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Unemployment and financial development: evidence for OECD countries

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Unemployment and financial development: evidence for OECD countries[*]

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Abstract

It has been argued that credit market frictions may contribute to high unemployment. Hence, we assess the relationship between financial development and the labor market in OECD countries during the period 1990–2020. Using a random effects model for a panel dataset, we conclude that an increase in market capitalization and in the volume of shares traded can significantly reduce the unemployment rate. Likewise, inflation and per capita GDP growth are found to have significantly affected the evolution of the unemployment rate during the period under study.

Keywords: unemployment, financial development, panel data, OECD countries
JEL: C23, G10, J60

1. INTRODUCTION

The financial development of economically advanced countries has lately undergone significant changes. Traditionally, the role of banks and other financial intermediaries has been to transform household savings into business investment, to supervise investments and allocate funds, and to value and diversify risk. Today, the role that finance plays within any country or institution has become extremely important and relevant. According to Calvo *et al.* (2014), the financial system of a country is comprised of the set of institutions, means, and markets whose primary purpose is to channel the savings generated by surplus-spending units toward borrowers or deficit-spending units through various financial strategies that allow for the reduction, control, and management of risks. Economic growth remains a high priority for institutions and economic policymakers, since the concept of growth is often associated with the prosperity and well-being of a country. Consequently, financial development and economic growth are clearly related, each forming part of an overall market economy.

The relationship between the level of development of a country's financial system and its economic growth has been of crucial interest to the economic literature, to the point of confirming that more financial development not only favors but also contributes to an increase in economic growth. In fact, the empirical evidence seems conclusive in showing that financial development is a significant source of economic growth, insofar as it promotes a more efficient allocation of resources and fosters necessary competition in the provision of funds for the benefit of both savers and investors. Thus, it can be said that the positive effect of financial development on economic growth favors greater investment opportunity, savings mobility, and corporate control. In addition, financial development enhances the probability that an individual will start a business, even as it favors the entry of new firms, increases competition, and promotes growth (Guiso *et al.*, 2004).

In this context, financial development also promotes job creation, since it allows firms to finance labor adjustment costs by the issuance of securities. As hiring policy becomes less dependent on internal resources, firms adjust their employment levels more rapidly. Therefore, when the financial system is frictionless, the return to employment is immediate and deregulation of the labor market loses its interest.

In this sense, labor market institutions are not the only factors determining unemployment – for a long time, diverse unemployment rates among countries has fuelled a debate concerning the role of labor market institutions. The political economic literature stresses the interdependence of labor and financial market devices, and the theoretical literature has recently

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emphasized the fact that interactions between labor and financial market institutions may have important consequences for aggregate employment (and, therefore, for economic growth). In fact, imperfections in the financial market foster a bias in decisions concerning firm creation, job vacancies, and other aspects. According to the literature, the tendency and extent of this bias depends on the structure of the labor market (Belke & Fehn, 2002; Koskela & Stenbacka, 2002; Wasmer & Weil, 2004).

In this context, since the Great Recession of 2008 and throughout the current recession caused by COVID-19, greater attention has been paid to the labor market. In fact, interest has grown considerably in recent years around the study of the financial sector and labor markets. Thus, it seems clear that the improvement in employability produces a high growth rate in the more developed economies.

We contribute to the literature by analyzing the relationship between financial development and the labor market (unemployment rate) from a macroeconomic point of view for the OECD countries. Therefore, our objective is to assess whether financial development in OECD countries during the 1990–2020 period led to an improvement in the unemployment rates of these economies. Using a random effects panel data model, we conclude that in the countries analyzed, an increase in market capitalization and in the volume of shares traded can significantly reduce the unemployment rate. Hence, this supports the idea that credit market efficiency may contribute to higher employment levels, since constraints in firm financing can increase unemployment.

The remainder of the paper is as follows. Section 2 reviews the literature. Section 3 describes the data and the methodology. Section 4 presents and discusses the results, and section 5 concludes.

