Annex to "Connecting labour values and relative prices". New explanatory graphic

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Rate of profit in prices	(1) Sum of prices measured in wage units	(2) Sum of prices where the unit wage in prices is made equal to the current wage in value [(1)*(5)]	(3) Total value	(4) Total paid value at the current wage in value [(3)*(5)]	**Total** profits in prices	**Total** plus value	(5) Wage in value units - Hours of work/hour -
0,000	*5,56*	5,56	5,56	5,56	0,00	0,00	1
0,010	5,66	5,28	5,56	5,19	0,10	0,37	0,9335
0,020	5,76	5,38	5,56	5,19	0,20	0,37	0,9335
0,030	5,86	5,47	5,56	5,19	0,30	0,37	0,9335
0,036	**5,9320**	**5,54**	**5,56**	**5,19**	**0,37**	**0,37**	0,9335
0,040	5,97	5,57	5,56	5,19	0,41	0,37	0,9335
0,043	6,00	5,60	5,56	5,19	0,44	0,37	0,9335
0,050	6,08	5,67	5,56	5,19	0,52	0,37	0,9335
0,060	6,18	5,77	5,56	5,19	0,62	0,37	0,9335
0,067	6,26	5,84	5,56	5,19	0,70	0,37	0,9335
0,070	6,29	5,87	5,56	5,19	0,73	0,37	0,9335

Determining the rate of profit in prices that equals total plus value and total profit
(at a given wage in labour value units - hours of work/hour -)

Comments

When the wage is 0,9335 hours/hour the total plus value is 0,37 and corresponds to the diference of (3) and (4)

The sum of total value (3) and total plus value equals the sum of one set of relative prices - measured in wage units - (1)

The rate of profit in prices at which this holds, can be calculated without reference to prices data

The rate of profit in prices at which this holds in the example is 0,036

(The magnitude of total profits that equals total plus value is attained at a rate of profit of 0,036)

When normalizing the relative prices (1) by making wage in prices equal to wage in value (0,9335)

(multiplying by 0,9335) we obtain: (2); and then total prices may intersect total value but, not necessarily,

at the same rate that equals profits and plus value

When the wage in value is 1, the rate of profit in prices is zero, and profits and plus value are also zero.

The total relative prices and total values are equal (5,56)

1.- $$P'_{w}=(1+r)\,\mathrm{L'}(I-A(1+r))^{-1}$$

2.- $$P'_{\Lambda_{w}}=(1+r)\,\Lambda'\,\mathrm{BL'}(I-A(1+r))^{-1}$$

3.- $$\Lambda'=L'(I-A)^{-1}$$

4.- $$\Lambda'B\,\Lambda'$$

$$\Lambda'B=0{,}9335$$

$$P'_{\Lambda_w} = (1+r)\,\Lambda'\,\mathrm{BL'}\,(I - A(1+r))^{-1}$$

$$P'_{\Lambda_w} = (1+r)\,\Lambda'\,\mathrm{BL'}\,(I - A$$

$(1+r))^{-1} Line (2)$

Prices when the wage is measured in value units

$$P'_{W\Lambda}=(1+r)\Lambda'BL'\left((1+r)A+(1+r)^2A^2+\ldots+(1+r)^kA^k+\ldots\right)$$

$$P'_{\Lambda_w}=(1+r)\Lambda'BL'(I-A(1+r))^{-1} \qquad\qquad \Lambda'=L'(I-A)^{-1}$$

Situation before new tehcnique

(1+r)L	0,97	0,10	1,95	L, Labour force	1,00	0,10	2,00
Inverse of (I-A(1+r))	1,58	0,45	0,35	Inverse of (I-A)	1,53	0,41	0,32
$\Lambda'B\,\Lambda'$	0,18	1,17	0,04		0,17	1,16	0,04
	0,21	0,31	1,10		0,20	0,29	1,09
				$\Lambda'0$			
Prices before new technique	*1,97*	*1,15*	*2,49*	*Values before new technique*	*1,95*	*1,10*	*2,51*
Prices divided by values	**1,01**	**1,04**	**0,9892**				

Situation after new technique $\Lambda'B$

(1+r)L	0,96	0,09	1,92	L, Labour force	1,00	0,09	2,00
Inverse of (I-A(1+r))	1,58	0,35	0,36	Inverse of (I-A)	1,52	0,31	0,32
	0,19	1,16	0,04		0,17	1,15	0,04
	0,21	0,24	1,10	$\Lambda'1$	0,19	0,21	1,09
Prices after new technique	*1,94*	*0,89*	*2,47*	*Values after new technique*	*1,91*	*0,84*	*2,51*
Prices divided by values	**1,02**	**1,06**	**0,9856**				

