



Laboratoire d'Economie d'Orléans

Document de Recherche

n° 2010-30

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Is Labour Paying the Price of the Crisis? »**

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Labour and Financial crises: Is labour paying the price of the crisis?*

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November 2010

Abstract

The paper investigates the relationship between the distribution of income between labour and capital and financial crises. If economists generally agree on the long-term stability of this distribution, recent figures showed that short-term variation may be significant, especially during periods of crisis. Different studies showed that this hypothesis of stability was not confirmed in the last thirty years, mainly due to the redistributive impact of globalization on different sources of income Harrison (2002); Sylvain (2008). If Diwan (2001) focused on the currency crisis, we propose to see if this analysis can be extended to the banking crisis and how it can influence the relative bargaining power of labour and capital within the firms. For this, we use an international panel-data of the share of labor in GDP. We confirm the existence of a negative trend for labour share, largely explained by financial crises. However, the results differ for currency and banking crises. Currency crises affect negatively labour share while banking crises affect primarily capital returns, at least before the crisis. In the three years following a currency crisis, labour share tends to be about 0.9 percentage points lower in average.

JEL classification: E24, E25, F32, I38

Keywords: Financial Crisis, Labour share, Inequalities, Banking Crises, Currency Crises

***Acknowledgements:** We would like to thank the University Paris 1 Panthéon Sorbonne, and the *Panthéon-Sorbonne Doctoral School of Economics (Collège des écoles doctorales)* for financial support. We also would like to thank Fabian Gouret (Universitat de Barcelona) for very helpful comments and suggestions, Nicolas Berman (Graduate Institute of International and Development Studies) and Arnaud Sylvain (CEDERS) for providing us tractable data, respectively on financial crises and on labour share. This paper also benefits from the comments of the Fudan University - Paris 1 workshop participants. All remaining mistakes are obviously ours.

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Résumé

Ce papier étudie la relation entre la distribution du revenu entre travail et capital et crises financières. Si les économistes s'accordent généralement sur la stabilité de long-terme de cette distribution, les évolutions récentes montrent que des variations de court-terme peuvent être significatives, notamment en périodes de crises. Différentes études ont montré que cette hypothèse de stabilité n'était pas confirmée dans les 30 dernières années, notamment du fait de l'impact redistributif de la mondialisation sur différentes sources de revenus (Harrison 2002, Sylvain 2008). Si Diwan (2001) s'intéresse aux crises de change, nous proposons de voir si cette analyse peut être étendue aux crises bancaires et comment cela peut influencer sur le pouvoir de négociation entre travail et capital au sein des entreprises. Pour cela, nous utilisons des données internationales en panel de la part du travail dans le PIB. Nous confirmons l'existence d'une tendance négative pour la part du travail, largement expliquée par les crises financières. Les résultats diffèrent toutefois pour les crises de changes et crises bancaires. Les crises de changes ont un impact négatif sur la part du travail alors que les crises bancaires affectent d'abord le rendement du capital, au moins avant la crise. Dans les trois ans précédant une crise de change, la part du travail tend à être de 0.9 points inférieure en moyenne.

1 Introduction

In the context of the current financial crisis, one of the questions often asked not only by academics and policy makers, but also by the man in the street is the following: are the workers going to be mainly hit by the consequences of the crisis; in other words is labour going to pay the price for the crisis. There are several reasons to believe that labour will be mainly targeted by a financial crisis. In the context of crisis, the workers bargaining power is weakening (Harrison, 2002), due not only to the unemployment fast increase (ILO and IMF, 2010) but also to the entrepreneurs expectations. The crisis is creating an ex-post "animal spirit", where layoffs are highly expected from the market. Another explanation may be that labour is less mobile than capital, so that if capital can be easily reallocated to other sectors, regions or countries, labour cannot.

Our research was largely motivated by the empirical work of Isaak Diwan (2001). Using a database of labour share from 1972 until 2000, Diwan shows that before exchange rate crisis, labour share was increasing, and after the crisis it was dramatically dropping, never catching up its pre-crisis level.

In the literature, two different approaches are often point out to explain the current crisis: a micro and a macro one. The first one is attributing the cause of the crisis to balance sheet mismanagement or poor regulation of the banking sector. A second approach is identifying the crisis with the macroeconomic policy of the FED: the unsustainable and unrealistic low interest rate facilitated the emergence of bubbles. Both approaches are mainly financial or monetary oriented. They do not pay enough attention to the labour and income distribution effects of the crisis. They do not address sufficiently the causality issue between the past and present crisis and the labour market dynamics.

In this paper we study in which countries labour share is mainly affected by the crisis. The Spanish example shows that in the countries where specialization and over investment in some sectors create large and rapid shock on the labour market. In Spain, unemployment reaches the level of 20.5% of the labour force. Countries with a more diversified pre-crisis investment are

probably going to request less labour adjustment. Hence it is possible to suppose that on the short run, labour share will be affected by crisis. In this paper we investigate the macroeconomic relation between labour share in the GDP and financial/banking crisis. We are discussing the main channels affecting labour share. We underline the role of the institution framework, especially the social protection as cushion or shock absorber of the crisis.

The paper is organized as follows. In the first part we are presenting a theoretical framework largely inspired by the model of Harrison (2002), in the second section of the paper we present the database used for the research. Finally we discuss and present our preliminary regressions on the labour share around the world.