2. LITERATURE REVIEW

The relationship between financial development and the labor market has been much studied in developed countries. Most authors conclude that a direct relationship exists, in the sense that greater financial development of countries positively affects improvement of their labor market situation (Acemoglu, 2000; Gatti and Vaubourgy, 2010; Monacelli *et al*., 2011; Pagano *et al*., 2012; Boeri *et al*., 2013; Boustanifar, 2014; Schäfer and Steiner, 2014; Benmelech *et al*., 2015; Duygan-Bump *et al*., 2015; Khieu, 2015; Hantzsche *et al*., 2018; García, 2018; Ernst, 2019)

Acemoglu (2000) develops the thesis that credit market frictions may be an important contributor to high unemployment in Europe. When a change in the technological regime necessitates the creation of new firms, this can happen relatively rapidly in the U.S., where credit markets function efficiently. In contrast, job creation in Europe is constrained by credit market imperfections, so that unemployment rises and remains high for an extended period. The author concludes that growth has not been slower in the most credit-dependent industries in Europe, relative to the U.S., but that the share of employment in these industries has indeed been smaller than in the U.S. This suggests that although credit market imperfections are unlikely to have been a major cause of increased unemployment in Europe, they may have played some role in limiting employment growth.

Using data for 18 OECD countries over the 1980–2004 period. Gatti and Vaubourgy (2010) investigate how labor and financial factors interact to determine unemployment. They show that the impact of financial variables strongly depends on the labor market context. In particular, increased market capitalization and decreased banking concentration can reduce unemployment if levels of labor market regulation, union density, and coordination in wage bargaining are low. These results suggest that the respective virtues of bank-based and market-based finance are crucially tied to the nature and strength of labor regulation.

Monacelli *et al*. (2011) study the importance of financial markets for (un)employment fluctuations in a model with searching and matching frictions where firms issue debt under limited enforcement. Higher debt allows employers to bargain for lower wages, which in turn increases the incentive to create jobs. The transmission mechanism of 'credit shocks' is fundamentally different from the usual credit channel, and this model can explain why firms cut hiring after a credit contraction, even if they have no shortage of funds for hiring workers. The theoretical predictions are consistent with the estimation of a structural VAR whose identifying restrictions are derived from the theoretical model.

Testing these predictions on international industry-level data for 1970–2003, Pagano *et al*. (2012) find that standard measures of financial development are indeed associated with greater employment growth, although only in non-OECD countries, and that they are not correlated with labor productivity or real wage growth. Moreover, standard measures of financial development correlate negatively with inter-industry dispersion of employment growth. Finally, there is some evidence of a 'dark side' of financial development, in that employment grows less during banking crises in those industries that are more dependent on external finance, as well as in those that are located in more financially developed countries.

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Boeri *et al*. (2013) investigate the consequence of firms' use of funds on their hiring and firing policy. Using a standard matching model of unemployment, the paper finds an equilibrium interplay between the value of unemployment and financial conditions. They find an equilibrium interplay between the value of unemployment and financial conditions. Thus, financial market imperfections – such as the probability of refinancing or firms' share of their pleadgeable income – affect equilibrium unemployment.

Conducting a quasi-natural experiment around banking reforms made in the U.S. between the 1970s and the 1990s, Boustanifar (2014) studies the impact of credit market development on employment by examining the significant effects of said reforms on employment growth. Potential channels between finance and employment are also investigated. Results suggest that the entry and exit of firms, investment growth, and changes in the growth of the number of self-employed individuals do not explain most of the employment growth following the reforms. Likewise, these reforms had a substantially higher impact in industries with higher labor intensity, which is consistent with the idea that labor has fixed costs that need to be financed.

Schäfer and Steiner (2014) study the association between a country's level of financial development and employment growth in firms. To evaluate this association, they employ an incomplete contract model, which proposes that a high level of financial development negatively affects employment by firms with low managerial capital, while firms with high managerial capital benefit. They test this proposition with data from the Business Environment and Enterprise Performance Survey, covering transition countries in Eastern Europe and Central Asia and using firm size as a proxy for managerial capital. Their findings confirm a non-linear effect of financial development on firm employment. Specifically, the edge enjoyed by small firms over large firms in employment growth is dampened when the level of financial development is higher, especially in countries where development is at medium levels.

