players (Chart 6). In general, developments in the last 16 years showed strong synchronization between consumer expectations about employment and economic growth, and the actual behavior of the unemployment rate. Despite job losses in some quarters along sizable labor reallocation across the economy, expectations and actual events about (in) the labor market coincided. During 2017, though, there was the unusual transitory situation in which consumers' expectations about growth were on the rise, but the unemployment rate was also increasing; an event possibly connected with the businesses' optimism about the new incoming government of President Kuczynski. Such dissonance between business expectations and the unemployment rate has now largely disappeared, with looming concerns about economic growth now matching hikes in the unemployment and underemployment.



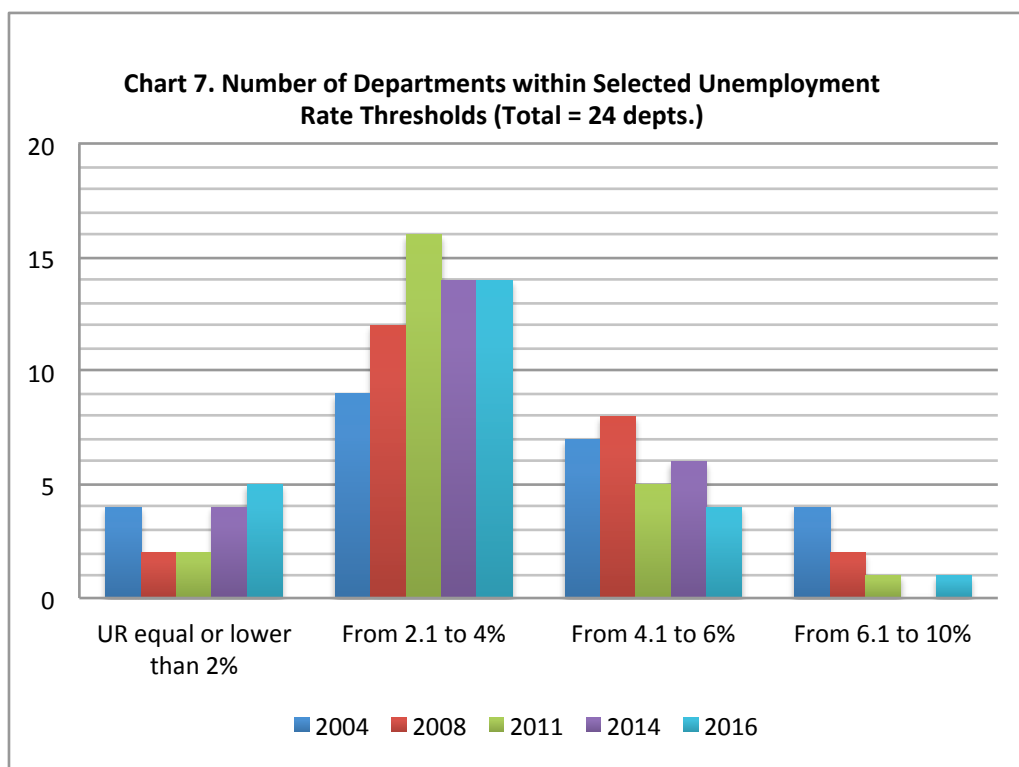
Source: BCRP, Encuesta de Expectativas Macroeconómicas, INEI Employment Bulletin & authors' estimates.

*/ Net balance expecting more employment (growth); average since January 2007 =100

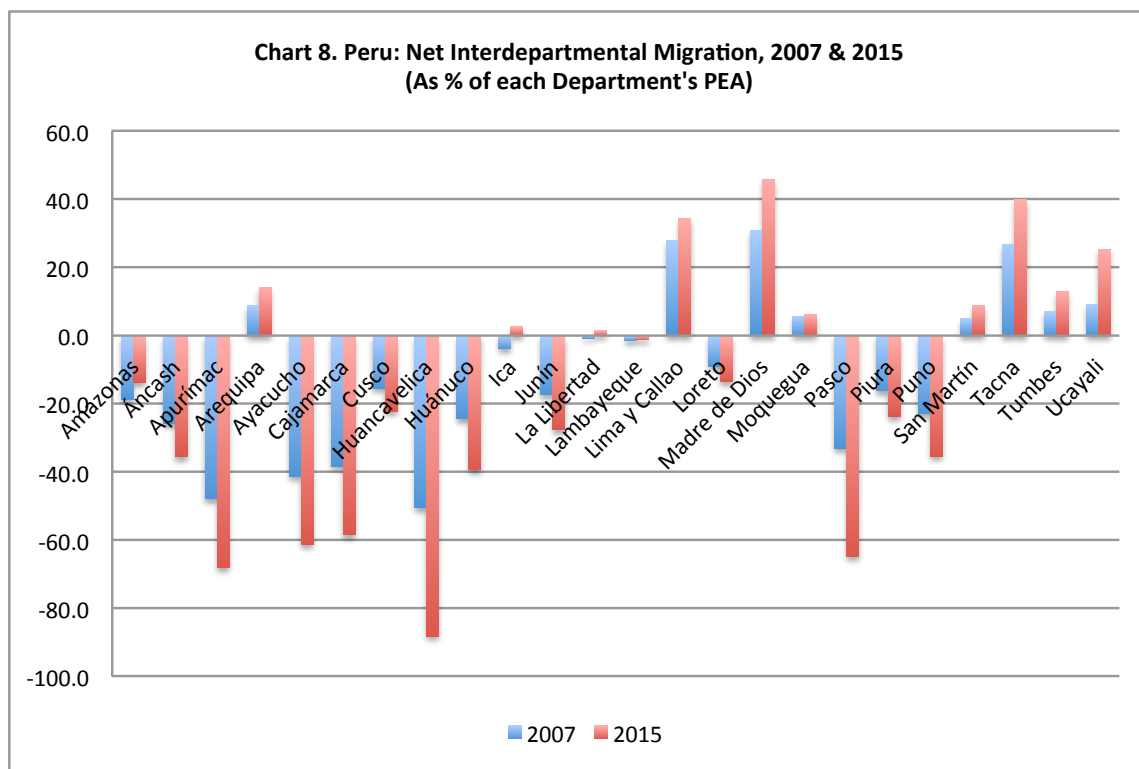
1/ Consumer expectations on the economy's growth in three months.

2/ Change in unemployment rate over the past 12 months.

