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THE RELATIONSHIP BETWEEN GROWTH AND EMPLOYMENT INTENSITY: EVIDENCE FOR DEVELOPING COUNTRIES

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ABSTRACT

The main objective of this paper is to contribute to the literature on employment-GDP elasticities by assessing the determinants of cross-country variations in employment elasticities, focusing particularly on the role of demographic and macroeconomic variables. Long-term employment–GDP elasticities are estimated using an unbalanced panel of 90 developing countries from 1991 to 2011 using a two steps estimation strategy. The most important results are: (i) Elasticity estimates vary considerably across countries. (ii) Employment elasticities tend to be higher in more advanced and closed countries. (iii) Macroeconomic policies aimed at reducing macroeconomic (price) volatility are found to have significant effect in increasing employment elasticities. (vi) Employment intensity of growth tends to be higher in countries with a larger service sector. (v) Countries with a higher share of urban population are typically characterized by larger employment elasticities.

Keywords: Growth employment elasticities, Developing countries, Macroeconomic determinants, Demographic determinants, Cross country variations, Two steps estimations strategy, OLS regressions.

JEL Classification: E24, E29, J60.

Contribution/ Originality

This study is one of very few studies which have investigated the macroeconomic determinants of employment-output elasticities in developing countries. This paper seeks to address these gaps in the literature by taking advantage of an extensive cross-country panel dataset and by using an original two steps estimation strategy.

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1. INTRODUCTION

Persistently high unemployment has become a fact in many countries since the early 1980s.

According to ILO estimates[1] the number of unemployed has increased by 27 million units over the period 2007-2010 and employment rates have fallen from 61,2 to 60 percent at the global level.

The disparities in unemployment performance across countries are generally attributed to differences in employment growth paths. While many emerging market countries have generally weathered the crisis well, unemployment has increased substantially in advanced countries.

The most basic definition of employment intensity growth is by how much does employment change when output changes. This indicator can provide important information about the dynamics of economic growth and employment growth and differences in employment generation between population subsets.

While many previous empirical studies have analyzed the relationship between unemployment and growth and the determinant of unemployment, few studies have estimated employment-output elasticities and even fewer their determinants. Moreover most of these studies of employment intensity have been limited to single or region specific case; for example Moosa (1997) and Padalino and Vivarelli (1997) for G-7 countries, and Kaufman (1988) for industrial countries, Perman and Tavera (2005) and Döpke (2001). Among these studies, only a few have tried to explain the determinant of employment-output elasticities.

This paper seeks to address these gaps in the literature taking advantage of an extensive cross-country panel dataset. We try to provide a new set of employment-output elasticities for an unbalanced panel of 90 developing countries over the period 1991-2011, and by identifying the broad macroeconomic and structural factors that might influence these elasticities.

2. THEORETICAL BACKGROUND

While there has been little analysis of the relation between the employment rate and output growth, there is a long tradition of examining the relation between the unemployment rate and output growth. This is usually called “Okun Law”. In his seminal paper, Okun (1970) associates deviations of output from its trend growth path with fluctuations in the opposite direction of the unemployment rate around its equilibrium value. He found a relatively stable empirical relationship. Each percentage point above full employment is associated with a fall of about three percent real GNP. This approach was considered as implicitly “supply side” oriented Prachowny (1993), implying that the deviation of the unemployment from its natural level being assumed to induce a certain deviation of output from it is long-run equilibrium.

The status of empirical regularity attached to Okun Law to some extent masked the importance of its theoretical foundations. This stimulated interesting attempts at recovering it is theoretical bases. Many studies (Courtney (1991) and Palley (1993)) introduced the idea of the possible asymmetry of the relationship (output expansion and contraction are accompanied by a different

[1] ILO’s Global Employment Trends

change in unemployment), which implies that Okun's coefficient might be different across the business cycle. The arguments invoked factor substitution (hours, labor force participation and capital) during cycles, multifactor productivity, participation rates, and changes in the relatives' strength of sectoral growth rates (Silverstone and Harris (2001)).

Other authors criticized the simplest versions of the relationships for neglecting the role of prices (Flaig and Rottmann (2000)), institutional factors Revenga and Bentolila (1995), or exchange rate volatility (Stirböck and Buscher (2000)).

Although researchers have deeply analyzed the impact of real shocks on overall unemployment and the determinants of unemployment (Blanchard and Wolfers (2000), Nickell *et al.* (2005), Bernal-Verdugo *et al.* (2012)), few studies have estimated employment-output elasticities and even fewer their determinants.

