Firms' debt and labour adjustments during a transition. The experience of Central and Eastern European economies

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Abstract: A number of empirical studies have identified channels through which banking and financial crises transmit to the real economy. In particular, the financial accelerator model requires firms' financial condition to impact labour. This paper contributes to investigating this link by focusing on a set of countries that underwent dramatic changes in the few decades prior to the Global Financial Crisis, namely Central and Eastern European countries. The deregulation of labour markets that accompanied the transition of former socialist economies has meant the rapid spread of flexible forms of employment (particularly temporary employment), where forms of employment protection are sizably reduced. This paper investigates the response of different forms of employment to firms' debt during the years preceding and following the onset of the GFC. Unlike other studies that have investigated the impact of firms' financial constraints and leverage on employment, this study finds that the transmission to the labour markets originated from previous investments in fixed assets that were only partially covered by internal finances. Firms' debt impacted more on the permanent workforce than on the temporary one, a result that questions the generality of the empirical evidence previously reported on this issue. Finally, firms experiencing sharp changes in their ability to meet fixed assets investments with their internal funds laid off high human capital employees more than unskilled segments of their workforce. This result confirms the one that Milanez (2012) recently found in a sample of Californian firms during the GFC. Both these studies, although different in the way they measure workers' skill, contradict theoretical labor economics predictions that firms lay off workers in inverse order of the degree of human capital.

Keywords: Firms' debt, external finance, labour adjustment, temporary workers, global production networks, human capital

1. INTRODUCTION

> "We are in the midst of a general breakdown of all sites of confinement. (...) ultrarapid forms of apparently free-floating control ... are taking over from the old disciplines at work within the time scales of closed systems" Deleuze (1995, p. 178).

An abundant literature has raised important questions on the real effects of the Global Financial Crisis (GFC). For many the GFC has reinforced the idea that financial factors are equally important in determining real outcomes. Central and Eastern European (CEE) firms' integration into global markets via Global Production Network (GPN) marked their transition to capitalism. In pursuing strategies of economic upgrading these firms accumulated high level of debt that ultimately shaped their weak position vis-a-vis financial markets in the period post GFC. I then offer empirical evidence on the impact of firm's financial positions during the GFC on employment losses. I draw some lessons from the experience of Eastern European transitional economies. The fact that the GFC has had an impact on employment is no surprise. More enlightening to understand the current modality of articulation of the finance-labour nexus is that among firms that went through mass layoffs, is the fact that firms experiencing sharp changes in their ability to meet fixed assets investments with their internal funds laid off high human capital employees (permanent and skilled), thus contradicting theoretical human capital theories à' la Becker. In so doing, the GFC hints at some fundamental transformation that the process of firms' financialization has initiated in emerging economies of Central and Eastern Europe. The always historically specific character of the way capitalism values labour, which is emphasized by Marx in Capital (p. 290), confirms the need to explore in further details the nature of the finance-labour nexus.

An abundant literature has raised important questions on the real effects of the GFC, those that have a direct impact on economic growth and prosperity–the productivity of the workforce, the quantity and quality of the capital stock, the availability of land and natural resources, the state of technical knowledge, and the creativity and skills of entrepreneurs and managers. If anything, the GFC has reinforced the idea that financial factors are equally important in determining real outcomes. Despite this awareness we still know little about the nature of the finance-labour nexus. This paper aims to contribute to this task by providing firm-level evidence of such nexus in Easter and Central European firms during the period 2002-2007, so just prior to the onset of the GFC. In particular, this paper contributes to the scarce existing literature on this issue by exploring the way leverage and exposure to external finance contributes to job destruction. To do so I rely on detailed firm-level information on the composition of employment and the way its adjustment differentially involves permanent and temporary workers, and workers differentiated by skill level. The results that emerge from this study is that, contrary to the theorization of temporary jobs as a way to buffer the primary labour force, often endowed with human capital, from market (and financial) shocks, asset liquidations in these firms involved permanent rather than temporary workers and skilled workers rather than unskilled ones. The paper concludes with a discussion of what theoretical approaches are best suited to explain these results.

I agreement with Bryan et al., (2009) I use the GFC "beyond the excesses of the sub-prime crisis". I propose that the GFC is a lens through which processes of transformation of capitalist economies can be observed and questioned. Understanding the employment effects of the GFC in Eastern European economies serves here the scope of shedding light on the way financialization reshapes the relationship between labour and capital during crucial phases of subjectification, namely transition to global capitalism. In pursuing an interpretation key of the finance-labour nexus the way it emerges in these economies, I face a number of challenging questions: Are skilled individuals more likely to be fired because they are equivalent to less skilled workers? If so, does firms' exposure to financial markets operates a homogenization of labour against the tendency, often perceived as fundamental for the operation of global capital, towards workers' segmentation? Is this indifferentiation (between skilled and unskilled labour and between temporary and permanent workers), the hyperbolic product of a contradictory process of differentiation of labour carried out by all neo-liberal apparatuses in the way envisioned by Negri (1989) "The only problem is that extreme liberalization of the economy reveals its opposite, namely that the social and productive environment is not made up of atomized individuals, (...) the real environment is made up of collective individuals." (Negri, 1989, p. 206) And again, is the treatment of skilled labour vis-a-vis unskilled labour an exception to an old rule (e.g., human capital is valuable) or rather a rule in a new context in which capitalist firms are called to operate? If the latter hypothesis has to be pursued, are we facing the passage envisioned by Foucault (1994) from a localized and stable organization of economic power centred around one "culture" (e.g., neo-liberal culture of entrepreneurship and human capital), to an unstable

set of heterogenous technologies that produce and manage labour and labour relationships through market competition?

I contend that GPNs reveal the proximity of labour with capital. In GPNs, human capital and capital share a purpose, namely the creation of barriers to entry, so that rents can be produced and eventually shared. The possibility of failure is what makes the evaluation of human capital an ex-post rather than an ex-ante matter. Any attempt to succeed in economic upgrading requires access to financial markets and accumulation of debt. Failure to produce economic upgrading makes skilled labour equivalent to unskilled labour. The precarious status of skill and human capital in GPNs emerges from the dispossession of labour of its skill: while skilled labour is at the heart of any successful climbing of the value ladder, the result is always open, fluid and subject to change as dictated by market competition. It is in this context that the GFC reveals the tendency of capitalism to reduce all types of labour to simple labour and the role that finance plays in this reductio ad unum. Skilled and unskilled labour in GPNs are organized around a particular sort of technology, or machine (Deleuze, 1995, p.180), which tends to abstract bodies from skill. GPNs make these machines of control visible as they manifest the fluidity of capital and labour alike in financialized firms–the financing of labour.

The rest of the paper is organized as follows. Section two describes the background by focusing on the transition to capitalism and the rapid integration in the Western European trade flow since the early 1990s. Section three introduces the econometric specification this paper uses to investigate the finance-labour nexus and describes the data employed in the empirical analysis.Section four reports the econometric results. Section five draws some conclusions.

2. THE BACKGROUND

The financial turmoil of the 2007 rapidly evolved into a global recession, a phase of globally synchronized economic slowdown. Despite the fast adoption of counter-cyclical measures in large developed nations, the Global Financial Crisis rapidly became a Great Recession resulting in a severe credit crunch and in the largest contraction in industrial production and world trade experienced in the post WWII era. For emerging market economies such as those in Eastern Europe, key transmission mechanisms of the Great Recession relied on financial market linkages as identified by Nissanke (2010): the collapse of stock markets prices, escalating cost of external financing available to local firms, sharp reduction in international credit to firms and reductions in the international issuance of bonds and syndicated loans to these countries, and continued financial markets' volatility. Eastern European economies were among the worst hit among transitional economies: the recessional effects of the financial crisis were exacerbated by the compound effect of the reduction in exports. One of the most striking outcomes of the East European crisis is that none of the four countries with pegged exchange rates—Latvia, Lithuania, Estonia, and Bulgaria—devalued their currency, preferring instead to opt for an "internal devaluation," cutting wages and public expenditures in an attempts to maintain competitiveness.

