

Is globalisation taking away jobs? An empirical assessment for advanced economies *

Antonia López-Villavicencio

GATE-CNRS, University Lyon 2, France. (e-mail: lopez@gate.cnrs.fr).

Luis Reyes Ortiz

University Paris 13. France. (e-mail: luisantonio.reyesortiz@univ-paris13.fr).

October 4, 2017

Abstract

We empirically investigate the link between economic globalisation and unemployment for a sample of 20 OECD countries over the 1981-2013 period. Controlling for the usual determinants of unemployment, our results show that unemployment is related in a complex way to global economic factors. Specifically, we show that outflows of foreign direct investment and restrictions reduce the unemployment rate, whereas capital account openness raises it. We also find that the standard trade openness measure does not explain unemployment in advanced economies. Finally, the increase in the share of China's imports is not to be blamed for slack in Western labour markets.

JEL Classification: E24, F62, C33.

Keywords: Unemployment, Macroeconomic Impacts of Globalisation, Panel Data Models.

* *Corresponding author:* Antonia Lopez-Villavicencio, GATE-CNRS and University Lumière Lyon 2. 93, chemin des Mouilles - B.P.167 69131 - ECULLY cedex, France. Phone: + 33 (0) 4 72 86 60 87. Email: lopez@gate.cnrs.fr.

1 Introduction

Globalisation is a matter of controversy. Its effects are difficult to measure and there is hardly any consensus on what is right or wrong about it. A more specific issue that is at stake today is the fact that there is no clear understanding of its effects on unemployment, particularly in developed economies.

Indeed, this is a subject that is hotly debated in both academic and non-academic circles. Recent examples of the importance the public gives to this topic are the elections in the United States and France, as well as the Brexit referendum in the United Kingdom. A common feature of these major socio-political events was the division into opponents and supporters of globalisation debating whether policies that enhance global links tend to destroy/export jobs (as globalisation opponents often contended) or the other way around (as globalisation supporters suggested).¹

Whether politicians are proposing (or policy-makers carrying out) the 'right' policies when it comes to unemployment reduction by either lowering or enhancing global economic links, is an empirical matter. In the present article, we provide relevant results to help answering this question.

From a theoretical point of view, unemployment is explained by economists as being influenced by macroeconomic and institutional factors, where the latter are allegedly explained by ill-adapted labour market institutions that prevent complete adjustment in the labour market (see Layard, Nickell, and Jackman (1991)). The heterogeneity of individual country experiences is also explained by the interaction between adverse macroeconomic shocks and labour market institutions (e.g. Blanchard and Wolfers (2000); Bertola, Blau, and Kahn (2001); Nickell, Nunziata, and Ochel (2005)). This literature, however, is silent about the potential effects of globalisation as an explanatory variable of unemployment, although the question has been around for a while in debates.

Indeed, the stark increase in unemployment rates in OECD economies observed since the early eighties has been coupled with a drastic rise in globalisation broadly defined. This simultaneous rise in both series (which some argue is causal while others interpret as coincidental) has led some major figures in the academic and political world to denounce the downside of integrating markets. Note, however, that the arguments set forth about the effects of globalisation are often combined with discussions about income and employment inequality, so that taking arguments concerning the direct link between unemployment and globalisation out of context

¹In the U.S. Republicans ran on a campaign that promoted sanctions against China and Mexico (two major trade partners of this country), whereas key proposals of Democrats were the negotiations of Transpacific and Transatlantic free trade agreements. In France, the second round of presidential elections opposed a centrist party that promoted further integration with the European Union, and a far-right party hostile to foreigners and the common European currency. The Brexit referendum opposed the options "leave" and "remain", both with respect the European Union.

may be inappropriate and would do no justice to the authors. Therefore, let us briefly consider the overall arguments of some leading economists on the matter, even if these are not exclusively or specifically about the unemployment-globalisation nexus.

A large part of the (mostly theoretical) literature of the 1990s on the globalisation-unemployment nexus focused on the effect of trade openness, rather than globalisation as a whole, and de-industrialization on sectoral employment, rather than on unemployment in the aggregate. Another strand of the literature tends to focus on the effects of trade or capital account liberalisation on the labour market globally. For instance, Krugman and Venables (1995) conclude that global economic integration leads to uneven development, which in turn implies that some labour markets might fare better than others in terms of unemployment. Rodrik (1997) holds that globalisation fundamentally transforms the employment relationship, so that increased substitutability results in an increase in the share of improvement costs in working conditions and benefits paid by workers, makes them incur greater instability in earnings and hours worked, and erodes their bargaining power. All this is coupled with a limited role for the state to promote full employment policies. Alternative arguments criticising the benefits of integrated goods or capital markets on labour markets are developed in Stiglitz (2002) and Spence (2011). Even though rich in arguments, most of these non-empirical studies somehow relating globalisation to unemployment do not provide information about several unexplored regularities concerning the unemployment effects of globalisation.