The simplest formulation of employment intensity relies upon the familiar concept of elasticity, which describes the percent reaction of employment to one percent change in output. In the framework of a demand side approach or in context of labor-output relationship in a production function context, the concept of elasticity describes a casual direction. However, the employment intensity (elasticity) of growth can also be simply used as a measure of how employment and output vary together over time. From this point of view, the relationship may be interpreted in terms of correlation, rather than causality Kapsos (2005).

From the empirical point of view, the majority of the papers looking at the relationship between output growth and employment refer to single country studies and are based on the seminal paper by Okun (1970). Only few studies have focused on this relationship on cross-country basis and only for specific regions. For example Moosa (1997) and Padalino and Vivarelli (1997) for G-7 countries, Kaufman (1988) for industrial countries, and Lee (2000) and Erber (1994) for selected OECD countries. More recently, Perman and Tavera (2005) and Döpke (2001) focus on European countries, while Gabrisch and Buscher (2005), and Izyumov and Vahaly (2002) look at the experience of transmission countries.

Kapsos (2005) estimated in the first step arc elasticity and showed that the measure is highly unstable. In the second step he carried out a pooled regression of log employment on log GDP with country dummy and interaction (country dummies * GDP) variables, in order to estimate point elasticities for the single countries. As already mentioned, joint consideration of the sector elasticity and of the relationship between sector employment and total GDP is interesting, since it shows patterns of structural change and provides insights into the relationship between productivity growth and employment growth in various economic sectors. Lastly, Kapsos used the estimated coefficients to analyze possible determinants of elasticity levels using variables explaining the development in demographics, the economic structure, macroeconomic volatility, trade openness, health, tax policy, and labor regulation. The results suggest that employment elasticities are positively related with the share of services in the economy, and negatively related with inflation and taxes on labor. In contrast, no statistical significant relation is found between employment

elasticities and (i) employment protection regulations, and (ii) measures of globalization and export orientation.

Döpke (2001), after having estimated various versions of Okun's law, analyses the long-run relationship between (log) employment and (log) GDP for single countries, a using time-series approach. After having verified that both variables are integrated of order one and having tested for co-integration, the relationship is firstly estimated by adding a trend variable to the simple regression, in order to capture the exogenous influence of technical change. Then an error correction equation is estimated, which combines short-term effects on employment with long-run impacts derived from the co-integration equation (DOLS). He investigates the determinants of employment elasticities. He finds that lower real labor costs, greater labor market flexibility, and less exchange rate volatility have significant impact on employment elasticities.

Mourre (2004) in order to estimate employment equations (in terms of units, full-time equivalents, hours worked) derived from a CES production function, under the assumption of profit maximizing behavior by firms. He also tested if employment determinants in the euro area as a whole (but considering country differences) in the period 1997-2001 differed from those in the period 1970-early 1990s. In order to test the overall stability of the equation, he used recursive estimates of the coefficients. In order to take into account heterogeneity across countries, a panel fixed-effects regression model for the employment equation was also tested for 21 countries. A break in the employment equation was modeled by introducing a dummy variable for the period 1997-2001. Lastly, Mourre (2004) also tried to explain the change in employment patterns by changes in the sectoral composition of the euro area employment, developments in labor market institutions, and the impact of active labor market policies. He confirms the last results of lower real labor costs increasing employment elasticities in Euro area. He also finds that job intensity of growth has been highest in the service sector, and suggests that labor market reforms (including relaxation of job protection legislation) and structural changes might have played a role in employment performance in the euro area during 1990s, though the effects are mixed and the overall results are not statistically significant.

Padalino and Vivarelli (1997) stressed how the concern about employment intensity of economic growth has increased because "current forms of technological change have weakened or even eliminated the positive correlation between growth and employment which so marked the Fordist Golden Age" (p. 191). Empirically, the authors computed overall and manufacturing employment elasticities over the whole period (1960-1994) and for two sub-periods chosen as consistent with theoretical premises (1960-1973 and 1980-94 for the Fordist and post-Fordist periods, respectively). They used the elasticity formula to represent the long-term relationship and the correlation of employment and GDP annual growth rates for the short-run. They also ran time-series regressions of employment growth rates and GDP growth over the whole period, testing for the existence of structural breaks.