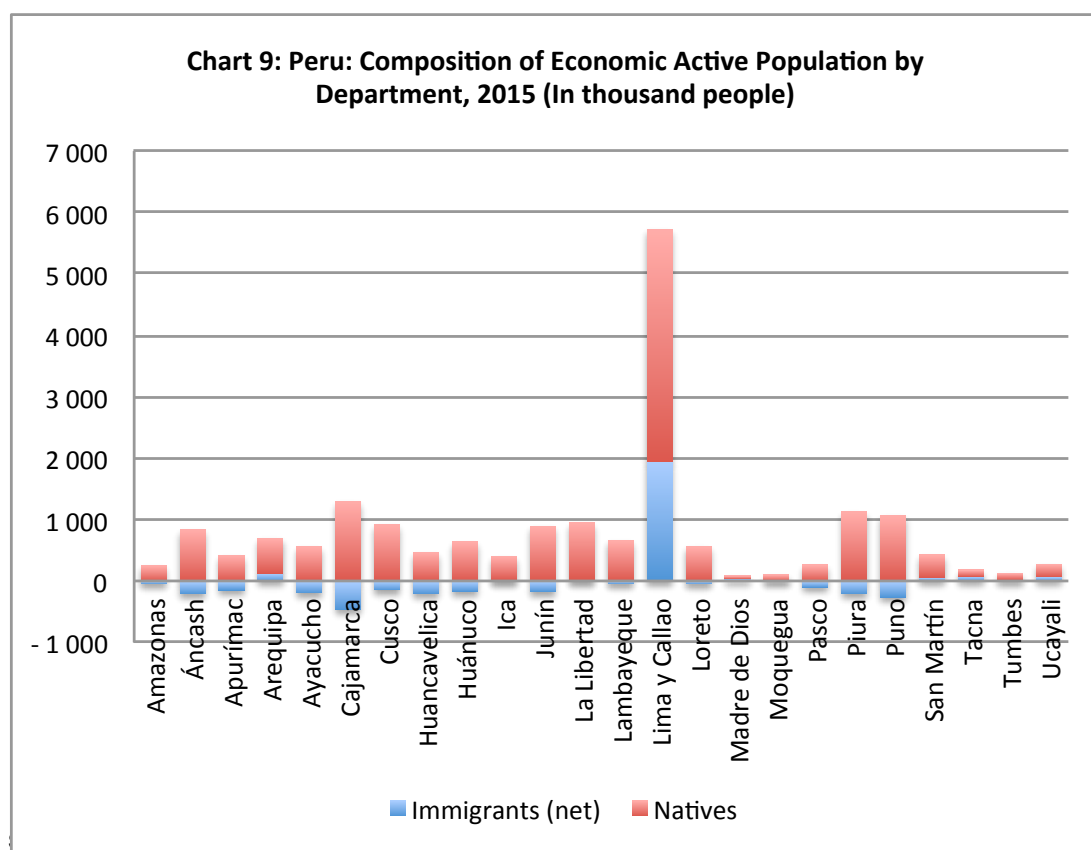
Also, the disparate employment growth across economic sectors did not lead to greater variation in the unemployment rates across the country.^y Rather, by 2016, compared against 2004, the average unemployment rate across departments was lower and the variation across the country was also lower. There was a notable increase in the number of departments registering unemployment rates between 2 and 4 percent, while the number of departments with higher unemployment rates declined over time (Chart 7). Unemployment rates of less than 2 percent can be generally found in departments located in the Amazon basin (i.e., Amazonas, Madre de Dios) and small departments situated in the highlands (i.e., Apurímac and Huancavelica) with relatively small economic active populations. By contrast, by 2016, Lima remained as the only department registering an unemployment rate above 6 percent. A decade earlier, other high unemployment departments also included Moquegua, Arequipa and Tacna.



Third, internal migration is a factor that should have contributed to keep unemployment rates low across the national economy (Charts 8 & 9). In short, it has been the willingness of people to travel or relocate where the jobs are that has kept unemployment low, nationwide. For example, by 2015, migrants represented about 35 percent of Lima Metropolitana economic active population (up from 28 percent in 2007), which in absolute numbers was equivalent to about 2 million people. While other departments (e.g., Arequipa, Madre de Dios, Tacna, Ucayali) have also witnessed net inflows of people, the sheer size of Lima's population makes those migration flows somewhat insignificant in nominal terms, however. Also, with the passing of time, earlier migrants become locals/natives for statistical purposes, thus blurring the marginal contribution of new migrant inflows to the size of the local PEA.^{vi}



Source: INEI and authors' estimates.



Source: INEI.

Of concern, however, is that most employment gains registered in the last 16 years have been in jobs paying monthly wages^{vii} that were equal or below the economy's average wage, which is not much higher than the minimum wage (Chart 10 & Table 2).^{viii} Wages in commerce (employing some 3 million people or about 18.5 percent of the country's working economic active population) have been 20 percent lower than the economy's average wage, and generally lower than relative wages in agriculture, from where most people migrated in recent years. Wages in other service businesses, such as transport and communications, hotels, restaurants, social security, and other service industries (totaling some 5 million workers), were just at the economy-wide average wage level, which in 2016 was about 1,550 soles per-month or 1.8 times the monthly minimum wage of 850 soles. Only those working in public administration and defense (some 1.4 million people), construction (1.0 million) and the rather few working directly in mining (some 175,000 people) have been paid higher wages than in other sectors of the economy.^{ix} Relative wages in manufacturing have hovered around the economy's average in a context of a gradually shrinking sector's value added as a share of GDP.

Also, wages in commerce and the services sector have increased broadly in line with productivity, with no adjustment for underlying inflation (Charts 11-13). The alignment of wages and productivity growth has kept unit labor costs (ULCs) unchanged.^x However, the stagnation of ULCs despite underlying inflation (measured either by the average annual consumer price index (CPI) growth rate and/or the sector's implicit deflator annual growth rate) should have, in principle, kept the growth of household real disposable income, consumption and savings tighter than otherwise during the last 16 years. Indeed, survey data document a large number of households in the commerce and services sector engaged in several paid work activities to make ends meet during the month, albeit earning low wages and with no social benefits to speak about. In sum, there has not been "*wage inflation*" in the commerce and services sectors to speak off, while a large number of households reportedly cobbled different jobs to try to generate necessary income in the absence of adequate employment opportunities.

All in all, the impression from the various facts and figures above is that Peru's labor market developments during the last 16 years leaves some things to be desired. On the positive side, workers have moved in large numbers across economic sectors, notably into commerce and services and away from agriculture and fishing. These movements of people have supported a decline in the number high-unemployment departments across the country (Moquegua, Arequipa and Tacna in the mid-2000s), while containing any sharper decline in unemployment rates in Lima 1 despite important employment gains in the capital city. Yet, relative wages for commerce and services (other than the public administration and defense) have remained contained at levels equal or below the economy's average wage. Also, there is no evidence of wage inflation, as the growth in nominal wages has tightly paralleled productivity growth.

