# Does employment protection legislation affect firm investment? The European case

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## ARTICLE INFO

## ABSTRACT

This paper aims at analyzing the impact of Employment Protection Legislation (EPL) on firms' investment policies in the contemporaneous presence of financial imperfections. Our results show that investment is significantly affected by the presence of both market imperfections; they are robust to alternative measures of EPL. Moreover, the effect of labor market regulation is weaker wherever financial market imperfections are smaller: firms with better access to financial markets are in a position to determine their optimal investment policy, even in the presence of stringent employment protection laws, than those facing financial constraints.

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## 1. Introduction

This paper aims at analyzing the impact of Employment Protection Legislation (EPL) on firms' investment decisions in the contemporaneous presence of financial market imperfections. Traditionally, the impact on investment of financial market imperfections has been analyzed separately from that of labor market imperfections. Consequently, policy design focused on each single market and did not fully take into consideration the functioning of the other market. Analyzing how investment reacts to conditions prevailing in both the financial and labor markets may provide a better description of firms' fixed capital accumulation strategies and a more realistic set-up within which more efficient economic policies may be designed and implemented.

There are not many papers that investigate the joint influence of imperfect financial and labor markets on investment (Calcagnini et al., 2009b). The impact of credit and labor market imperfections on investment has been theoretically analyzed in Rendon (2004), where it was shown that job creation is limited by financing constraints even in the presence of a flexible labor market, and in Wasmer and Weil (2004). The latter, by proposing a macroeconomic model and treating credit and labor market imperfection symmetrically, find that credit market conditions may impact labor market equilibrium. Belke and Fehn (2000) present a macromodel in which capital market imperfections exacerbate structural unemployment caused by labor market rigidities. On the empirical side, Calcagnini et al. (2009a) evaluate the empirical

importance of the contemporaneous presence of financial and labor market imperfections by studying cross-country differences in market valuations of listed companies and firms' cash holdings, and find that financial market imperfections are positively correlated with firms' cash holdings and that the latter are larger wherever employment protection laws (EPL) are stricter. Moreover, stock markets value liquid companies less in economies with higher EPL levels. Cingano et al. (2010) find that EPL reduces investment per worker, capital per worker and value added per worker in high job-reallocation sectors relative to low job-reallocation sectors, while increasing the average frequency at which firms adjust their capital stock. Further, the authors find that poor access to credit markets exacerbates the negative effects of EPL on capital deepening and productivity.

Of the two strands of the economic literature that study how imperfections affect investment, the one related to financial markets is likely the best known, debated and empirically tested. Briefly stated, in the presence of imperfect financial markets the Modigliani and Miller propositions (Modigliani and Miller, 1958, 1963) fail to hold. Asymmetric information and agency problems make the cost of internal finance lower than that of external finance. Thus, as a hierarchy of financing structures arises, firms are more likely to be financially constrained, and investment decisions become sensitive to the availability of internal funds (Fazzari et al., 1988; Martinez-Carrascal and Ferrando, 2008; Whited, 1992).[1] Further, recent studies find that financial obstacles are relevant in explaining firm growth; likewise, growth is found to be positively linked to cash flow (Coluzzi et al., 2012).

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[1] For a critical survey on theoretical and empirical models of investment with financial constraints see Hubbard (1998), and Saltari (2004).

**Table 1**
Summary statistics, 1994–2000.
Source: Our calculation based on Amadeus dataset by Bureau van Dijk. OECD employment outlook.