Our work aims at taking stock of these and other works, relate them to the link between globalisation and unemployment at the aggregate level in advanced economies, and make an empirical contribution to that end. The econometric model we present is in line with the existing literature on the subject and adds to our understanding on the determinants of unemployment. On the basis of this discussion we make some policy proposals, highlighting some of the major areas where economic authorities could focus in order to solve this important socio-economic issue.

Of the different definitions of globalisation, we focus on the effects of *economic globalisation* on overall unemployment for three reasons.² First, we believe that global economic factors weigh more than non-economic global factors in an otherwise standard unemployment equation. Second, the metrics of economic globalisation are more reliable than those of social and political globalisation.³ Third, to the best of

²For a survey of the different dimensions of globalisation see Keohane and Nye Jr (2000), Dreher and Gaston (2007), and Potrafke (2015).

³For instance, the *social globalisation index* presented in Dreher and Gaston (2008) includes cultural proximity, which is a subjective measure of global social integration. Similar considerations hold for political globalisation, which considers the number of embassies and high commissions in a country, and the number of treaties signed between two or more states. Since nothing is mentioned as to whether these measures were either weighted or otherwise, these numbers are explicitly assumed to be homogeneous in importance and representativeness, which is hardly the case in reality.

our knowledge, the theory developed (so far) about the link between globalisation and unemployment is much more developed on an economic basis than on social or political grounds.⁴

The article is structured as follows. The following section reviews the existing debates in the theoretical and empirical literature, by focusing on trade liberalisation, financial liberalisation and offshoring (each at the time) as potential explanations of unemployment. The sources of our data and the descriptive statistics are presented in section 3. Section 4 shows our econometric methodology. Results are presented in Section 5. Finally, section 6 concludes and offers some policy proposals.

2 Globalisation and unemployment, theoretical and empirical literature

We can distinguish three main broad channels through which globalisation can affect the unemployment rate in a given economy: the trade balance, the capital account and offshoring. The first two are components of the balance of payments, whereas the third one takes place via the movement of home-country jobs to another country, whether or not those jobs go to another company (Blinder and Krueger (2013)). This section explains the links between unemployment and these three measures of economic globalisation. The review of the literature for each link is both theoretical and empirical, with a particular focus (when possible) on the latter.

2.1 Trade openness and trade liberalisation

Two competing theories provide the basis for understanding the relationship between trade liberalisation and unemployment. The first of these is the standard neoclassical trade model of comparative advantage, which dates back to the writings of David Ricardo. Its main thrust is that trade liberalisation creates employment for the home country and its trading partners⁵. The second school is based on the Heckscher-Ohlin framework and predicts that trade liberalisation *may* have a detrimental effect on employment in a labour-scarce economy that trades with a labour-abundant economy.⁶

These competing theories are concerned with the link between employment and trade liberalisation, rather than unemployment and globalisation as such. It must also be noted that in some empirical works dealing with this subject, the relevant

⁴We deliberately leave aside the subject of labour migration.

⁵Note, however, that some early theoretical neoclassical models allowed for the possibility of unemployment (see for instance Dornbusch, Fischer, and Samuelson (1977)).

⁶A typical example of this model is trade between China and the United States, as the labour-abundant and labour-scarce economies, respectively.

explanatory variable under study is trade openness and the dependent variable is either employment or output, rather than unemployment.

The Ricardian theory (which supports the liberal view of over-stressing the benefits of globalisation) and the Heckscher-Ohlin theory (which partially supports the Keynesian view of taking a careful stance with respect to globalisation as it is currently practiced) are solely based on trade of goods and services. However, the definition of economic globalisation we deal with also involves financial capital and foreign direct investment (FDI henceforth). To our knowledge, neither of these competing theoretical models have been extended to include balance sheets, financial assets or financial flows.⁷

Regarding the theoretical/empirical works related to the link between trade and unemployment, Grossman (1986) regressed average weekly hours of employment on the production of steel in the U.S. on the terms of trade (along with other control variables), finding that there is a unit elasticity between the two. The same author (Grossman (1982)) found less evidence of the effect of import prices in other manufacturing industries, but with data that excludes the dollar appreciation of the early eighties (see also Klein, Schuh, and Triest (2003)).

In criticising the basic assumptions of the standard (Ricardian) trade model, and while admitting that free trade generates gains and losses (with the latter outweighing the former), Blinder (1988) concludes that it is necessary "to pursue a vigorous full-employment policy so that displaced workers will be quickly reemployed". Another early study on the topic is that of Baldwin (1995), who concludes that domestic factors had played a much more important role in the evolution of employment than trade, implying that the effects of global factors, particularly trade and FDI, were still minor and not yet very well explored up to the time of his writings. However, it must be noted that as global dependency has increased, job dependency is also likely to have risen over time.

