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Abstract

This paper develops a model of distribution to analyze the effects of neoliberal globalization on labor in the developing countries. Distribution is determined via wage bargaining by workers, price setting by firms, and improvements in productivity. The full model has the nature of a Post-Keynesian conflicting claims model for an open economy under the pressure of globalization. The conflict inflation is extended to an open economy case with imported inputs, where the pass through effect of the depreciation of the local currency also becomes important. The variables that reflect the macroeconomic effects of globalization are modeled as parameters that affect the bargaining power of labor on two levels: the first group is related with the interaction with the global economy, i.e. international trade, and FDI. The second is about the domestic fiscal and monetary policy variables, which are particularly related to the specific form that globalization takes in the era of neoliberalism, i.e. government expenditures, and the interest rate. Then the model is solved for distribution of income, i.e. the wage share, thus a reduced form of the model is obtained, which is estimated in a companion paper to test whether the change in the international and domestic macroeconomic environment has affected the decline the labor's share.

1. Introduction

This paper develops a model of distribution to analyze the effects of neoliberal globalization on labor in the developing countries. Distribution is determined via wage bargaining by workers, price setting by firms, and improvements in productivity. The full model has the nature of a Post-Keynesian conflicting claims model for an open economy under the pressure of globalization. The conflict inflation is extended to an open economy case with imported inputs, where the pass through effect of the depreciation of the local currency also becomes important. The variables that reflect the macroeconomic effects of globalization are modeled as parameters that affect the bargaining power of labor on two levels: the first group is related with the interaction with the global economy, i.e. international trade, and FDI. The second is about the domestic fiscal and monetary policy variables, which are particularly related to the specific form that globalization takes in the era of neoliberalism, i.e. government expenditures, and the interest rate. Then the model is solved for distribution of income, i.e. the wage share, thus a reduced form of the model is obtained, which is estimated in a companion paper (Onaran, 2004) to test whether the change in the international and domestic macroeconomic environment has affected the decline the labor's share.

The stylized facts of the developing economies point out that the demand effects and the bargaining effects of neoliberal globalization generate a decline in labor's share. The decline in labor's share on the other hand further enhances the aggregate demand deficiency, creating the main conflict of neoliberal regime of accumulation. Although there is a wide literature with a range of controversial positions about the effects of liberalization on the macroeconomic performance of the economies, less attention is paid to the different effects on distribution and employment. The seminal works by Lee and Jayadev (2005), Harrison (2002), Diwan (2001), Rodrik (1998), Fallon and Lucas (2002), Boratav et. al. (1996), Crotty and Dymski, (2000), Crotty and Lee (2002, 2004), Pollin (2002), which either present an in depth analysis of the effect of neoliberalism on labor, or discuss cross-country empirical evidence about labor's share are the exceptions in this field, according to the best of our knowledge at the time when this work was prepared. These studies are also different from the mainstream studies that focus on individual income, and the effects of liberalization on growth, poverty and inequality (e.g. Dollar and Kraay, 2001; Barro, 1999).

The rest of the paper is organized as follows: Section 2 presents a basic model of distribution. Section 3 introduces the variables that reflect the effect of neoliberal globalization on distribution.

2. A Wage Bargaining Model

In this section, we present a model for the distribution of the value added produced. Distribution is jointly determined via wage bargaining by workers, price setting by firms, and improvements in productivity. The full model has the nature of a Post-Keynesian conflicting claims model for an open economy, where globalization increases the distributional conflicts. The conflict inflation is extended to an open economy case with imported inputs, where the pass through effect of the depreciation of the local currency also becomes important.

The workers bargain for a nominal wage per worker, W, with a targeted purchasing power, given the expected price level, P^e, and a targeted share out of value added, given the expected productivity, $PROD^e$. The bargained share of labor in value added, WS^B, is a function of the bargaining power of workers, which in turn depends on the labor market conditions, as well as

the macroeconomic environment. The labor market conditions are reflected via the rate of employment, E/N, i.e. employment/labor force, which can be consistent with a Marxian reserve army model, as well as a typical wage bargaining equation in a NAIRU model. The macroeconomic variables that are concerned in this study are the variables that reflect the change in the terms of bargaining due to globalization and the hegemony of neoliberal policies, for a given level of economic activity. For convenience of presentation, as of now we define a vector of macroeconomic variables, macro, and discuss the details of these variables, once the basic reduced form of wage share is derived. So, WS^B can be written as follows:

$$WS_t^B = \frac{W_t}{P_t^e \, PROD_t^e} = b_o \left(\frac{E_t}{N_t} \right)^{b_1} (macro)^{b_2} \qquad (1)$$