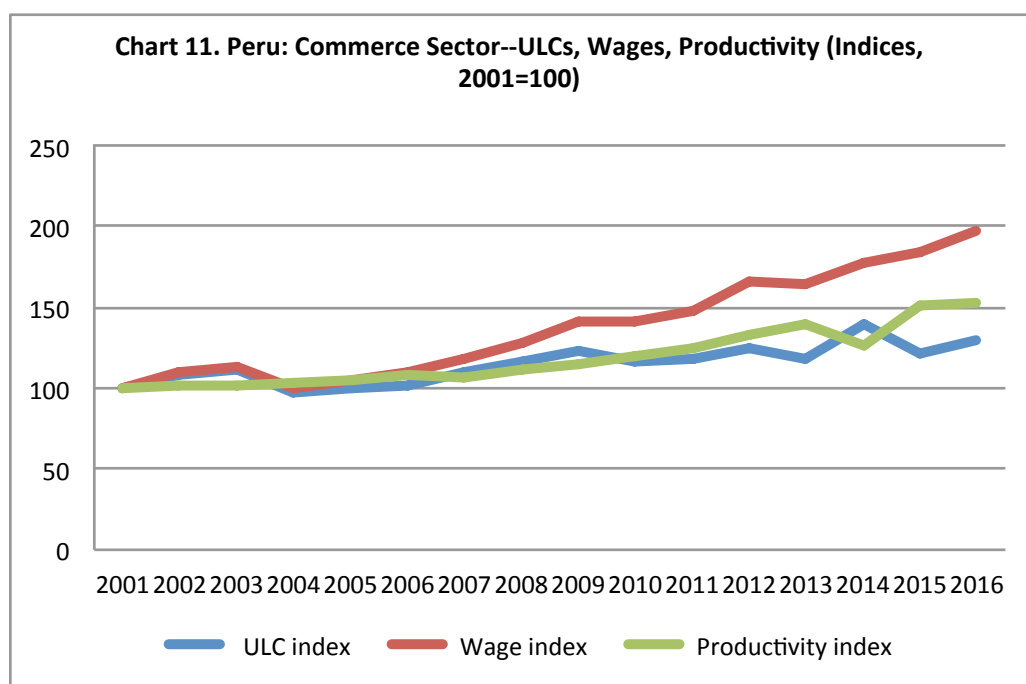
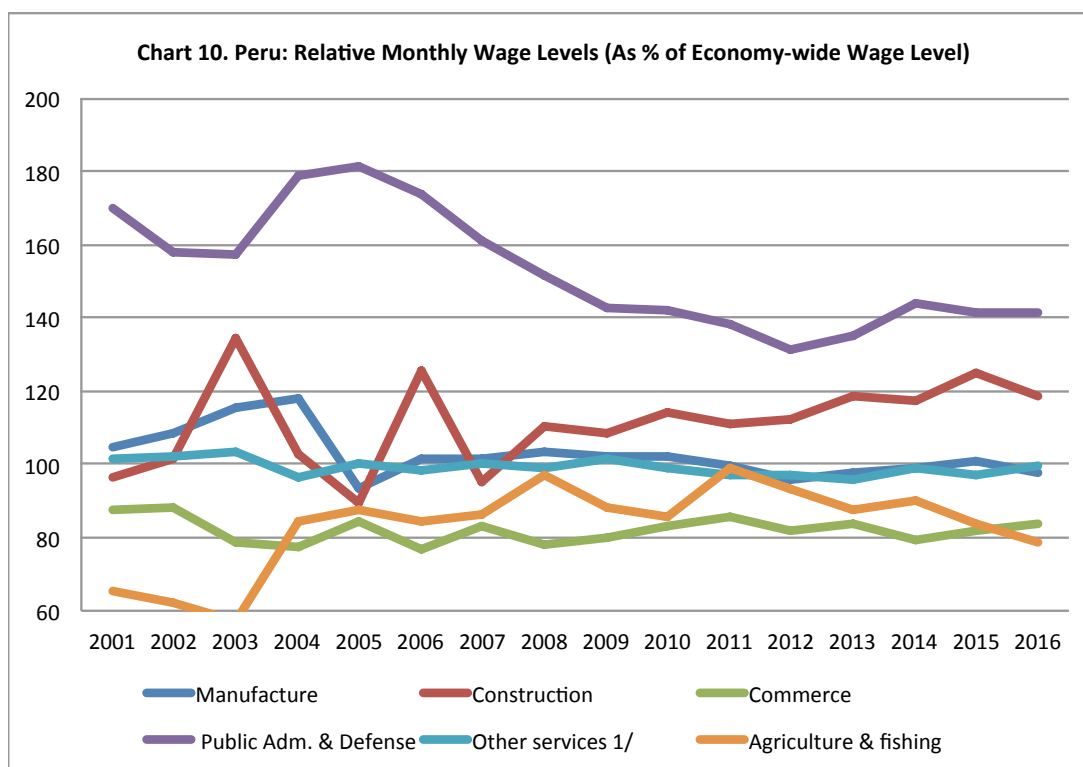


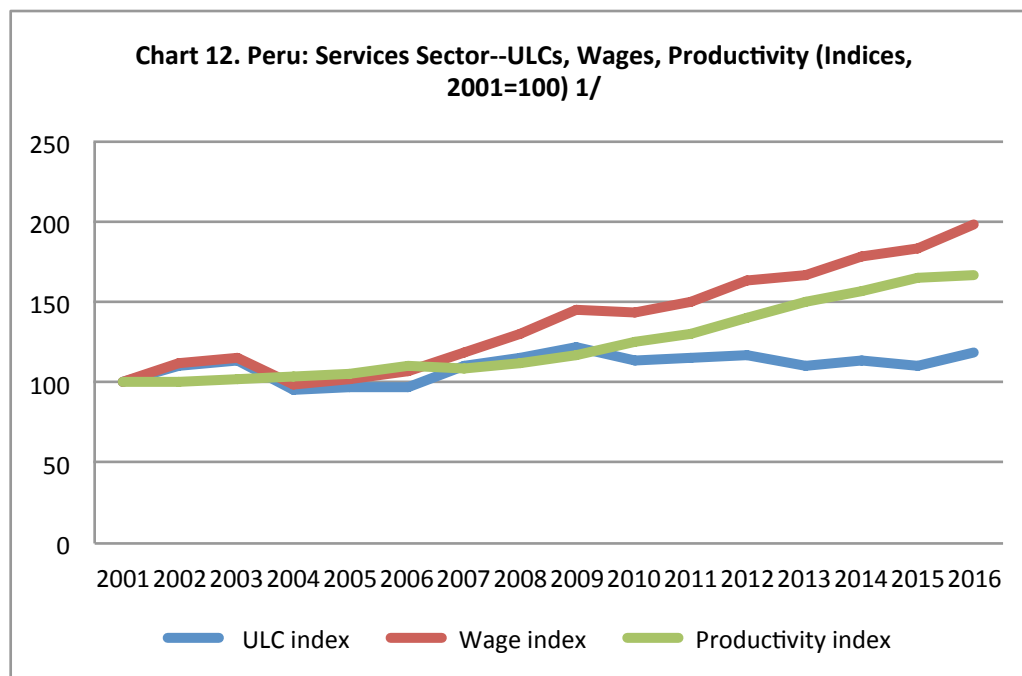
Table 2. Peru: Working Economic Active Population (EAP), 2001-2016