Benmelech *et al*. (2015) illustrate the economic importance of financial development, by demonstrating that the responsiveness of employment decisions to firms' financial health is quantitatively similar to the much-studied responsiveness of investment decisions to cashflows. They use a collage of three 'quasi-experiments' previously used in the investment/cash-flow and finance/growth streams of literature to trace the effects of finance on employment. Their results suggest that financial constraints and the availability of credit both play an important role in firm-level employment decisions, as well as in aggregate unemployment outcomes.

Duygan-Bump *et al*. (2015) show that during the 2007–2009 recession in the United States, constraints in financing for small firms were among the drivers of unemployment dynamics. Specifically, workers in small firms were more likely to become unemployed during the 2007–2009 recession than comparable workers in large firms, but only if they were employed in industries with high financing needs. These authors find very similar results for the 1990–1991 recession, but not for the 2001 recession, where only the former was associated with a reduction in loan supply. These findings support the credit constraint hypothesis and underscore the role of bank lending in explaining labor market activity.

Khieu (2015) develops a New Keynesian model featured with financial frictions in the form of an exogenous credit constraint to explore the employment and output effects of financial shocks, showing that the equity payout adjustment costs are crucial for the transmission mechanism of financial shocks. The model is estimated using Bayesian methods and simulated using the observed exogenous shocks for two periods, 1954:III to 1983:IV and 1984:I to 2015:I. Overall, it is found that financial shocks can account for the observed dynamics of employment and output, especially the sharp decreases during the Great Recession of 2007–2008. Additionally, a financial shock is the third biggest and second biggest contributor, respectively, to output and employment variations in the earlier period, but the main source of employment and output fluctuations in the later period. Firms are found to have faced higher equity payout adjustment costs in the 1984:I–2015:I period.

Hantzsche *et al*. (2018) empirically analyze the response of labor market indicators to changing financing conditions in a panel of 15 Euro-area countries from 1999 to 2015. Using a local projection approach, they estimate impulse responses of three margins of sectoral labor market adjustment (employment, hours worked, and real wages), finding contractionary financing shocks to depress all three indicators of the labor market. Furthermore, responses are asymmetric depending on the sign of the shock, different in magnitude depending on the sectoral composition, and sensitive to labor market institutions such as employment-protection legislation and union density. Finally, labor market institutions seem to mainly affect the relative strength of the adjustment margins (and not to affect much the overall response of the wage bill).

García (2018) assesses the impact of credit constraints on investment, inventories, and employment using a large sample of firms from 12 European countries for the period 2014–2017 by using an instrumental variable that is based on the allocation rule of the ECB's Targeted Longer-Term Refinancing Operations (TLTROs). The main findings suggest that credit

constraints have strong negative effects on investment in fixed assets, while they have no impact on employment or inventories. Unconventional monetary policy may spur investment by reducing the incidence of credit constraints, especially in the case of large and old firms.[1]

Ernst (2019) explores the impact of financial market regulation on jobs, combining information on labor market flows with indicators of financial market development and reforms in order to assess the implications for employment dynamics. The article demonstrates the importance of broad financial sector re-regulation to stabilize unemployment inflows and to promote faster employment growth, further finding that, had extensive financial sector regulation been in place prior to the global crisis in 2008, a faster recovery in jobs would have been likely.

3. DATA AND METHODOLOGY

3.1. Data

To carry out this research, we used the World Bank database (2021), which provides reliable information on any country in the world. In particular, we took data from the World Development Indicators for the countries of OECD. These 38 member countries and their partners at local, national, and regional levels collaborate with each other on the most fundamental issues of the global arena.

For our analysis we have taken the period 1990–2020, a sufficiently wide time interval during which occurred economic events of great pertinence to the study. The database comprises a period of 31 years across which the different selected variables have evolved, serving to help illustrate the relationship between financial development and the labor market.

For development of the model to be implemented, we have taken the unemployment rate as a dependent variable (*Unemployment rate*), referring to that share of the labor force without work but available for and seeking employment.