2 Theoretical framework

We follow the theoretical framework proposed by Harrison (2002). If product and factor markets were perfectly competitive, the share of payments to workers would only depend on product prices and the quantity of capital and labour available. Here, the firms have the possibility to make excess profits and firms and employees share the rent according to their bargaining power which is endogenously determined. In the Harrison framework, globalization affects the bargaining power through capital mobility. Here, financial crisis and social protection may have an indirect impact on the bargaining power and thus, on the respective income share devoted to capital and labour.

There are two factors of production (capital and labour). The representative firms uses a vector v of inputs with v_L units of labour and v_K units of capital. The competitive returns to factor is given by the vector $w_0 = (w_{L0}w_{K0})$. Under perfect competition, the wage would be w_{L0} and the return to capital w_{K0} . Excess profits are denoted by the vector $w = (W_Lw_K)$. The utility functions for labour and capital are given by the following equations:

$$U_L = (w_L - W_{L0}) \quad (1)$$

$$U_K = (w_K - w_{K0}) \quad (2)$$

The revenue function is $G(P, v)$ and the price vector P is a function of the production function $Y(v)$. Under imperfect competition, excess profits are:

$$G(P(Y(v)), v) - w_0 v \quad (3)$$

Firms and workers maximize the outcome and then bargain over the rent. The first order condition is thus:

$$\frac{\delta Y}{\delta v} P = \mu w_0 \quad (4)$$

The optimal choice of v is: $v^* = R(P, \mu, w_0)$. Equation (3) can be rewritten as:

$$Rents = G(R) - w_0 R \quad (5)$$

λ_L and λ_K are respectively the share of the rents get respectively by labour and capital (with $\lambda_K (= 1 - \lambda_L)$). The outcome of the bargaining can be derived from finding the solution to maximizing over λ_L the following equation:

$$[\lambda_L(G(R) - w_0 R) - U_{L0}] * [(1 - \lambda_L)(G(R) - w_0 R) - U_{K0}] \quad (6)$$

In the theoretical framework proposed by Harrison (2002), capital and labour have the option

to leave the country, which incurs a fixed cost and an alternative returns. Here, we will suppose that the capital is the only mobile factor. But if bargaining breaks, the workers may receive a compensation which may be assimilated as a specific form of social protection. However, there is a negative impact on the level of workers utility. It takes the form of a fixed cost. Individuals are not indifferent between working and not working. For an equal income (wage or compensation from the social insurance), individuals will prefer working due to social considerations.

Utility function are then:

$$U_{L0} = (c_L - w_{L0})v_L - F_L \quad (7)$$

$$U_{K0} = (w_K^* - w_{K0})v_K - F_K \quad (8)$$

with c_L the compensation received from the social insurance, F_L the fixed cost associated with the left from the labour market, w_K^* the capital returns abroad and F_K the cost of delocating.

We keep the same hypothesis as Harrison (2002). Fixed cost are supposed to be proportional to total revenue both for labour and for capital. For labour, we make this hypothesis considering that social costs of staying unemployed are higher for upper income. We can rewrite equations (7) with $w_K^* = w_{K0} + \phi_K$ and $c_L = w_{L0} + \phi_L$.

$$U_{L0} = \phi_L v_L - F_L G(R) \quad (9)$$

$$U_{K0} = \phi_K v_K - F_K G(R) \quad (10)$$

The maximization problem (over λ_L) becomes:

$$[\lambda_L(G(R) - w_0 R) - \phi_L v_L + f_L G(R)] * [(1 - \lambda_L)(G(R) - w_0 R) - \phi_K v_K + f_K G(R)] \quad (11)$$

Then, we can find λ_L :

$$\lambda_L = \frac{1}{2} \left[1 + \frac{\phi_L v_L - f_L G(R) - \phi_K v_K + f_K G(R)}{G(R) - w_0 R} \right] \quad (12)$$

We then obtain the labour share¹:

$$\frac{w_L v_L}{G(R)} = S_L = \frac{1}{2} \left[\frac{w_{0L} v_L - w_{0K} v_K}{G(R)} \right] + 1/2 + \frac{1}{2} \left[\frac{\phi_L v_L}{G(R)} - \frac{\phi_K v_K}{G(R)} \right] + \frac{f_K - f_L}{2} \quad (13)$$

Following Harrison (2002), we assume that the production function can be approximated by a translog function²:

$$\ln Y = \ln Y(v_{it}) = a_{00} + \sum_i b_{0i} \ln v_{it} + 1/2 \sum_i \sum_m b_{im} \ln v_{it} \ln v_{mt} \quad (14)$$

Differentiating (14) with respect to each $\ln v_i$ yields:

$$\frac{w_{0L} v_L}{PY(v^*)} = b_{0L} + \sum_{m=2} b_{Lm} \ln(v_{Lt}/V_{1t}) \quad (15)$$

$$\frac{w_{0K} v_K}{PY(v^*)} = b_{0K} + \sum_{m=2} b_{Km} \ln(v_{Kt}/V_{1t}) \quad (16)$$

Combining (13), and (15), we obtain the estimation equation for the labour share in GDP:

$$S_{Lt} = \gamma_0 + \gamma_1 \ln(L_t/K_t) + \frac{1}{2} \left[\frac{\phi_L v_L}{G(R)} - \frac{\phi_K v_K}{G(R)} \right] + \frac{f_K - f_L}{2} \quad (17)$$

The estimation equation is strictly the same to the one proposed by Harrison (2002). The only difference here is the interpretation of the coefficients ϕ_L et ϕ_K . In the Harrison framework,

¹For this, we rewrite the total returns to each factor as the sum of the return under perfect competition plus the fraction of total rents accruing to that factor: $w_i v_i = w_{0i} v_i + \lambda_i (G(R) - w_0 R)$.