The experiences of Central and Eastern European countries (CEECs) are particularly interesting when the issue is understanding the transmission of credit crisis on the labour markets. The implementation of the economic transformation programs in Eastern European countries was followed by a "trade implosion", a situation where trade is destroyed by lack of market institutions, particularly credit markets (Calvo and Coricelli, 1993). "Reformed centrally planned economies" (RCPE) (for example Poland) in the 1980s received some control over the use of their profits. However, they could not go bankrupt and wages were often set above sustainable levels. Importantly, individual firms were never financial constrained and they were bailed out if found in financial difficulties. Because production targets had a priority over other targets, central bank often pursued accommodating policies. A higher level of decentralization occurred in the early 1990s, but this wave of developments in Eastern Europe did not rid the distortions that were detected in RCPE. Private credit markets developed but often without the benefit of "central bank shepherding" (Calvo and Coricelli, 1993, p. 36).

In this period most Eastern European economies liberalised most trade in industrial products in the perspective of their future integration in an enlarged EU. The increasing involvement in the regional supply chains and supply networks in Central and Eastern European countries over the 1993-1996 period has showed signs of increasing diversification as it moved from trade in traditional sectors (resource intensive sectors such as wood and coke, labour intensive industries such as textile-clothing and leather-shoe industries) to two-way trade in other industries (electrical machinery, motor vehicles) (Freudenberg and Lemoine, 1999). The main weakness in this period is still the relative underdevelopment of capital-intensive industries. Since the beginning of the transition, Central and Eastern European economies worked to attract foreign direct investment. Although relative small in size by world

standards, FDIs were particularly important in the manufacturing industries of the five Central European countries (Czech Republic, Hungary, Poland, Slovakia and Slovenia). It has been often observed that the accelerated export growth of individual industries is often linked to the strong presence of foreign capital.

Since the early 1990s the patterns of CEECs' trade with the European Union were characterized by an international division of the production process (i.e. the international splitting of the value added chain), as documented by the increasing share of intermediate products in the CEECs' exports and imports over 1993-1996 period. In fact, the entry into regional global markets means a reorganization of production towards vertical specialization along comparative advantages that are specific to particular stages of production (upstream or downstream stages). The integration of these economies in global production chains involved an ever-deeper specialisation of their trade patterns compared to pre-transition era. These economies' comparative advantages were still located at the two ends of production process: in upstream production (primary goods) and in downstream production (consumption goods); disadvantages are located in intermediate and capital goods. In fact these economies lacked competitiveness in the production of investment goods. Freudenberg and Lemoine (1999) report evidence of the (rising) importance of two-way trade in vertically differentiated products, i.e. simultaneous exports and imports of products with the same main technical characteristics, but under different prices (unit values), suggesting a "qualitatively division of labour" within Europe (p. 66).

Between 1997 and 2007, a period of general overall macroeconomic stability, but increasing financial volatility and risk (the Great Moderation), these economies showed distinctively positive performance indicators, particularly in terms of high economic growth and low inflation. High rates of economic growth (well above the advanced economies' growth rates, but below the growth rates of emerging economies such as India and China) were accompanied by rapidly declining inflation, which reached rates below 6% after 2004. Despite these positive indicators there were growing concerns arising from rising global imbalances, exploding asset prices, rapidly growing leverage in all sectors, but particularly in the domestic financial sector, in the households credit sector and in the business credit sector, and an emerging sub-prime crisis as signalled by the number of mortgage delinquencies of loans originating between 2000 and 2007. Domestic credit fell sharply starting in many Eastern European countries from the second half of 2008, producing financial constraints for households and firms alike as documented in Gardo' and Martin (2010)'s charts (Charts 7 and 22).

2.1 Labour Markets and Transition to Capitalism

Labour markets in Central and Easter European countries are key to understand the transition to market economies as experienced by these economies. Transition has meant the end of guaranteed employment and wages and persistent excess of demand over supply (Baranowska and Gebel, 2008). The deregulation of labour markets that accompanied the transition of former socialist economies has been characterized by the rapid spread of flexible forms of employment (particularly temporary employment), where forms of employment protection are sizably reduced. Taking for granted a degree of differentiation in the way temporary and more permanent forms of employment fare in terms of wage levels and general working conditions, this paper investigates the response of different forms of employment to firms' debt during the years preceding and following the onset of the GFC. It does so, by relying on a theorization of temporary employment as developed since the 1990s. In investigating the causes of the spread of atypical employment arrangements, the economic literature has focussed on two main factors, namely the need to save on labor costs (the labor-cost saving hypothesis) and the product–market volatility hypothesis, the creation of dualistic labor markets in which the secondary component of the labor force is used as a buffer to protect the primary workers from the effect of product market volatility. According to the first argument, the use of atypical employment arrangements is driven by the possibility of avoiding some of the high costs of employment. For instance, Autor (2003) finds that the introduction of legal obstacles to the application of the US employment-at-will doctrine from 1973 can explain 20% of the growth of employment outsourcing. Using US Bureau of Labor Statistics (BLS) and Current Population Survey (CPS) data, Abraham (1996) found that although the possibility of avoiding highwage and fringe costs of employment may explain the use of temporary workers to fill low-skill jobs, other factors must be at work that explain the temporary employment of highly skilled workers.

3. FROM FINANCIAL MARKETS TO THE LABOUR MARKETS

How firms manage their human resources in the face of volatile economic conditions is an important question. The striking changes occurring in the internal organization of firms in the last few

decades are well known. Tasks that were previously performed by permanent workers are now increasingly done through employment arrangements that involve temporary workers, outsourcing and sub-contracting. Many observers believe that the pressure of the world economy has forced firms to adopt a set of strategies to operate in an increasingly competitive environment. However, in investigating the causes of the spread of atypical employment arrangements, the economic literature has dramatically ignored the role of financial factors in general and financial constraints in particular. This is noteworthy as the economic literature has extensively shown that financial shocks transmit to the real economy through a number of mechanisms, including prices, credit, assets and government intervention (Levine 2005). When a financial crisis occurs, the aggregate liquid resources in the banking system may be lower than in autarky. During times of bank distress, authorities often engage in regulatory interventions and provide capital support to reduce bank risk taking (Berger et al. 2011). An unintended effect of such actions may be a reduction in bank liquidity creation, with possible adverse consequences for firms, particularly those that are likely to be exposed to financial constraints, namely small and young firms.

The employment and wage effects of the GFC on Eastern European economies were made evident in a few analytical reports. The charts below clearly illustrate that the GFC certainly had a huge impact on the labour markets, both in terms of employment losses and in terms of wage losses as evidenced by the charts 29 and 30 in Gardo and Martin (2010).

Less clear are the channels through which economy-wide indicators of distress reached firms so to impact of firm-level labour employment. The view that changes in financial and credit conditions are important in the propagation of market shocks, a mechanism that has been dubbed the "financial accelerator" has received important empirical support. Financial crises exacerbate adverse selection and moral hazard problems so that financial markets are unable to efficiently charnel funds to those who have the most productive investment opportunities. In contemporary macroeconomics, the financial accelerator story tells the following tale: firms use both external and internal sources of finance. Reduced cash flows reduce availability of both sources because lenders will be more reluctant to lend to firms with smaller cash flows, particularly if these firms are young and small in size. Hence firms will be financially constrained, possibly reducing output, employment and wages. Macroeconomic evidence clearly shows that financial factors affect business fluctuations. Moreover, economic analysts have acknowledged that changes in financial conditions may amplify the effects of monetary policy on the economy, the so-called credit channel of monetary-policy transmission. An already abundant literature has highlighted the various channels through which the transmission of the GFC took place. Exposure to financial market linkages, trade dependence, an increase in risk aversion due to systematic underpricing practices prevailing before the GFC, and the domestic credit channel are among those often cited as more likely to be relevant (Lane and Milesi-Ferretti, 2010). While the trade dependence and the role of financial markets integration are clearly relevant channels of transmission, particularly in "emerging Europe", this evidence relies on country-level data and so it is a highly aggregated analysis.

