# Is "The General Law of Capitalist Accumulation" Still Valid? An Analysis Based on Direct and Indirect Marxian Effects

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# Is "The General Law of Capitalist Accumulation" Still Valid?

## An Analysis Based on Direct and Indirect Marxian Effects

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## Abstract

Marx asserts that capital accumulation has been sample accompanied by the accumulation of industrial reserve army and surplus population. Contemporarily, this expansion has been fed by two tendencies. First, the change in the technical composition of capital makes a part of waged employment redundant. Second, migration-induced-growth of labor force has enlarged the size of industrial reserve army. In this respect, labor force growth itself is a function of accumulation/growth rather than vice versa. We call the first tendency as "direct Marxian effect" while the second one is "indirect Marxian effect". For a list of 60 countries, this study estimates the direct and indirect Marixan elasticity of industrial reserve army and its components to accumulation/growth. The results indicate that "the General Law of Capitalist Accumulation" holds for the majority of countries.

**Key Words**: Industrial reserve army, capital accumulation, labor force, migration, indirect Marxian effect, direct Marxian effect.

Capital accumulation is more than a relation between things; it encapsulates contradictory relation between the owners of capital and labour power. In this respect, the accumulation of capital results in the enlargement of the army of labourers as the bearers of labour power. However, accumulation of labour power in terms of amassing of labourers in the domain of capitalist production also entails an inevitable accumulation of potential labour power in the form of reserve industrial army and surplus population. Accumulation of actual and potential labour power are complementary processes. In this sense, this double movement is more than

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a pure logical or functional determination. It emerges as an economic and social dialectical totality.[1] The emergence and enlargement of "free" labour power stock necessitate the transformation of socio-economic structure which also brings about the increase in the size of industrial reserve labour army and surplus population. The emancipation of the individuals from the ownership of the means of production not only changes the socio-economic identity of the individual, it also changes the conditions in which labour power is socially and economically reproduced.

Marx takes the emergence and expansion of the redundant surplus population as a precondition for the accumulation of capital. However, the accumulation of redundant population, in Marx's view, is the result of increasing labour productivity and increasing technical composition of labour. In other words, Marx, initially portrayed the process as a technical outcome of the accumulation process. In this process, under the threat of capitalist competition and with the increased centralization of capital, each individual capital has tempted to increase its constant part relative to variable part which is accrued to workers as wages. This tendency inevitably spreads to other capitals. In these circumstances, even thought employment has been yet increasing, this takes place albeit at a lower rate (Marx, 1990: 782). Moreover, sometimes, Marx indicates, total volume of capital remains unchanged while the share of constant capital keeps growing. In this case, the social capital employs less and less number of workers. In both instances (employment increases at a lower rate or decreases), capital accumulation necessitates the presence of a surplus population/industrial reserve army. Marx adds that the volume of this surplus population depends on the "cyclical path of the modern industry" (Marx, 1990:785). If such a surplus population is not extant, then it must be created and so called "primitive

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[1] "…It then appears that the two-sided law of capital 'to link up the greatest absolute mass of necessary labour with the greatest relative mass of surplus labour' corresponds to an equally two-sided law, on the one hand to transform the largest possible part of the population into a working population, and on the other 'to constantly posit a part of it as surplus population – population which is useless until such time as capital can utilise it'" (Rosdolsky, 1977:249).

accumulation" comes to the scene. According to Marx, as a historical antecedent to contemporary capital accumulation, primitive accumulation served to create both "free" labour power and "free" surplus population ready to be employed by capital. However, as Marx implies, this historical episode should be accepted as a pre-history for "normal" and "modern" capital accumulation.[2]

Marx identifies three forms of surplus population: Floating, latent and the stagnant. Floating component refers to contemporary unemployed whose unemployment exhibits a cyclical pattern dependent upon the contraction and the expansion of industry. Latent surplus population incorporates the members of the classes which are on the eve of proletarianization like agricultural subsistence peasants and agricultural labourers. Stagnant part points to the mass formed by irregular employees like domestic servants, seasonal workers or part-time workers. More than these, there is a fourth potential component which comprises the surplus population dwelling "in the sphere of pauperism" in Marx's words (Marx, 1990: 797). This last part encapsulates the poor, vagabonds, orphans and also "the demoralized, the ragged and those unable to work". According to Marx, the surplus population and industrial reserve army fulfil two important functions; to impose lower wages to actively employed and to impose the prolongation of working hours. [3]

Marx and Engels attacked Malthus for his views upon population growth in the sense that Malthus envisaged a nexus of growth of population and food and the disproportion between these two puts positive or preventive checks upon population growth.[4] Therefore, for Marx and

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[2] Many Marxist scholars reject this thesis and indicate that "primitive accumulation" connotes a permanent tendency inherent in capital accumulation (see De Angelis, 2001; Harvey,2003; Perelman, 2000).

[3] "Like Karl Marx, Alan Greenspan has argued that a sizable population of unemployed persons is required in an entrepreneurial economy in order to keep workers "insecure," acting as a reserve army that threatens to take away their jobs" (Wray, 2001: 529).

[4] There are serious contemporary studies which argue that Marxian and Malthusian population theories are complementary rather than being conflicting (see Daly, 2011). In his highly debated article, Samuel Hollander indicates that, even though he refuted Malthusian population theory on every grounds, Marx's theory of the immiseration of working class mainly rests upon Malhusian population dynamics (Hollander, 1984; for a detailed

Engels, Malthus' theory is prone to falsifying biological determinism.[5] However, as Marx exclusively indicates, the volume of industrial reserve army and the surplus population has nothing to do with the population growth. Both are accumulation–driven. However, the specificity of the historical conditions in which Marx and Engels raged against the writings of Malthus should be underlined.[6] In the second half of the 19th century a vast transformation of social structure took place with the impetus given by the industrial revolution. The industrial revolution was preceded by an overt dissolution of peasantry and petty commodity producers. This means that the enlargement of the industrial working class and reserve labour army were fed mainly by these processes. In these circumstances, it is not unexpected that Marx and Engels totally neglected the possibility of the fact that population growth also increases the size of the surplus population and industrial reserve army. However, this does not mean that ahistorical views of Malthus could be saved. Especially Marx is right in indicating that each production mode has its own distinct population dynamic.[7] Apart from this, the 20th Century capitalism, by increasing average life span, and also by decreasing mortality rates, strengthened the link between the population growth and surplus population growth. When the population growth

critique of this view see Sinha, 1998). Some authors try to trivialise the basic theoretical and analytical divergence between Marx and Malthus. For example, Hill asserts that the transformation of the identity of non-employed masses from Malthus' "redundant population" to Marx and Engels' "industrial reserve army/surplus population" marks only a rhetorical shift (Hill, 2014).

[5] "Malthus's theory, which incidentally not his invention, but whose fame he appropriated through the clerical fanaticism with which he propounded it – actually only through the weight he placed on it – is significant in two respects: (1) because he gives brutal expression to the brutal viewpoint of capital, (2) because he asserted the fact of over population in all forms of society…His conception is altogether false and childish (1) because he regards overpopulation as being of the same kind in all the different phases of economic development…(2) He stupidly relates a specific quantity of people to a specific quantity of necessaries (Marx, 1973: 605, 607).

[6] In social sciences, there is an "epitomization bias" prevalent especially in the writings of system-founders. All the factual material used in the three volumes of Capital are mainly from the experience of England. On the other hand, Malthus used China as an epitome in his famous Essay on Population. We should discuss whether this dominance had created an "epitomization bias" or not.

[7] For the details, merits and deficiencies of Marx's and Engels' critiques of Malthusian population theory, see Meek, 1954. Moreover, Brezis and Young give a systematic account of the divergence between the views of Marx and Malthus (Brezis and Young,2003).

has decelerated, its role has been taken over by immense immigration of labour power as McIntyre and Nast put:[8]

> *Beginning in the 1970s, with the relocation of highly developed industry overseas (producing what we call neo-industrialization), reproduction's meaning, importance, regulation, and governance fundamentally changed. For a variety of reasons, fertility rates fell in many de-industrializing and neo-industrializing contexts, eventually reaching (or going below) replacement levels. By contrast, fertility rates in many impoverished regions remained comparatively high. This difference provided valuable grist for the making of surplus populations and new kinds of racialized geographies of hyperexploitation.* (McIntyre and Nast, 2011: 1466).

Therefore, under contemporary situation, it seems that the accumulation of redundant population and industrial reserve army have been fed firstly by the socio-economic tendency diagnosed by Marx (we will call this "Direct Marixan effect" below) and also by the population growth and influx of foreign labour power. Migration is vital for the growth of contemporary reserve army and surplus population in many countries. There are numerous studies underlining the role of migration in terms of industrial reserve army formation. (Castles and Kosack, 1972; Choi, 2004). Pratschke and Morlichio (2012) also argues that immigrant labour has enlarged the size of industrial reserve army in European Countries.[9] There are various studies concentrating upon the analysis of the relationship between migration and the industrial reserve

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[8] MacIntyre identifies the three source of the expansion of surplus laboring population in an open economy as the dissolution of small manufacturing, flow of migrant workers and the articulation of non-capitalist producers into capitalist exchange (McIntyre, 2011).

[9] This fact has created serious issues for some schools like New International Division of Labour school which asserts that relocation of labour-intensive industries to underdeveloped capitalist countries has created a globally segmented labor market in which more skilled and more qualified labor power is employed in developed capitalism while less skilled and qualified labor power is employed in underdeveloped countries. However, the increasing net positive migration has also been liable to create a low skilled labor power pool even in the developed capitalist countries. Unexpectedly, low skilled labor power migrates to the terrain of capital (see Sharma, 1997).

formation in particular countries. For example, Andereggen argues that the Turkish immigrants in Germany should be accepted as appendage to industrial reserve army (Anderegen, 1986). In this respect, it is reasonable to reverse the relationship between economic growth and total labour force growth. In neoclassical economics and many other streams of economic thought, the population/labour force growth is taken as exogenous and generally it is assumed that labour force growth exogenously affects the economic growth. However, in the contemporary setting, the net migration enodgenizes the growth of labour force.[10] Below, we make this assumption to model the relationship between economic growth and labour force growth. Even though, the growth of population of natives is yet exogenous in the short run, the migration makes the total labour force endogenous. Therefore, the economic growth/accumulation induced labour force growth entails an "Indirect Marixan Efect".

 The basic concern of this study is to estimate the relative Marxian direct and indirect effects and the elasticity of industrial reserve army formation of economic growth/accumulation for a list of countries. However, this necessitates an *ex ante* definition and estimation of industrial reserve army/surplus population. The next chapter focuses on this issue. Then the details of econometric model and data sources are given. Finally, the results will be assessed.