Boltho and Glyn (1995) used similar approaches for the time-span 1970-1993, but distinguished sub-periods of recessions and expansions. The evolution in employment elasticity (in

manufacturing) for various developing countries over the period 1971-1998 was also studied by Kahn (2001), who used dummy variables interacted with (log) manufacturing value added. These data were used by Islam (2004) to analyze employment intensity of growth in a policy-making framework targeted at poverty reduction.

3. GROWTH EMPLOYMENT ELASTICITY MEASUREMENT

The empirical literature presents two main approaches. The first one consists on dividing the percentage change in employment (L) by the corresponding percentage change in Gross Domestic Product (Y) during a given period.

This approach is very simple and Islam and Nazara (2000) and Islam (2004) suggested that employment elasticity estimations tend to be instable.

The alternative approach provides point-elasticity using a multivariate log-linear regression.

$$LogL_i = \alpha + \beta_1 \log Y_i + \beta_2 (\log Y_i \times D_i) + \beta_3 D_i + \varepsilon_i \qquad (1)$$

Using this econometric method $\beta_1 + \beta_2$ represents the change in employment associated with a differential change in output. Accordingly every 1% of GDP growth is associated with a $\beta_1 + \beta_2$ % increase in employment.

The elasticity generated from the methodology described above reveals the response of employment in quantity to GDP growth. However, Islam (2004) argues that both the growth of employment and rising productivity contribute to growth. Therefore, we need to be cautious in interpreting the relationship between employment elasticities, employment growth and productivity.

Kapsos (2005) provides an arithmetic identity to identify the relationship between employment elasticities and labor productivity. This identity is given by:

$$Y_t = E_t \times P_t \qquad (2)$$

The above equation implies that for small change in output, the following holds:

$$\Delta Y_t = \Delta E_t + \Delta P_t \qquad (3)$$

$$1 = \frac{\Delta E}{\Delta Y} + \frac{\Delta P}{\Delta Y} \qquad (4)$$

Therefore: $\varepsilon = 1 - \frac{\Delta P}{\Delta Y}$ where $\varepsilon = \frac{\Delta L}{\Delta Y}$ (5)

Using equation (5) with different GDP growth scenarios clarifies the relationship between employment elasticities ε and actual employment growth and productivity growth.

In an economy with a positive GDP growth, negative employment elasticity means that the economy is experiencing negative employment growth and positive productivity growth. On the other hand, in an economy with a negative GDP growth, negative employment elasticity corresponds with positive employment growth and negative productivity growth. The inverse is

true for an economy with a positive and a negative GDP growth, respectively, when employment elasticity is greater than one. However, if the employment elasticity lies between zero and one, an economy with positive GDP growth will experience positive employment and productivity growth. This is an ideal position for any economy with an increase in employment together with productivity gains. It is important to note that both employment elasticity growth and productivity growth are necessary in any economy in order to reduce poverty. The reason for this is that, while employment elasticity growth gives the quantitative part of employment growth, the latter is the qualitative characteristic of employment growth and therefore one aspect should not be stressed more than the other

4. EMPIRICAL STRATEGY

Long-term employment–GDP elasticities are estimated using an unbalanced panel of 90 developing countries from 1991 to 2011 using a two steps estimation strategy.

This approach consists of estimating elasticities using time-series regressions. In particular, we estimate the following equation for each country *i*:

$$\ln(e_t) = \alpha + \beta \ln(e_{t-1}) + \gamma \ln(y_t) + \omega_t \qquad (6)$$

e_t the level of employment at time t, y_t is the level of GDP at time *t*. This approach provides country-specific employment estimates.

Once long-term elasticities are estimated, we seek to explain cross-country variations by estimating the following cross sectional panel determinants of employment growth elasticities estimates. We could estimate the long-term employment-GDP elasticities $\hat{\gamma}_i$ for each country *i.*

$$\hat{\gamma}_i = \alpha_i + \delta_1 M_i + \delta_2 D_i + \varepsilon_i \qquad (7)$$

Where M denotes macroeconomic variables, S denotes structural variables; δ_1, δ_2 are our coefficients of interests and ε_i are well-behaved residuals. All the repressors have been averaged over the sample time period.

The main objective of this empirical exercise is to pinpoint some of the broad macroeconomic and structural factors that might influence individual economies' employment intensity of growth.