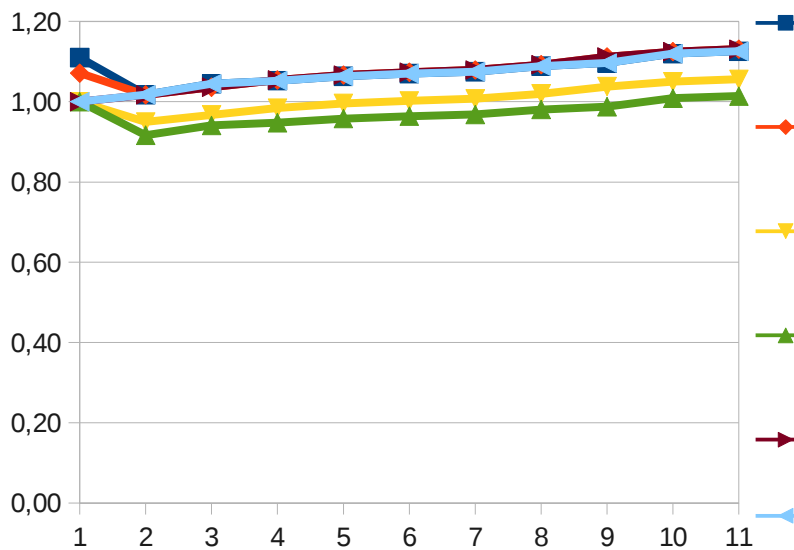|					
B, wage goods $\Lambda'_0 B$			0,10	0,10	0,25
$\Lambda'_1 B$					
Wage goods measured in values before new technique	0,19	0,11	0,63		*0,9335*
Wage goods measured in values after new technique	0,19	0,08	0,63		*0,9008*

0,07   2,89

Rate of profit in prices	(1) Sum of prices measured in wage units	(2) Sum of prices where the unit wage in prices is made equal to wage in value=0,9335	(1 bis) Sum of prices measured in wage units after tech. Change	(2 bis) Sum of prices where the unit wage in prices is made equal to wage in value=0,9335 after tech. Change	(3) Total value
1,000	**5,56**	**5,56**	**5,25**	**5,25**	**5,56**
1,010	5,66	5,28176167	5,34	4,81	**5,56**
1,020	5,76	5,381283972	5,48	4,94	**5,56**
1,030	5,86	5,474136417	5,52	4,98	**5,56**
1,036	5,9320	5,537552245	5,58	5,03	**5,56**
1,04	5,97	5,574660364	5,62	5,06	**5,56**
1,043	**6,00**	**5,603398442**	**5,64**	**5,08**	**5,56**
1,050	6,08	5,671096515	5,71	5,15	**5,56**
1,060	6,18	5,773197144	5,75	5,18	**5,56**
1,067	**6,26**	**5,840904552**	**5,88**	**5,29**	**5,56**
1,070	6,29	5,873308485	5,91	5,32	**5,56**

(4) Total paid value at a wage=0,9335	(3bis) Total value after tech. Change	(4 bis) Total paid value at a wage=0,9008 after tech change	Preus amb salari norm abans del canvi/valor pagat abans del canvi	Preus amb salari norm despres del canvi/valor pagat despres del canvi	Preus amb salari norm abans canvi/valor abans del canvi	Preus amb salari norm despres canvi/valor despres del canvi
5,19	*5,25*	4,73	1,07	1,11	1,00	1,00
5,19	*5,25*	4,73	1,017	1,018	0,95	0,92
5,19	*5,25*	4,73	1,036	1,045	0,97	0,94
5,19	*5,25*	4,73	1,054	1,052	0,98	0,95
5,19	*5,25*	4,73	1,066	1,064	1,00	0,96
5,19	*5,25*	4,73	1,074	1,070	1,00	0,96
5,19	**5,25**	**4,73**	**1,079**	**1,075**	**1,007**	**0,97**
5,19	5,25	4,73	1,092	1,089	1,02	0,98
5,19	5,25	4,73	1,112	1,096	1,04	0,99
5,19	**5,25**	**4,73**	**1,125**	**1,120**	**1,05**	**1,009**
5,19	*5,25*	4,73	1,131	1,126	1,06	1,01

Preus en salari abans del canvi/valor	Preus en salari despres del canvi/valor	Preus en salari/valor pagat abans	Preus en salari/valor apgat despres
1,000	1,000	1,01	1,110124334
1,017	1,018	1,03	1,129579962
1,036	1,045	1,06	1,159691388
1,054	1,052	1,06	1,16830642
1,066	1,064	1,07	1,180689473
1,074	1,070	1,08	1,187907881
1,079	**1,075**	**1,09**	1,193119446
1,092	1,089	1,10	1,208596591
1,112	1,096	1,11	1,217156793
1,125	**1,120**	1,13	**1,243058832**
1,131	1,126	1,14	1,249763385

— Preus amb salari norm despres del canvi/valor pagat despres del canvi

— Preus amb salari norm abans del canvi/valor pagat abans del canvi

— Preus amb salari norm abans canvi/valor abans del canvi

— Preus amb salari norm despres canvi/valor despres del canvi

— Preus en salari abans del canvi/valor

— Preus en salari despres del canvi/valor