	2001	2011	2012	2015	2016	Increase 2001-2016
(In thousands of people; stocks)						
Total EAP	11862.2	15307.3	15542.7	15919.2	16197.1	4334.9
Agriculture y Fishing	3902.1	3972.8	3827.2	4105.7	4118.4	216.3
Mining	66.9	169.8	214.1	177.5	174.1	107.3
Manufacture	1193.6	1548.2	1625.5	1501.7	1541.7	348.1
Construction	450.8	866.2	918.0	1043.6	997.3	546.5
Commerce	2159.8	2789.4	2938.0	2889.7	2965.0	805.2
Transport & Communications	669.1	1226.0	1190.2	1314.6	1361.7	692.6
Other services 1/	2818.5	3630.9	3639.3	3534.2	3624.8	806.3
Public Administration & Defense 2/	600.2	1101.1	1190.4	1352.3	1414.0	813.8
(In percent of EAP)						
Total EAP	100.0	100.0	100.0	100.0	100.0	
Agriculture y Fishing	32.9	26.0	24.6	25.8	25.4	
Mining	0.6	1.1	1.4	1.1	1.1	
Manufacture	10.1	10.1	10.5	9.4	9.5	
Construction	3.8	5.7	5.9	6.6	6.2	
Commerce	18.2	18.2	18.9	18.2	18.3	
Transport & Communications	5.6	8.0	7.7	8.3	8.4	
Other services 1/	23.8	23.7	23.4	22.2	22.4	
Public Administration & Defense 2/	5.1	7.2	7.7	8.5	8.7	

Source: INEI (ENAHO) and authors' estimates.

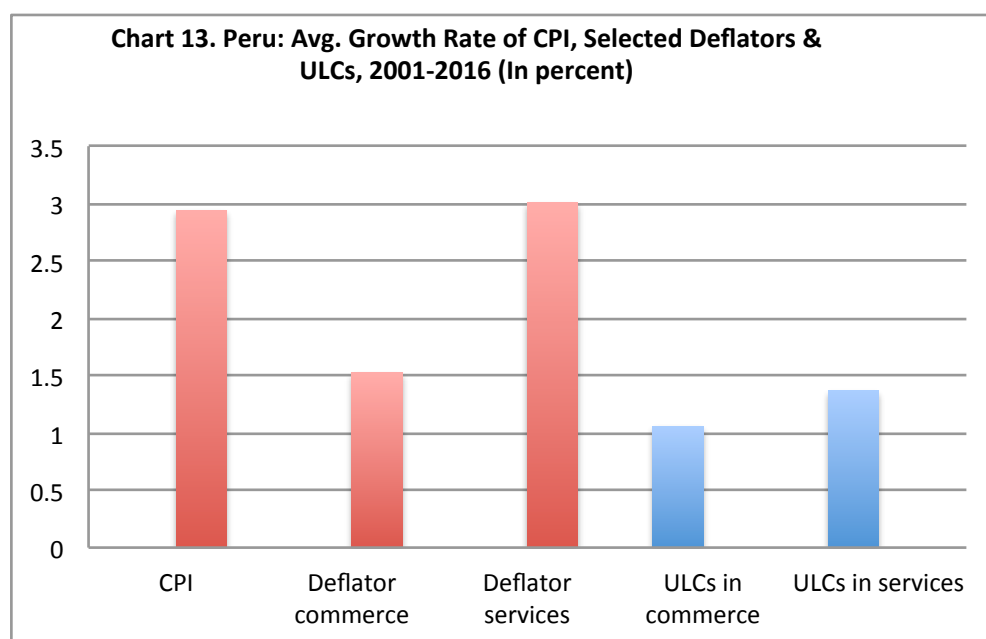
1/ Includes electricity, social security, hotels, restaurants & other services as per the national accounts sectorization.

2/ Authors' estimates.



Source: INEI, BCRP, and authors' estimates.

1/ Services sector excludes public administration and defense.



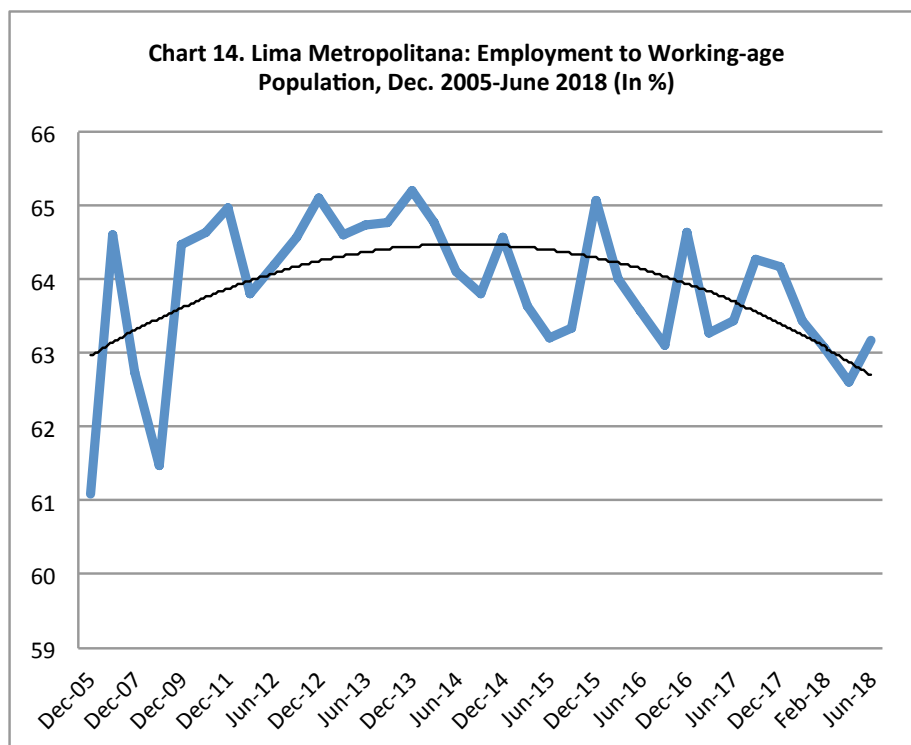
Source: INEI and authors' estimates.