3.1 A Review of the Economic Literature

Formally, very few studies have considered a role for financial distress in determining levels and attributes of the demand for labour. Of those investigations that have considered the impact of financial market frictions on the labour market, we can identify those that focus on *financial constraints* and those that have explored the impact of firms' *debt*. In particular, the degree of financial distress (financial constraints) may affect employment decisions in two distinct ways: first, through the external finance premium, the extra cost compared to the cost of internal finance, that firms face in accessing bank or equity finance; second, through firms' leverage which induced disciplinary employment cuts when the debt–asset ratio is high. Nickell and Wadhwani (1991) argue that the typical imperfect information problems of financial markets have a direct and an indirect effect on firms' finances. The direct effect is through firms' access to external finance, which is more costly than internal finances. The second and indirect effect is through firms' leverage, because, as interest rates rise net worth falls and so the ratio of debt to net worth rises. Managerial aversion to leverage may exacerbate the effect of leverage on firms' strategies to reduce costs and increase efficiency. Nickell and Nicolitsas (1999), Smolny and Winker (1999) and Benito and Hernando (2003) explore the relationship between financing constraints and total employment at the empirical level. In general, they find that the presence of financing constrains may deter hiring. Of those studies specifically interrogating the role of firms' leverage on employment adjustments, Cantor (1990) focused on the effect of sales and cash flow variations (as proxies for demand variability) on employment for the US corporate sector. Cantor concludes that leverage significantly alters the manner in which firms respond to de-

mand shocks. Brown et al. (1992) show that high-leveraged firms cut employment and capital expenditures more than low-leveraged firms during periods of substantial decline in operating returns. In an influential paper, Sharpe (1994) uses firm-level data from the USA and reports a significant relationship between financial leverage and the cyclicality of labour force. His results indicate that highly leveraged firms appear to be less prone to hoard labour, supporting the view that an increase in financial leverage increases the sensitivity of the macroeconomy to demand shocks. Similar findings were reported by Calomiris et al. (1994) who concluded that leverage and firm size play an active role in conditioning the responsiveness of employment to demand shocks. Furthermore, Funke et al. (1999) in a theoretical model demonstrate that if a firm is financially constrained, labour demand will decrease as the firm's leverage increases. By empirically testing the implications of their theoretical model based on a set of German manufacturing firms, the authors manage to uncover a negative impact of capital structure on employment. Ogawa (2003), based on a sample of Japanese firms, focused on the impact of financial distress on employment and concluded that the firm's ratio of debt to total assets (leverage) exerts a significantly negative effect on employment. Heisz and LaRochelle-Cote (2004) investigated the link between financial structure and employment growth for a sample of incorporated Canadian manufacturing firms, uncovering evidence for a significantly negative impact of leverage on employment demand. Recently, Boeri and Garibaldi (2013) develop a model where preferences for liquidity impact on firm-level hiring and firing. The model implies that in the face of financial shocks, highly leveraged firms will destroy jobs. Using Western European firm-level data they test their model's implication and find support to their conclusion. Howver, given the wellknown limitations in the provision of employment information by Amadeus, Boeri and Garibaldi (2013) are unable to investigate the differential impact that leverage has on workers differentiated by skill and typology of labour contract. In contributing to the exploration of the finance-labour nexus, this paper particularly relies on those studies that have focused on the pattern of labour adjustments involving differentiated labour inputs.

3.2 Firm-level Finance and Human Resources Assets Liquidation

There are only a few studies though that go beyond the likely impact of firm's financial conditions on employment and wages to differentiate these effects by workers' employment contract. For example, Caggese and Cunat (2007) argue that firms may find it worthwhile to offer workers contractual arrangements that increase a firm's flexible use of its human resources, thus shifting part of the risk involved in production. This question is particularly important for emerging economies, where financial constraints may exacerbate the tendency of financial markets to increase workers' vulnerability. Andrew and Hernando (2008) investigate the response of labour demand for workers differentiated by typology of employment contracts to financial factors in a set of Spanish firms' response. Milanez (2012) finds that at the onset of the global financial crisis of 2007-2009, among firms that went through mass layoffs, financially constrained firms laid off high human capital employees, thus suggesting that firms' financial conditions may have a significant impact on the type of human capital dismissed. Milanez (2012) uses salary, educational attainment,work experience and on the job training as proxies for human capital. BEEPS does not provide this information, but it does differential employment by skill according to the well known distinction between production and non-production workers. Cho and Newhouse (2013) examine the impact of labour market contractions on different groups of workers in 17 middle income countries. They conclude that the traditionally disadvantaged groups of workers may not be the most vulnerable to labour market disruptions during a financial crisis.

4. DATA, ECONOMETRIC SPECIFICATIONS AND IDENTIFICATION ISSUES

This analysis is based on data from the Business Environment and Enterprise Survey (BEEPS) conducted by the European Bank for Reconstruction and Development and the World Bank in 2002, 2005 and 2009. The panel survey of BEEPS in Eastern and Central European nations covers all countries of Central and Eastern Europe and the former Soviet Union, namely Albania, Armenia, Azerbaijan, Belarus, Bosnia, Bulgaria, Croatia, Czech Republic, Estonia, former Yugoslavia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Poland, Romania, Russia, Slovak Republic, Slovenia, Tajikistan, Turkey, Ukraine, Uzbekistan. Estonia, Latvia, Lithuania (the three Baltic countries), Poland, the Czech Republic, Slovakia, Hungary, Slovenia (the five Central European countries), Romania, and Bulgaria (Southeastern Europe). Bulgaria and Romania acceded to the European Union in January 2007. The other Central and Eastern European countries joined in May 2004. Slovenia and Slovakia adopted the euro in 2007 and 2009, respectively. Estonia successfully adopted the euro on January 1, 2011.

The BEEPS used an identical sampling approach in all years. In each country, the sectoral composition of the sample in terms of manufacturing (including agroprocessing) versus services (including commerce) was determined by their relative contribution to GDP. In terms of firms' size, at least 10% of the sample was to be in the small (2-49 employees) and 10% in the large (250-9,999 employees) categories. Firms with only one employee or more than 10,000 employees were excluded. At least 10% of the firms were to have foreign control and 10% state control. Enterprises which began operations in the three years prior to the survey were excluded. For the most part the 2009 survey information was collected through interviews that took place in 2008 between September and November. Information refers to the 2007 fiscal year, which, for the coutries considered in this study, coincides with the calendar year. Although the timing of the GFC is usually 2008-2010, there is evidence that at least the two countries with the greatest overexpansion, Latvia and Estonia, were feeling a credit crunch already in 2007, as their banks reduced their lending, leading to a sudden and sharp fall in real estate prices. It is only after the bankruptcy of Lehman Brothers on September 15, 2008, that global credit froze (Aslund, 2011).

4.1 Measuring Firm-Level Financial Constraints and Leverage

The BEEPS covers a broad range of issues about the business environment, including information on labour and finance strategies and indicators. To construct measures of financial constraints I exploit the following BEEPS information on demand for credit and access to credit:

(i) *Difficult access to finance*: Access to finance is currently the biggest obstacle faced by this establishment (Question m1a).

(ii) *Credit required for production operation*: in current fiscal year, the percentage of this establishment's purchases of material input and services that were paid after delivery (so purchased on credit) was 50% or higher, and the percentage of this establishment's total annual sales that were paid for after delivery was 50% or higher (Question k1e and question k2c).

(iii) *Reliance on external finance to purchase fixed assets*: Over the current fiscal year, the estimated proportion of this establishment's total purchase of fixed assets that were financed from internal funds or retained earnings was higher than 50%.

(iv) *Need for a line of credit, but no application, or new application if previous was rejected:*

(v) *Difficult access to finance*: Access to finance is either a major obstacle or a very severe obstacle (Question k30).

(vi) *Difficult access to finance*: Access to finance is either a moderate obstacle, a major obstacle or a very severe obstacle (Question k30)

Information on a firm's financial condition is exploited to create transition into financial constraint variables, that take value one if a firm changes status from t-1 to t, namely it was answer "no" to any of the financial constraint questions (i)-(vi) above, but answered "yes" the the correponding question in survey year t.

From information on firms' reliance on external finance to purchase fixed assets as in (iii) above I construct the following variables: *High Leverage*=1 if *Reliance on external finance to finance* $\Delta K > 50\%$, and $\Delta Leverage$, an indicator variable equal to one if a firm went from High Leverage=0 (low level of reliance on external finance) to High Leverage=1 (high reliance on external finance). A firm's *transition from low leverage to high leverage*, between previous and current survey year amount to a rise in a firm's exposure to credit crises. It is expected that this variable impacts on firm's labour adjustments by inducing job destruction.

4.2 Measuring Firm-Level Employment Composition

The BEEPS survey provides information on the following types of employment: Total employment, Total permanent employment, total temporary employment, total Full-Time (F/T) production emploment, total F/T non-production employment, total F/T skilled production employment, total F/T unskilled production employment. The various types of labour are defined as follows:

(i) *Number of permanent, full time employees* in the last complete fiscal year. These workers are defined as all paid employees that are contracted for a term of one or more fiscal years and/or have a guaranteed renewal of their employment contract and that work up to 8 or more hours per day (Question L.1 in BEEPS).