**Estimating the Size of Industrial Reserve Army**

No doubt, estimation of Marxian categories from the official statistics of capitalist countries is a challenging task due to several reasons. Most importantly, theoretical and ideological framework determines the mode of compiling and presenting data. In this respect, the official data exhibits the distortionary vision of mainstream economics. Therefore, these data should be

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[10] According to Factsheet Report of International Migration Organization, in 2105, worldwide migrant stock exceeded one billion persons (IOM, 2015). By the end of 2015, there were 244 million international migrants. In this figure 46.6 million preferred the United States, 12 million migrated to Germany, 11.9 million to the Russian Federation, 10.2 million to Saudi Arabia, 8.5 million preferred the UK as destination (IOM, 2015: 5). "Between 2000 and 2015, positive net migration contributed to 42 per cent of the population growth in Northern America and 32 per cent in Oceania" (UN, 2016:1).

processed under strict assumptions to attain the estimates of Marxian categories. Obviously, each strict assumption is liable to provoke a refutation. However, such an analysis should take that risk.

There are very few studies estimating the size of industrial reserve army and no doubt this is due to the scarcity of data. However, there is a growing interest towards the concept of industrial reserve army. Several studies from Monthly Review have provided rough estimates for the global industrial reserve army (Bellamy Foster et. al., 2011). According to these studies, the transformation of global production in terms of shift in production locations have resulted in a vast accumulation of global industrial reserve army which has been mainly fed by the accumulation of surplus population in developing countries. Bellamy Foster et. al. indicates that the changing topography of the monopolistic capitalist production allows the multinational companies to exploit the potentials of "labour arbitrage". In this study, they estimate the size of global industrial reserve army as 2.4 billion. This figure incorporates the "vulnerable employment", unemployment and inactive labour force. With the same definition, again benefiting from the data from ILO databases, in a more recent study, Jonna and Bellamy Foster estimates the size of global industrial reserve army as 2,3 billions in 2015 (Jonna and Bellamy Foster, 2016). On the other hand, Neilson and Stubbs define relative surplus population as the sum of those under vulnerable employment, unemployed and inactive labor force and estimate its global size as 2.92 billion in 2007 (Neilson and Stubbs, 2011: 44). At the national level, there are very few studies estimating the size of the industrial reserve army. For Brasil, according to the estimates of Neto and Germer (2013), industrial reserve army captured 57.3 % in 2001 while it decreased to 51.9 % in 2009. In this study they assume that self-employed and unpaid family workers as stagnant, domestic workers, workers who produce for their own consumption and non-active economic population as latent and unemployed as floating components of the industrial reserve army.

At the national level, there are very few studies estimating the size of industrial reserve army. Data limitations have hindered the development of analytical interest toward the issue. However, with the increasing data based on ISCE-93 (International Classification of Status in Employment), the analytical and empirical interest towards the issue has gained a new momentum. ISCE -93 classification allows the empirical estimation of the size of industrial reserve army under strict assumptions. In this study, we use national data based on ISCE-93 in order to estimate the size of the national industrial reserve armies. However, there is yet a grave data problem for many countries.

Under ISCE-93, the total stock of employed is divided into 5 categories: employees, employers, self-employed (own-account workers), unpaid family workers and members of producers' cooperatives. We assume that self-employed, unpaid workers and members of producers' cooperatives are the constituent parts of the industrial reserve army. Moreover, we should add unemployed to this total and this sum is called as Industrial Reserve Army I ($S_1$). This roughly corresponds to the sum of Marx's floating and latent components of Industrial Reserve Army. For the stagnant part, even though we have data for part-time and seasonal employment for a number of countries, data for the majority of countries are lacking. In this respect, for the sake of comparability, we assume that all waged employment is out of the boundaries of industrial reserve army. On the other hand, by adding the volume of inactive labour force to $S_1$, we end up with Industrial Reserve Army II ($S_2$). The reason for adding the whole inactive labour force, without sorting out the segments like students, is the same as before; there is not sufficient detailed data for most of the countries. At the extreme, we assume that both students and elderly can be pushed into active labour market if a need arises.

**Model**

We define two aggregations; first industrial reserve army I (S) which comprises self-employed, unpaid labourers and unemployed. Then adding the inactive labour force to this sum we come up with industrial reserve army II. Therefore the contents of $S_1$ and $S_2$ are as follows;

$$S_1 = A + B + C$$
$$S_2 = A + B + C + D$$

(1)

Where A, B, C and D denote self-employed, unpaid family labourers, unemployed and inactive labour force correspondingly.

We apply the methodology of Kapsos (2005) with a slight difference. Kapsos for estimating the elasticity of employment to growth utilises the following model;

$$LnE_i = \alpha + \beta_1 LnY_i + \beta_2 (\text{Ln } Y_i * D_i) + \beta_3 D_i + u_i$$

(2)

where i denotes country in panel data set of countries. E is employment and Y is real income. $D_i$ is a country dummy variable. Using a pooled regression, then the employment elasticity of growth in country i is as follows;

$$\varepsilon_i = \beta_1 + \beta_2$$

(3)

We use a fixed effect panel data estimation instead for each component of $S_1$ and $S_2$. In that case the model becomes;

$$LnE_{it} = \alpha + \beta_1 LnY_{it} + \beta_2 (LnY_{it} * D_{it}) + u_{it}$$

(4)

and country-specific elasticity is the same as above.

For the first part we run the following regressions for each country i;

$$LnA_{it} = \alpha + \beta_1^A LnY_{it} + \beta_2^A (LnY_{it} * D_{it}) + u_{it}$$
$$LnB_{it} = \alpha + \beta_1^B LnY_{it} + \beta_2^B (LnY_{it} * D_{it}) + u_{it}$$
$$LnC_{it} = \alpha + \beta_1^C LnY_{it} + \beta_2^C (LnY_{it} * D_{it}) + u_{it}$$
$$LnD_{it} = \alpha + \beta_1^D LnY_{it} + \beta_2^D (LnY_{it} * D_{it}) + u_{it}$$

(5)

By this, we can estimate the elasticity of self-employment, unpaid employment, unemployment and inactive population to growth for country i as follow;

$$\varepsilon_i^A = \beta_1^A + \beta_2^A$$
$$\varepsilon_i^B = \beta_1^B + \beta_2^B$$
$$\varepsilon_i^C = \beta_1^C + \beta_2^C$$
$$\varepsilon_i^D = \beta_1^D + \beta_2^D$$

(6)

Then for estimating the elasticity of industrial reserve army definitions $S_1$ and $S_2$ to growth we use the following

$$\varepsilon_i^{S1} = \varepsilon_i^A r_{iA}^{S1} + \varepsilon_i^B r_{iB}^{S1} + \varepsilon_i^C r_{iC}^{S1}$$
$$\varepsilon_i^{S2} = \varepsilon_i^A * r_{iA}^{S2} + \varepsilon_i^B * r_{iB}^{S2} + \varepsilon_i^C * r_{iC}^{S2} + \varepsilon_i^D * r_{iD}^{S2}$$

(7)

Above r stands for the share of corresponding component in industrial reserve army; i.e. $r_{iB}^{S2}$ is the share of unpaid family labourers in industrial reserve army of definition $S_2$ in country i. We estimate r for each component as the period average share of corresponding component. No doubt, this will give an estimate for the elasticity of industrial reserve army to growth and it may differ from the actual observed one. The difference pertains to unobserved factors.

Up to now we are in the domain whose boundaries were drawn by Marx and Engels. However, as we indicated, migration-led labour force growth has also influenced the sizes of self-employed, unpaid family labourers, unemployed and inactive labour force. In order to isolate the effect of labor force growth upon the growth of the size of each component we estimate the following regressions;

$$LnA_{it} = \alpha + \beta_1'^A LnY_{it} + \beta_2'^A (LnY_{it} * D_{it}) + \beta_3'^A LnN_{it} + \beta_4'^A (LnN_{it} * D_{it}) + u_{it}$$
$$LnB_{it} = \alpha + \beta_1'^B LnY_{it} + \beta_2'^B (LnY_{it} * D_{it}) + \beta_3'^B LnN_{it} + \beta_4'^B (LnN_{it} * D_{it}) + u_{it}$$
$$LnC_{it} = \alpha + \beta_1'^C LnY_{it} + \beta_2'^C (LnY_{it} * D_{it}) + \beta_3'^C LnN_{it} + \beta_4'^C (LnN_{it} * D_{it}) + u_{it}$$
$$LnD_{it} = \alpha + \beta_1'^D LnY_{it} + \beta_2'^D (LnY_{it} * D_{it}) + \beta_3'^D LnN_{it} + \beta_4'^D (LnN_{it} * D_{it}) + u_{it}$$

$$(8)$$

Where N denotes total labour force in country i. Here also we can estimate each component's elasticity to labor force as follows;

$$\phi_i^A = \beta_3'^A + \beta_4'^A$$
$$\phi_i^B = \beta_3'^B + \beta_4'^B$$
$$\phi_i^C = \beta_3'^C + \beta_4'^C$$
$$\phi_i^D = \beta_3'^D + \beta_4'^D$$

$$(9)$$

The direct elasticity of each component to economic growth is as follows;

$$\varepsilon_i'^A = \beta_1'^A + \beta_2'^A$$
$$\varepsilon_i'^B = \beta_1'^B + \beta_2'^B$$
$$\varepsilon_i'^C = \beta_1'^C + \beta_2'^C$$
$$\varepsilon_i'^D = \beta_1'^D + \beta_2'^D$$

$$(10)$$

Here $\phi$ is the elasticity of any component to population growth in country i. Then we can estimate the elasticity of growth of industrial reserve army with each definition to economic growth as follows;

$$\varepsilon_i^{S1} = \underbrace{\varepsilon_i'^A * r_{iA}^{S1} + \varepsilon_i'^B * r_{iB}^{S1} + \varepsilon_i'^C * r_{iC}^{S1}}_{Direct\ Marxian\ Effect} + \underbrace{\mu_i^{NY}(\phi_i^A * r_{iA}^{S1} + \phi_i^B * r_{iB}^{S1} + \phi_i^C * r_{iC}^{S1})}_{Indirect\ Marxian\ Efect}$$

$$\varepsilon_i^{S2} = \underbrace{\varepsilon_i'^A * r_{iA}^{S2} + \varepsilon_i'^B * r_{iB}^{S2} + \varepsilon_i'^C * r_{iC}^{S2} + \varepsilon_i'^D * r_{iD}^{S2}}_{Direct\ Marxian\ Effect} + \underbrace{\mu_i^{NY}(\phi_i^A * r_{iA}^{S2} + \phi_i^B * r_{iB}^{S2} + \phi_i^C * r_{iC}^{S2} + \phi_i^D * r_{iD}^{S2})}_{Indirect\ Marxian\ Efect}$$

$$(11)$$

Here $\mu_i^{NY}$ stands for the elasticity of labour force to economic growth in country i. For each country this elasticity is estimated with the following regression;

$$LnN_{it} = \alpha + \delta_1 LnY_{it} + \delta_2 (LnY_{it} * D_{it}) + u_{it}$$
$$\mu_i^{NY} = \delta_1 + \delta_2$$