| Country | | I/K | CF/K | LIQ/K | User cost | Workers | RTAS | Δ (VA/K) | EPL |
|---|---|---|---|---|---|---|---|---|---|
| Austria | Obs. | 69 | 68 | 68 | 80 | 49 | 78 | 52 | 7 |
| | Mean | .138 | .331 | .588 | 1.029 | 801.122 | .075 | .040 | 2.2 |
| | Median | .081 | .273 | .383 | 1.040 | 706 | .061 | .030 | 2.2 |
| | SD | .218 | .236 | .485 | .017 | 391.221 | 0.071 | .545 | 0 |
| Belgium | Obs. | 655 | 654 | 653 | 816 | 809 | 809 | 493 | 7 |
| | Mean | .307 | .729 | 1.548 | 1.100 | 210.143 | .070 | .195 | 2.417 |
| | Median | .226 | .552 | .890 | 1.110 | 112 | .045 | .124 | 2.2 |
| | SD | .364 | .618 | 2.445 | .027 | 316.747 | .080 | 1.774 | .412 |
| Finland | Obs. | 294 | 294 | 294 | 294 | 270 | 293 | 222 | 7 |
| | Mean | .131 | .640 | 1.353 | 1.102 | 671.256 | .129 | .214 | 2.1 |
| | Median | .063 | .322 | .518 | 1.113 | 196.5 | .110 | .065 | 2.1 |
| | SD | .235 | 1.698 | 4.505 | .016 | 1786.439 | .149 | 1.857 | 0 |
| France | Obs. | 2767 | 2763 | 2747 | 3438 | 2828 | 3284 | 2102 | 7 |
| | Mean | .323 | 1.305 | 3.364 | .995 | 425.886 | .105 | .317 | 3 |
| | Median | .231 | .664 | 1.265 | .992 | 183 | .089 | .067 | 3 |
| | SD | .412 | 3.505 | 9.993 | .017 | 974.865 | .082 | 24.651 | 0 |
| Germany | Obs. | 280 | 280 | 280 | 350 | 312 | 347 | 211 | 7 |
| | Mean | .129 | .312 | .589 | 1.003 | 1491.071 | .098 | .064 | 2.717 |
| | Median | .074 | .270 | .412 | 1 | 856 | .092 | .024 | 2.5 |
| | SD | .206 | .193 | .643 | .019 | 1802.019 | .075 | .572 | .285 |
| Great Britain | Obs. | 687 | 687 | 687 | 858 | 850 | 853 | 516 | 7 |
| | Mean | .209 | .449 | .748 | .769 | 697.789 | .122 | −.159 | .613 |
| | Median | .163 | .275 | .407 | .720 | 249.5 | .101 | −.081 | .6 |
| | SD | .230 | .638 | 1.151 | .114 | 1825.114 | .104 | .764 | .030 |
| Italy | Obs. | 4501 | 4499 | 4480 | 5593 | 5415 | 5417 | 3420 | 7 |
| | Mean | .347 | .997 | 1.772 | .912 | 242.111 | .080 | .002 | 3.081 |
| | Median | .240 | .392 | .649 | .901 | 121 | .055 | −.001 | 3.26 |
| | SD | .440 | 9.166 | 9.830 | .030 | 695.468 | 0.082 | 5.878 | .415 |
| The Netherlands | Obs. | 51 | 51 | 51 | 64 | 63 | 63 | 38 | 7 |
| | Mean | .256 | 1.037 | 3.329 | 1.019 | 1078.937 | 0.154 | −.048 | 2.55 |
| | Median | .168 | .510 | 1.058 | 1.019 | 265 | 0.138 | .137 | 2.7 |
| | SD | .349 | 1.033 | 5.019 | .009 | 2714.256 | 0.099 | 1.198 | .262 |
| Portugal | Obs. | 24 | 24 | 24 | 32 | 29 | 32 | 16 | 7 |
| | Mean | .171 | .257 | .376 | 1.069 | 371.276 | 0.023 | .004 | 3.7 |
| | Median | .100 | .219 | .233 | 1.074 | 291 | 0.015 | −.020 | 3.7 |
| | SD | .260 | .154 | .393 | .027 | 259.432 | 0.038 | .372 | 0 |
| Spain | Obs. | 1576 | 1577 | 1577 | 1968 | 1606 | 1950 | 1186 | 7 |
| | Mean | .258 | .842 | 1.675 | 1.008 | 248.016 | 0.099 | .148 | 2.962 |
| | Median | .191 | .449 | .740 | 1.019 | 136 | 0.075 | .017 | 2.9 |
| | SD | .341 | 2.385 | 5.512 | .028 | 894.557 | 0.096 | 1.928 | .096 |
| Total | Obs. | 10,904 | 10,897 | 10,861 | 13,493 | 12,231 | 13,126 | 8256 | 70 |
| | Mean | .303 | .969 | 2.037 | .957 | 363.120 | .093 | .112 | 2.809 |
| | Median | .214 | .451 | .759 | .973 | 150 | .072 | .010 | 3 |
| | SD | .398 | 6.231 | 8.446 | .084 | 1011.919 | .089 | 13.034 | .678 |

As for the influence of labor market imperfections on investment, theoretical and empirical contributions are scantier.[2] They may be divided into two separate strands. The first one, and more traditional, emphasizes the impact of labor market regulations on firms' costs and profits, and consequently on investment (Nickell and Layard, 1999; Nickell, 2003; Blanchard, 1997; Blanchard and Wolfers, 2000). The second one states that firms are more limited in the kind of policies they can undertake to face shocks in the presence of labor market institutions (Denny and Nickell, 1992).[3] However, more "institutional rigidities" do not necessarily result in a negative impact on investment. Indeed, on one hand, labor market institutions are expected to reduce current investment by increasing firm adjustment costs over time but, on the other, they may positively influence investment decisions through firms' optimal labor demand (Bentolila and Bertola, 1990; Bertola, 1999). If "institutional rigidities" make capital readily accessible by increasing the cost of labor relative to the user cost of capital, they will favor the substitution of labor with capital (Caballero and Hammour, 1998). Which of the two effects on investment dominates will depend upon the parameter values of the model utilized to describe firm decisions.

Labor market institutions are difficult to measure and, therefore, there is no a general consensus among scholars on which indicator is the most appropriate one to utilize in empirical analyses. However, it is now an internationally widespread custom to measure labor market institutions by means of the employment protection legislation (EPL) index (OECD, 2004): higher EPL values mean more rigid labor markets. This paper improves on existing empirical literature in three ways. First, we estimate, by means of GMM system techniques, an empirical investment equation that summarizes the relationships among variables of interest by making use of a large dataset of individual manufacturing companies located in ten European countries. Second, we show that our findings are robust to different measures of labor market regulation. Third, we control for both time-varying size thresholds that identify firms exempted from EPL in each of the countries considered, and for firms that might be financially constrained or not according to their size.

Our empirical findings show that investment is positively correlated to measures of firm availability of internal funds and negatively to the level of national labor market regulation. Moreover, the latter is stronger (in absolute value) wherever financial market imperfections

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[2] A review of the existing literature is found in Young (2003).

[3] As pointed out by Alesina et al. (2005), who analyze the impact of product market regulation on investment, regulation can increase the cost of the firm faces by expanding its productive capacity, and limits its capacity to respond to changes in fundamentals.