(ii) *Number of full time temporary of seasonal employees* are defined as all paid short-term (i.e., for less than a fiscal year) employees with no guarantee of renewal of employment contract) and work for 40 hours or more per week for the term of their contract (Question L.6 in BEEPS).

(iii) *Total employment: the sum of total permanent employment and total temporary employment* as defined by L.1 and L.6 (L.1+L.6).

(iv) *Number of permanent, full time production workers* are workers (up through the supervision level) engaged in fabricating, processing, assembling, inspecting, receiveing, storing, handing, packing, warehousing, shipping (but not delivering), maintenance, repair, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations (Question L.3a in BEEPS).

(v) *Number of permanent, full time non-production workers* are all employees above the working-supervisory levels described in L.3a (Question L.3b in BEEPS)

(vi) *Number of permanent, full time skilled/unskilled production workers* are employees above/below the working-supervisor level. Also the skilled workers are those who perform jobs where special training, education or skill are not required (Question L.4a/b in BEEPS).

Table 1 reports the summary statistics for the main variables.

4.3 Econometric Specification and Data

The purpose of this section is twofold. First, it examines whether firms' financial conditions are related to firms' employment losses. I focus on leverage, by distinguishing between firms with low leverage and firms with high leverage to explore the way firm's leverage impact upon its employment adjustment decisions. To examine the correlation between firm-level financial conditions and employment changes an approach similar to that taken by earlier literature is followed (e.g., Nickell and Nicolitsas (1999), Ogawa (2003). I assume that employment decisions in firm i, country j and time t are taken according to the following equation

$$empl_{ijt} = X_{ijt}\alpha + High\ Leverage_{ijt}\beta + u_{ijt} \quad (1)$$

I assume that $u_{ijt} = \epsilon_i + \epsilon_j + \epsilon_{ijt}$ where ϵ_i is a time-invariant firm-specific fixed effect, ϵ_j is a time-invariant industry-specific fixed effect. The firm-specific component of the error term ϵ_i may be possibly correlated with the right hand side variables X_{ijt}. The vector X_{ijt} includes variables that characterizes firm i's market conditions prevailing in time t, which affect labour marginal product and wages. The vector X_{ijt} of firm-specific variables contains past sales, the real rate of growth of sales, investment in fixed assets, ownership structure (percentage of private ownership, publish owndership (government or state) and foreign ownership of the establishment). Firms' financial conditions are captured by an indicator variable $High\ Leverage_{ijt}$ if firm i has used external finance for more than 50% of its investment in fixed assets in year t.

First differencing eliminates ϵ_i and ϵ_j. Thus I estimate the following first difference regression equation:

$$\Delta empl_{ijt} = \Delta X_{ijt}\alpha + \Delta Leverage_{ijt}\beta + \quad (2)$$
$$+(\epsilon_{ijt} - \epsilon_{ijt-1})$$

In (2) $\Delta empl_{ijt}$ is the change in employment between two survey years, (e.g., t-1= 2005 and t=2009), in firm i, country j and t is t stand for firm i, country j and time t, t=2005, 2009. Changes in firm-specific conditions are measured ΔX_{ijt}, which includes rate of growth in sales, the expenditure in capital formation betwen *(t-1)* and *t*. To capture the importance of starting conditions, I include the past level of sales as prevailing three fiscal years before year *t*. I use the variable described in (iii) above to identify firms debt above a predefined threshold. In particular *High Leverage* takes value one if the estimated proportion of a firm's total purchase of fixed assets covered through internal funds was 50% or lower. A transition into high leverage ($\Delta Leverage = 1$) between two consecutive survey years is expected to negatively impact employment. Given that adjustments in labour inputs may occur as a response to changes in broad market conditions as well as in response to "initial" conditions, I include among the explanatory variables a set of lagged variables, namely, past sales and past experience of *High Leverage*.

It is important to consider that if any explanatory variable in the right hand side of (2) (e.g., the change in sales for firms i ΔX_{ijt}) is correlated with the error term $(\epsilon_{ijt} - \epsilon_{ijt-1})$ the estimates will be inconsistent. For this reason I use fixed effect (within) estimators, which offer the advantage to provide consistent estimates of the focal coefficients (Cameron and Trivedi, 2010). Because the firm fixed effect captures across firm variation of firm characteristics *within* the firm dummies, the coefficient estimate on *High Leverage* measures the effect of time series variation in firm's financial conditions within a firm on its employment adjustment. Given the differencial access to finance that small and larger firms experience, I test the importance of financial constraints and leverage for small firms' labour adjustments in response to firms' financial conditions by including an indicator variable *Small firm* and its interaction with the high leverage indicator $\Delta Leverage$.

4.4 The Impact of Firm-Level Finance on Labour Adjustments by Typology of Labour

BEEPS provides information on firm-level employment along the following dimensions. Total employment is the sum of total permanent employment and total temporary employment. Additional information on full-time production employment, full-time non-production employment, full-time skilled production employment and full-time unskilled production employment is provided. I then proceed by exploring the way firms' exposure to economy-wide worsening financial conditions have impacted upon permanent and temporary workers, production and non-production workers and production workers differentiated by skill at the onset of the GFC. To do so I estimate an econometric specification similar to (2):

$$\Delta empl_{ijt}^{type} = \Delta X_{ijt}\alpha + \Delta Leverage_{ijt}\beta + (\epsilon_{ijt} - \epsilon_{ijt-1}) \quad (3)$$

where *type* indicate the type of employment contract and labour I consider the employment of, *type*=production, non-production, skilled, unskilled.

5. EMPIRICAL RESULTS AND INTERPRETATION

5.1 Firms and Leverage

Table 1 reports the summary statistics. About 36 percent of firms in the panel sample experienced high leverage. Table 2 and Table 3 use all firms (manufacturing and non-manufacturing) to estimate equation (2) and equation (3), respectively. Tables 4 and 5 focus on manufacting firms. Consequently, these results are directly comparable to the ones in Tables 2-3. In Tables 2-5 the focal variables are *High Leverage* and $\Delta Leverage$ as defined above. In all tables specifications (i) and (ii) exclude and include, respectively, an indicator variable for firm's size and its interaction with $\Delta Leverage$. The main results can be summarized as follows.

Past levels of sales have a positive impact on permanent employment and a negative impact on temporary employment (See Table 2 and Table 4). However, high growth rates of sales are usually met by means of changes in temporary employment, once that the levels of past sales are controlled for. This is consistent with an interpretation that sees past sales as an indicator of trend, while growth rates in sales (in real terms) are firstly considered as temporary and possibly met by employing more temporary workers. This is consistent with the literature on temporary employment according to which temporary contracts will be issued in response to shocks in demand. Investments in fixed assets have an overall negative impact on total employment, but a positive (mildly statistically significant) impact on permanent employment.

Reliance on external finance to finance ΔK >50% (High leverage=1) in prior survey year does not significantly impact employment adjustments. A firm's transition into *High Leverage*, a change in exposure to external finance above the designated threshold (50 percent) as indicated by $\Delta Leverage$, is the main statistically significant effect impacting upon the change in total employment in Table 2. Transition into higher exposure to external finance is accompanied by a cut in total employment. This effect is magnified when the dependent variable $\Delta empl$ is the change in total *permanent* employment as opposed to total *temporary* employment (in the central and right-hand side columns of Table 2). The effect is small but statistically significant for temporary employment in the last column of Table 2. There is some evidence that the size of the labour adjustments are larger for larger firms as the coefficient of the interacted variable *Small firm*Transition from LL to HL* makes it evident. The loss of temporary jobs is concentrated in small firms.

I further test the hypothesis that the adjustment measures have unequal impacts on the various segments of the workforce, as differentiated by typology of the labour contract. Table 3 illustrates the impact of changes in a firm's financial situation on the following aggregates: full-time production employment, full-time non-production employment, full-time skilled production employment, full-time unskilled production employment. The main results confirms that a positive change in firm's leverage (a transition from low leverage to high leverage) involve cuts in production employment rather than in the non-production workforce. Adjustments in the production workforce primarily involve skilled production workers who appear to bear the brunt of the change in debt (see Table 3). The impact on F/T unskilled production workers is not distinguishable from zero. To the extent that skill involves investments in human capital that are costly to the firm, the firm should have some interest in protecting from market fluctuations. Table 3 illustrates a result that is contrary to standard human capital theory and confirms similar findings reported by Milanez (2012).