3.2 Lima Metropolitana: Recent Labor Market Developments

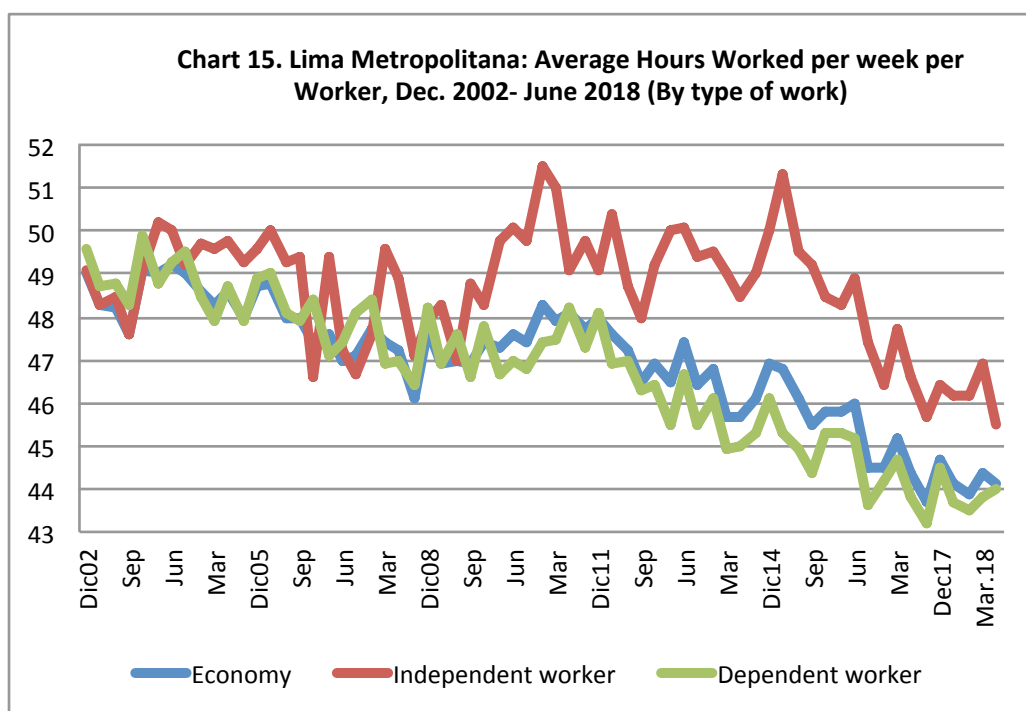
Recent labor market developments in Lima Metropolitana are quite challenging in terms of employment creation and wage trends (Figures 14 -16). As reported in INEI's February 2018 Employment Bulletin, the unemployment rate in Lima 1 has been increasing as of recent, reaching 8.0 percent for the three-month period ending February/March 2018 (up from 6.5 percent in the quarter ending December 2017), before averaging 6.7 percent in the second quarter of 2018, as mining investment began to recover along hike in international mineral prices. Recorded hikes in the unemployment rate paralleled simultaneous increases in underemployment with its precarious employment conditions, while many jobs in the formal economy evaporated. The softening of the labor market can also be summarized by a lasting decline in the average hours worked, particularly in construction and services, and a decline in the overall employment to working-age population ratio. The average growth of nominal wages, on the other hand, has generally been lower than the average inflation rate for all sectors in Lima 1. The erosion in real wages should have reduced the share of labor remunerations in total GDP, thus creating a drag on future growth of the economy.

Sizeable unemployment and underemployment rates are unlikely to vanish in the near term (Charts 16 & 17). For one, the labor participation in Lima 1 has increased (albeit remaining volatile) as the economy has decelerated during the last three years, hence compounding the effect of weak job creation on the measurement of the unemployment rate.^{xi} The increase in labor participation contrasts with current events in industrialized economies, where reductions in participation has kept unemployment rates low despite weak of employment conditions in the aftermath of the global financial crisis. In Peru, there is also a challenge in terms of