(12)

Note that elasticities in the left hand sides of (7) and (11) are equal. However, (7) shows the total elasticity encapsulating both the direct and indirect effect of economic growth on the growth of corresponding component. On the other hand right hand side of the (11) decomposes the total elasticity into elasticities with respect to direct and indirect effects of growth. The former operates in tandem with the increase or decrease in instantaneous demand for labour power of extended accumulation. On the other hand, the latter operates through the economic growth-driven increase/decrease in total labour force. The former might be called "Direct Marxian effect" while the latter can be nicknamed as "Indirect Marxian Effect". The sum of these two gives the total elasticity of any component to the economic growth which is given in (6). Combining (6), (9) and (10) the decomposition of elasticity of each component into direct and indirect Marxian effects are given below.

$$\varepsilon_i^A = \beta_1^A + \beta_2^A = \underbrace{\beta_1'^A + \beta_2'^A}_{\text{Direct Marxian Effect}} + \underbrace{\mu_i^{NY}(\beta_3'^A + \beta_4'^A)}_{\text{Indirect Marxian Efect}} = \varepsilon_i'^A + \mu_i^{NY}\phi_i^A$$

$$\varepsilon_i^B = \beta_1^B + \beta_2^B = \underbrace{\beta_1'^B + \beta_2'^B}_{\text{Direct Marxian Effect}} + \underbrace{\mu_i^{NY}(\beta_3'^B + \beta_4'^B)}_{\text{Indirect Marxian Efect}} = \varepsilon_i'^B + \mu_i^{NY}\phi_i^B$$

$$\varepsilon_i^C = \beta_1^C + \beta_2^C = \underbrace{\beta_1'^C + \beta_2'^C}_{\text{Direct Marxian Effect}} + \underbrace{\mu_i^{NY}(\beta_3'^C + \beta_4'^C)}_{\text{Indirect Marxian Efect}} = \varepsilon_i'^C + \mu_i^{NY}\phi_i^C$$

$$\varepsilon_i^D = \beta_1^D + \beta_2^D = \underbrace{\beta_1'^D + \beta_2'^D}_{\text{Direct Marxian Effect}} + \underbrace{\mu_i^{NY}(\beta_3'^D + \beta_4'^D)}_{\text{Indirect Marxian Efect}} = \varepsilon_i'^D + \mu_i^{NY}\phi_i^D$$

(13)

**Data and Results**

Data for 60 countries are used for analysis. The size of the sample is determined by data availability. The about work and employment status are missing for many countries. Even though, there are a few number of data points, the time span of data is too short to be included in the list. There are two main data sources. The first one is national statistical agencies. In

addition to these, we also benefit from ILO's LABOURTSA to a great extent. There are two exceptions; China and India. For the former, national statistical agency has provided data compiled on a totally different classification. For the latter, there is not enough data. For these two important countries, we use ILO modelled estimates. ILO, in 2016, provided modelled data for all the countries which are estimated using a model based on actual data points and trends. The details about the coverage and the sources of data is given in appendix.

Table 1 shows the period average shares of self-employed, unpaid labourers, unemployed and inactive labour force in industrial reserve army $S_1$ and $S_2$. The last column gives the elasticity of labour force to economic growth. As table shows, except for Bulgaria, Georgia, Latvia, Lithuania, Romania, Russia and Slovenia, most of the countries have positive elasticity for the period under scrutiny. It seems that population crisis after the collapse of Socialism in these countries, had serious adverse effects upon the growth of labour force. For the decomposition of $S_1$ into its constituent components (self-employed, unpaid labourers and unemployed), it should be stated that the share of self-employed are far higher than those of unpaid and unemployed for the majority of the countries. There are also exceptions like Bulgaria, Croatia, Denmark, Estonia, Finland, France, Germany, Greece, Israel, Latvia, Lithuania, Russia, Slovakia, Spain and Sweden.  In these countries the share of unemployed is higher than that of self-employed.  For $S_2$, the share of inactive labour force dominates for all countries. This is not unexpected. On the other hand, the elasticity of labour force to income is positive for the majority of countries. Only Bulgaria, Hungary, Georgia, Latvia, Lithuania, Romania, Russia and Slovenia have negative elasticity.

**Table 1: The Average Shares of Components in $S_1$ and $S_2$ and elasticity of labour r force to income**

|  | Shares in $S_1$ (%) | Shares in $S_2$ (%) |  |
|--|--|--|--|

| Country | Self Empolyed | Unpaid Labourer | Unemployed | Self Empolyed | Unpaid Labourer | Unemployed | Inactive Labour Force | $\mu_i^{NY}$ |
|---|---|---|---|---|---|---|---|---|
| Argentina | 64.27 | 2.93 | 32.80 | 12.00 | 0.56 | 6.28 | 81.16 | 0.28 |
| Australia | 60.33 | 2.71 | 36.96 | 14.39 | 0.67 | 8.96 | 75.99 | 0.46 |
| Austria[a] | 78.24 | 0.00 | 21.76 | 15.18 | 0.00 | 4.30 | 80.53 | 0.24 |
| Belgium | 54.49 | 11.07 | 34.43 | 15.79 | 3.15 | 10.35 | 70.72 | 0.16 |
| Bolivia | 54.01 | 39.77 | 6.22 | 28.91 | 21.39 | 3.36 | 46.35 | 0.58 |
| Brazil | 63.72 | 15.37 | 20.90 | 26.21 | 6.52 | 8.62 | 58.65 | 0.66 |
| Bulgaria | 38.96 | 5.39 | 55.65 | 6.73 | 0.94 | 10.02 | 82.31 | -0.14 |
| Canada | 53.41 | 2.52 | 44.07 | 14.14 | 0.64 | 11.68 | 73.53 | 0.52 |
| Chile | 67.33 | 7.20 | 25.47 | 18.11 | 1.92 | 6.86 | 73.10 | 0.37 |
| China | 60.29 | 30.25 | 9.46 | 34.44 | 18.71 | 5.39 | 41.46 | 0.15 |
| Colombia | 68.61 | 8.55 | 22.84 | 29.25 | 3.65 | 9.71 | 57.38 | 0.32 |
| Costa Rica | 65.80 | 9.43 | 24.77 | 17.81 | 2.47 | 6.82 | 72.89 | 0.60 |
| Croatia | 41.99 | 8.20 | 49.81 | 9.39 | 1.88 | 11.11 | 77.62 | 0.08 |
| Cyprus | 56.08 | 10.26 | 33.66 | 14.68 | 2.67 | 9.33 | 73.32 | 0.89 |
| Czech Rep. | 59.69 | 3.15 | 37.15 | 12.07 | 0.63 | 7.54 | 79.75 | 0.14 |
| Denmark | 37.93 | 8.57 | 53.50 | 5.46 | 1.31 | 7.96 | 85.27 | 0.11 |
| Dominican | 68.03 | 3.68 | 28.29 | 26.67 | 1.46 | 11.28 | 60.59 | 0.54 |
| Ecuador | 65.41 | 16.77 | 17.82 | 24.54 | 6.96 | 5.84 | 62.65 | 0.86 |
| Estonia | 32.24 | 2.83 | 64.93 | 10.41 | 0.98 | 22.02 | 66.58 | 0.04 |
| Finland | 47.16 | 3.72 | 49.12 | 12.35 | 0.99 | 13.20 | 73.45 | 0.13 |
| France | 35.18 | 8.59 | 56.23 | 6.44 | 1.67 | 10.26 | 81.63 | 0.39 |
| Georgia | 43.32 | 36.04 | 20.63 | 23.85 | 19.84 | 11.34 | 44.97 | -0.03 |
| Germany | 35.70 | 9.55 | 54.75 | 9.70 | 2.32 | 14.69 | 73.29 | 0.50 |
| Greece | 23.75 | 34.39 | 41.86 | 5.02 | 7.14 | 9.35 | 78.49 | 0.36 |
| Hungary | 49.90 | 2.71 | 47.40 | 10.08 | 0.54 | 9.80 | 79.58 | -0.06 |
| India | 72.82 | 22.48 | 4.70 | 38.92 | 12.15 | 2.53 | 46.40 | 0.33 |
| Indonesia | 61.10 | 29.19 | 9.70 | 34.55 | 16.56 | 5.45 | 43.44 | 0.38 |
| Ireland | 51.49 | 5.09 | 43.43 | 16.50 | 1.66 | 14.59 | 67.26 | 0.29 |
| Israel | 45.54 | 2.04 | 52.42 | 7.28 | 0.31 | 8.31 | 84.09 | 0.56 |
| Italy | 53.14 | 10.98 | 35.88 | 16.67 | 3.33 | 11.00 | 69.01 | 0.05 |
| Japan | 47.60 | 38.41 | 13.99 | 14.73 | 13.39 | 3.33 | 68.55 | 0.28 |
| Kazakhstan | 79.59 | 1.97 | 18.44 | 37.18 | 0.93 | 8.65 | 53.23 | 0.22 |
| Korea | 62.14 | 26.87 | 10.99 | 20.29 | 8.97 | 3.55 | 67.19 | 0.24 |
| Latvia | 31.14 | 8.29 | 60.57 | 7.88 | 2.06 | 15.97 | 74.09 | -0.25 |
| Lithuania | 42.02 | 8.66 | 49.32 | 15.50 | 3.25 | 18.74 | 62.52 | -0.24 |
| Malaysia | 63.09 | 23.21 | 13.69 | 21.44 | 8.20 | 4.74 | 65.61 | 0.50 |
| Mexico | 67.81 | 21.20 | 10.99 | 21.40 | 6.67 | 3.51 | 68.42 | 0.54 |
| Moldova | 74.90 | 8.38 | 16.71 | 18.64 | 2.27 | 4.26 | 74.83 | 0.11 |
| Morocco | 41.84 | 40.63 | 17.53 | 14.59 | 14.35 | 6.21 | 64.85 | 0.39 |
| Netherlands | 54.25 | 6.66 | 39.09 | 16.64 | 1.76 | 11.22 | 70.38 | 0.18 |
| New Zealand | 60.50 | 5.12 | 34.38 | 15.37 | 1.31 | 8.81 | 74.52 | 0.46 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Norway | 56.09 | 3.63 | 40.28 | 15.67 | 1.05 | 11.34 | 71.94 | 0.54 |
| Paraguay | 68.10 | 19.66 | 12.25 | 27.88 | 8.08 | 5.01 | 59.03 | 0.50 |
| Peru | 65.09 | 26.16 | 8.75 | 37.45 | 15.07 | 5.04 | 42.44 | 0.29 |
| Philippines | 59.18 | 22.80 | 18.02 | 27.45 | 10.58 | 8.44 | 53.52 | 0.41 |
| Poland | 48.33 | 12.83 | 38.84 | 18.62 | 4.99 | 15.24 | 61.15 | 0.23 |
| Portugal | 64.75 | 6.37 | 28.88 | 28.49 | 2.76 | 13.08 | 55.67 | 0.12 |
| Romania | 48.83 | 33.54 | 17.63 | 17.37 | 12.25 | 6.19 | 64.19 | -0.08 |
| Russia | 34.08 | 1.48 | 64.44 | 6.29 | 0.27 | 11.15 | 82.29 | -0.01 |
| Singapore | 63.27 | 7.98 | 28.75 | 11.68 | 1.45 | 5.43 | 81.44 | 0.24 |
| Slovakia | 33.52 | 0.42 | 66.06 | 8.08 | 0.10 | 15.70 | 76.12 | 0.14 |
| Slovenia | 39.19 | 23.66 | 37.15 | 8.19 | 4.95 | 7.76 | 79.11 | -0.02 |
| Spain | 37.41 | 6.72 | 55.87 | 9.57 | 1.71 | 15.03 | 73.69 | 0.43 |
| Sweden | 44.77 | 2.40 | 52.83 | 9.23 | 0.48 | 11.15 | 79.13 | 0.10 |
| Switzerland | 53.57 | 16.93 | 29.50 | 11.66 | 3.68 | 6.44 | 78.22 | 0.52 |
| Thailand | 51.25 | 45.94 | 2.81 | 33.00 | 29.00 | 1.87 | 36.13 | 0.37 |
| Turkey | 42.52 | 37.50 | 19.98 | 14.19 | 13.16 | 6.36 | 66.30 | 0.49 |
| UK | 57.75 | 2.24 | 40.01 | 12.19 | 0.47 | 8.55 | 78.79 | 0.27 |
| USA | 57.31 | 4.95 | 37.75 | 12.11 | 1.08 | 7.88 | 78.92 | 0.45 |
| Uruguay | 63.52 | 4.39 | 32.10 | 21.19 | 1.46 | 10.74 | 66.61 | 0.19 |