All coefficients are positive numbers. Taking the logarithm and rearranging the terms logW, i.e. w, can be written as follows, where all the lower case letters indicate the logarithm of the respective variable:

$$w_t = b_0 + b_1 e_t - b_1 n_t + b_2 macro + p_t^e + prod_t^e \qquad (2)$$

e is determined via a simple general labor demand function, where employment is a positive function of output, y, and a negative function of the actual unit labor cost, which is also the actual share of labor in value added, ws, and there is a certain hysteresis effect from lagged employment. The model is built in the most general form; whether the labor costs have a significant effect on employment or not will effect the parameter estimations in the reduced form.

$$e_t = a_0 + a_1 y_t - a_2 ws_t + a_3 e_{t-1} \qquad (3)$$

Substituting the same labor demand function for lagged employment, and redefinig the coefficients, we obtain[1]:

$$e_t = e_0 + e_1 y_t + e_2 y_{t-1} - e_3 ws_t - e_4 ws_{t-1} \qquad (3a)$$

The expectations about price and productivity are determined via imperfect foresight, and adaptive expectations:

$$p_t^e = \boldsymbol{a} \cdot p_{t-1} + \boldsymbol{b} \cdot p_t \qquad (4)$$

and

$$prod_t^e = \boldsymbol{s} \cdot prod_{t-1} + \boldsymbol{w} \cdot prod_t \qquad (5)$$

The coefficients, a, ß, s, ?, are all less than one, and reflect indeed not only the formation of the expectations, but also the bargaining power of the workers to reflect price and productivity

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[1] In this case there would be a lagged effect from the second lag of employment, but we suppress this effect for convenience.

changes to wages. Particularly, if a+ß<1, and s+?<1, then in addition to a perfect foresight problem, wages are only imperfectly indexed to inflation and productivity.

The actual wage share (in logarithms), on the other hand, is by definition bargained wage minus actual price minus actual productivity (all in logarithms):

$$ws_t = w_t - p_t - prod_t \qquad (6)$$

Substituting 3a into 2 to obtain 2a, and then 2a, 4, and 5 in 6, we get:

$$ws_t = \frac{b_0 + b_1(e_0 + e_1 y_t + e_2 y_{t-1} - e_4 ws_{t-1}) - b_1 n_t + b_2 macro - (1-\boldsymbol{b})p_t + \boldsymbol{a}p_{t-1} - (1-\boldsymbol{w})prod_t + \boldsymbol{s}prod_{t-1}}{1 + b_1 e_3}$$

(7)

Accordingly, wage share is a positive function of y, a negative function of the unexpected change in the price level, thus the difference between the current price level, weighted by the parameter of estimation error (1-ß), and the past price level, weighted by its effect on expected price. This effect reflects the conflict inflation effect. Similarly, the wage share is a negative function of the unexpected productivity change. This may also be reflecting the imperfect indexation of wages to productivity changes, such that productivity increases are leading to increases in the profit share.

Next we define the pricing behavior of the firms. Prices are set as a mark-up over variable costs. Variable costs include the cost of production workers, and domestic and imported inputs. For simplicity, we abstract from domestic input costs. Then price (in logarithms) is equal to a mark-up rate, m, determined by the oligopolistic power of the firms, plus the unit labor cost, i.e. wage share, and a pass through effect from the current and past value of the exchange rate, x, which in turn depends on the degree of import dependence as well as the mark-up power of the firms (which jointly are reflected in the coefficients i_1 and i_2 below):

$$p_t = m + ws_t + i_1 x_t + i_2 x_{t-1} \quad (8)$$

Productivity is on the other hand by definition:
$$prod_t = y_t - e_t \qquad (9)$$

So far we have talked about simply the share of productive workers in value added, and their productivity. However, in empirical analysis we will observe the wage share of the total work force in value added. Thus a modification in the wage share (6) is required, such that it is defined as the wage bill of fixed and variable (productive) workers as a ratio to value added. Thus the actual wage share, ws (in logarithms again) is wage minus price minus the productivity of the total workers.