5.2 Robustness: Manufacturing Firms

One may wonder whether these results depend on the fact that some financial firms may be included, those that might be particularly vulnerable to banking crises. In Tables 4 and 5 I test whether these results are robust to the exclusion on non-manufacturing firms. The manufacturing sector was considered "sensitive" in countries such as Bulgaria, Hungary and Poland before the transition because the four sectors involving iron steel production, chemicals' production, footwear, textiles and apparel, food and live animal products represented over 40 percent of manufacturing output and between 33 and 40 percent of manufacturing employment in 1989.

Table 4 shows that a firm's reliance on external finance to finance ΔK >50% (High leverage=1) in prior survey year has a statistically significant negative impact on total employment. The effect of a transition from low leverage to high leverage appears magnified in manufacturing firms compared to a full sample of firms. Specifications (i) (those without indicator variables for small firms and without interaction) illustrate that manufacturing frms adjust permanent labour rather than temporary labour. Specifications (ii) shows that the transition to high leverage involves adjustments to both the temporary and the permanent workforce, and these adjustments vary with the size of the firm. Small firms increase temporary employment (*-82 + 113.907 for "small firm"=1)*, but the overall impact on permanent employment is close to zero. Larger firms sensibly reduce permanent and temporary labour inputs. Table 5 decomposes changes in F/T workforce by looking at changes in production and non-production employment. As Table 3 illustrates, the impact on the production workers is large and statistically significant while non-production workers are not affected by a transition into high leverage. A further decomposition of the workforce of production workers makes it evident that skilled production workers' jobs are destroyed at a much larger rate than unskilled production jobs.

5.3 Firms' Leverage and Proximity to the Global Financial Crisis

In Table 5 and Table 6 I address the question of whether these responses to the emergence of sizeable debts are exacerbated during the Global Financial Crisis. For this purpose, I decompose the change in firm's indicator for high leverage across time, so to identify the financial change that occurred between 2002 and 2005 and the one occurring at the onset of the GFC, thus between 2005 and 2007. A transition from low leverage to high leverage between 2002 and 2005 had a negative impact on total employment and substantially more so for small firms. On the contrary, a substantial change in firm's leverage experienced between 2005 and 2007 impacted primarily on the permanent workforce, particularly in small firms. Changes in leverage situation in that second period impacted on permanent employment and are substantially larger for larger firms. A decomposition of the F/T workforce in Table 7 illustrates that a transition to high leverage in the months prior to the Global Financial Crisis impacted particularly srongly on production workers rather than non-production workers. Within the group of production workers, only the impact on skilled production workers is statistically significant while the estimated coefficient of transition to high leverage on unskilled production workers' employment changes is statistically nihil.

6. CONCLUSIONS FROM THE ECONOMETRIC ANALYSIS

The fact that the GFC has had an impact on employment is no surprise and it is in broad agreement with the literature (Nickell and Wadhwani, 1991; Funke et al, 1999 among others). More surprising is that among firms that went through mass layoffs, firms experiencing sharp changes in their ability to meet fixed assets investments with their internal funds laid off high human capital employees. This result confirms the one that Milanez (2012) recently found in a sample of Californian firms between 2006 and 2011. Both sets of results, although different in the way they measure workers' skill contradict theoretical labor economics predictions that firms lay off workers in inverse order of the degree of human capital.

In pursuing an interpretation key of the finance-labour nexus the way it emerges in these economies, I face a number of challenging questions: Are skilled individuals more likely to be fired because they are *equivalent* to less skilled workers? [1] If so, does firms' exposure to financial markets operates a *homogenization of labour* against the tendency, often perceived as fundamental for the operation of global capital, towards *workers' segmentation* (Bowles and Gintis, 1977)? Is this *indifferentiation (*between skilled and unskilled labour and between temporary and permanent workers), the hyperbolic product of a process of differentiation

[1] In presenting the challenges of understanding skilled labour in relation to Marx's value theory, Itoh (1987) reviews the marxian debate of the equivalence of skilled and unskilled labour –whether this happens in the context of the production-process of capital as in the Uno school, or rather because "skilled workers' own labour embodies the same amount of labour substance of value as do unskilled workers in a unit of labour time" (Itoh, 1987, p. 39).

of labour carried out by *all* neo-liberal apparatuses in the way envisioned by Negri (1989) "The only problem is that extreme liberalization of the economy reveals its opposite, namely that the social and productive environment is not made up of atomized individuals, (...) the real environment is made up of collective individuals." (Negri, 1989, p. 206) And again, is the treatment of skilled labour vis-a-vis unskilled labour an *exception* to an old rule (eg., human capital is valuable) or rather a rule in a *new context* in which capitalist firms are called to operate? If the latter hypothesis has to be pursued, are we facing the passage envisioned by Foucault from a localized and stable organization of economic power centred around one "culture" (e.g., neo-liberal culture of entrepreneurship and human capital), to an unstable set of heterogenous technologies that produce and manage labour and labour relationships through market competition (Foucault, 1994)?

7. FIRMS' FINANCIALIZATION AND THE HUMAN CAPITAL DEBATE.

I propose that the GFC is a lens through which processes of transformation of capitalist economies can be observed and questioned. In particular, I see the finance-labour nexus the way it materializes in CEEs during the GFC as a fertile field of inquiry to understand the complex dimensions of contemporary capitalism, particularly the way finance shapes the relationship between labour and capital and the redefinition of the value of human capital that undergoes in financialized firms. As pointed out above, the modality of articulation of the finance-labour nexus in transitional economies such as those in Central and Eastern Europe contradicts theoretical human capital theories *à'la* Becker, according to whom firms would lay off workers in inverse order of the amount of accumulated human capital. Furthermore, these results question the traditional interpretation of temporary employment contracts as a way capitalist firms respond to fluctuations in product demand. Rather, the separation between precarious and non-precarious labour appears to blur and in so doing, the GFC hints at some fundamental transformation that the process of firms' financialization has initiated in emerging economies of Central and Eastern Europe. The always *historically specific* character of the way capitalism values labour, which is emphasized by Marx in *Capital* (p. 290), confirms the need to explore in further details the nature of the finance-labour nexus.

Accepting heterogeneity as a specific feature of neo-liberal technologies of organization and production involves a consideration of de facto and ad hoc organizations of production across the globe. I pursue this line of thought in the context of the transformative nature of the integration of CEE economies in GPN and the particular features of these firms' financialization. I then explore the way financialization might operate and transform capital-labour relations in GPNs through firms' financialization.

7.1 GPNs, Firms' Financialization and Labour

GPNs have become a major drive of industrialization since the 1970s when the changing nature of global integration processes, driven by transnational capital and facilitated by national restructuring policies, have opened the gate for a global division of labour, made flexible and open to the needs of global capital by widespread changes in labour market institutions –e.g., unionization, across the globe. GPNs are rapidly reshaping the lexicon of economic development in transitional economies and in post-industrial nations alike. Development is becoming synonymous with economic upgrading, a process whereby complex economic actors such as firms, rather than nations as a whole, are recipient of the main advantages that derive from economic integration. Economic upgrading, a process that allows firms to climb a series of horizontal and vertical ladders both within and between production networks so to get to produce more advanced products and to operate in higher productivity/higher value added segments of global production, shapes the economic culture in transitional economies (Milberg and Winkler, 2010).[2] Not surprisingly, the new development theories named as Compressed Development, rather than simply questioning the relevance of traditional factors deemed responsible for integration in trade flows, have attempted to explain the rapid integration of some firms and the exclusion of others into global production networks. Most importantly, Compressed Development has recasted attention on issues of governance, human resource management, and how deployment of tangible and intangible assets and value sharing are performed in global production networks. Czaban and Henderson (2003) argue that it has been "the legacies of the state socialist past embedded in the inherited macro- and microeconomic structures, on the one hand, and the strategies of multinational firms on the other, rather than the international linkages in

[2] Starosta (2010) offers an insightful analysis of the foundation of the 'chain' or 'network' form characterising the organisation of Global Value Chains from the perspective of the Marxian critique of political economy. He claims that the main focus of value chain analysis lies in the realm of the relation between individual capitals.

any simple sense, that have been the main influencing factors" in determining the particular way in which Central and Eastern European economies have integration into global circuits of production, distribution and consumption.