²the translog function is very popular in econometrics model, because it is interpreted as a second-order approximation to an unknown functional form (Berndt and Christensen, 1973; ?).

these two parameters represent the income premium derived from relocating abroad. For the parameter ϕ_K , it is still the case but we will integrate the financial crisis as an explanatory variable of this parameter. For the parameter ϕ_L , it is not the wage premium derived from working abroad as we assume the labour as an immobile factor. Here the key parameter is the weight of the social protection system, influencing the labor share through an additional bargaining power of the workers.

2.1 Financial crisis and bargaining power

The paper proposes to address the impact of financial crises on the relative income of labour and capital. We suppose that a financial crisis will erode the national return on capital compared to the international return. This will increase the incentives of delocating and thus reduce the labour bargaining power. A currency crisis will reduce the value of national investments, if measured in international currency. The consequences in terms of relative return on capital is direct. The second effect of the currency crisis will be a reduced real wage in the short term, due to an increase of imported goods prices. Concerning banking crises, the effect is less direct. We can however expect the same negative effects on labour share due to liquidity traps and defaults. This will reduce the expected income for investors and thus increase the incentive of delocating. As the link is less direct, we can expect than $\phi_{currencycrises} > \phi_{bankingcrises}$. The negative impact on the global income may have an additional negative effect on labour income, through a decline in private sector wages (Diwan, 2001).

In order to modelize these effects, we propose to modify equation 10 by adding a specific bargaining power to the owners of capital only during periods of crises:

$$U_{K0} = \phi_K v_K + \phi_{crises} v_K - F_K G(R) \quad (18)$$

ϕ_{crises} takes the value of 0 out of the period of financial crises. Equation (17) can be rewritten:

$$S_{Lt} = \gamma_0 + \gamma_1 \ln(L_t/K_t) + \frac{1}{2} \left[\frac{\phi_L v_L}{G(R)} - \frac{\phi_k v_K + \phi_{crises} v_K}{G(R)} \right] + \frac{f_K - f_L}{2} \quad (19)$$

This theoretical framework may give insights to explain transmission channels between financial crises and labour share. The empirical strategy that we will develop in the following section is built to measure the direct linkages between these two variables. However, as we do not include proxies of bargaining power in the empirical strategy, we acknowledge that other explanations of the linkages may also be relevant. Our goal is then to see if the empirical analysis is consistent with the hypothesis we made in the theoretical framework.

3 Empirical analysis

3.1 Data

The main variable of interest is the share of GDP that goes to labor. We decide to use the *compensation paid to resident and non-resident households* (UN’s national accounts table on use of GDP, table 103) because of the large number of countries covered by this database, including developing and developed countries. This variable was also used by Harrison (2002) and Diwan (2001). Compensation includes wages and other benefits. The use of these data has been discussed: Gollin (2002) argued that labour income is underestimated in small firms, has to be adjusted for self-employment income and that we should take into consideration the differences in sectoral composition of output. Unfortunately, data on self-employment income are very limited and international comparisons are difficult. Harrison (2002) proposes to test the robustness of her results by estimating the labour share and shows that “*results are qualitatively the same, although there are some differences (in the magnitude of the estimated coefficient).*” Sylvain (2008) proposes to use the labour share in the non-agricultural private sector, built from the ANA base (OECD) and OECD provided more detailed data, but only for OECD countries. We decide to retain the UN data as the number of countries covered is more important. Figure 1 gives

the world-wide average labour share using these data. Moreover, Harrison (2002) underlines the high correlation between movements in labor share and the manufacturing wage data collected by UNIDO. However, we will test the robustness of our results by using the data built by Sylvain (2008).

Figure 1: Labour Share (World average)

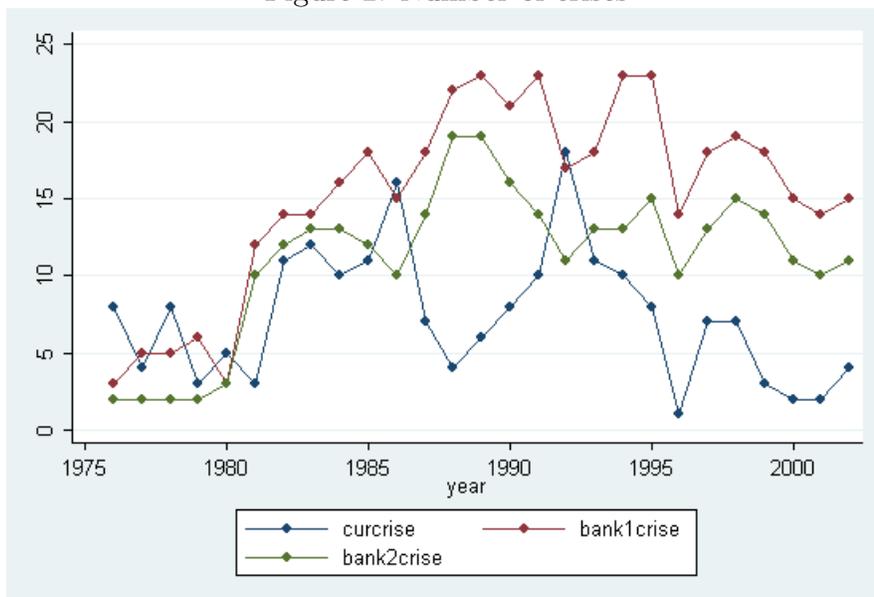


Source: UN National Accounts database. Calculations by the authors.