$$ws_t = w_t - p_t - prodtot_t \qquad 6a$$

The productivity of the total workers is on the other hand is equal to the logarithm of the ratio of output to the sum of the number of fixed workers (FE) and productive workers (E):

$$-prodtot = \ln\left(\frac{FE+E}{Y}\right) = \ln\left(\frac{FE}{Y} + \frac{1}{PROD}\right) = -prod - \log\left(\frac{E}{FE+E}\right) \quad \text{(9a)}$$

The last term in the above equation is the ratio of productive workers to total employment, which is an increasing function of output. Thus prodtot can be rewritten as:

$$prodtot_t = (1+\boldsymbol{d})y_t - e_t \quad \text{(9b)}$$

Substituting 3a into 9b to obtain 9c, and then 8, and 9c into 7, we get the reduced form equation for the wage share:

$$ws_t = \frac{\boldsymbol{l}_0 + \boldsymbol{l}_1 y_t + \boldsymbol{l}_2 y_{t-1} + \boldsymbol{l}_3 ws_{t-1} - (1-\boldsymbol{b})i_1 x_t - ((1-\boldsymbol{b})i_2 - \boldsymbol{a}i_1)x_{t-1} - b_1 n_t + b_2 macro}{\boldsymbol{j}} \quad \text{(7a)}$$

where
$$\boldsymbol{l}_o = b_0 + e_0(1+b_1 - \boldsymbol{w} - \boldsymbol{s}) - m(1-\boldsymbol{b}+\boldsymbol{a})$$
$$\boldsymbol{l}_1 = e_1 b_1 - (1-\boldsymbol{w})(1+\boldsymbol{d}-e_1)$$
$$\boldsymbol{l}_2 = e_2(b_1 + (1-\boldsymbol{w})) + \boldsymbol{s}(1+\boldsymbol{d}-e_1)$$
$$\boldsymbol{l}_3 = -e_4 b_1 + \boldsymbol{a} - e_4(1-\boldsymbol{w}) + e_3 \boldsymbol{s}$$
$$\boldsymbol{j} = 2 + e_3(1+b_1 - \boldsymbol{w}) - \boldsymbol{b},$$

and the second lags of y, ws and x are dropped for convenience during the estimation process, related to the shortness of the time series data. f is always a positive coefficient.

The effect of production on the wage share will depend on the relative magnitudes of the positive bargaining effect via labor demand, and the negative effect via an unexpected increase in productivity, or the increase, which was not reflected to bargaining process. Thus the wage share can have a counter or pro-cyclical pattern, depending on these effects. Moreover, the parameters can also change during the business cycle, between expansion vs. recession years, making the cyclical behavior more complicated, as will be discussed in the empirical part. The effect of lagged growth on the wage share, on the other hand, depends on the positive bargaining effect via lagged labor demand effect, and the lagged productivity effect, which is expected to be mostly positive, since the output effect is supposed to dominate the employment effect of higher output on productivity. Even in cases when the latter is negative, this negative effect will rarely be big enough to offset the positive bargaining effect via labor demand.

The effect of the lag of the wage share will depend on the relative magnitude of the negative bargaining effect via decreased labor demand effect in the previous period, the negative effect via productivity increase in the current period, and the positive effect from past inflation, and past productivity, to the extent they are reflected into the bargaining process. Additionally, from an empirical point of view, the lagged wage share also reflects the persistence of the distribution, and the speed of adjustment.

Finally, the current value of the exchange rate is expected to have a negative effect on the wage share through its effect on current inflation, particularly significant when the imported

inputs have a high share in variable costs, and the firms are able to reflect import price changes to consumers. The coefficient of the lag of the exchange rate will be ambiguous depending on the relative magnitude of the negative effect through its effect on current price, and the positive effect through the indexation of wages to past inflation. This can also be jointly interpreted, in the sense that, what leads to a decline in the wage share is unexpected depreciation, i.e. the change in depreciation, which generates unexpected inflation.

Leaving aside the macroeconomic variables, this reduced form of the model for the wage share forms the basic model estimated in a companion study (Onaran, 2004). The reduced form is particularly useful for technical problems related to endogeneity in the case of price and employment. Besides, in the case of employment, there is the additional problem of the shortness of the time series data. Therefore the effect of inflation and unemployment on labor share will only take place implicitly in the estimations.