[a] : Austria has no data for unpaid family labourers.

Table 2 below shows the results of regressions in (5) and (8), and also the subsequent estimations in (6), (9), (10) and (12). The columns are headed by the corresponding notation used in the equations. Table 2 is divided into three parts each of which corresponds to particular component. Under each heading, there are five columns and each column shows a particular estimation from the equations mentioned. The first column under each heading (for example, $\varepsilon_i'^A$ of self-employed) shows the direct effect (direct Marxian effect) of economic growth. The second column (like $\phi_i^A$ for self-employed) shows the elasticity of each component to labour force. The third one shows the indirect Marxian effect (like $\mu_i^{NY}\phi_i^A$ for self-employed). Fourth column shows the total elasticity of each component to income (like $\varepsilon_i^A$ for self-employed). The last column under each heading ($\varepsilon_i^A r_{iA}^{S_1}$ for self-employed) indicates the contribution of the elasticity of each component to the total elasticity of industrial reserve army $S_1$. For 14 out of 60 countries, self-employment has a negative elasticity to income while for the remaining, economic growth tends to increase the size of the self-employed. For self-employed 26 countries have negative direct elasitcities which means that

economic growth at the first instant reduces the size of the stock of self-employed in these countries. On the other hand, for the unpaid labourers, only 9 countries (Slovakia, Colombia, Bolivia, Philippines, Dominican Republic, New Zealand, Czech Rep., Russia and Ecuador) have positive total elasticity which indicate that in these countries economic growth increases the number of unpaid family labourers. For the rest, the volume and share of unpaid family labour have decreased secularly. For some of the countries, even though the indirect Marxian effect, the elasticity due to labour force change, is positive (increase in labour force has been likely to increase the size of the group of unpaid family labourers), the direct Marxian effect dominates and total elasticity becomes negative. Most interesting figures are about the elasticity of unemployed. For total elasticity, 29 countries have negative figures while remaining 31 countries have positive elasticity. This means that economic growth in these 31 countries tend to increase the number of unemployed. The decomposition shows that direct Marxian effect is negative for 48 countries, as expected. This means that, at the first instant accumulation reduces unemployment in these countries. However, indirect Marxian effect (the effect emerging from the growth-induced increase in total labour force) is positive for 46 countries which means that increase in total labour force increase the number of unemployed. Especially the countries having high net immigration figures have higher indirect elasticity (like the UK, Canada, the USA or Australia).

Table 3 outlines the indirect and direct elasticity of $S_1$ to income estimated in equation (11). 30 countries have negative elasticity while the remaining 30 have positive elasticity. Most of the transition countries are in the first set. More than this a set of Asian countries (China, Korea, Thailand and Japan) are also in the negative zone. UK and USA have positive elasticity. On the other hand, only 47 countries have negative direct Marxian elasticity. At the same time 47 countries have positive indirect elasticity. Marx's prophesy seems to hold for the half of the countries in our list.