Regarding financial variables, we have considered certain financial development variables in search of indicators that establish a relationship with the unemployment rate and that serve to elucidate the results (Acemoglu, 2000; Beck and Levine, 2004; Campello *et al*., 2009; OECD, 2010; Gatti *et al*., 2010; Monacelli *et al*., 2011; Pagano *et al*., 2012; Boeri *et al*., 2013; Boustanifar, 2014; Schäfer & Steiner, 2014; Benmelech *et al*., 2015; Duygan-Bump *et*

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[1] Afonso and Leite (2020) report for the Euro area (2014–2017), a positive impact of the TLTRO on the amount of credit granted to the real economy, in particular in the less vulnerable countries.

al., 2015; Khieu, 2015; Hantzsche *et al*., 2018; García, 2018; and Ernst, 2019). In particular, the following financial development variables have been taken into account:

- Market capitalization of listed domestic companies as a percentage of GDP (*Market capitalization*), which is the share price times the number of shares outstanding (including their several classes) for listed domestic companies. Investment funds, unit trusts, and companies whose only business goal is to hold shares of other listed companies are excluded. Data are end of year values.
- Stocks traded, turnover ratio of domestic shares as a percentage (Turnover ratio), which is the value of domestic shares traded divided by their market capitalization. The value is annualized by multiplying the monthly average by 12.

In addition, we considered the following control variables that may exert an influence on unemployment rates:

- The rate of growth of the GDP (*GDP pc growth*), which is the annual percentage growth rate of GDP per capita based on constant local currency. Aggregates are based on constant 2010 U.S. dollars. GDP per capita is gross domestic product divided by midyear population. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.
- *Inflation rate (Inflation)*, which consists in inflation as measured by the annual growth rate of the GDP implicit deflator showing the rate of price change in the economy as a whole.

With the above variables, our analysis was carried out with information on 38 countries during the period 1990-2020, which provides a total of 816 observations.

3.2. Methodology

With the objective of analyzing the effects of the main dimension of financial development on the labour market in the OECD during the period 1990-2020, we estimate a model with panel

data. Some of the advantages and disadvantages of the use of panel data are listed in the study carried out by Baltagi (2001). Among the advantages are mentioned the following: control over individual heterogeneity, greater variability, less collinearity between variables, more degrees of freedom, greater efficiency, better adaptation to the study of adjustment dynamics, better adequacy for identifying and measuring effects that are not detectable in pure cross-sectional or time-series data, and better analysis capacity in more complicated behaviors. As disadvantages, panel data presents the problem of data collection, distortions due to measurement errors, and the short time dimension that is generally found in the data sets. According to Hausman and Taylor (1981), one of the most noteworthy characteristics of the use of panel data is the ability to control specific individual effects that may be correlated with other variables.

Firstly, we could consider the basic approach to regression analysis with panel data such as pooled regression. The advantage of estimation through Ordinary Least Squares (OLS) lies in the simplification, which results from being able to determine the value of a certain endogenous variable through a linear relationship with all the exogenous variables that participate in the system. In contrast, the main drawback of this method lies precisely in the simplification of the model, where the correlation of individual errors with observations are not corrected and, therefore, the resulting estimates will be biased. In this direction, the null hypothesis of 'no country effects' is rejected,[2] implying that a pooled regression model is inappropriate, as estimates made with pooled OLS would be biased (Breusch and Pagan, 1980).

Therefore, the use of panel data seems fundamental since it allows for considering the existence of individual effects not controlled by the explanatory variables observed in the model and, in addition, it allows controlling for variables that change over time. Furthermore, the use of panel data offers more informative data and, as stated, more variability, less collinearity, and a greater degree of freedom (Klevmarken, 1989, and Hsiao, 2003). Thus, and because the considered series is sufficiently long, we opt for an estimation based on panel data. Thus, given the specification of the baseline model, we estimate a random effects model[3]. The random effects estimator allows that differences between states are not constant correlation, as it considers that the differences between countries in this case, are random. Hence, applying the random effects model assumes that the error is composed of a random variable (with a mean

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[2] For a wider discussion of this test, see Breusch and Pagan (1980).
[3] We applied the Hausman test (Hausman, 1978) and the results suggest applying random effects estimation.

value and a non-zero variance) for each country in addition to another part corresponding to the disturbance. This is equivalent to obtaining a different trend for each country, giving each country a different point of origin, which will make it possible to include within the same model all of the trends in the different countries under study.