Concerning financial crisis, the traditional measure, used by Diwan (2001), is the one proposed by Frankel and Rose (1996): they define the currency crash as a large change in the nominal exchange rate (25%) accompanied with an increase of the rate of change of the nominal depreciation (10%). Others prefer to focus on the “foreign exchange market pressure”, taking into account both exchange rates and international reserves variation. We use here various indexes as proposed and computed by Berman (2008): the weighted average of exchange rate and international reserves variation with weight such that the two components has equal volatility. Following Eichengreen and Bordo (2002), the threshold retained is one and a half standard deviation of this index. For banking crises, we use the data of Caprio and Klingebiel (2002) with a distinction between small and systemic crises. Figure 2 gives a global overview of the crises occurrence over

the period. There are 199 currency crises and 412 banking crises (systemic and non-systemic) in the original databases. In our sample of 45 countries used for econometric estimations, we have 134 banking crises, 82 systemic banking crises and 54 currency crises.

Figure 2: Number of crises



Source: curcrise (Eichengreen & Bordo); bank1crise (border line and systemic crises, Caprio & Klingebiel); bank2crise (systemic crises, Caprio & Klingebiel)

For capital stock, we use the methodology proposed by Caselli (2004). We compute the initial capital stock K_0 as $I_0/(g+\delta)$ where I_0 is the value of investment in the first year available and g is the average geometric growth rate for the investment series between the first year with available data and 1980.³ δ is set to 0.06 following Caselli (2004). Then we generate estimates of the capital stock, K , using the perpetual inventory equation ($K_t = I_t + (1-\delta)K_{t-1}$). Investment data and GDP (in international dollars, PPP) come from Penn World Table 6.3 (Heston, Summers, and Aten, 2009), labour force data from the *World Development Indicators* (WDI). Following Harrison (2002), the fixed cost of relocating is measured by the nominal exchange rate which “captures the cost of purchasing new plant and equipment if relocation occurs”. This variable

³ $I_0/(g + \delta)$ is the value of the steady-state in the Solow model.

comes from *International Finance Statistics* (IFS) database. Concerning the fixed cost of leaving the labour market, this variable is unobservable and will then be measured through the time and country fixed effects.

The variable ϕ_L represents here the level of social protection. More specifically, it refers to the income provided by different social protection mechanisms, compared with the return to labor. As a proxy, we will use the general level of social protection expenses, in percentage of the total expenses of the general government. These data come from the *Government Finance database* (GFS). ϕ_K represents the relative return to capital at home versus abroad. We use the gross inflows and outflows of foreign direct investment as a proxy (data from the WDI).

We also add additional control variables. The openness to trade measures in the Harrison framework the impact of trade policy on the relative prices of labor and capital intensive goods. We use the variable $\frac{X+M}{GDP}$ from WDI.

4 Empirical results

4.1 OLS estimates

We propose to estimate equation (19). Data ranged from 1976 to 2002. $\ln(K_t/L_t)$ measures factor endowments, f_k represents here the fixed cost of relocating. Following Harrison (2002), we propose to use as a proxy, the nominal exchange rates which captures the cost of purchasing new equipments if relocation occurs. ϕ_k is the return of capital in the foreign country. It is approximated by the gross inflows and outflows of foreign direct investment. ϕ_L represents the return of labour abroad. We use the GDP per capita as a proxy (the higher the GDP per capita will be, the lowest will be, relatively, the return of labour abroad). f_l represents here various factors affecting positively the labour bargaining power, through a “fixed cost” of leaving the labour market. Government spending and social protection will be used as a proxy of this variable. For the estimation of equation (19), we use a dummy variable of currency crises, and

two dummies variables for banking crises (systemic and non-systemic)⁴.

We first run OLS estimates. In all estimations, standard errors are clustered at the country level⁵ and are robust to heteroskedasticity. In a first step, we only include a dummy variable respectively equal to 1 in case a currency crisis (*ch1e*) or a banking crisis (*bk1e* or *bk2e*) occurred during the same year. Then, we also include for each crisis variable, two additional variables: 3 years after and 3 years before. The latter variable measures the preliminary effects of the crises, the first one measures the mid-term effects of the crises. Results in OLS are given in table 1.

When we only take into account the crisis that occurred the same year, results are not very instructive. The estimated coefficients of financial crisis are not significant, except for banking crisis when taking into account systemic and border line crisis. Surprisingly, the coefficient is positive, meaning that banking crisis affects primarily the return of capital rather than the one of labour. However, when we take into account crises that occurred in the three previous and following years, we get more interesting results. The estimated coefficient for 3 years after a currency crisis is always negative and significant. Three year before such crisis, the estimated coefficient is also negative and significant at 10% in one of the estimations. On contrary, banking crises does not appear to have a significant and negative impact on labour share. The estimated coefficient is even significantly positive in the three years before the crisis.