The variables fall into two broad categories: macroeconomic variables and Demographic variables:

Table-1. List of Employment Elasticity Determinants

Category	Variables
Macroeconomic variables	Real GDP Openness (log of GDP's share of total export and imports) Export performance (log of GDP's share of total export) CPI based inflation rate FDI inflows (% of GDP) Credit to private sector Services' value added (% GDP) Gross Capital Formation (% of GDP)
	Continue

Demographic variables	Working age population growth Population density The share of urban population Total labor force

Macroeconomic Variables (M)

Real GDP is examined to test whether employment elasticities vary with the level of economic development. Openness, export performance and FDI are included to test the role of trade and financial openness in affecting employment elasticities (Bruno, 2001). Inflation may affect employment elasticities as uncertainty of prices may have a significant impact on growth and employment Ramey and Ramey (1995), Judson and Orphanides (1999), Furceri (2010). The impact if exchange rate on employment intensity of growth is transmitted through many channels (Ghazali and Mouelhi (2014)):

(i) The macroeconomic channel that affects competitively and hence, output and jobs.

(ii) The labor intensity channel, which influences the cost of labor relative to capital.

(iii) The development channel that controls longer-term effects of exchange rate on employment via the economic competitiveness and the potential profitability of business.

The share of value added in Services is included to test the economic structure on employment elasticity (Padalino and Vivarelli (1997), Mourre (2004)). Credit to private sector and gross capital formation measure the impact of financial development and private investment on employment elasticities.

Demographic Variables (D)

Demographic variables are included to test the effects of agglomeration factors (population density, the share of urban population) and labor market supply (working age population growth, total labor force) on employment elasticities.

5. EMPLOYMENT ELASTICITIES ESTIMATIONS

Long-term elasticities have been estimated according to the method proposed in equation (6). We use the Ordinary Least Square (OLS) regression method. The results from using the econometric model are presented in table (2).

Before we precede the explanation of results, a stationary test had been done to avoid the problem of spurious regression. We use Augmented Dickey Fuller (ADF) test. The test shows that log employment and log GDP are stationary at 5% significance levels for all countries.

Moreover, cointegration test is also used to test the stationary of residuals. From the cointegration test, it shows that the variables in equation (6) are cointegrated at 5% for all countries.

Regarding elasticities estimates we found disparities between countries. The highest estimates found for Comoros (1.667), Gabon (1.334), Cote d'Ivoire (1.263), Niger (1.149), Algeria (1.158),

Madagascar (1.127) and Togo (1.123). In contrast, employment elasticities have been modest in other countries: Bosnia (0.05), Ukraine (0.09), and China (0.10). And even negative estimates are found for Serbia (-0.101), Belorussia (-0.112) and Romania (-0.238).

Table-2. Estimated Employment Elasticities

Countries	Coefficient	Std. Error	t-Statistic	Prob
Albania	0.523993	0.11468	3.569257	0.0000
Algeria	1.158825	0.33135	3.497266	0.0000
Argentine	0.404111	0.14955	2.702157	0.0164
Azerbaijan	0.185043	0.03344	5.532922	0.0000
Bangladesh	0.389707	0.08735	4.461257	0.0000
Belarus	-0.112310	0.02409	-4.661976	0.0002
Belize	0.829515	0.03478	2.384442	0.0000
Benin	0.786184	0.17121	4.591813	0.0000
Bolivia	0.785207	0.14152	5.548471	0.0000
Bosnia	0.053905	0.01632	3.301378	0.0045
Botswana	0.664214	0.02716	2.445201	0.0000
Brazil	0.688300	0.03485	2.074902	0.0000
Burkina Faso	0.525471	0.08649	6.075591	0.0000
Burundi	0.888366	0.280678	3.165070	0.0049
Cabo Verde	0.358167	0.08788	4.075753	0.0000
Cambodia	0.461114	0.11388	4.049120	0.0000
Cameroon	0.967817	0.057811	5.074106	0.0000
Chad	0.449321	0.031046	14.47298	0.0000
Chile	0.469218	0.034815	13.47750	0.0000
China	0.103241	0.014951	2.085226	0.0000
Colombia	0.983385	0.080271	12.25088	0.0000
Comoros	1.667930	0.081201	2.054071	0.0000
Costa Rica	0.668448	0.019775	3.380251	0.0000
Cote d'Ivoire	1.263468	0.115023	10.98450	0.0000
Dominique	0.459199	0.019331	4.921313	0.0000
Ecuador	0.943520	0.067816	3.913000	0.0000
Egypt	0.542573	0.015301	5.461100	0.0000
El Salvador	0.452888	0.033419	13.55170	0.0000
Equatorial Guinea	0.157503	0.008866	7.765610	0.0000
Ethiopia	0.557543	0.032312	7.255023	0.0000
Fiji	0.494791	0.033318	14.85036	0.0000
Gabon	1.334651	0.140889	9.473095	0.0000
Gambia	0.900106	0.024960	3.606187	0.0000
Ghana	0.557625	0.019723	2.827306	0.0000
Guatemala	0.836426	0.026668	3.136436	0.0000
Guinea	0.776539	0.031461	2.468233	0.0000
Guinea-Bissau	0.903751	0.328889	2.747891	0.0124
Honduras	0.771192	0.038933	19.80804	0.0000
India	0.269610	0.016117	16.72841	0.0000
Indonesia	0.432681	0.024104	17.95056	0.0000
Iran	0.803873	0.057790	13.91033	0.0000
Jordan	0.664504	0.032310	2.056631	0.0000
Kazakhstan	0.244009	0.013839	7.613146	0.0000
Kenya	0.841125	0.035096	23.96618	0.0000
				Continue