**Table 2: Direct and Indirect Elasticities of Self-Employed, Unpaid Family Labourers and Unemployed**

| Country | Self Employed | | | | | Unpaid Family Labourers | | | | | Unemployed | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $\varepsilon_i'^A$ | $\phi_i^A$ | $\mu_i^{NY}\phi_i^A$ | $\varepsilon_i^A$ | $\varepsilon_i^A r_{iA}^{S1}$ | $\varepsilon_i'^B$ | $\phi_i^B$ | $\mu_i^{NY}\phi_i^B$ | $\varepsilon_i^B$ | $\varepsilon_i^B r_{iB}^{S1}$ | $\varepsilon_i'^C$ | $\phi_i^C$ | $\mu_i^{NY}\phi_i^C$ | $\varepsilon_i^C$ | $\varepsilon_i^C r_{iC}^{S1}$ |
| Argentina | -0.34 | 1.95 | 0.54 | 0.20 | 0.13 | -0.29 | -5.22 | -1.44 | -1.73 | -0.05 | -1.69 | 0.91 | 0.25 | -1.44 | -0.47 |
| Australia | 0.77 | -0.67 | -0.31 | 0.46 | 0.28 | -1.63 | -0.54 | -0.25 | -1.88 | -0.05 | -3.96 | 7.66 | 3.50 | -0.46 | -0.17 |
| Austria | -0.46 | 1.78 | 0.44 | -0.03 | -0.02 | -0.48 | -0.93 | -0.23 | -0.71 | 0.00 | -0.16 | 6.72 | 1.64 | 1.49 | 0.32 |
| Belgium | 0.14 | 0.50 | 0.08 | 0.22 | 0.12 | -0.44 | -4.85 | -0.80 | -1.24 | -0.14 | -0.45 | 10.03 | 1.65 | 1.20 | 0.41 |
| Bolivia | 0.52 | -0.06 | -0.04 | 0.48 | 0.26 | -0.46 | 1.06 | 0.61 | 0.15 | 0.06 | -2.00 | 2.13 | 1.24 | -0.77 | -0.05 |
| Brazil | -0.15 | 0.95 | 0.63 | 0.48 | 0.30 | -3.32 | 2.55 | 1.68 | -1.64 | -0.25 | -2.48 | 4.65 | 3.06 | 0.58 | 0.12 |
| Bulgaria | -0.46 | 1.25 | -0.18 | -0.64 | -0.25 | -0.39 | 8.89 | -1.28 | -1.67 | -0.09 | -2.92 | -10.12 | 1.46 | -1.46 | -0.81 |
| Canada | 0.34 | 1.22 | 0.64 | 0.98 | 0.52 | -1.88 | -0.57 | -0.30 | -2.18 | -0.05 | -3.81 | 7.75 | 4.05 | 0.24 | 0.11 |
| Chile | 0.52 | -0.31 | -0.11 | 0.41 | 0.28 | -0.25 | -0.51 | -0.19 | -0.44 | -0.03 | -1.09 | 3.71 | 1.37 | 0.28 | 0.07 |
| China | -0.27 | 2.10 | 0.31 | 0.04 | 0.02 | -1.38 | 4.27 | 0.63 | -0.75 | -0.23 | 0.40 | -2.31 | -0.34 | 0.06 | 0.01 |
| Colombia | 1.48 | -2.76 | -0.87 | 0.61 | 0.42 | 2.76 | -8.31 | -2.62 | 0.14 | 0.01 | 1.23 | -4.81 | -1.51 | -0.28 | -0.06 |
| Costa Rica | -1.54 | 3.60 | 2.17 | 0.63 | 0.41 | -2.24 | 3.20 | 1.92 | -0.32 | -0.03 | -1.92 | 5.49 | 3.29 | 1.37 | 0.34 |
| Croatia | 0.20 | 0.52 | 0.04 | 0.25 | 0.10 | -2.16 | -5.08 | -0.43 | -2.59 | -0.21 | -1.48 | 1.15 | 0.10 | -1.38 | -0.69 |
| Cyprus | 0.66 | -0.63 | -0.56 | 0.10 | 0.06 | 0.46 | -2.06 | -1.83 | -1.37 | -0.14 | -5.88 | 9.69 | 8.59 | 2.71 | 0.91 |
| Czech  Rep. | 0.34 | 6.22 | 0.88 | 1.21 | 0.72 | 0.73 | 1.04 | 0.15 | 0.87 | 0.03 | -2.00 | 16.84 | 2.38 | 0.38 | 0.14 |
| Denmark | -0.26 | 2.88 | 0.32 | 0.07 | 0.03 | -2.71 | -13.20 | -1.48 | -4.08 | -0.35 | -2.04 | 9.75 | 1.09 | -0.96 | -0.51 |
| Dominican Rep. | 0.53 | 0.06 | 0.03 | 0.56 | 0.38 | 0.27 | -0.02 | -0.01 | 0.26 | 0.01 | -1.72 | 2.73 | 1.48 | -0.24 | -0.07 |
| Ecuador | 1.07 | 0.62 | 0.53 | 1.56 | 1.02 | 1.05 | 1.58 | 1.35 | 2.25 | 0.38 | 1.51 | -1.54 | -1.32 | 0.28 | 0.05 |
| Estonia | 0.36 | 1.04 | 0.04 | 0.39 | 0.13 | -2.48 | -3.20 | -0.11 | -2.59 | -0.07 | -0.70 | 3.06 | 0.11 | -0.59 | -0.38 |
| Finland | -0.13 | 0.69 | 0.09 | -0.04 | -0.02 | -1.27 | -4.36 | -0.59 | -1.85 | -0.07 | -2.99 | 19.67 | 2.65 | -0.34 | -0.17 |
| France | -2.40 | 5.52 | 2.15 | -0.25 | -0.09 | -0.18 | -8.87 | -3.45 | -3.63 | -0.31 | -1.23 | 3.45 | 1.34 | 0.11 | 0.06 |
| Georgia | 0.28 | 3.83 | -0.10 | 0.18 | 0.08 | -0.32 | 0.92 | -0.02 | -0.34 | -0.12 | 0.13 | -0.46 | 0.01 | 0.14 | 0.03 |
| Germany | 1.74 | -0.17 | -0.08 | 1.66 | 0.59 | -2.93 | 0.87 | 0.44 | -2.49 | -0.24 | -0.57 | 3.04 | 1.53 | 0.95 | 0.52 |
| Greece | 1.10 | -0.20 | -0.07 | 1.02 | 0.24 | 0.35 | -4.47 | -1.62 | -1.27 | -0.44 | -2.34 | 10.09 | 3.66 | 1.32 | 0.55 |
| Hungary | -0.44 | 6.52 | -0.39 | -0.83 | -0.42 | -1.98 | 7.44 | -0.45 | -2.42 | -0.07 | 0.67 | -5.59 | 0.34 | 1.00 | 0.47 |
| India | -0.04 | 0.99 | 0.33 | 0.29 | 0.21 | -2.44 | 7.25 | 2.39 | -0.05 | -0.01 | -1.20 | 4.13 | 1.36 | 0.16 | 0.01 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Indonesia | -0.40 | 1.64 | 0.62 | 0.22 | 0.14 | 0.17 | -0.50 | -0.19 | -0.02 | -0.01 | -2.25 | 9.41 | 3.59 | 1.34 | 0.13 |
| Ireland | -0.03 | 0.50 | 0.15 | 0.12 | 0.06 | -0.58 | -0.05 | -0.01 | -0.59 | -0.03 | -2.85 | 8.80 | 2.59 | -0.26 | -0.11 |
| Israel | 1.64 | -1.01 | -0.56 | 1.08 | 0.49 | -3.52 | 3.51 | 1.96 | -1.56 | -0.03 | -4.61 | 8.75 | 4.88 | 0.27 | 0.14 |
| Italy | -0.78 | -1.30 | -0.07 | -0.84 | -0.45 | -2.20 | -6.64 | -0.34 | -2.53 | -0.28 | -0.97 | 14.27 | 0.73 | -0.25 | -0.09 |
| Japan | 1.37 | -6.13 | -1.71 | -0.34 | -0.16 | 1.95 | -9.89 | -2.76 | -0.81 | -0.31 | -2.20 | 11.34 | 3.17 | 0.97 | 0.14 |
| Kazakhstan | -0.46 | 1.71 | 0.37 | -0.08 | -0.07 | -3.93 | 11.41 | 2.49 | -1.44 | -0.03 | -0.45 | -0.61 | -0.13 | -0.59 | -0.11 |
| Korea | 0.07 | -0.10 | -0.02 | 0.04 | 0.03 | 0.52 | -3.64 | -0.87 | -0.35 | -0.09 | -2.29 | 10.81 | 2.58 | 0.29 | 0.03 |
| Latvia | 0.22 | 0.25 | -0.06 | 0.15 | 0.05 | -1.52 | 6.90 | -1.76 | -3.28 | -0.27 | -1.89 | -2.74 | 0.70 | -1.20 | -0.72 |
| Lithuania | -0.30 | 3.46 | -0.83 | -1.14 | -0.48 | -0.48 | 6.07 | -1.46 | -1.95 | -0.17 | -2.74 | -6.75 | 1.63 | -1.11 | -0.55 |
| Malaysia | -0.39 | 1.44 | 0.71 | 0.33 | 0.21 | -1.18 | 2.08 | 1.03 | -0.15 | -0.04 | -2.46 | 5.25 | 2.60 | 0.15 | 0.02 |
| Mexico | 0.03 | 0.78 | 0.42 | 0.45 | 0.31 | -1.40 | 0.69 | 0.37 | -1.03 | -0.22 | 3.79 | -0.04 | -0.02 | 3.77 | 0.41 |
| Moldova | 0.47 | -9.64 | -1.09 | -0.63 | -0.47 | 3.82 | -47.51 | -5.39 | -1.57 | -0.13 | -2.41 | 9.95 | 1.13 | -1.28 | -0.21 |
| Morocco | 0.49 | -0.13 | -0.05 | 0.44 | 0.18 | -0.52 | 0.08 | 0.03 | -0.49 | -0.20 | -0.30 | -0.25 | -0.10 | -0.40 | -0.07 |
| Netherlands | 1.27 | 1.59 | 0.28 | 1.56 | 0.85 | -1.49 | -1.86 | -0.33 | -1.83 | -0.12 | 0.38 | -6.44 | -1.15 | -0.77 | -0.30 |
| New Zealand | 0.92 | -0.77 | -0.35 | 0.57 | 0.34 | -3.68 | 9.29 | 4.26 | 0.58 | 0.03 | -6.91 | 14.88 | 6.82 | -0.09 | -0.03 |
| Norway | 0.99 | -1.02 | -0.55 | 0.44 | 0.25 | -3.82 | -0.22 | -0.12 | -3.94 | -0.14 | -2.51 | 3.51 | 1.88 | -0.63 | -0.25 |
| Paraguay | -0.50 | 1.16 | 0.58 | 0.09 | 0.06 | -0.77 | 0.53 | 0.26 | -0.51 | -0.10 | 0.04 | 0.09 | 0.04 | 0.09 | 0.01 |
| Peru | 0.41 | -0.26 | -0.07 | 0.34 | 0.22 | -2.08 | 6.19 | 1.80 | -0.28 | -0.07 | -0.40 | 0.65 | 0.19 | -0.21 | -0.02 |
| Philippines | -0.49 | 1.84 | 0.75 | 0.26 | 0.16 | -0.84 | 2.47 | 1.01 | 0.17 | 0.04 | -0.02 | -0.80 | -0.33 | -0.35 | -0.06 |
| Poland | -0.39 | 1.50 | 0.35 | 0.09 | 0.04 | -0.65 | -0.40 | -0.09 | -0.68 | -0.09 | -0.84 | 3.48 | 0.81 | 0.22 | 0.09 |
| Portugal | -1.32 | 9.02 | 1.04 | -0.28 | -0.18 | -5.35 | 24.08 | 2.77 | -2.58 | -0.16 | 1.77 | -6.29 | -0.72 | 1.05 | 0.30 |
| Romania | -0.61 | 0.86 | -0.07 | -0.67 | -0.33 | -1.10 | 1.92 | -0.15 | -1.26 | -0.42 | -0.44 | 0.09 | -0.01 | -0.45 | -0.08 |
| Russia | 1.31 | 4.84 | -0.06 | 1.25 | 0.43 | 1.67 | -5.82 | 0.07 | 1.74 | 0.03 | -0.75 | 0.81 | -0.01 | -0.76 | -0.49 |
| Singapore | 0.51 | -0.48 | -0.11 | 0.40 | 0.25 | -0.30 | -0.40 | -0.10 | -0.40 | -0.03 | 0.84 | -2.06 | -0.49 | 0.36 | 0.10 |
| Slovakia | 1.05 | 4.79 | 0.67 | 1.73 | 0.58 | -1.24 | 9.55 | 1.34 | 0.10 | 0.00 | -2.82 | 19.37 | 2.73 | -0.09 | -0.06 |
| Slovenia | 0.02 | 0.41 | -0.01 | 0.01 | 0.00 | -0.27 | -1.22 | 0.02 | -0.25 | -0.06 | -0.27 | 2.85 | -0.05 | -0.32 | -0.12 |
| Spain | -0.11 | 0.12 | 0.05 | -0.06 | -0.02 | 2.10 | -10.77 | -4.63 | -2.53 | -0.17 | -6.68 | 16.05 | 6.90 | 0.22 | 0.12 |
| Sweden | 0.22 | -0.82 | -0.08 | 0.14 | 0.06 | -1.89 | 0.75 | 0.07 | -1.81 | -0.04 | 0.36 | -2.18 | -0.21 | 0.14 | 0.08 |
| Switzerland | 1.18 | -1.43 | -0.73 | 0.45 | 0.24 | -1.47 | 1.62 | 0.83 | -0.63 | -0.11 | -3.15 | 8.65 | 4.46 | 1.31 | 0.39 |
| Thailand | 0.12 | 0.57 | 0.21 | 0.34 | 0.17 | 0.50 | -2.33 | -0.85 | -0.38 | -0.18 | -5.80 | 13.48 | 4.95 | -0.79 | -0.02 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Turkey | -0.67 | 1.19 | 0.58 | -0.09 | -0.04 | -1.42 | 1.18 | 0.58 | -0.84 | -0.31 | 0.45 | 0.38 | 0.19 | 0.63 | 0.13 |
| UK | -0.16 | 3.94 | 1.05 | 0.89 | 0.51 | -2.07 | 4.48 | 1.19 | -0.88 | -0.02 | -3.46 | 10.71 | 2.85 | -0.61 | -0.24 |
| USA | -0.03 | 0.49 | 0.22 | 0.19 | 0.11 | -3.57 | 3.79 | 1.70 | -1.87 | -0.09 | -4.28 | 10.90 | 4.89 | 0.61 | 0.23 |
| Uruguay | 0.14 | 1.44 | 0.27 | 0.42 | 0.26 | -0.06 | -1.31 | -0.25 | -0.31 | -0.01 | -1.84 | 3.96 | 0.75 | -1.08 | -0.35 |