Despite the central role that labour plays in the creation of value in GPNs, labour issue have been relatively neglected in studies of global value networks (Carswell and De Neve, 2013). This is somehow paradoxical if we think that all the various routes through which economic upgrading can take place, namely process upgrading, product upgrading, functional upgrading and intersectoral upgrading (Gibbon and Ponte, 2005) rely on complex processes of technological innovation where skilled labour is an input of production complementary to capital and technology. We will return to this apparent paradox, but for now let's note that economic geographers have warned against the tendency to think of the various social, political and economic actors involved in skilling and value capturing as distinct and *autonomous* actors that pre-exist the process of integration and value creation that inform GPNs –for example, lead firms who often dictate the needs of skill for the entire GPN, or nation state who contribute to shape the context in which these lead firms operate. In this context, Carswell and De Neve (2013) stress the need to study labour issues in the context of GPN using an horizontal approach, which should "*reveal (how) labour agency is not merely fashioned by vertically linked production networks but as much by social relations and livelihood strategies that are themselves embedded in a wider regional economy and cultural environment*" (p.103).

The point I want to stress is that GPNs reveal something of the embeddedness of labour, its proximity to capital. As Carswell and De Neve write on p. 103: "*Fundamentally in this new order, a country's ability to generate highly skilled competencies and skilled personnel becomes its greatest asset in being able to positively integrate into global value chains, to gain control over new competencies and shift functions and places within a value chain, to create barriers to entry, and finally, to ensure upward income distribution through successful participation in such value chains.*" In GPNs, the sorts of skilled workers and the firm are becoming one. The purpose is the creation of barriers to entry, so that rents can be produced and eventually shared. In this context, human capital is not automatically rewarded for its contribution to production. Rather, *"the spatial and vertical distribution of profit and incomes within global value chains should be viewed as indicators of barriers to entry"*. The idea of labour as a contributor to rent creation is here clear. Less clear is how rent distribution is informed by traditional concepts of skill and human capital. Given that human capital is valuable only to the extent that it contributes to produce rents, the problem is rent creation rather than *"an unequal (i.e. unfair) exchange or unfair appropriation of profit by leading firms"* (Carswell and De Neve, 2013, p. 103).

The examples of failed upgrading into high value segment of the GPNs are numerous. For example international subcontracting arrangements and the creation of international joint ventures led to successful integration in the assembly and parts of the preassembly (pattern making and cutting) of the clothing production process in Ukraine, but also a reduction of high value-added competencies such as design and quality control (Kalantaridis et al., 2008). In Taiwan, firms were hoping to use integration into manufacturing GPNs to become fully blown original brand manufacturers. However, few have been successful, in large part because doing so brought them into direct competition with their customers (small in number and very powerful), putting future orders at risk. The possibility of failure is what makes the evaluation of human capital an ex-post rather than an ex-ante matter. Any attempt to succeed in economic upgrading requires access to financial markets and accumulation of debt. Failure to produce economic upgrading makes skilled labour equivalent to unskilled labour. The precarious status of skill and human capital in GPNs emerges from the dispossession of labour of its skill: while skilled labour is at the heart of any successful climbing of the value ladder, the result is always open, fluid and subject to change as dictated by market competition. It is in this context that the GFC reveals the tendency of capitalism to reduce all types of labour to simple labour and the role that finance plays in this *reductio ad unum*. Skilled and unskilled labour in GPNs are organized around a particular sort of technology, or *machine* (Deleuze, 1995, p.180), which tends to abstract bodies from skill. GPNs make these machines of control visible as they manifest the fluidity of capital and labour alike in financialized firms–the financing of labour.

References

Allen, M., (2011), "The Impact of the Global Economic Crisis on Central and Eastern Europe Fourth Central European CEMS Conference", Warsaw, February 25, 2011

Aslund, A., "Lessons from the East European Financial Crisis, 2008–10", Peterson Institute of International Economics, June.

Baranowska, A., and Gebel, M., (2008) "Temporary Employment in Central- and Eastern Europe: Individual Risk Patterns and Institutional

Context" Arbeitspapiere – Working Papers Nr. 106, Mannheimer Zentrum für Europäische Sozialforschung

Benito, A., and Hernando, I., (2008). "Labour Demand, Flexible Contracts and Financial Factors: Firm-Level Evidence from Spain*." Oxford Bulletin of Economics and Statistics 70.3 (2008): 283-301.

Boeri, T., Garibaldi, P., Moen, E. R., (2013), "Labor and Finance: Mortensen and Pissarides meet Holmstrom and Tirole", working paper available in https://www.economicdynamics.org/meetpapers/2013/paper_775.pdf, accessed on April 23rd 2015.

Bowles, S., and Gintis, H., (1977), "The Marxian Theory of Value and Heterogenous Labour", Cambridge Journal of Economics, Vol. 1-2.

Bryan, D., Martin R., and M. Rafferty (2009), "Financialization and Marx: Giving Labor and Capital a Financial Makeover", Review of Radical Political Economics 2009 41: 458

Calomiris C. W., Orphanides A. and Sharpe S. A. (1994) 'Leverage as a State Variable for Employment, Inventory Accumulation, and Fixed Investment', NBER Working Paper No. 4800.

Calvo, Guillermo A;Coricelli, Fabrizio, (1993) "Output Collapse in Eastern Europe: The Role of Credit," International Monetary Fund, Staff Papers; Mar 1; 40, 1; Periodicals Archive Online pg. 32

Cameron, C. A., Trivedi, P. K., (2010), Microeconometrics Using Stata, Revised Edition, Stata Press

Cantor R. (1990) 'Effects of Leverage on Corporate Investment and Hiring Decisions', Federal Reserve Bank of New York Quarterly Review 15: 31–41.

Carswell, G. and De Neve, G. (2013) "Labouring for global markets: Conceptualising labour agency in global production networks." Geoforum 44: 62-70.

Cho, Yoonyoung, and David Newhouse. "How did the great recession affect different types of workers? Evidence from 17 middle-income countries." World Development 41 (2013): 31-50.

Czaban, L., and Henderson, J., (2003), "Commodity Chains, Foreign Investments and Labour Issues in Eastern Europe", Global Networks 3, 1 , pp. 171–196. ISSN 1470–2266

Deleuze, G., (1995), *Negotiations 1972-1990.* Trans. Martin Joughin, New York, Columbia University Press.

Drakos, K., and Kallandranis, C., (2006) "Modelling Labour Demand Dynamics beyond the Frictionless Environment" Labour 20 (4) 699–720

Fazzari, S., Hubbard, G., and Petersen, B. (1988), "Financing constraints and corporate investment," Brookings Papers on Economic Activity, 1:144.195

Foucault, M., (1994) Les mailles du pouvoir, in Dits et écrits, 1954-1988, vol. IV, Gallimard, Paris.

Foucault, M., (2008), *The Birth of Biopolitics (Lecture at the College De France).* Trans. Graham Burchell, New York: Palgrave Macmillan

Freudenberg, M., and Lemoine, F., (1999), "Central and Eastern European Countries In the International Division of Labour in Europe", CEPII Working Paper, no. 5, April.

Funke, M., Maurer W., and Strulik, H., (1999), "Capital Structure and Labour Demand: Investigations using German Micro Data, Oxford Bulletin of Economics and Statistics, 61, 2.

Gardo, S., and Martin, R., (2010), "The Impact of the Global Economic and Financial Crisis on Central, Eastern and South-Eastern Europe. A Stock-Taking Exercise", Occasional Paper Series no. 114

Gertler, M. and S. Gilchrist(1993)." The Role of Credit Market Imperfections in the Monetary Transmission Mechanism: Arguments and Evidence," Scandinavian Journal of Economics 95, pp. 43-64.

Gibbon, P., and S., Ponte. (2005), Trading Down: Africa, Value Chains, and the Global Economy. Philadelphia, PA: Temple University Press

Hanka G. (1998) 'Debt and the Terms of Employment', Journal of Financial Economics 48(3): 245–282.

Itoh, M., (1987), "Skilled Labour in Value Theory", Capital and Class, 11: 39, pp. 39-58

Jessop, R. D., (2001), 'The social embeddedness of the economy and its implications for governance'. in Devine, P. J., and Fikret Adaman, eds. Economy and Society: money, capitalism and transition. Montréal: Black Rose Books, 2002.