In sum, the model proposed is as follows:

$$Unemploy_{it} = \beta_0 + \beta_1 Unemploy_{i0} + \beta_2 FD_{it} + \beta_3 X_{it} + v_i + u_{it} \tag{1}$$

where $Unemploy_{it}$ refers to the unemployment rate for each country i at time t, $Unemploy_{i0}$ refers to the average unemployment rate for each country i in the first 5 years of the period analyzed,[4] FD_{it} refers to each of the financial development variables of each country i at time t, X_{it} are the control variables of each country i at time t mentioned above, v_i is the intercept for each country i, and u_{it} are the individual errors.

In addition, we also introduce the effect of crisis through a dummy variable that takes a value of 1 if it covers the period of crisis (2008-2011) and, 0 otherwise. Finally, we introduce the interactions between economic crisis and FD.

Thus, we estimate the following panel data models:

$$Unemploy_{it} = \beta_0 + \beta_1 Unemploy_{i0} + \beta_2 FD_{it} + \beta_3 X_{it} + \beta_4 crisis_{it} + v_i + u_{it} \tag{2}$$
$$Unemploy_{it} = \beta_0 + \beta_1 Unemploy_{i0} + \beta_2 FD_{it} + \beta_3 X_{it} + \beta_4 crisis_{it} + \beta_5 (crisis * FD)_{it} + v_i + u_{it}. \tag{3}$$

4. RESULTS

This section presents the results of the three models studied. We study the variables related to financial development sequentially: the influence of market capitalization on the evolution of the unemployment rate; the relevance volume of shares traded; and both variables of financial development together. Each model employs the set of control variables mentioned above.

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[4] In dynamic models, it is useful to take into account the base period of the sample.

Table 2. Random effects models (OECD countries)

VARIABLES	Model (1)	Model (1')	Model (1'')
Unemployment _{initial value}	0.591***	0.623***	0.594***
	[0.095]	[0.099]	[0.098]
Market capitalization	-0.015***		-0.015***
	[0.003]		[0.003]
Turnover ratio		-0.004***	-0.005***
		[0.002]	[0.002]
GDP pc growth	-0.122***	-0.142***	-0.114***
	[0.035]	[0.035]	[0.035]
Inflation	-0.047***	-0.041***	-0.045***
	[0.012]	[0.012]	[0.012]
Constant	4.298***	3.398***	4.580***
	[0.902]	[0.916]	[0.935]
Observations	816	801	790
Number of countries	34	34	34
Hausman test	0.6803	0.5008	0.8394

Data source: World Development Indicators (World Bank, 2021).
Standard deviations in brackets. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

As regards the results of the random effects models (see Table 1), we observe in Model (1) a statistically significant negative relationship between market capitalization and the unemployment rate, indicating that greater capitalization has reduced unemployment rates in the countries under analysis. This supports Gatti and Vaubourgy (2010), who likewise argue that increased market capitalization reduces unemployment, further suggesting that the virtues of both bank-based and market-based finance are crucially tied to the nature and strength of labor regulation.

In specification (1'), when we introduce the turnover ratio, the prior result is consistent; and the volume of shares traded is seen to produce a less significant effect on the evolution of the unemployment rate. This follows the same dynamics as market capitalization in specification (1), demonstrating that a higher volume of shares traded has a significant effect of lower unemployment rates in the countries analyzed.

Regarding specification (1''), in which both financial development variables are jointly evaluated, we observe that the model is again consistent with the previous results, so that in the complete model, financial development variables affect the evolution of the unemployment rate in a similar way to that we saw before.

Furthermore, as expected and in line with the literature, the initial value in unemployment rates is positively significant for every model.