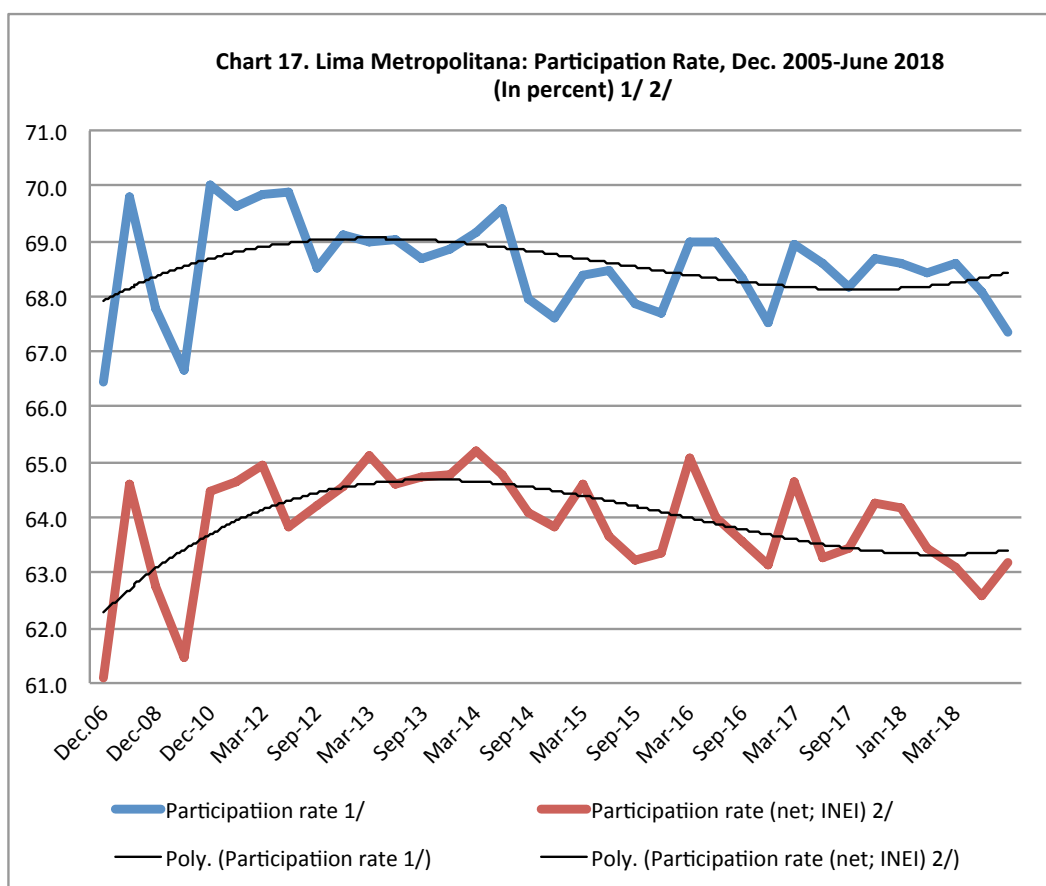
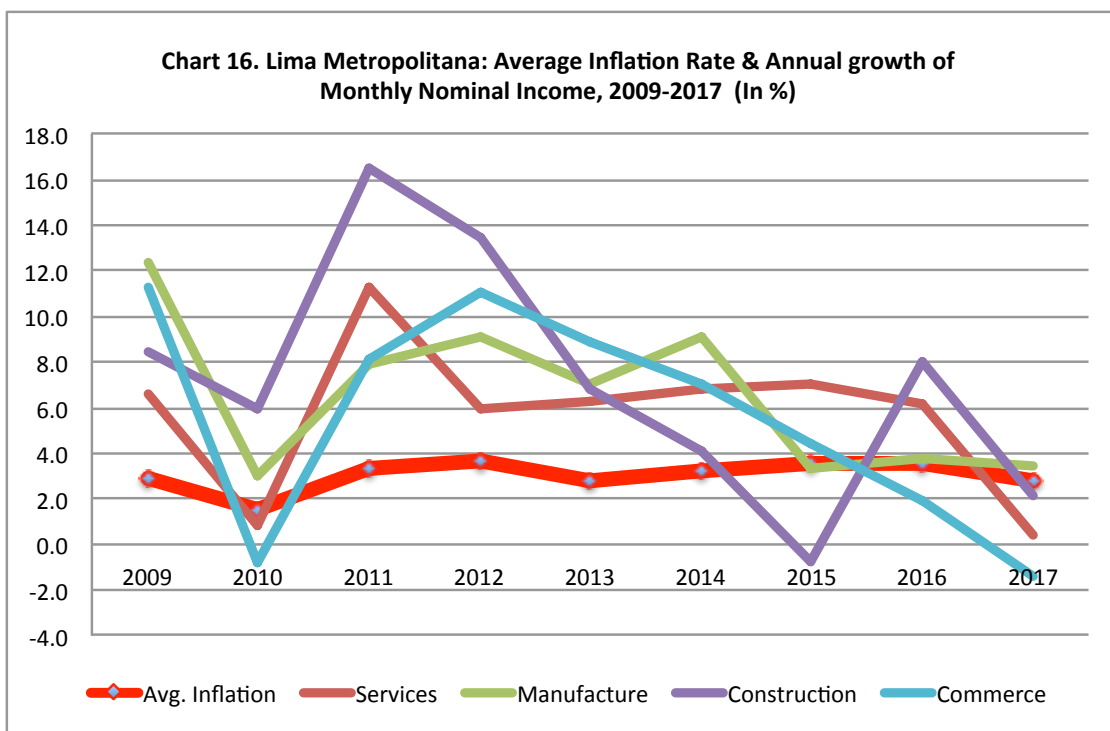
employment “destruction” and employment “creation.” Indeed, most of the employment that is being created in the services sector is underemployment, while most of the recent employment losses in the construction sector, in particular, are those previously classified as “adequate employment.” On a net basis, the rate of underemployment is now higher than before.

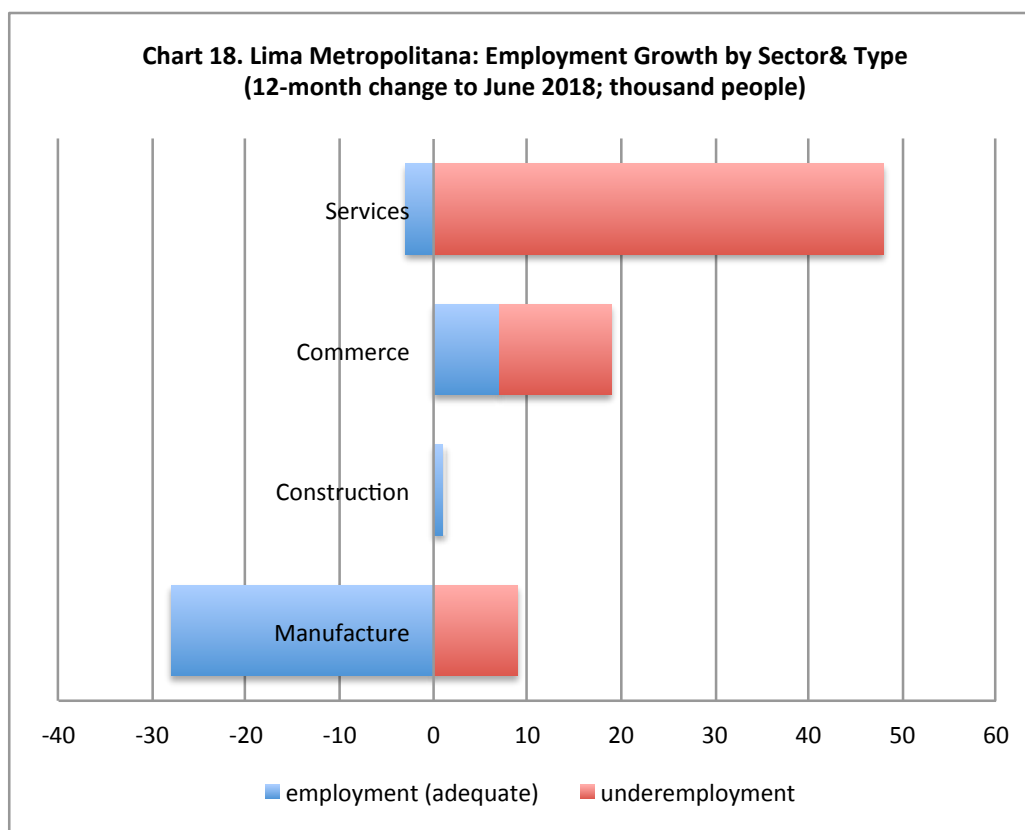


Source: INEI



Source: INEI and authors' estimates.