Kalantaridis, Christos, Svitlana Slava, and Ivaylo Vassilev. "Global networks and the reorganization of production in the clothing industry of post-socialist Ukraine." Global Networks 8.3 (2008): 308-328.

Lane, P. R. and G. M. Milesi-Ferretti (2010), "The Cross-Country Incidence of the Global Crisis", paper prepared for the IMF/BOP/PSE Conference on "Economic Linkages, Spillovers and the Financial Crisis", Paris, 28-29 January .

Lehmann H., Muravyev, A., (2011), "Labor Markets and Labor Market Institutions in Transition Economies", IZA Discussion Paper No. 5905

Lemke, T., (2002) “Foucault, Governmentality, and Critique.” Rethinking Marxis, 14, 3, 60.

Martin, R., Rafferty M., and Bryan D., (2008), "Financialization, Risk and Labour", Competition and Change, Vol. 12, no. 2, June, pp. 120-132.

Marx, K., Capital, Volume One, Trans. Ben Fowkes, Vintage Books, A Division of Random House, New York, 1977

Milanez, Anna, (2012) The Human Capital Costs of Financial Constraint Anna Milanez November, mimeo

Negri, A., (1989) The Politics of Subversion: A Manifesto for the Twenty-First Century, trans. James Newell (Oxford: Polity Press).

Nickell, S. and D. Nicolitsas(1999).” How Does Financial Pressure Affect Firms?” European Economic Review Vol. 43, pp.1435-1456.

Nickell, S. and Wadhwani, S. (1991). ‘Employment determination in British industry: investigations using micro-data’, Review of Economic Studies, Vol. 58, pp. 955–969.

Ogawa, K., (2003), "Financial Distress and Employment. The Japanese Case in the 1990s", NBER Working Paper 9646.

Rose, A. K. and M. M. Spiegel (2009), “Cross-Country Causes and Consequences of the 2008 Crisis: Early Warning”, Federal Reserve Bank of San Francisco Working Paper No. 2009-17.

Selwyn, B., (2012) "Beyond firm-centrism: re-integrating labour and capitalism into global commodity chain analysis", Journal of Economic Geography 12, pp. 205–226

Sen, K., (2011): ‘A Hard Rain’s a-Gonna Fall’: The Global Financial Crisis and Developing Countries, New Political Economy, 16:3, 399-413

Sharpe, S.A.(1994).” Financial Market Imperfections, Firm Leverage, and the Cyclicality of Employment,” American Economic Review Vol.84, No.4, pp.1060-1074.

Smolny, W., and P. Winker. "Employment adjustment and financing constraints." Dept. of Economics, University of Mannheim, Discussion Paper 573-99 (1999).

Starosta, G., (2010): The Outsourcing of Manufacturing and the Rise of Giant Global Contractors: A Marxian Approach to Some Recent Transformations of Global Value Chains, New Political Economy, 15:4, 543-563

Vliegenthart, Arjan. "Bringing Dependency Back In: The Economic Crisis in Post-socialist Europe and the Continued Relevance of Dependent Development." Historical Social Research/Historische Sozialforschung (2010): 242-265.

Whittaker, D. Hugh, et al. "Compressed development." Studies in Comparative International Development 45.4 (2010): 439-467.

Withaker, R. B., (1999), "The Early Stages of Financial Distress", Journal of Economics and Finance, Vol. 23, issue no. 2.

Table 2: Employment effects of debt-related financial constraints (total employment, total permanent employment, total temporary employment), all industries, standard errors in parentheses. Fixed effect estimation results						
	Change in Total Employment		Change in Total permanent employment		Change in Total temporary employment	
	(i)	(ii)	(i)	(ii)	(i)	(ii)
Sale levels in previous survey year	3.759**	2.788	4.903**	3.115	-1.801**	-1.673**
	(1.725)	(1.672)	(2.383)	(2.264)	(0.748)	(0.703)
Real growth rate in sales	-0.038	0.225	-0.563	0.198	1.357**	1.194**
	(1.294)	(1.223)	(1.787)	(1.656)	(0.561)	(0.514)
⊿K: Investment in fixed assets	-18.945*	-21.001**	21.924	21.799*	-0.354	-1.699
	(9.838)	(9.250)	(13.589)	(12.523)	(4.268)	(3.890)
Transition from Low Leverage to High Leverage between previous and current survey year	-35.386*	-79.448**	-69.868**	-191.472***	4.056	29.688*
	(20.608)	(36.082)	(28.464)	(48.851)	(9.038)	(15.771)
Reliance on external finance to finance ⊿K >50% (High leverage=1) in prior survey year	-49.994	-41.106	-51.889	-34.295	-18.473	-14.722
	(34.898)	(33.331)	(48.203)	(45.127)	(16.798)	(15.537)
Small firm	___	-107.528**	___	-86.897	___	-33.716*
		(39.636)		(53.663)		(16.831)
*Small firm*Transition from LL to HL*	___	65.670	___	168.649***	___	-32.743*
		(40.002)		(54.159)		(17.256)
Cons.	86.288**	182.811***	-22.961	32.603	-12.973	25.245
	(41.864)	(54.836)	(57.824)	(74.242)	(18.315)	(23.063)
Ownership structure	Yes	Yes	Yes	Yes	Yes	Yes
N	202	201	202	201	198	197
Within R-squared	0.330	0.446	0.314	0.453	0.338	0.501

Table 3: Employment composition effects of debt-related financial constraints (production/non-production and production/skilled-unskilled), all industries, standard errors in parentheses. Fixed effect estimation results

	Change in F/T Production Emp.		Change in F/T Non-Production Emp.		Change in F/T Skilled Production Emp.		Change in F/T Unskilled Production Emp.	
	(i)	(ii)	(i)	(ii)	(i)	(ii)	(i)	(ii)
Sale levels in previous survey year	8.807*	-4.252	4.127*	2.266	8.555	-4.598	0.194	0.349
	(4.563)	(4.121)	(1.985)	(3.189)	(5.612)	(6.599)	(3.038)	(5.489)
Real growth rate in sales	-8.534	-3.666	0.170	3.572	-6.225	-2.180	-2.584	-1.585
	(5.965)	(4.729)	(2.595)	(3.659)	(7.336)	(7.573)	(4.001)	(6.366)
⊿K: Investment in fixed assets	52.352***	43.217***	-20.386**	-22.300**	35.458	26.451	16.908	16.782
	(16.739)	(10.067)	(7.283)	(7.790)	(20.589)	(16.121)	(11.138)	(13.320)
Transition from Low Leverage to High Leverage between previous and current survey year	-144.766**	-582.247***	-34.883	-63.728	-137.437	-590.53***	-11.045	8.129
	(64.815)	(98.973)	(28.198)	(76.589)	(79.721)	(158.500)	(43.157)	(131.297)
Reliance on external finance to finance ⊿K >50% (High leverage=1) in prior survey year	-75.864	-47.648	-37.688	37.805	-106.620	-100.885	26.681	53.952
	(105.473)	(91.463)	(45.886)	(70.777)	(129.730)	(146.472)	(70.200)	(121.747)
Small firm	___	31.156	___	-77.499	___	66.206	___	-36.347
		(71.915)		(55.651)		(115.168)		(95.704)
*Small firm*Transition from LL to HL*	___	501.072***	___	108.797	___	494.530*	___	7.500
		(141.534)		(109.524)		(226.659)		(188.927)
Cons.	-63.688	-476.217***	-83.967	-16.529	-79.130	-550.345**	11.402	72.491
	(111.992)	(121.921)	(48.696)	(94.400)	(137.749)	(195.250)	(74.516)	(160.596)
Ownership structure	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	124	123	125	124	124	123	121	120
Within R-sq	0.673	0.916	0.695	0.746	0.547	0.803	0.311	0.326

Table 4: Employment effects of debt-related financial constraints (total employment, total permanent employment, total temporary employment), manufacturing industries only, standard errors in parentheses. Fixed effect estimation results