**Table 3: The Total Elasticity of Industrial reserve Army $S_1$ to Income**

| country | Direct Marxian Elasticity | Indirect Marxian Elasticity | Total Marxian Elasticity | country | Direct Marxian Elasticity | Indirect Marxian Elasticity | Total Marxian Elasticity |
|---|---|---|---|---|---|---|---|
| Argentina | -0.78 | 0.39 | -0.39 | Japan | 1.09 | -1.43 | -0.34 |
| Australia | -1.05 | 1.10 | 0.06 | Kazakhstan | -0.53 | 0.32 | -0.20 |
| Austria | -0.40 | 0.70 | 0.30 | Korea | -0.07 | 0.03 | -0.04 |
| Belgium | -0.13 | 0.52 | 0.39 | Latvia | -1.21 | 0.26 | -0.95 |
| Bolivia | -0.03 | 0.30 | 0.27 | Lithuania | -1.52 | 0.33 | -1.20 |
| Brazil | -1.12 | 1.30 | 0.17 | Malaysia | -0.86 | 1.05 | 0.19 |
| Bulgaria | -1.82 | 0.67 | -1.15 | Mexico | 0.14 | 0.36 | 0.50 |
| Canada | -1.55 | 2.12 | 0.57 | Moldova | 0.27 | -1.08 | -0.82 |
| Chile | 0.06 | 0.26 | 0.32 | Morocco | -0.06 | -0.02 | -0.08 |
| China | -0.54 | 0.34 | -0.20 | Netherlands | 0.74 | -0.32 | 0.42 |
| Colombia | 1.53 | -1.17 | 0.37 | New Zealand | -2.01 | 2.35 | 0.34 |
| Costa Rica | -1.70 | 2.42 | 0.72 | Norway | -0.59 | 0.45 | -0.15 |
| Croatia | -0.83 | 0.03 | -0.80 | Paraguay | -0.48 | 0.45 | -0.03 |
| Cyprus | -1.56 | 2.39 | 0.83 | Peru | -0.31 | 0.44 | 0.13 |
| Czech Rep. | -0.52 | 1.41 | 0.89 | Philippines | -0.49 | 0.62 | 0.13 |
| Denmark | -1.42 | 0.58 | -0.84 | Poland | -0.60 | 0.47 | -0.13 |
| Dominican Rep. | -0.12 | 0.44 | 0.33 | Portugal | -0.68 | 0.64 | -0.04 |
| Ecuador | 1.14 | 0.34 | 1.48 | Romania | -0.74 | -0.09 | -0.83 |
| Estonia | -0.41 | 0.08 | -0.33 | Russia | -0.01 | -0.02 | -0.04 |

| Finland | -1.58 | 1.32 | -0.26 | | Singapore | 0.54 | -0.22 | 0.32 |
|---|---|---|---|---|---|---|---|---|
| France | -1.55 | 1.21 | -0.34 | | Slovakia | -1.52 | 2.03 | 0.52 |
| Georgia | 0.03 | -0.05 | -0.01 | | Slovenia | -0.16 | -0.02 | -0.17 |
| Germany | 0.03 | 0.85 | 0.88 | | Spain | -3.63 | 3.56 | -0.07 |
| Greece | -0.60 | 0.96 | 0.36 | | Sweden | 0.24 | -0.15 | 0.09 |
| Hungary | 0.04 | -0.05 | -0.01 | | Switzerland | -0.54 | 1.06 | 0.52 |
| India | -0.63 | 0.84 | 0.21 | | Thailand | 0.13 | -0.15 | -0.02 |
| Indonesia | -0.41 | 0.67 | 0.26 | | Turkey | -0.73 | 0.50 | -0.22 |
| Ireland | -1.28 | 1.20 | -0.08 | | UK | -1.52 | 1.77 | 0.25 |
| Israel | -1.74 | 2.34 | 0.60 | | USA | -1.81 | 2.06 | 0.25 |
| Italy | -1.00 | 0.19 | -0.82 | | Uruguay | -0.50 | 0.40 | -0.10 |

**Table 4: Direct and Indirect Elasticities of Inactive Labour Force, Contributions of the Total Elasticities of Self-Employed, Unpaid Labour and Unemployed to Total Elasticity of S₂ and Total Elasticity of S₂**

| country | Inactive Labor Force | | | | | Self-Employed | Unpaid | Unemployed | Total elasticity of S₂ | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | $\varepsilon_i'^A$ | $\phi_i^D$ | $\mu_i^{NY}\phi_i^A$ | $\varepsilon_i^D$ | $\varepsilon_i^D r_{iD}^{S_2}$ | $\varepsilon_i^A r_{iA}^{S_2}$ | $\varepsilon_i^B r_{iB}^{S_2}$ | $\varepsilon_i^C r_{iC}^{S_2}$ | Direct Marxian Elasticity | Indirect Marxian Elasticity | Total Marxian Elasticity |
| Argentina | -0.06 | 1.37 | 0.38 | 0.32 | 0.26 | 0.02 | -0.01 | -0.09 | -0.20 | 0.38 | 0.18 |
| Australia | -0.01 | 0.81 | 0.37 | 0.36 | 0.27 | 0.07 | -0.01 | -0.04 | -0.27 | 0.55 | 0.28 |
| Austria | -0.12 | 0.63 | 0.15 | 0.04 | 0.03 | 0.00 | 0.00 | 0.06 | -0.17 | 0.26 | 0.09 |
| Belgium | -0.26 | 1.17 | 0.19 | -0.07 | -0.05 | 0.03 | -0.04 | 0.12 | -0.22 | 0.29 | 0.07 |
| Bolivia | 0.04 | 0.97 | 0.56 | 0.60 | 0.28 | 0.14 | 0.03 | -0.03 | 0.00 | 0.42 | 0.42 |
| Brazil | 0.43 | 0.52 | 0.34 | 0.77 | 0.45 | 0.13 | -0.11 | 0.05 | -0.22 | 0.74 | 0.52 |
| Bulgaria | -0.11 | 1.40 | -0.20 | -0.31 | -0.26 | -0.04 | -0.02 | -0.15 | -0.42 | -0.04 | -0.46 |
| Canada | -0.26 | 1.30 | 0.68 | 0.42 | 0.31 | 0.14 | -0.01 | 0.03 | -0.60 | 1.06 | 0.46 |
| Chile | -0.04 | 0.77 | 0.28 | 0.25 | 0.18 | 0.07 | -0.01 | 0.02 | -0.01 | 0.28 | 0.26 |
| China | -0.08 | 2.84 | 0.42 | 0.34 | 0.14 | 0.01 | -0.14 | 0.00 | -0.36 | 0.38 | 0.02 |
| Colombia | -1.18 | 4.37 | 1.38 | 0.20 | 0.11 | 0.18 | 0.01 | -0.03 | -0.02 | 0.29 | 0.27 |
| Costa Rica | 0.24 | 0.14 | 0.08 | 0.32 | 0.24 | 0.11 | -0.01 | 0.09 | -0.28 | 0.72 | 0.43 |
| Croatia | -0.13 | 0.79 | 0.07 | -0.07 | -0.05 | 0.02 | -0.05 | -0.15 | -0.29 | 0.06 | -0.23 |
| Cyprus | -0.31 | 1.07 | 0.95 | 0.64 | 0.47 | 0.01 | -0.04 | 0.25 | -0.67 | 1.37 | 0.70 |
| Czech Rep. | 0.03 | 1.78 | 0.25 | 0.28 | 0.22 | 0.15 | 0.01 | 0.03 | -0.08 | 0.49 | 0.41 |
| Denmark | -0.07 | 2.00 | 0.22 | 0.15 | 0.13 | 0.00 | -0.06 | -0.08 | -0.27 | 0.28 | 0.00 |
| Dominican | -0.27 | 1.84 | 1.00 | 0.73 | 0.44 | 0.15 | 0.00 | -0.03 | -0.21 | 0.78 | 0.57 |
| Ecuador | -1.04 | 1.54 | 1.32 | 0.27 | 0.17 | 0.39 | 0.17 | 0.01 | -0.23 | 0.97 | 0.74 |
| Estonia | -0.01 | 4.52 | 0.16 | 0.15 | 0.10 | 0.04 | -0.03 | -0.13 | -0.15 | 0.14 | -0.01 |
| Finland | -0.32 | 3.30 | 0.44 | 0.12 | 0.09 | -0.01 | -0.02 | -0.05 | -0.66 | 0.68 | 0.02 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| France | 0.15 | 0.66 | 0.26 | 0.41 | 0.33 | -0.02 | -0.06 | 0.01 | -0.16 | 0.43 | 0.27 |
| Georgia | 0.05 | 1.96 | -0.05 | 0.00 | 0.00 | 0.04 | -0.07 | 0.02 | 0.04 | -0.05 | -0.01 |
| Germany | -1.15 | 1.60 | 0.80 | -0.35 | -0.26 | 0.16 | -0.06 | 0.14 | -0.83 | 0.81 | -0.01 |
| Greece | -0.23 | 1.23 | 0.45 | 0.22 | 0.17 | 0.05 | -0.09 | 0.12 | -0.32 | 0.57 | 0.25 |
| Hungary | -0.20 | 4.90 | -0.29 | -0.50 | -0.40 | -0.08 | -0.01 | 0.10 | -0.15 | -0.24 | -0.40 |
| India | 0.48 | -0.11 | -0.04 | 0.44 | 0.21 | 0.11 | -0.01 | 0.00 | -0.12 | 0.44 | 0.32 |
| Indonesia | 0.10 | 0.80 | 0.30 | 0.41 | 0.18 | 0.08 | 0.00 | 0.07 | -0.19 | 0.51 | 0.33 |
| Ireland | -0.04 | 0.28 | 0.08 | 0.05 | 0.03 | 0.02 | -0.01 | -0.04 | -0.45 | 0.46 | 0.00 |
| Israel | -0.92 | 1.96 | 1.09 | 0.18 | 0.15 | 0.08 | 0.00 | 0.02 | -1.04 | 1.29 | 0.25 |
| Italy | -0.25 | 0.80 | 0.04 | -0.21 | -0.15 | -0.14 | -0.08 | -0.03 | -0.48 | 0.09 | -0.40 |
| Japan | -0.01 | 1.42 | 0.40 | 0.38 | 0.26 | -0.05 | -0.11 | 0.03 | 0.38 | -0.24 | 0.14 |
| Kazakhstan | -0.16 | 1.16 | 0.25 | 0.10 | 0.05 | -0.03 | -0.01 | -0.05 | -0.33 | 0.29 | -0.04 |
| Korea | -0.44 | 2.51 | 0.60 | 0.16 | 0.11 | 0.01 | -0.03 | 0.01 | -0.32 | 0.41 | 0.10 |
| Latvia | -0.26 | 1.36 | -0.35 | -0.61 | -0.45 | 0.01 | -0.07 | -0.19 | -0.51 | -0.19 | -0.70 |
| Lithuania | 0.46 | 2.91 | -0.70 | -0.25 | -0.15 | -0.18 | -0.06 | -0.21 | -0.29 | -0.31 | -0.60 |
| Malaysia | 0.16 | 0.72 | 0.36 | 0.51 | 0.34 | 0.07 | -0.01 | 0.01 | -0.19 | 0.59 | 0.40 |
| Mexico | -0.83 | 1.85 | 1.00 | 0.16 | 0.11 | 0.10 | -0.07 | 0.13 | -0.52 | 0.80 | 0.27 |
| Moldova | -0.18 | 7.58 | 0.86 | 0.68 | 0.51 | -0.12 | -0.04 | -0.05 | -0.07 | 0.37 | 0.30 |
| Morocco | -0.06 | 1.74 | 0.67 | 0.61 | 0.40 | 0.06 | -0.07 | -0.02 | -0.06 | 0.43 | 0.36 |
| Netherlands | -1.29 | 2.14 | 0.38 | -0.91 | -0.64 | 0.26 | -0.03 | -0.09 | -0.68 | 0.18 | -0.50 |
| New Zealand | -0.45 | 1.56 | 0.72 | 0.26 | 0.20 | 0.09 | 0.01 | -0.01 | -0.85 | 1.14 | 0.28 |
| Norway | -0.41 | 1.70 | 0.92 | 0.50 | 0.36 | 0.07 | -0.04 | -0.07 | -0.47 | 0.79 | 0.32 |
| Paraguay | 0.24 | 0.48 | 0.24 | 0.48 | 0.28 | 0.02 | -0.04 | 0.00 | -0.06 | 0.33 | 0.27 |
| Peru | -0.65 | 2.77 | 0.80 | 0.16 | 0.07 | 0.13 | -0.04 | -0.01 | -0.45 | 0.59 | 0.14 |
| Philippines | 0.03 | 1.01 | 0.41 | 0.45 | 0.24 | 0.07 | 0.02 | -0.03 | -0.21 | 0.51 | 0.30 |
| Poland | 0.01 | 1.03 | 0.24 | 0.25 | 0.15 | -0.01 | -0.04 | -0.01 | -0.23 | 0.33 | 0.10 |
| Portugal | -0.37 | -1.39 | -0.16 | -0.53 | -0.29 | -0.08 | -0.07 | 0.14 | -0.50 | 0.19 | -0.31 |
| Romania | 0.57 | 1.62 | -0.13 | 0.44 | 0.28 | -0.12 | -0.15 | -0.03 | 0.10 | -0.11 | -0.02 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Russia | -0.29 | 2.56 | -0.03 | -0.32 | -0.26 | 0.08 | 0.00 | -0.08 | -0.23 | -0.03 | -0.26 |
| Singapore | -0.30 | 2.12 | 0.50 | 0.20 | 0.16 | 0.05 | -0.01 | 0.02 | -0.14 | 0.37 | 0.23 |
| Slovakia | 0.04 | 0.92 | 0.13 | 0.17 | 0.13 | 0.14 | 0.00 | -0.01 | -0.33 | 0.58 | 0.25 |
| Slovenia | -0.17 | 1.84 | -0.03 | -0.21 | -0.16 | 0.00 | -0.01 | -0.03 | -0.17 | -0.03 | -0.20 |
| Spain | 0.16 | -0.36 | -0.15 | 0.01 | 0.01 | -0.01 | -0.04 | 0.03 | -0.86 | 0.85 | -0.01 |
| Sweden | -0.83 | 3.69 | 0.36 | -0.46 | -0.37 | 0.01 | -0.01 | 0.02 | -0.60 | 0.26 | -0.35 |
| Switzerland | 0.14 | 0.57 | 0.29 | 0.44 | 0.34 | 0.05 | -0.02 | 0.08 | -0.01 | 0.46 | 0.45 |
| Thailand | -0.38 | 3.41 | 1.25 | 0.87 | 0.31 | 0.11 | -0.10 | -0.02 | -0.06 | 0.37 | 0.30 |
| Turkey | -0.10 | 1.62 | 0.79 | 0.69 | 0.46 | -0.01 | -0.11 | 0.04 | -0.32 | 0.70 | 0.37 |
| UK | -0.01 | 0.85 | 0.23 | 0.21 | 0.17 | 0.11 | 0.00 | -0.05 | -0.34 | 0.55 | 0.22 |
| USA | -0.05 | 0.84 | 0.38 | 0.33 | 0.26 | 0.02 | -0.02 | 0.05 | -0.42 | 0.73 | 0.31 |
| Uruguay | -0.28 | 1.05 | 0.20 | -0.08 | -0.05 | 0.09 | 0.00 | -0.12 | -0.36 | 0.27 | -0.09 |