Concerning the sign of other variables, the coefficient of capital/ratio labour is negative, contrary to the relative endowments hypothesis. However, as we do not control in this set of estimations by other country characteristics, we may explain this result by the fact that countries relatively abundant in capital will be specialized in goods intensive in capital. Thus, according to the Stolper-Samuelson effect, returns on capital may increase. The level of GDP per capital is positively correlated with labour share. The incoming FDI tend to be associated with lower level of labour share while government spendings have the opposite effects.

⁴see section data for details.

⁵We should however notice that standard asymptotic tests can over-reject with few clusters (Cameron, Gelbach, and Miller, 2008).

Table 1: OLS estimates of labour share determinants

| Dep. Var | Labour Share | Labour Share | Labour Share | Labour Share |
|----------------|------------------------|------------------------|------------------------|------------------------|
| logKL | -0.0751** (-2.472) | -0.0690** (-2.351) | -0.0770** (-2.441) | -0.0740** (-2.351) |
| lngdp | 0.168*** (4.069) | 0.159*** (4.102) | 0.171*** (3.975) | 0.167*** (3.935) |
| lnexchangerate | -0.00378 (-1.401) | -0.00417 (-1.645) | -0.00394 (-1.376) | -0.00432 (-1.600) |
| tradeofgdp | 0.000318 (1.253) | 0.000281 (0.975) | 0.000306 (1.206) | 0.000265 (0.964) |
| lnfdiin | -0.0243*** (-2.895) | -0.0237*** (-2.880) | -0.0244*** (-2.963) | -0.0248*** (-3.150) |
| lnfdiout | -0.00487 (-1.169) | -0.00508 (-1.338) | -0.00540 (-1.240) | -0.00572 (-1.349) |
| lngvtspend | 0.0922*** (2.966) | 0.0951*** (3.457) | 0.0930*** (2.994) | 0.0962*** (3.478) |
| ch1e | -0.00929 (-1.098) | -0.0238* (-1.723) | -0.00939 (-1.117) | -0.0204 (-1.533) |
| ch3yearbefore | | -0.0205* (-1.774) | | -0.0170 (-1.463) |
| ch3yearafter | | -0.0228** (-2.305) | | -0.0216** (-2.338) |
| bk1e | 0.0167* (1.959) | 0.0253** (2.124) | | |
| bk13yearbefore | | 0.0192 (1.575) | | |
| bk13yearafter | | -0.00518 (-0.600) | | |
| bk2e | | | 0.0192 (1.179) | 0.0252 (1.335) |
| bk23yearbefore | | | | 0.0122 (0.753) |
| bk23yearafter | | | | 0.00163 (0.160) |
| Constant | -0.701*** (-5.608) | -0.672*** (-5.888) | -0.710*** (-5.619) | -0.693*** (-5.707) |
| Observations | 576 | 576 | 576 | 576 |
| R-squared | 0.742 | 0.757 | 0.741 | 0.752 |

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

4.2 Panel estimates

In the latter estimates, we did not take benefit of the panel structure of the data. If there are specific effects, then OLS estimates are biased. That's why we propose in a first time to control for unobserved country heterogeneity by including country fixed effects. Lots of other dimensions may explain the evolution of labour shares. By controlling for unobserved country characteristics, we minimize the risk of spurious correlation in case these unobserved country characteristics would be correlated with the occurrence of crises. As before, standards errors are clustered at the country level and robust to heteroskedasticity. Results are given by table 2.

Contrary to OLS estimates, effects of GDP per capita, capital/labour ratio and government spendings are no longer significant. These effects may be captured by the fixed effects. Our main results, the negative effect of currency crises on the labour share is still significant and negative. Concerning the positive effect of banking crises, we still find this effect but this time only for systemic banking crises (*bk2e*) and only before the crisis. After, effect is not significant.

In a last set of estimates, we propose to take into account the temporal dimension of the data used here. More precisely, a possible negative trend of the labour share has largely been discussed over the past years. Kaldor (1960) underlines this stability as a stylized fact, and the Cobb-Douglas function is a theoretical justification to this stability. This stability has however been challenged recently (Azmat, Manning, and Van Reenen, 2007; Young, 2010). Even if we retain the idea of a stability at the World level, regional or national disparities may exist: Blanchard (1997) focused, within the industrialized countries, on the distinctions between anglo-saxon countries and Continental Europe (with a higher variation for countries from Continental Europe)⁶. Bental and Demougin (2010) considers that labour market institutions characterized by moral hazard and irreversible investment may explain theoretically the declining labour share observed in these countries. Caballero and Hammour (1997) suggest the possibility of having an elasticity of substitution between capital and labour superior to one, which may explain the fall of labour share in various European countries.

⁶See Sylvain (2007) for a discussion on this issue and a representation of the stylized facts.