Kyrgyz Republic	0.330533	0.095821	3.449468	0.0025
Lao PDR	0.377407	0.012966	2.721629	0.0000
Lebanon	0.797260	0.061693	12.92303	0.0000
Lesotho	0.427364	0.055708	7.671446	0.0000
Liberia	0.320119	0.041984	7.624801	0.0000
Macedonia	0.467993	0.050165	9.329079	0.0000
Madagascar	1.127447	0.065409	17.23688	0.0000
Malawi	0.831779	0.053251	15.61987	0.0000
Mauritius	0.315696	0.008962	35.22426	0.0000
Mexico	0.799170	0.031012	25.76977	0.0000
Mongolia	0.488540	0.038965	12.53776	0.0000
Morocco	0.493329	0.035234	14.00160	0.0000
Namibia	0.611996	0.051161	11.96213	0.0000
Nepal	0.517972	0.011029	46.96416	0.0000
Nicaragua	0.777577	0.025960	29.95292	0.0000
Niger	1.149040	0.063405	18.12225	0.0000
Nigeria	0.384285	0.028050	13.69991	0.0000
Pakistan	0.838173	0.015567	53.84301	0.0000
Panama	0.639323	0.025433	25.13770	0.0000
Paraguay	0.947960	0.076490	12.39325	0.0000
Peru	0.647861	0.033915	19.10227	0.0000
Philippines	0.600911	0.022014	27.29706	0.0000
Romania	-0.238961	0.063973	-3.735342	0.0013
Rwanda	0.487149	0.051104	9.532571	0.0000
Senegal	0.787067	0.022434	35.08348	0.0000
Serbia	-0.101849	0.037056	-2.748546	0.0124
Sierra Leone	0.675001	0.080190	8.417489	0.0000
Solomon Islands	0.780837	0.190345	4.102219	0.0006
South Africa	0.605119	0.073655	8.215592	0.0000
Sri Lanka	0.338205	0.026572	12.72785	0.0000
Sudan	0.548070	0.015805	34.67601	0.0000
Suriname	0.549215	0.042545	12.90908	0.0000
Syrian Arab Republic	0.579260	0.017316	33.45231	0.0000
Tajikistan	0.208154	0.094594	2.200489	0.0397
Tanzania	0.542299	0.023035	23.54202	0.0000
Thailand	0.317813	0.026386	12.04485	0.0000
Togo	1.123327	0.103264	10.87816	0.0000
Tunisia	0.483470	0.010746	44.99225	0.0000
Turkey	0.278852	0.035106	7.943055	0.0000
Uganda	0.416854	0.005414	76.99373	0.0000
Ukraine	0.094474	0.030963	3.051196	0.0063
Uruguay	0.364039	0.027761	13.11332	0.0000
Vietnam	0.331439	0.004422	74.95613	0.0000
Yemen	0.926353	0.022919	40.41804	0.0000
Zambia	0.686112	0.079286	8.653684	0.0000
Zimbabwe	-0.504519	0.135782	-3.715653	0.0014

6. DETERMINANTS OF EMPLOYMENT INTENSITY OF GROWTH

This section takes advantage of employment-growth elasticities estimates performed previously in order to investigate the macroeconomic determinants that might influence

employment intensity of growth. In particular, the analysis presented in this section focuses on the role of macroeconomic and demographic variables in affecting employment-elasticity growth.

