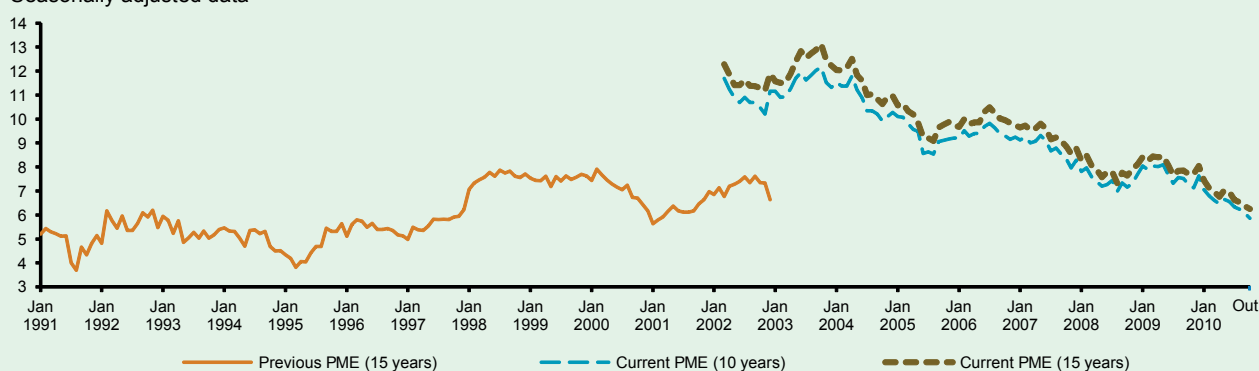


Open Unemployment in Brazil: contributions of supply and demand for labor

The open unemployment rate (OUR)¹ has trended downward since mid-2004 in response to the cycle of economic expansion experienced by the Brazilian economy since late 2003. This process cooled in the period following the aggravation of the international financial crisis (seen in Figure 1), which shows the OUR trajectory as from January 1991, considering the seasonally adjusted series of former and current and current adjusted population² methodologies.

The series showed a growth tendency in the OUR, particularly in the 90's, and a reversal of this process in the current decade. As expected, there is a good adhesion between the development of OURs calculated using the current methodology and actual adjusted population.

Figure 1 – Open unemployment rate
Seasonally adjusted data



1/ The indicator is released by the Monthly Employment Survey of the Brazilian Institute of Geography and Statistics (PME/IBGE), covering the formal and informal sectors of the metropolitan areas of Recife, Salvador, Belo Horizonte, Rio de Janeiro, Sao Paulo and Porto Alegre.

2/ The methodology for calculating the unemployment rate was changed from the beginning of 2002, and the series using the old methodology is available until early 2003. Considering that one of the amendments to the current methodology consisted of the incorporation of individuals from 10 to 14 years of age in the population target of research, an alternative series has been created – called the current population-adjusted methodology – which counts in the calculation, from the current methodology, of only the population of persons aged equal to or more than 15 years, pursuant the former methodology.

The behavior of the OUR can be better understood as of the segmentation of the impacts of the contributions of changes in the demand for labor corresponding to the level of employment, and of the labor supply corresponding to the workforce. The exercise uses the current series and breaks down the change in the OUR from two components: (i) the labor supply effect, understood as the impact on the OUR for the change in the Overall Labor Force (PEA), keeping the employed population (EP) constant; (ii) the demand for labor effect, defined as the contribution to the OUR variation resulting from changes in EP, with the EAP unchanged.

Considering,

$$u_t = \frac{PEA_t - EP_t}{PEA_t};$$

$$o_t = \frac{EP_t}{PEA_t};$$

$$s_t = \frac{PEA_t}{PEA_{t-1}};$$

$$d_t = \frac{EP_t}{EP_{t-1}};$$

Where:

u = open unemployment rate;

o = occupation rate;

s = growth rate of PEA; and

d = growth rate of EP.

The breakdown of the OUR can be expressed through:

$$\Delta u_t = \Delta s_t - \Delta d_t + r_t$$

$$\Delta u_t = o_{t-1} \underbrace{\left(\frac{s_t - 1}{s_t} \right)}_{\text{labor supply variation}} - o_{t-1} \underbrace{(d_t - 1)}_{\text{demand for labor variation}} + o_{t-1} \underbrace{\left(\frac{s_t d_t - s_t - d_t + 1}{s_t} \right)}_{\text{residual variation}}$$

Table 1 – Breakdown of annualized variations of the Open Unemployment Rate

Outlook	Period	Δu	Δs	Δd	r	p.p.
Downward trend	Nov/2003-Aug/2005	-1.97	0.86	2.89	0.06	
Bullish labor market	Sep/2005-Jul/2006	1.41	3.10	1.68	-0.01	
Downward trend	Aug/2006-Aug/2008	-1.36	1.47	2.86	0.04	
International crisis	Sep/2008-May/2009	1.49	1.54	0.05	0.01	
Downward trend	Jun/2009-Oct/2010	-1.58	1.62	3.26	0.06	

Table 1 shows the annual variations of the OUR in percentage points for five periods. In the first, from November 2003 to August 2005, the average annualized contraction of the OUR reached 1.97 percentage points, with an emphasis on the impact of 2.89 percentage points inherent to the expansion of a demand for labor.

The second period considered, from September 2005 to July 2006, is characterized by a reversal of the downward movement of the OUR, a change fundamentally associated to a significant annualized increase of 3.1 p.p. recorded in the labor supply. This largely reflected the stimulation of the rising income of labor, as discussed in the Box titled Recent Developments in Employment and Unemployment: Metropolitan Areas and Interior released in the September 2006 Inflation Report. Similarly, when the effects of the international financial crisis was most intense from September 2008 to May 2009, the OUR posted an average annualized increase of 1.5 percentage points, highlighting the weak growth of 0.05 p.p. in labor demand.

The third period, from August 2006 to August 2008, and the fifth period, from June 2009 to October 2010, characterized by the retraction of the OUR, registered in both average rates a major expansion in the demand and supply of labor, with a predominance of the former.

In general terms, the labor supply, to the extent that it reflects the expansion of the EAP, has grown in all analyzed periods and has thereby contributed to growth in the OUR, highlighting the more intense impact during “labor exuberance” due to the stimulus provided by rising wage gains in that period (impetus effect). In turn, the contributions of labor demand for a reduction of OUR were recurring, except for the “international crisis” period.

It bears emphasizing that the continuity of the current process of economic growth tends to increase the demand for labor, with likely developments on the levels of OUR. In contrast, the possible existence of hidden unemployment tends to favor an increase in labor supply, a process that would be stimulated by investments in human capital and the incentives represented by increases in earnings and formalization.