Regarding the control variables incorporated into this analysis, we affirm that both GDP growth and inflation positively and significantly affect the evolution of the unemployment rate, as expected. In short, the financial system is linked to economic growth, giving evidence to the connection between the positive effects of financial development on unemployment. In this sense, the countries that show higher levels of development in the most active financial systems and securities markets increase their growth rate more rapidly over time (Levine, 1997).

Next, we have also estimated models (2) and (3), and we then report such results in Table 3.

Table 3. Random effects models (OECD countries), the relevance of crisis

	Model (2)	Model (2')	Model (2")	Model (3)	Model (3')	Model (3")
VARIABLES						
Unemployment $_{initial\ value}$	**0.592***	**0.624***	**0.595***	**0.591***	**0.623***	**0.594***
	[0.096]	[0.098]	[0.098]	[0.096]	[0.096]	[0.101]
Market capitalization	**-0.015***		**-0.015***	**-0.015***		**-0.016***
	[0.003]		[0.003]	[0.003]		[0.003]
Turnover ratio		**-0.004***	**-0.005****		**-0.004***	**-0.004***
		[0.002]	[0.002]		[0.002]	[0.002]
Crisis	-0.363	-0.274	-0.216			
	[0.265]	[0.276]	[0.276]			
Market capitalization*crisis				0.001		**0.006***
				[0.003]		[0.004]
Turnover ratio*crisis					-0.001	-0.004
					[0.002]	[0.003]
GDP pc growth	**-0.136***	**-0.153***	**-0.123***	**-0.119***	**-0.147***	**-0.112***
	[0.036]	[0.036]	[0.037]	[0.035]	[0.035]	[0.036]
Inflation	**-0.049***	**-0.042***	**-0.046***	**-0.047***	**-0.042***	**-0.046***
	[0.012]	[0.012]	[0.012]	[0.012]	[0.012]	[0.012]
Constant	**4.379***	**3.425***	**4.601***	**4.290***	**3.389***	**4.578***
	[0.909]	[0.905]	[0.934]	[0.911]	[0.931]	[0.960]
Observations	816	801	790	816	801	790
Number of countries	34	34	34	34	34	34

Data source: World Development Indicators (World Bank, 2021).
Standard deviations in brackets. *** p<0.01, ** p<0.05, * p<0.1

The results are robust for the OECD countries when we test the possible influence of the crisis on financial variables; however, results seem to be contradictories. The effect of the dummy variable for the crisis as a standalone determinant does not seem to be a relevant factor for the level of the unemployment rate *per se*. However, when we interact the economic crisis and the FD proxies, the dummy variable "crisis" shows a positive effect on unemployment through the market capitalization channel, mitigating the capital market effect itself.

5. CONCLUSIONS

This paper analyzes the empirical relationship between the main components of financial development and the unemployment rate across the OECD countries during the period 1990–2020. Our results show that the development of finance at the aggregate level (through increased capitalization and turnover ratio) favors reduction in unemployment in the countries observed, as suggested by the literature (see, for example, Acemoglu, 2000; Gatti *et al*., 2010; Pagano *et al*., 2012; Boustanifar, 2014; Schäfer & Steiner, 2014; Khieu, 2015; Hantzsche *et al*., 2018; Ernst, 2019). This finding helps to clarify the impact of finance on labor markets.

Therefore, in principle, it can be said that a more developed financial system can help overcome certain social barriers, favoring economic growth through the establishment of measures that reduce unemployment rates. In this context, from a political point of view, relevant measures should be applied to promote financial development in the OECD countries in order to create employment while increasing per capita wealth, thus giving rise to social well-being as associated with the country's economic growth.

From a theoretical framework, the financial system is of great importance within a developed economy, given all its functions and how they affect markets and economic growth. Based on our analysis, a considerable link is confirmed between finance and the labor market, and this can lead to economic improvements through the application of specific financial measures. Financial growth can be promoted through measures that encourage the participation of large companies in the stock market as a fundamental variable in a financial system, yielding information and liquidity alongside that provided by banks.