Table (3) presents the econometric results of estimating equation (7) when macroeconomic variables are included in the specification. The GDP appear to be positively correlated wile openness and FDI appear to be negatively correlated. The results suggest that employment elasticities tend to be higher in more advanced and closed countries. The negative impact of openness and FDI can be explained by that fact that openness can allows firms to access to more productive goods and superior technology, which lead to a reduction in the responsiveness of labor demand to economic growth

The coefficient associated to inflation is negatively significant. As expected, inflation decreases the responsiveness of employment to growth by increasing volatility and price uncertainty. In this context, macroeconomic policies aimed at reducing macroeconomic (price) volatility are found to have significant effect in increasing employment elasticities.

Results confirm previous empirical evidence suggesting that employment intensity of growth tends to be higher in countries with a larger service sector (the coefficient of correlation of service's value added is positively significant). Credit to private sector and gross capital formation are negatively associated with employment elasticities. Finally, export performance and exchange rate do not show a statistically significant relationship with employment intensity and consequently do not contribute to explain cross-country variations in employment elasticities.

Table-3. Effect of Macroeconomic Variables on Employment Elasticities

	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)
GDP	0.341 (4.04)***									0.285 (1.84)*
Openness		-0.254 (-2.15)**								-0.627 (-1.78)*
Export performance			0.386 (1.58)							1.050 (1,54)
CPI				-0.118 (-2.26)**						-0.137 (-2.55)**
Exchange rate					0.000 (0.44)					0.0019 (0.53)
FDI						-1.845 (-2.02)**				-0.577 (-0.46)
Service added value							0.227 (2.64)**			0.922 (1.93)*
Credit to private sector								-0.294 (-1.96) *		-0.416 (-2.34)**
Gross Capital Formation									-1.972 (-3.14)***	-1.294 (-1.67)*
N	87	87	87	87	87	87	87	87	87	83
Adjusted R^2	0.53	0.57	0.49	0.47	0.52	0.49	0.54	0.46	0.49	0,64

Table (4) presents the econometric results of estimating equation (7) when demographic variables are included in the specification. The results suggest that countries with a higher share of urban population are typically characterized by larger employment elasticities. In contrast working age population growth is negatively correlated with employment output elasticities.

Table-4. Effect of Demographic Variables on Employment Elasticities

	(I)	(II)	(III)	(IV)
Working age population growth	-2.6682 (-4.65)***			-3.2253 (-4.45)***
Population density		-0.02230 (-0.85)		-0.01280 (0.47)
The share of urban population			0.34196 (2.24)**	0.9991 (2.58)**
N	87	87	87	79
R^2 Adjusted	0,56	0,53	0,49	0,57

7. CONCLUSION

The main objective of this paper is to contribute to the literature on employment-GDP elasticities by assessing the determinants of cross-country variations in employment elasticities, focusing particularly on the role of demographic and macroeconomic variables.

The most important results of this work can be presented as follows:

(i) Elasticity estimates vary considerably across countries. Comparison reveals wide variation in employment elasticities with the highest estimates found for Comoros, Gabon Cote d'Ivoire, Niger, Algeria, Madagascar and Togo. In contrast, employment elasticities have been modest in other countries: Bosnia (0.05), Ukraine (0.09), China (0.10). And even negative estimates are found for Serbia (-0.101), Belorussia (-0.112) and Romania (-0.238).

(ii) Employment elasticities tend to be higher in more advanced and closed countries.

(iii) Macroeconomic policies aimed at reducing macroeconomic (price) volatility are found to have significant effect in increasing employment elasticities.

(iv) Employment intensity of growth tends to be higher in countries with a larger service sector

(v) Countries with a higher share of urban population are typically characterized by larger employment elasticities. In contrast working age population growth is negatively correlated with employment output elasticities.

Much more extensions can be pursued to identify macroeconomic and structural determinants of aggregate employment intensity of growth as well as to distinguish between female and male, skilled and unskilled employment elasticities, labor market inflows and outflows (job creation and job destruction.

Long term elasticities will be also estimated across different regions (East Asia and Pacific, Eastern Europe and Central Asia, Latin America and Caribbean, MENA, Sub-Saharan Africa), and income groups (low income economies, lower-middle-income economies, upper-middle-income economies).

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