Table 2: Panel fixed effects estimates of labour share determinants

| Dep. Var | Labour Share | Labour Share | Labour Share | Labour Share |
|-----------------------|-------------------------|-------------------------|------------------------|-------------------------|
| logKL | 0.0276 (0.843) | 0.0289 (0.943) | 0.0249 (0.751) | 0.0213 (0.646) |
| lngdp | 0.00426 (0.123) | 0.000778 (0.0250) | 0.00783 (0.226) | 0.0101 (0.322) |
| lnexchangerate | -0.00280 (-0.674) | -0.00257 (-0.628) | -0.00288 (-0.688) | -0.00266 (-0.693) |
| tradeofgdp | -0.000401 (-1.417) | -0.000366 (-1.367) | -0.000399 (-1.434) | -0.000344 (-1.268) |
| lnfdiin | -0.00981*** (-2.985) | -0.00970*** (-3.072) | -0.0100*** (-3.027) | -0.00946*** (-2.859) |
| lnfdiout | -0.00236 (-0.646) | -0.00289 (-0.810) | -0.00239 (-0.650) | -0.00302 (-0.815) |
| lngvtspend | 0.0379 (1.471) | 0.0393 (1.490) | 0.0387 (1.514) | 0.0417 (1.641) |
| ch1e | 0.000466 (0.136) | -0.00473 (-0.775) | 0.000106 (0.0307) | -0.00331 (-0.611) |
| ch3yearbefore | | -0.000713 (-0.187) | | 0.000985 (0.290) |
| ch3yearafter | | -0.00955** (-2.188) | | -0.00929** (-2.162) |
| bk1e | 0.00542* (1.768) | 0.00759 (1.287) | | |
| bk13yearbefore | | 0.00712 (1.364) | | |
| bk13yearafter | | -0.00619 (-1.078) | | |
| bk2e | | | 0.00805* (1.808) | 0.0145* (1.807) |
| bk23yearbefore | | | | 0.0139** (2.062) |
| bk23yearafter | | | | 0.000877 (0.111) |
| Constant | 0.0941 (0.325) | 0.111 (0.401) | 0.0833 (0.289) | 0.0819 (0.293) |
| Observations | | 576 | 576 | 576 |
| Country fixed effects | Yes | Yes | Yes | Yes |
| R-squared | 0.180 | 0.225 | 0.182 | 0.224 |
| Number of countries | 45 | 45 | 45 | 45 |

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Even at the national level, some authors contest the non-stability of the labour share, insisting on statistical problems that have to be solved in order to observe the “real” stability over the period. For instance, Gollin (2002) includes self-employed incomes in the labour share and finds a relative stability of the labour share.

At the global level, the first determinant of labour share determinants is of course the ratio capital/labour, which will determine the relative income of each factor through their relative abundance. Bentolila and Saint-Paul (2003) propose a theoretical model defining a stable relationship based on the capital/output ratio. They show empirically that this relation is stable over the long-term even if some deviations around this relationship can be observed in the short run. The model proposed by Harrison (2002), used in this study, also takes into consideration the evolution of this ratio with the wages under perfect competition w_{L0} and w_{K0} from which workers and capitalists start to bargain over the rent. But a change of this ratio will alter the relative incomes under perfect competition and thus, the final repartition between labour and capital.

The globalization may have a significant impact on the relative share of labour and capital. It is well-known that in the Heschher-Ohlin framework, international trade is a substitute to factors mobility, with a process of equalization of factor remunerations explained by the relative evolutions of capital and labour-intensive goods. Additionally, Harrison (2002) considers that globalization may also have an influence on the relative bargaining power of labour and capital through the possibility for capital to move towards the countries with highest return. She found that rising trade shares will reduce labor’s share. Diwan (2001) finds the same effect but showed that this fall will largely be concentrated in the crises periods. Guscina (2007) argues that the decline in labor’s share in the OECD countries is an equilibrium, more than a cyclical phenomenon because of the capital-augmenting technological progress. Sylvain (2008) shows that the openness has a strong impact on labour share in most of countries from Continental Europe but the effect is not significant for Anglo-Saxon countries. Lastly, Jayadev (2007) explains the declining labour share by the increased capital account openness.

As we saw, the negative trend of the labour share may be an issue. We then propose to run a last set of estimates introducing a time trend. We still used panel country-fixed effects with standards errors clustered at the country level and robust to heteroskedasticity. Results are given in table 4.2. The time trend is captured through the variable *year*.

The negative effect after a currency crisis is persistent, the estimated coefficient is negative and strongly significant. In average, once controlling for countries characteristics and for a time trend, labour share tends to be 0.9 percentage points lower in the three following years after a currency crisis. The effect of banking crisis is less clear. Before a systemic banking crisis, labour share tends to be higher by about 1 percentage point. The capital returns may be primarily affected before a banking crisis. However, this higher labour share (or this lower returns on capital) may be an omen of the banking crisis.

The time trend is strongly significant and negative. In average and all things being equal, labour share tends to be reduced by around 0.3 percentage points every year. Contrary to OLS estimates, the capital/labor ratio is here positive confirming the relative endowment hypothesis. Here, we find a negative impact of trade openness on the labour share. All other variables take the same sign and have the same level of significance than in the OLS estimates, except the inward FDI effect which is no longer significant. However, this may be explained by the correlation between trade openness and inward FDI.

4.3 Robustness checks

Globally we found a negative impact on currency crisis on the labour share. Effects of banking crises are more difficult to identify. It seems that labour share tends to be higher all things being equal, before banking crisis. In order to confirm these results, we first try different specifications. In particular, we use an alternative measurement of GDP using World Development Indicators data. We also run estimates without FDI variables, without capital/labor ratio, and/out without government spendings (allowing to have more countries in the analysis). Results are in all