Table 4 shows the elasticity of industrial reserve army of definition $S_2$ to income. As Table exhibits, only 17 out of 60 countries have negative elasticity. 11 of these 17 are transition countries. It seems that transition countries have experienced not only economic shock but also a stagnation in population. More than this, these countries have been the source of significant outflow migration. On the other hand, 43 countries have positive elasticity. The highest elasticity is of Ecuador (0.74) while the lowest elasticity is for Latvia (-0.70). For most of the countries, the contribution of the elasticity of inactive labour force is positive. With a few exceptions, the contribution of the elasticity of unpaid labour is negative. It is interesting that for most of the developed capitalist countries (USA, UK, Germany, France, Canada) and new factories of the world (China and India) the contribution of the unemployed is positive which means that economic growth tends to increase the size of unemployed in these countries.

**Final Remarks and Conclusion**

The Industrial Reserve Army is a *differentia specifica* of capital accumulation in capitalism. In this respect, the enlargement or contraction of the size of industrial reserve army point to the increase or decrease in the rhythm of capital accumulation. Even though, labour has not been yet capable of freely floating across the borders, the increased immigration over the globe has inverted the relationship between labour force growth and growth. In the new set up, the growth of labour force has been significantly endogenized. In this respect, the labour power flows from poor countries to rich countries, from poor regions to rich regions. No doubt, this loosens the population growth constraint.

The increase in the size of industrial reserve army, in this framework, has been fed by two distinct dynamics. The first one, which is briefly outlined in Capital I in the chapter "The

General Law of Accumulation" arises from the direct effect of capital accumulation in the sense that it emerges as the result of changing organic composition of capital and changing technical requirements. We call this "Direct Marxian Effect". The second one originates from the accumulation-induced labour force growth and is called "Indirect Marxian effect". The accumulation which can be ascribed to this second effect can not be called a pure Malthusian effect, since it does not operate on a biological basis. Rather, it is a direct outcome of capital accumulation.

Using country level data, we aim to estimate direct, indirect and total Marxian effects using an econometric regression approach. As a summary we give Table 5 counting countries having positive and negative elasticity. As Table indicates, for self-employment, number of countries having positive direct, indirect and total elasticity are higher than that having negative elasticity in each category. This implies that for the majority of countries capital accumulation tends to crowd the ranks of self-employed. For the unpaid family workers, the number of countries having negative elasticity under all categories is far higher than that having positive elasticity. On the other hand, for unemployed, it seems that direct Marxian effect is positive for most of the countries (48) while Indirect Marxian effect is positive for a majority (46 countries). The number of countries having positive total elasticity for unemployed (31) is nearly equal to the number of countries having negative total elasticity (29). This pattern is also observed for direct and indirect Marxian elasticity for inactive labor force. However, for total effect, the number of countries having a positive elasticity (46) is much higher than that of countries having a negative elasticity (14).

On the other hand, for the elasticity of total reserve labour army, we should look for the rows of S1 and S2. For the narrow reserve labour army definition S1 (which incorporates self-employed, unemployed and unpaid family workers), it seems that direct Marxian effect (instant elasticity of the reserve labour army to accumulation) is negative for most of the countries which

indicates that capital accumulation tends to decrease the sum of these three components. On the other hand, for 46 countries, the indirect effect is positive. The total elasticity is positive for exactly half of the countries. For indirect and direct Marxian effects, the same trends are observed for $S_2$; however, total elasticity of $S_2$ is positive for 42 countries.

**Table 5: Number of Countries Having Negative/Positive Elasticity**

|  | Direct Marxian Effect | | Indirect Marxian Effect | | Total Marxian Effect | |
|---|---|---|---|---|---|---|
|  | Positive | Negative | Positive | Negative | Positive | Negative |
| Self employment | 34 | 26 | 33 | 27 | 46 | 14 |
| Unpaid | 13 | 47 | 26 | 34 | 9 | 51 |
| Unemployed | 12 | 48 | 46 | 14 | 31 | 29 |
| Inactive Labor Force | 17 | 43 | 49 | 11 | 46 | 14 |
| *Ind. Res. Army $S_1$* | *13* | *47* | *47* | *13* | *30* | *30* |
| *Ind. Res. Army $S_2$* | *4* | *56* | *51* | *9* | *42* | *18* |

There are some notable stylized facts provided by figures. First, especially transition countries tend to have negative elasticity for constituent components and industrial reserve army definitions $S_1$ and $S_2$. Majority of core capitalist countries have positive total elasticity for self-employed, unemployed, inactive labor force, $S_1$ and $S_2$. On the other hand, all, except one (Austria), have negative elasticity for unpaid family workers. Finally, majority of developing capitalist countries have positive elasticity for all the components, save unpaid family workers. The elasticity of industrial reserve army of definitions $S_1$ and $S_2$ are again positive for most of them.

All these figures indicate that there is an observable correlation between the accumulation of capital and accumulation of the reserve industrial army for most of the countries in the list. However, the results should be evaluated cautiously since the time span of data for some countries is not too long. Therefore, this analysis should be done with a larger data set. Nevertheless, the results indicate that, the accumulation of industrial reserve army itself is not an exogenous process, rather it is central to the accumulation of capital.