	Change in Total Employment		Change in Total permanent employment		Change in Total temporary employment	
	(i)	(ii)	(i)	(ii)	(i)	(ii)
Sale levels in previous survey year	7.254**	-2.470	12.173**	-2.710	-1.408	-3.962**
	(3.057)	(2.215)	(4.737)	(3.608)	(1.030)	(1.258)
Real growth rate in sales	*-1.169*	*1.157*	*-1.612*	*1.934*	*2.371****	*2.867****
	(2.093)	(1.173)	(3.244)	(1.911)	(0.717)	(0.651)
⊿K: Investment in fixed assets	-22.961*	-30.228***	31.135*	20.020*	-1.083	-2.809
	(11.117)	(5.743)	(17.227)	(9.357)	(3.753)	(3.188)
Transition from Low Leverage to High Leverage between previous and current survey year	-132.104**	-441.041***	-185.193**	-658.197***	-5.265	-82.000**
	(47.425)	(55.815)	(73.491)	(90.934)	(16.068)	(31.436)
Reliance on external finance to finance ⊿K >50% (High leverage=1) in prior survey year	-137.366*	-40.594	-116.563	30.375	-20.164	38.488
	(72.798)	(48.938)	(112.809)	(79.730)	(36.438)	(45.246)
Small firm	___	-29.711	___	-46.170	___	-40.634
		(41.697)		(67.933)		(29.584)
*Small firm*Transition from LL to HL*	___	434.299***	___	663.716***	___	113.907**
		(74.039)		(120.625)		(43.867)
Cons.	-6.266	-216.283**	-167.466	-491.327***	-65.405**	-81.839
	(75.815)	(77.952)	(117.485)	(126.999)	(26.869)	(44.519)
Ownership structure	Yes	Yes	Yes	Yes	Yes	Yes
N	80	79	80	79	77	76
Within R-sq	0.725	0.946	0.694	0.933	0.665	0.831

Table 5: Employment composition effects of debt-related financial constraints (production/non-production and production/skilled-unskilled), manufacturing industries only, standard errors in parentheses. Fixed effect estimation results

	Change in F/T Production Emp.		Change in F/T Non-Production Emp.		Change in F/T Skilled Production Emp.		Change in F/T Unskilled Production Emp.	
	(i)	(ii)	(i)	(ii)	(i)	(ii)	(i)	(ii)
Sale levels in previous survey year	7.805*	-3.309	4.285*	0.944	7.578	-4.496	0.147	1.267
	(4.235)	(4.501)	(2.061)	(3.267)	(5.481)	(7.394)	(3.213)	(6.147)
Real growth rate in sales	-10.798*	-5.858	0.528	6.640	-8.434	-2.418	-2.692	-3.696
	(5.632)	(5.940)	(2.740)	(4.312)	(7.289)	(9.759)	(4.305)	(8.231)
⊿K: Investment in fixed assets	51.847***	44.128***	-20.306**	-23.576**	34.965	26.550	16.884	17.659
	(15.401)	(10.501)	(7.494)	(7.623)	(19.933)	(17.252)	(11.677)	(14.182)
Transition from Low Leverage to High Leverage between previous and current survey year	-214.355**	-568.077***	-23.889	-83.573	-205.34**	-588.99***	-14.319	21.961
	(71.259)	(104.616)	(34.674)	(75.946)	(92.225)	(171.875)	(54.079)	(141.907)
Reliance on external finance to finance ⊿K >50% (High leverage=1) in prior survey year	-149.901	-100.845	-25.992	112.307	-178.861	-106.671	23.197	3.654
	(105.536)	(125.105)	(51.353)	(90.820)	(136.586)	(205.537)	(80.051)	(171.337)
Small firm	___	17.038	___	-57.726	___	64.671	___	-48.777
		(77.458)		(56.231)		(127.256)		(104.731)
*Small firm*Transition from LL to HL*	___	432.475**	___	204.867	___	487.070	___	-57.854
		(180.465)		(131.009)		(296.488)		(247.834)
Cons.	-91.655	-391.990**	-89.872	-101.705	-100.949	-500.871*	3.039	107.122
	(105.148)	(142.451)	(51.164)	(103.413)	(136.084)	(234.034)	(79.702)	(191.973)
Ownership structure	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	75	74	75	74	75	74	74	73
Within R-sq	0.746	0.920	0.687	0.775	0.611	0.803	0.312	0.344

Table 6: Employment effects of debt-related financial constraints (total employment, total permanent employment, total temporary employment), all industries, standard errors in parentheses. Transition from low to high leverage (2002-2007) and (2005-2007). Fixed effect estimation results

	Change in Total Employment		Change in Total permanent employment		Change in Total temporary employment	
	(i)	(ii)	(i)	(ii)	(i)	(ii)
Sale levels in previous survey year	0.438	0.410	4.903**	3.270	-1.801**	-1.868**
	(0.296)	(0.267)	(2.383)	(2.096)	(0.748)	(0.720)
Real growth rate in sales	2.509	2.164	-0.563	0.170	1.357**	1.274**
	(1.921)	(1.738)	(1.787)	(1.547)	(0.561)	(0.531)
⊿K: Investment in fixed assets	14.931*	9.725	21.924	23.912**	-0.354	-1.732
	(7.729)	(7.015)	(13.589)	(11.764)	(4.268)	(4.043)
Transition from Low Leverage to High Leverage, between 2002 and 2005	-66.038**	-54.181**	-17.979	-19.044	22.529	19.310
	(28.670)	(25.892)	(38.591)	(33.170)	(13.498)	(12.735)
Transition from Low Leverage to High Leverage, between 2005 and 2007	1.210	-79.271	-69.868**	-243.821***	4.056	19.613
	(30.328)	(48.604)	(28.464)	(51.664)	(9.038)	(17.983)
Small firm	___	-215.802***	___	-111.668**	___	-37.050**
		(37.336)		(51.577)		(17.992)
*Small firm*Transition from LL to HL between 2005 and 2007*	___	98.164	___	241.141***	___	-20.113
		(60.037)		(60.622)		(20.913)
Cons.	107.583***	271.707***	-39.145	32.676	-18.664	22.370
	(32.338)	(40.634)	(56.449)	(68.946)	(17.704)	(23.914)
Ownership structure	Yes	Yes	Yes	Yes	Yes	Yes
N	403	402	202	201	198	197
Within R-sq	0.273	0.423	0.314	0.519	0.338	0.462

Table 7: Employment composition effects of debt-related financial constraints (production/non-production and production/skilled-unskilled), all industries, standard errors in parentheses. Deleveraging (2002-2007) and (2005-2007). Fixed effect estimation results

	Change in F/T Production Emp.		Change in F/T Non-Production Emp.		Change in F/T Skilled Production Emp.		Change in F/T Unskilled Production Emp.	
	(i)	(ii)	(i)	(ii)	(i)	(ii)	(i)	(ii)
Sale levels in previous survey year	8.807*	-4.252	4.127*	2.266	8.555	-4.598	0.194	0.349
	(4.563)	(4.121)	(1.985)	(3.189)	(5.612)	(6.599)	(3.038)	(5.489)
Real growth rate in sales	-8.534	-3.666	0.170	3.572	-6.225	-2.180	-2.584	-1.585
	(5.965)	(4.729)	(2.595)	(3.659)	(7.336)	(7.573)	(4.001)	(6.366)
⊿K: Investment in fixed assets	52.352***	43.217***	-20.386**	-22.300**	35.458	26.451	16.908	16.782
	(16.739)	(10.067)	(7.283)	(7.790)	(20.589)	(16.121)	(11.138)	(13.320)
Transition from Low Leverage to High Leverage between 2002 and 2005	-68.902	-33.526	2.805	7.263	-30.816	4.884	-37.725	-38.323
	(77.634)	(45.943)	(33.775)	(35.552)	(95.489)	(73.575)	(51.657)	(60.762)
Transition from Low Leverage to High Leverage between 2005 and 2007	-144.77**	-582.25***	-34.883	-63.728	-137.437	-590.53***	-11.045	8.129
	(64.815)	(98.973)	(28.198)	(76.589)	(79.721)	(158.500)	(43.157)	(131.297)
Small firm	___	31.156	___	-77.499	___	66.206	___	-36.347
		(71.915)		(55.651)		(115.168)		(95.704)
*Small firm*Transition from LL to HL between 2005 and 2007*	___	501.07***	___	108.797	___	494.530*	___	7.500
		(141.534)		(109.524)		(226.659)		(188.927)
Cons.	-89.996	-502.17***	-97.234*	-5.117	-116.103	-594.79**	20.663	91.231
	(117.596)	(132.979)	(51.203)	(103.085)	(144.642)	(212.958)	(78.195)	(175.337)
Ownership structure	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	124	123	125	124	124	123	121	120
Within R-sq	0.673	0.916	0.695	0.746	0.547	0.803	0.311	0.326