Table 3: Panel fixed effects estimates of labour share determinants (with a time trend)

| Dep. Var | Labour Share | | Labour Share | | Labour Share | |
|------------------------|--------------|-------------|--------------|-------------|--------------|--|
| year | -0.00328*** | -0.00317*** | -0.00330*** | -0.00327*** | | |
| | (-3.991) | (-3.947) | (-3.734) | (-3.715) | | |
| logKL | 0.0486** | 0.0466* | 0.0448* | 0.0403* | | |
| | (2.026) | (1.908) | (1.899) | (1.687) | | |
| lngdp | 0.0745* | 0.0711** | 0.0802** | 0.0837** | | |
| | (1.978) | (2.018) | (2.079) | (2.248) | | |
| lnexchangerate | 0.00352 | 0.00318 | 0.00344 | 0.00326 | | |
| | (1.185) | (1.090) | (1.156) | (1.265) | | |
| tradeofgdp | -0.000490** | -0.000456** | -0.000488** | -0.000439** | | |
| | (-2.357) | (-2.274) | (-2.461) | (-2.306) | | |
| lnfdiin | -0.00317 | -0.00347 | -0.00347 | -0.00312 | | |
| | (-1.082) | (-1.195) | (-1.125) | (-0.953) | | |
| lnfdiout | 0.000636 | 0.000206 | 0.000609 | 8.47e-05 | | |
| | (0.208) | (0.0696) | (0.198) | (0.0284) | | |
| lngvtspend | 0.0430* | 0.0448** | 0.0442* | 0.0485** | | |
| | (1.886) | (2.022) | (1.958) | (2.291) | | |
| ch1e | -8.75e-05 | -0.00551 | -0.000616 | -0.00420 | | |
| | (-0.0263) | (-0.970) | (-0.182) | (-0.850) | | |
| ch3yearbefore | | -0.00281 | | -0.000991 | | |
| | | (-0.758) | | (-0.297) | | |
| ch3yearafter | | -0.00911** | | -0.00870** | | |
| | | (-2.475) | | (-2.536) | | |
| bk1e | 0.00804** | 0.0109* | | | | |
| | (2.494) | (1.964) | | | | |
| bk13yearbefore | | 0.00400 | | | | |
| | | (0.852) | | | | |
| bk13yearafter | | -0.00101 | | | | |
| | | (-0.194) | | | | |
| bk2e | | | 0.0119** | 0.0191** | | |
| | | | (2.551) | (2.637) | | |
| bk23yearbefore | | | | 0.0122* | | |
| | | | | (1.920) | | |
| bk23yearafter | | | | 0.00679 | | |
| | | | | (1.053) | | |
| Constant | 5.753*** | 5.581*** | 5.777*** | 5.713*** | | |
| | (4.079) | (4.049) | (3.826) | (3.810) | | |
| Country fixed effects | Yes | Yes | Yes | Yes | | |
| Observations | | 576 | 576 | 576 | 576 | |
| R-squared | 0.354 | 0.377 | 0.358 | 0.390 | | |
| Number of ccountrycode | 45 | 45 | 45 | 45 | | |

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

estimates similar to the one presented here⁷.

One particular concern is the quality of the data used to measure the labour share. As described before, there is a particular concern for the self-employed workers who are not included in the labour share. Also, there are statistical problems to estimate non-wave labour income. We then propose to use the labour share index proposed by Sylvain (2007). This index was built using OECD ANA database. He makes several corrections to these data in order to get consistent estimates. However, these data are only available for 12 OECD countries. Using this variable, we are thus able to measure two things: (1) are our results using UN data consistent with the ones obtained using OECD-corrected data?, (2) are our results valid for OECD countries?

We present table 4 the results using country fixed effects estimators with a time trend. Our previous results are confirmed. We still observed a strong negative impact of currency crises on labour share while effects of a banking crisis are more difficult to identify. Surprisingly, effects of a currency crisis seem to be higher for these countries than for our worldwide sample. Here the effects is estimated between -1.4 and -1.7 percentage point in average the three following years. As before, we observe a positive relationship between banking crisis and labour share *before* the crisis. Time trend is still strongly negative, while other variables are not significant with the notable exception of the capital-labour ratio.

We also ran estimates using our previous measure of labour share but with the same sample of 12 OECD countries. The negative effect of currency crisis is still observed. However, the coefficient is lower (between 0.005 and 0.009). The higher coefficient we obtained in table ?? may thus be explained by the measurement of labour share more than the countries included in the sample. It would mean than the previous estimates on the negative effect of currency crises we get *may* be underestimated. However, it is impossible to verify this intuition without more accurate data on labour share at the World level. We have other slight changes between the two estimates using the same countries but different measures of labour share: coefficients of capital-labour ratio is not anymore significant while we find a positive effect of GDP per capita and governmental spendings.

⁷Results are not reproduced here but available upon request

Table 4: Panel fixed effects estimates of labour share determinants (with a time trend)
 OECD countries (Sylvain 2007)