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**Apendix A: The Shares of Industrial Reserve Army in Total Labor Force**
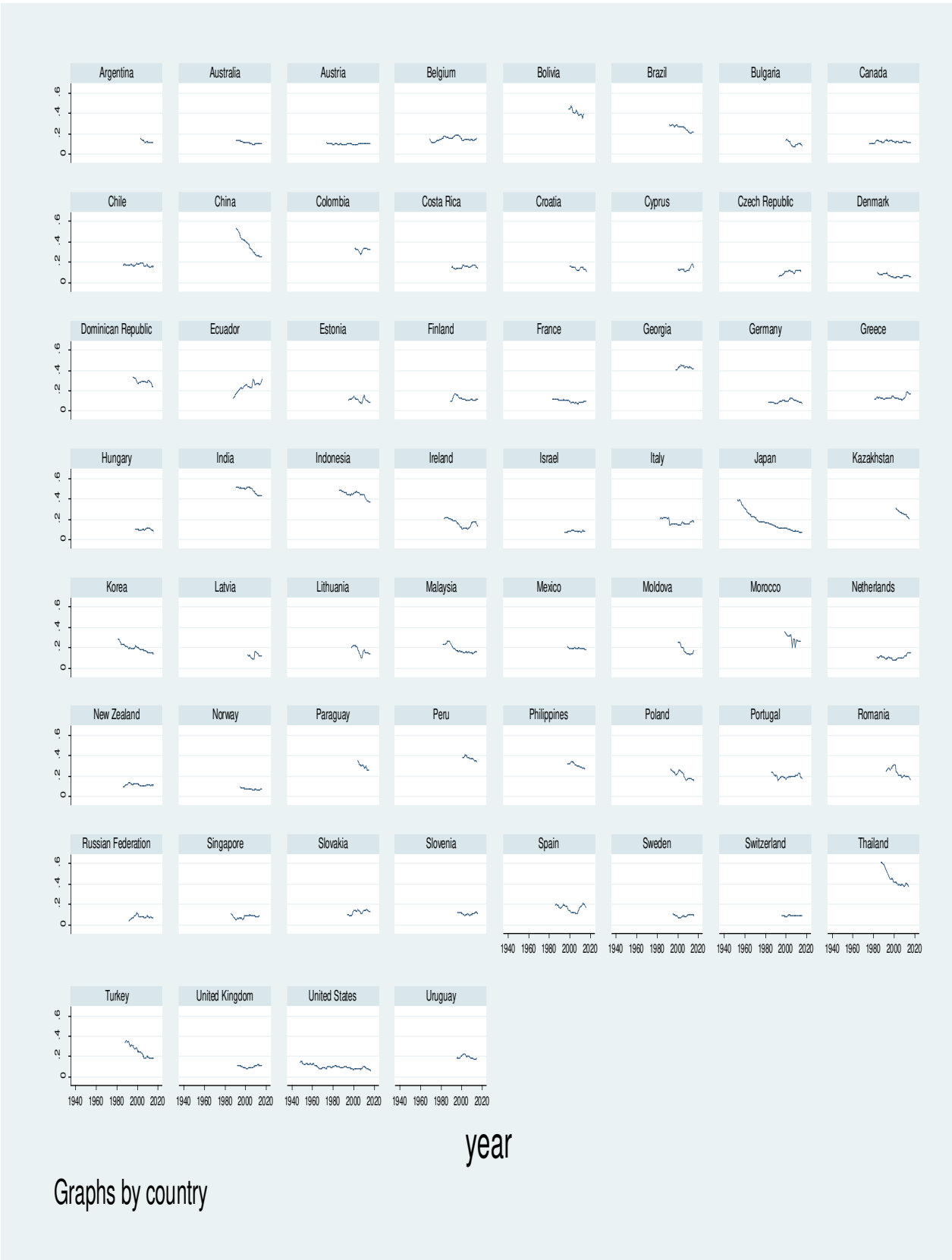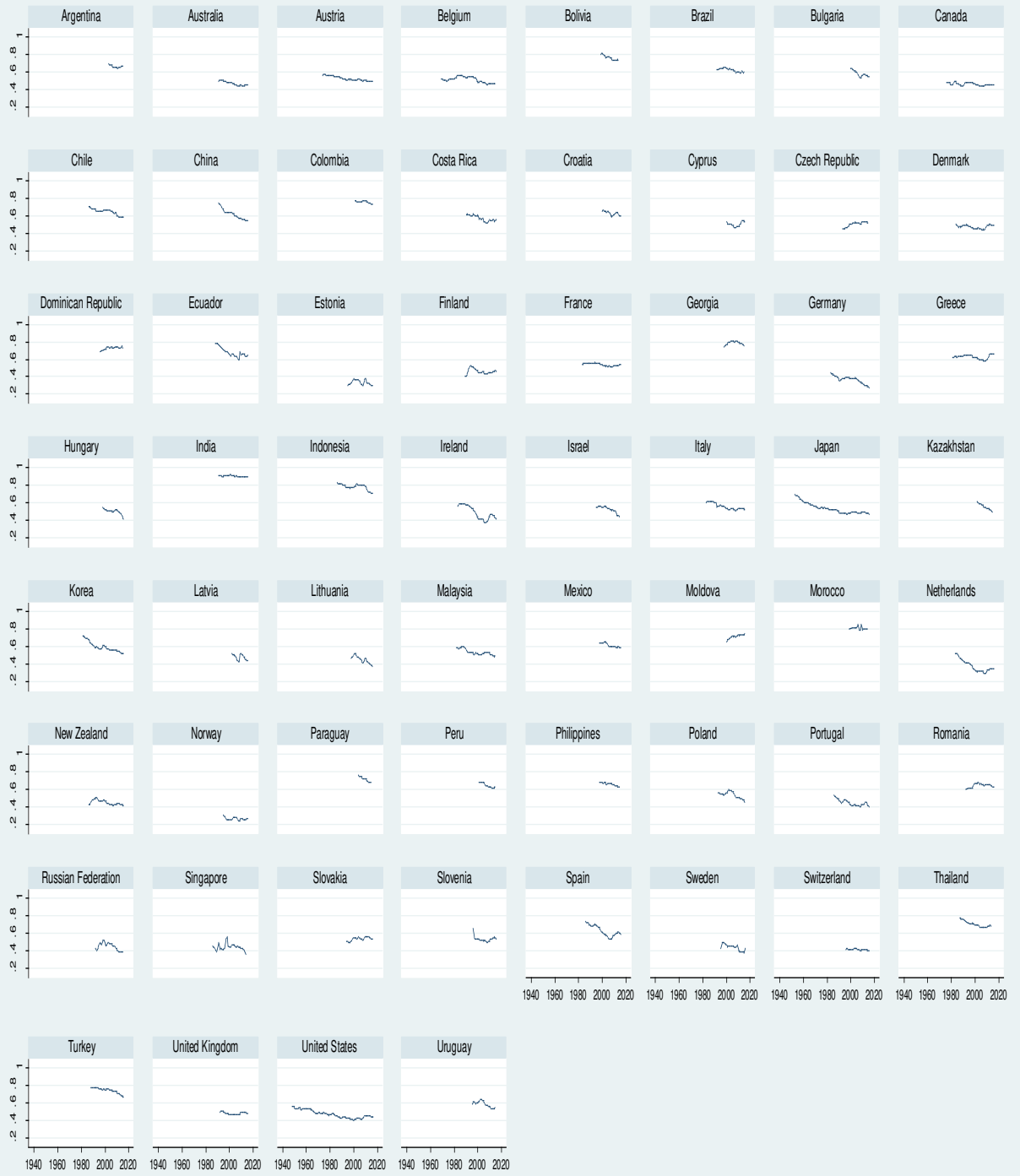
Figure A. 1a:  The Share of $S_1$ in Labor Force (%)

Figure A. 1b: The Share of $S_2$ in Labor Force (%)

Graphs by country

## Appendix B: The Labor Force Data Source

| Country | Data Source | Time Span | Country | Data Source | Time Span |
|---------|-------------|-----------|---------|-------------|-----------|

| | | | | | |
|---|---|---|---|---|---|
| Argentina | Instituto Nacional de Estadística y Censos | 2003-2015 | Japan | Statistics Bureau | 1953-2016 |
| Australia | ILO Laborsta | 1991-2016 | Kazakhstan | ILO Laborsta | 2002-2015 |
| Austria[a] | Statistics Austria | 1974-2016 | Korea | Statistcs Korea | 1981-2016 |
| Belgium[b] | Statistics Belgium | 1969-2015 | Latvia | Central Statistical Bureau of Latvia | 2002-2016 |
| Bolivia | Instituto Nacional de Estadística | 1999-2014 | Lithuania | ILO Laborsta | 1998-2016 |
| Brazil[c] | Instituto Brasileiro de Geografia e Estatística (IBGE) | 1992-2015 | Malaysia | Department of Statistics Malaysia | 1982-2015 |
| Bulgaria | ILO Laborsta | 2000-2016 | Mexico | Instituto Nacional de Estadística, Geografía (INEGI) | 1998-2016 |
| Canada | Statistics Canada | 1976-2016 | Moldova | National Bureau of Statistics | 2000-2016 |
| Chile | Instituto Nacional de Estadísticas | 1986-2016 | Morocco | ILO Laborsta | 1998-2014 |
| China | ILO Laborsta (Modelled Estimates) | 1991-2016 | Netherlands[f] | ILO Laborsta | 1983-2016 |
| Colombia | Departamento Administrativo Nacional de Estadística (DANE) | 2001-2016 | New Zealand | ILO Laborsta | 1986-2016 |
| Costa Rica | ILO Laborsta | 1990-2016 | Norway | ILO Laborsta | 1995-2016 |
| Croatia | ILO Laborsta | 2000-2016 | Paraguay | Dirección General de Estadìstica, Encuestas y Censos | 2004-2015 |
| Cyprus | ILO Laborsta | 2000-2016 | Peru | Instituto Nacional de Estadística e Informática (INEI) | 2001-2015 |
| Czech Rep. | Czech Statistical Office | 1993-2015 | Philippines | ILO Laborsta | 1998-2015 |
| Denmark | ILO Laborsta | 1983-2016 | Poland | ILO Laborsta | 1993-2016 |
| Dominican Rep. | ILO Laborsta | 1996-2015 | Portugal | ILO Laborsta | 1986-2016 |
| Ecuador | ILO Laborsta | 1988-2016 | Romania | ILO Laborsta | 1995-2016 |
| Estonia | Statistics Estonia | 1995-2016 | Russia | ILO Laborsta | 1992-2016 |
| Finland[d] | ILO Laborsta | 1989-2016 | Singapore[g] | ILO Laborsta | 1986-2014 |
| France | ILO Laborsta | 1983-2016 | Slovakia | Statistical Office of the Slovak Republic | 1994-2016 |
| Georgia | ILO Laborsta | 1998-2015 | Slovenia | ILO Laborsta | 1996-2016 |
| Germany | ILO Laborsta | 1983-2016 | Spain | ILO Laborsta | 1986-2016 |
| Greece | National Statistical Service of Greece | 1981-2016 | Sweden | ILO Laborsta | 1995-2016 |
| Hungary[e] | Hungarian Central Statistical Office | 198-2016 | Switzerland | ILO Laborsta | 1996-2016 |
| India | ILO Laborsta (Modelled Estimates) | 1991-2016 | Thailand | ILO Laborsta | 1987-2014 |

| Indonesia | BPS- Statistics Indonesia | 1986-2016 | Turkey | Turkish Statsistical Institute | 1988-2016 |
| --- | --- | --- | --- | --- | --- |
| Ireland | ILO Laborsta | 1983-2016 | UK | Office for National Statistics | 1992-2016 |
| Israel | ILO Laborsta | 1995-2015 | USA[h] | Bureau of Labor Statistics | 1952-2017 |
| Italy | ILO Laborsta | 1983-2016 | Uruguay | Instituto Nacional de Estadística | 1995-2015 |

Notes: [a]: Data for employers and unpaid family workers are missing. [b]: The sum of employers and self-employed is given. [c]: Data for 1994, 2000 and 2010 are missing. [d]: Data for employer are missing between 1990-1993. [e]: Employer data missing. [f]: Up to 1988, data for even numbered years are missing. [g]: Data for the years 1990 and 2000 are missing. [h]:Employer data missing.