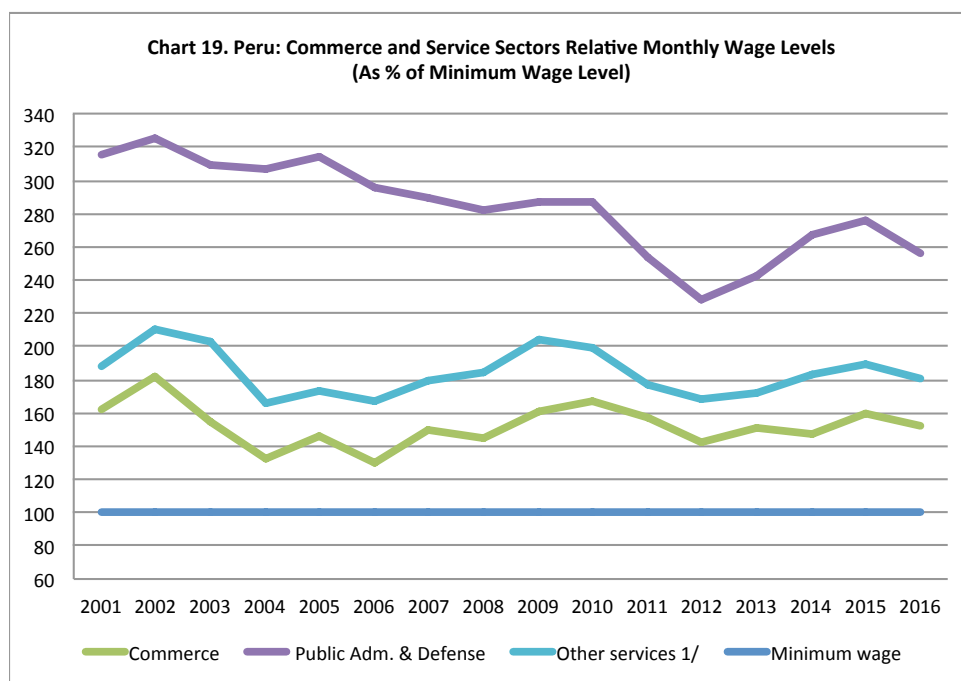


3.3 Macroeconomic and Policymaking Challenges

A continuous reallocation of labor resources into the services sector, and away from the primary and secondary sectors, is here to stay. As in other emerging market economies around the world, the relative amount of labor resources in agriculture and manufacturing is likely to continue to decline in Peru. In short, such a resource allocation is a structural rather a cyclical phenomenon in of the economy. While better interconnectivity (physical and/or digital) between urban centers and the countryside could partially slowdown this labor reallocation, the sluggish growth of manufacturing activities and the established patterns of labor migration for decades, including the sheer size of Lima economically active population, generates a enduring excess supply of labor resources that is relegated to work in the services sector.

The macroeconomic effects of this labor resource allocation are significant in terms of labor productivity and wage levels. Labor productivity levels in commerce and the service sectors are relatively low, as those jobs demand lower investment in human capital and specialized skills and training than in traditional jobs. This economic reality affects some 6 million people or about 40 percent of the economy's economic active population. Also, the resulting average wage levels are not much higher than the economy's minimum wage, especially for services (other than public administration and defense), while these sectors are sources of unstable

employment and family income (Chart 19). Anecdotic evidence suggests the proliferation of households cobbling different jobs to try to generate necessary income in the absence of adequate (i.e., full-time) employment opportunities.



Source: INEI and authors' estimates.

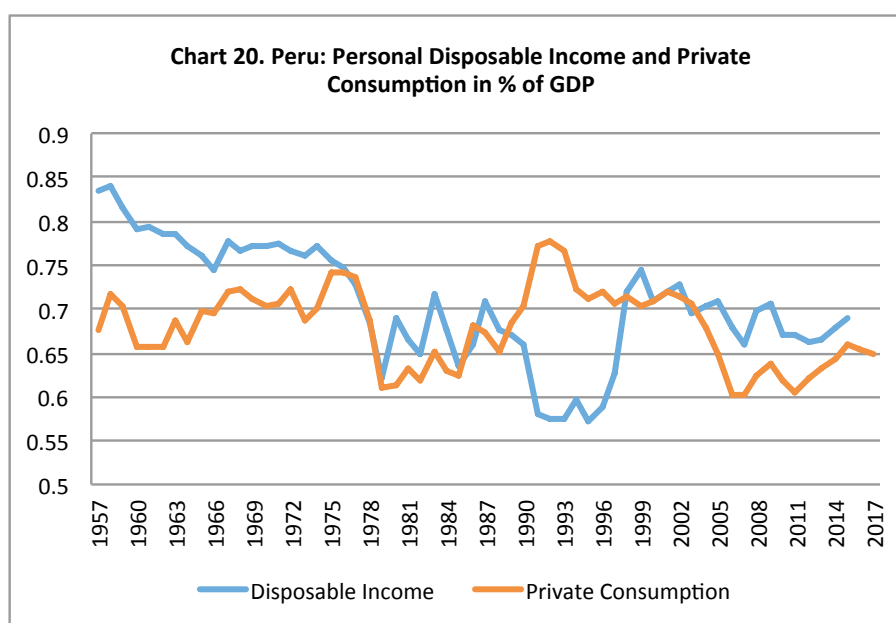
1/ Includes transport and communications, hotels, restaurants, social security, and other services.

Finally, there are also implications for policymaking:

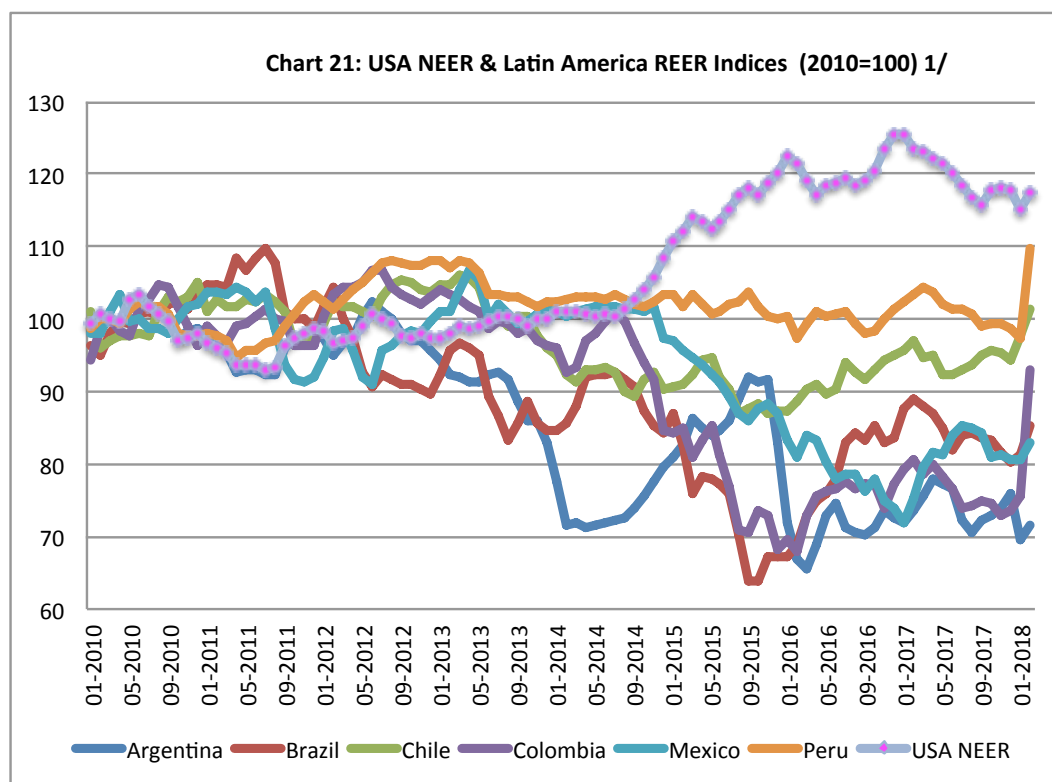
First, there is less to the unemployment rate estimate than meets the eye and thus a wide-ranging analysis of labor market indicators is warranted at all times. While historically there has been a broad degree of synchronization between the unemployment rate and macroeconomic expectations on employment and economic activity prospects, the information content of the unemployment rate is limited, if taken by itself. Indeed, the unemployment rate would rise by less or not change at all during recessions to the extent that those underemployed workers are counted as “employed” when computing the official unemployment rate estimates. However, it may well be that those individuals who are able to avoid unemployment by settling into underemployment-type jobs are significantly less productive and work less hours than in a full-time regular job. As a result, cyclical changes in resource utilization could be reflected less in changes in the unemployment rate and more in variations in worked-hours per worker. This has implications for how policymakers should assess the amount of excess capacity in the economy and the spectrum of labor indicators to take into account into the analysis.^{xii}

Second, the policy implications of the labor force reallocation in a context of austere growth of ULCs are not insignificant (Chart 20). As noted above, the labor market in the commerce and services sectors appears to be highly competitive, with nominal wage increases tightly matching productivity increases, without accommodation for underlying inflation. However, a temporary, moderate, amount of (wage) inflation is not necessarily bad for the economy as it triggers consumption and investment and household indebtedness that accelerate economic growth, at least in the near-term. This could be particularly relevant in the current environment, in which total value added in commerce and the services sectors represents a high of 55 percent of GDP, employs about 40 percent of the economic active population, but grows little thus putting a drag on overall economic growth. Tight wage growth for such an import share of the total population puts downward bias on the growth of households' disposable income, consumption, savings and potential GDP growth.

With the problem being amplified by the relative long-run real appreciation of the Peruvian currency in international money markets that hampers the creation of adequate employment (Chart 21). Indeed, most of Peru's Latin American trading partners depreciated their currencies as the American economy rebounded from the 2008/09 global financial crisis and the dollar appreciated in international money markets, starting 2013. By contrast, the stability of the real and nominal effective exchange rate may have served well to a dollarized economy such as Peru, but missed an opportunity to give an (exchange rate) impulse to the local non-mineral export-led sectors, which are generally a source of formal/full-time/adequate employment creation. Most recently, the problem has heightened even further for Peru, as the depreciation of the American dollar under President Donald Trump has triggered a wide-ranging appreciation of most Latin American currencies, including the Peruvian sol. This event multiplies the hurdles to address high underemployment rates and create formal jobs in the economy. In this context, revisiting the optimal policy combination to increase labor productivity in the tertiary sector of the local economy and sustain a strong--and lasting--growth of household disposable income is an open question for the Peruvian policymakers and a subject matter for future research.



Sources: Cruz-Saco et. al. (2018) and INEI.



Source: BIS

1/ An increase in the index is an appreciation. NEER is the nominal effective exchange rate index. REER is the real effective exchange rate index.

ⁱ An earlier version of this paper was presented at the 2018 Latin American Studies Association (LASA) conference in Barcelona in May 2018. The authors thanked Maria Amparo Cruz-Saco, Armando Morales, Bruno Seminario, Pedro Tuesta and other friends for the very useful comments on how to improve the note's analysis and policy prescription. All remaining errors are the authors'.

ⁱⁱ On this, see for example, Lael Brainard (2017a, 2017b, 2017c, 2016) and the literature referred by FED Governor Brainard. Other lead contributors to the analysis of productivity growth and long-term patterns of economic growth of the American economy include, notably, Summers (2018) and the literature surrounding the concept of “secular stagnation,” and Gordon (2016) on his analysis of long-term trends with productivity growth in the US. The International Monetary Fund and the World Bank have also conducted extensive research on the topic of employment trends and growth in developing and emerging market economies. A reference for Peru on the gig economy is Barrantes (2018).

ⁱⁱⁱ A notable exception is Cruz-Saco (et. al; 2018).

^{iv} For statistical purposes, those underemployed are also counted as “employed” when computing the official unemployment rate produced by INEI.

^v Most interesting, during the mineral extraction boom under President Odría (in the 1950s; documented in Gilbert (2017) and Pastor (2014), for example) unemployment rates across departments were likely not very volatile either, but that happened in a context of very limited reallocation of people across sectors than in recent years (see Chart 5). This low dispersion in sectorial employment growth could be possibly attributed to Peru's enclave-type natural resources economy and/or the relative high price of labor, as documented by Kuramoto y Glave (2014) and Contreras (2009), respectively.

^{vi} See Arellano and Burgos (2010) for a pioneering analysis of migrant flows into Lima Metropolitana and their impact on the local economy.

^{vii} Referred as “*Ingreso promedio mensual*” in the INEI's Statistical Compendium.

^{viii} Since 2001, the economy's average wage level has been around 1.8 times the monthly minimum wage. In 2016, the minimum wage was 850 soles per month.

^{ix} Readily available information indicates that, as of 2008-2013, average wages for ground crew mining workers in the mines were about three times the economy's average wage level.

^x ULCs are defined as the ratio of average wages to labor productivity.

^{xi} Chart 17 plots labor force participation under two definitions: (i) the share of working-age population either with a job or looking for a job, and (ii) the share of working-age population with a job (i.e., INEI's definition of *tasa de participación neta*).

^{xii} Other indicators, such as, for example, labor participation rates by gender and the turnover rate for those changing jobs (voluntary or involuntarily), could complement the labor market assessment. As noted by Bridgman, Duernecker, and Herrendorf (2018), issues of labor market participation are closely linked to the “marketization” of the hours worked. This means that, as GDP per capita increases, average total hours worked and average household hours per working-age population decrease while average market hours increase. The decrease in household hours is mostly due to changes in housework (cleaning, cooking etc.) and marketization is mostly due to changes in women's hours.

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