| Dep. Var | Labour Share | Labour Share | Labour Share | Labour Share |
|---------------------|-----------------------|----------------------|-----------------------|-----------------------|
| year | -0.987*** (-3.425) | -0.977** (-3.027) | -0.995*** (-3.522) | -1.034*** (-3.575) |
| logKL | 26.39** (3.019) | 28.02** (3.053) | 22.65** (2.709) | 25.66** (2.941) |
| lngdpl | 12.60 (1.372) | 10.34 (1.166) | 16.20 (1.635) | 14.41 (1.592) |
| lnexchangerate | 0.387 (0.291) | 0.523 (0.399) | 0.362 (0.307) | 0.468 (0.381) |
| tradeofgdp | 0.00203 (0.0412) | -0.0169 (-0.390) | 0.0137 (0.281) | 0.0117 (0.263) |
| lnfdiin | -0.784 (-1.119) | -0.945 (-1.429) | -0.752 (-1.036) | -0.872 (-1.155) |
| lnfdiout | -0.389 (-0.803) | -0.377 (-0.861) | -0.326 (-0.685) | -0.344 (-0.703) |
| lngvtspend | 7.132 (1.357) | 9.291 (1.763) | 5.435 (1.090) | 9.826* (1.805) |
| ch1e | 0.0190 (0.0360) | -0.737 (-0.952) | -0.134 (-0.236) | -1.299 (-1.351) |
| ch3yearbefore | | -0.495 (-0.702) | | -0.786 (-1.010) |
| ch3yearafter | | -1.429** (-2.360) | | -1.787** (-2.671) |
| bk1e | 0.252 (0.257) | 0.0151 (0.0129) | | |
| bk13yearbefore | | -0.651 (-1.084) | | |
| bk13yearafter | | -1.111 (-1.643) | | |
| bk2e | | | 3.304*** (3.392) | 3.315** (2.624) |
| bk23yearbefore | | | | 1.621* (2.080) |
| bk23yearafter | | | | -0.775 (-0.543) |
| Constant | 1631*** (3.681) | 1614*** (3.249) | 1653*** (3.781) | 1707*** (3.805) |
| Observations | | 267 | 267 | 267 |
| R-squared | 0.431 | 0.484 | 0.460 | 0.508 |
| Number of countries | 12 | 12 | 12 | 12 |

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

5 Conclusion

In this paper, we study the linkages between financial crises and labour share. Globally, we found a strong negative effect of currency crises on labour share. In the three years following a crisis, the labour share is in average and all things being equal 0.9 percentage points lower. This result is confirmed while controlling for unobserved country characteristics and for a time trend. The intuition is the following: the incentive to delocate the capital will tend to increase capital bargaining power and thus its relative income share. At the contrary, governmental spending will tend to protect the workers and then reinforce their bargaining power and income share.

If, according to traditional views, labour share is expected to be stable over time, a growing number of authors contested this idea, suggesting various factors able to explain a decreasing share of labor within the national income. Here we find a negative trend at the world level while controlling for all other possible determinants of labour share.

Concerning the impact of banking crises, conclusions are less clear-cut. We do not observe a significant effect of labour share after a banking crisis. However, we observe in most estimations a positive relationship with labour share in the three years before the crisis. Lower returns on capital may be transferred to the banking system and may be one of the explanation of the starting of banking crisis. After the crisis it is possible that a direct cost on the investors may be offset by a lower bargaining power for workers. However, this does not mean that labour is not negatively affected by banking crises. As the banking crises has a strong negative impact on GDP, labour income will also be affected.

Concerning the current financial crises, it is too early to estimate the effects on labour share. The current crisis is much broader than a single currency or even banking crisis. Effects on the bargaining power may also differ, mainly because of the worldwide characteristics of the crisis. The stake for the States is to maintain their social protection mechanisms in order to minimize the social consequences of this crisis. If not, the consequences in terms of inequality may be very large.

Annex

A Countries included in the sample

Argentina, Australia, Austria, Belgium, Benin, Burkina Faso, Bolivia, Brazil, Canada, Chile, Cote d'Ivoire, Colombia, Costa Rica, Denmark, Algeria, Ecuador, Egypt, Arab Rep., Spain, Finland, France, United Kingdom, Greece, India, Iceland, Israel, Italy, Japan, Kenya, Sri Lanka, Mexico, Netherlands, Norway, New Zealand, Panama, Peru, Philippines, Portugal, Sweden, Thailand, Tunisia, United States, Venezuela, RB, South Africa, Zimbabwe

B Definition of variables

| Variable | Description | Source |
|------------------|---|--|
| Labour Share | compensation paid to resident and non-resident households (in % of GDP) | UN National account, Sylvain (2007) |
| logKL | Ratio Capital/Labor (in log) | PWT 6.3 and WDI |
| lngdp | GDP per capita (in log) | PWT 6.3 |
| lnexchangerate | Nominal Exchange Rate (in log) | IFS |
| tradeofgdp | $\frac{X+M}{GDP}$ | WDI |
| lnfdiin | Inflows of FDI (in log) | WDI |
| lnfdiout | Outflows of FDI (in log) | WDI |
| lngvtspend | Government spending (in % of GDP and in log) | GFS |
| ch1e | Currency crisis | Eichengreen and Bordo (2002) and Berman (2008) |
| ch1e3yearsbefore | 3 years or less before a currency crisis | Eichengreen and Bordo (2002) and Berman (2008) |
| ch1e3yearsafter | 3 years or less after a currency crisis | Eichengreen and Bordo (2002) and Berman (2008) |
| bk1e | Systemic and non-systemic banking crisis | Caprio and Klingebiel (2002) |
| bk1e3yearsbefore | 3 years or less before a banking crisis | Caprio and Klingebiel (2002) |
| bk1e3yearafter | 3 years or less after a banking crisis | Caprio and Klingebiel (2002) |
| bk2e | Systemic banking crisis | Caprio and Klingebiel (2002) |
| bk2e3yearsbefore | 3 years or less before a systemic banking crisis | Caprio and Klingebiel (2002) |
| bk2e3yearsafter | 3 years or less after a systemic banking crisis | Caprio and Klingebiel (2002) |
| Year | Time trend | |

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