At the estimation stage we specify the model in difference form. This makes sense intuitively, i.e. the change in the wage share is defined as a function of growth (current and lagged), nominal depreciation rate of the currency (current and lagged), and its own lag. It also is technically reasonable, due to the existence of unit root not only in output and exchange rate, but also in the wage share.

3. Distribution and Globalization

The variables that reflect the macroeconomic effects of globalization are modeled as parameters that affect the bargaining power of labor, and intensify the conflicts in the struggle of distribution. The variables that will reflect the possible effects of globalization are two folded: the first group is related with the interaction with the global economy, i.e. international trade, and FDI. The second is about the domestic fiscal and monetary policy variables, which are particularly related to the specific form that globalization takes in the era of neoliberalism, i.e. government expenditures, and the interest rate. Obviously the changes in these variables affect the effective demand, and consequently employment and the bargaining power of the workers. However, they also may have further effects on the bargaining position of the workers. The empirical estimation will test, whether these variables, for a given level of economic activity. Moreover, in the absence of good time series indicators for the institutional variables, which effect the bargaining power of workers, like unionization, collective bargaining coverage, organizational strength, etc., the trends in these variables also reflect the general erosion in the position of labor vis a vi capital through the deregulation in the labor market, while trade liberalization, tight fiscal and monetary policies, and labor market deregulation usually has been implemented as part of a structural adjustment package.

The effect of international trade will be analysed separately with respect to exports and imports, different from the previous literature, which discuss the effect of the volume of trade. The mainstream orthodoxy is expecting a positive effect of an increase in the export intensity of production (export/output) on wages due to the increased labor intensity of production in developing countries with a comparative advantage in labor intensive industries. However, export oriented policies usually have been accompanied with a shift in the balance of power relations in favor of capital and the deregulation of the labor market, in order to alleviate the pressure of international competition over profits, and transfer the costs of adjustment to labor. Similarly increased import penetration into the economy can intensify the conflicts during the bargaining process, creating a downward pressure on wages. On the other hand, since these countries are highly import dependent, imported goods can simply be

complementary to labor, rather than being a substitute. Moreover, if the imported goods are not the substitutes of domestically produced goods, this effect will not be observed.

In the case of FDI, the positive expectation is again that an increase in FDI will not only increase the demand for labor, but by the transfer of more productive technology and better working relations in the firms with foreign capital, an increase in the ratio of FDI to GDP will create positive effects on wages. Obviously, the nature of FDI, i.e. whether it is in the form of equity capital or new investment in machinery and equipment, matters in the realization of the expected positive spill over effects. However, it is well known that low labor costs are one of the major factors that attract FDI. In this situation the threat of capital flight in case of the reversal of this relative labor cost advantage may generate a significant downward pressure over wages as the share of FDI in GDP increases. Moreover, if the FDI is mostly in terms of stock market transactions, rather than a genuine interest in long term investment, then the increase in the pressure over the firm through the shareholder valuation can lead to further conflicts in the bargaining process.

On the domestic side of the medallion, fiscal contraction as part of the neoliberal agenda creates further negative effects on wages, apart from its direct effects through reduced demand. First, a decline in the current expenditures of the government can be due to not only lower public employment, but also lower wage increases for the civil servants, which would have significant spill over effects to the public sector as well. Second, fiscal tightening would mean a decline in social welfare state expenditures like education, health, pension, or unemployment insurance, which also goes along with privatization in these sectors, leading to a decline in non-labor income. The consequent rise in the costs of job loss would moderate the militancy of workers during the wage bargaining process.

Financial liberalization, tight monetary policy and independent central banks, with anti-inflation as the sole target has been the other important domestic policy result of neoliberal globalization. The increase in the real interest rate of lending has been the end result, which resulted in lower investment, more fragility and uncertainty as opposed to the expectation of more savings and more investment. The rise in the interest rate could also have further effects in addition to the demand effects, reflecting the rise of the rentier, and the domination of the shareholder over the firms in the era of financialization. This process is also expected to intensify the conflict in the bargaining process. However, the low quality of the interest rate data is well known due to reporting problems, or even the lack of the data for lending rates in some cases. As an alternative measure of financialization, the share of interest payments in government expenditures will be used. This variable will also additionally reflect the effect of financial liberalization and the rise of the interest rates on an international scale, and the intensification of the public debt problem, which result in the crowding out of social welfare state expenditures. Both variables of financialization and tight monetary policy effects have not been studied in the literature as of yet.

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