Understanding this, we can transfer the entire financial structure to our study. Within this structure, certain pillars open the way to financial development and thus to an improvement in the unemployment rate, which directly affects the growth of developed economies. One important pillar of financial development is the banks, which by increasing their capacities with respect to central banks can increase their power to allocate resources within the economy in

general, prompting an injection that favors market capitalization which in turn can strengthen business and the social fabric. Other important sources of development are financial intermediaries and the securities markets, which by increasing their capacities can spread across a wider social range, favoring the capture of resources that can then be used to promote investments in mutual funds, pension funds, insurance companies, company shares, and other assets (that is, favoring an increase in the volume of shares traded).

However, it must be stated that although these results indicate a positive effect when using these variables as an engine for employment growth, an opposite effect may also occur. As was noted during the first months of 2020, the volume of shares traded in neighbouring countries increased; this was based on an already developed financial system, but the increased volume was not accompanied by drops in unemployment.

Similarly, the results of the regression analysis show that, if economic growth is to be stimulated and sustained by the financial development of the different countries, anti-inflationary measures must be applied. It has been shown that employment grows in the face of an increase in inflation, but excessive inflation is to be avoided, since rising prices for products as well as for basic needs can increase poverty, giving rise to a worsened social condition that weighs on the State and can lead to financial crises like that of 2007–2008. Therefore, an adequate inflation rate – revised in accordance with effective labor market policies to reduce the high unemployment rates registered in some countries – can promise a more certain future than a hands-off strategy that permits fluctuation.

All this implies that financial constraints can potentially amplify variations in employment levels throughout the business cycle, shedding some light on the question of why recessions associated with financial crises tend to be unusually severe. The same argument could also apply to job recoveries after the most recent financial crisis. So long as access to credit does not return to pre-crisis conditions, especially for newer companies, then these companies will be unable to assume the fixed costs of hiring new employees. This interpretation is consistent with Campello *et al.* (2010), who find that financially constrained firms planned deeper cuts in employment amid the 2008 financial crisis.

Taking a general view of analyses of the current reality, the problems arising from the pandemic have shown the fragility and weakness of the larger economy, with key sectors of GDP growth heavily damaged and with unemployment rates above those seen in financial crises. This has caused unprecedented declines in GDP growth in the world's largest economies, affecting the entire system and causing capital outflows and falls in stock prices to historic lows.

In short, employment policies can be promoted not only through political actions but also by restructuring systems of governance and decision-making. Starting from a shared base of knowledge and from the attitudes necessary and typical of positions of great social responsibility, we must either learn from experience or else fall into obsolescence at all levels. This study has sought to show that by way of advances in financial wealth, institutions can achieve both economic and social progress.

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APPENDIX. DATA AND VARIABLES

Table A.1. Data sources

VARIABLES	ACRONYM	DEFINITION
Dependent variable		
Unemployment rate	Unemployment rate	The share of the labour force that is without work but available for and seeking employment.
Financial development variables (FDV)		
Market capitalization of listed domestic companies (% GDP)	Market capitalization	The share price times the number of shares outstanding (including their several classes) for listed domestic companies. Investment funds, unit trusts, and companies whose only business goal is to hold shares of other listed companies are excluded. Data are end of year values.
Stocks traded, turnover ratio of domestic shares (%)	Turnover ratio	The value of domestic shares traded divided by their market capitalization. The value is annualized by multiplying the monthly average by 12.
Proxies variables		
Inflation rate	Inflation rate	Inflation as measured by the annual growth rate of the GDP implicit deflator showing the rate of price change in the economy as a whole.
GDP per capita growth	GDP	The annual percentage growth rate of GDP per capita based on constant local currency. Aggregates are based on constant 2010 U.S. dollars. GDP per capita is gross domestic product divided by midyear population. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.

Source: World Development Indicators (World Bank, 2021)

Table A.2. Summary statistics

VARIABLES	Mean	Min	Max	SD
Dependent variable				
Unemployment rate	7.83	1.1	27.47	4.15
Financial development variables (FDV)				
Market capitalization	63.35	1.19	326.359	49.34
Turnover ratio	62.69	0.05	694.42	61.53
Proxies variables				
Inflation rate	5.26	-9.72	208.17	11.98
GDP pc growth	2.10	-14.26	23.98	3.11