The theoretical model developed by Davidson, Martin, and Matusz (1999) predicts that job destruction created by trade liberalisation may be exactly offset by job creation, meaning that (under particular circumstances) unemployment rates remain unchanged following trade liberalisation. Based on this model, Davidson and Matusz (2004) elaborate an empirical model in which, despite the fact that it does not directly address the same theoretical predictions (see Belenkiy and Riker (2015)), the authors stress that import-competing industries have higher job destruction rates.

Using a variant of the model developed by Melitz (2003) as well as empirical evidence in line with it, Janiak (2006) argues that when trade is liberalised workers

⁷An important exception to this is the IS-LM inspired theoretical/applied framework proposed by James Tobin in his Nobel lecture (Tobin (1982)), which can be extended to take into account two or more economies, as in Brainard and Tobin (1992).

are relocated from the least to the most productive firms, which leads to enhanced productivity and welfare gains, but that when labour markets are characterized by search frictions job destruction may exceed job creation.⁸ A similar conclusion is reached in Helpman and Itskhoki (2010). Egger and Kreickemeier (2007) develop a theoretical model in which involuntary unemployment and wage inequality are possible, indicating that trade liberalisation may induce undesirable distributional conflicts.

Dutt, Mitra, and Ranjan (2009) find empirical evidence in favour of the Ricardian prediction that trade liberalisation unambiguously reduces unemployment. Their model uses instrumental variables panel data techniques in order to deal with possible reverse causality. The theoretical model calibrated in Felbermayr, Prat, and Schmerer (2011a) suggests that trade liberalisation lowers unemployment and raises real wages, as long as it improves average productivity net of transport costs. In a related work, Felbermayr, Prat, and Schmerer (2011b) estimate that a 10% point increase in trade openness reduces aggregate unemployment by about 0.75%. Similar conclusions are reached in Felbermayr, Larch, and Lechthaler (2013), with the main difference that the authors focus on institutional inter-dependencies across countries. Gozgor (2014) also finds support for a negative association between trade openness and unemployment. Hijzen, Upward, and Wright (2010) use firm-level data for the U.K., and find that the service sector exhibits much higher rates of job creation, but almost exactly the same rates of job destruction as those in manufacturing, and find little evidence of this being related to a change in trade exposure. A similar analysis for Denmark is presented in Ibsen, Warzynski, and Westergaard-Nielsen (2009), but conclude that imports of finished and intermediate goods are positively associated with employment growth.

On the contrary, Acemoglu, Autor, Dorn, Hanson, and Price (2016) focus on the rise in import competition from China and relate this to the poor performance of U.S. employment growth. Their estimates suggest that "had import penetration from China not grown after 1999, there would have been 560 thousand fewer manufacturing jobs lost through the year 2011". Görg (2011) narrowly defines globalisation as total trade and as offshoring, and studies the impact of this phenomenon on employment. The author reviews the relatively scarce empirical evidence found on the link under study, which includes the finding by Kletzer (2000) that rates of job losses are high in sectors with high levels of imports and high growth rates of imports, whereas export activity at the sectoral level is correlated with lower rates of job losses. Trefler (2004) uses U.S.-Canada data and concludes that the establishment of the free-trade agreement was associated with employment losses. Biscourp and Kramarz (2007) study French firm-level data to examine the impact of trade

⁸The literature on job creation/destruction is older and more abundant when it comes to FDI.

on job creation and destruction, concluding that importing is associated with lower employment growth.

Overall, it seems that there is no clear consensus, neither in theoretical nor in empirical works, on whether trade liberalisation generates unemployment or not. This stark difference in results is likely due to (1) ideological biases (expected results often lead to ultimate results), (2) econometric methodology used (IV, GMM, OLS, etc.), (3) time, data frequency and country samples under study, (4) control variables used, as well as (5) the sources of the data used (national v. supranational, for instance). The same may hold for the discussions concerning capital account liberalisation and offshoring.

2.2 Capital account liberalisation

With respect to capital account liberalisation, it is argued that financial globalisation adversely impacts labour markets (e.g. raises unemployment) via terms of trade shocks. This impact can take place, for example, through a large real exchange rate appreciation (IMF (1997)). Naturally, the larger the exposure to capital flows (via low or no barriers to financial transactions), the more prone the exchange rate is to appreciate (Combes, Kinda, and Plane (2012)). Indeed, with the strong increase in cross border financial transactions that took place in the mid-1980s in the countries that make up the G-7 and with the control of inflation in virtually all the economies that make up the developed world, the currencies of these countries have appreciated considerably in the past three decades. This turned out to be a good thing for the financial markets of developed countries and for the exporting manufacturing sectors of major emerging economies (mainly BRICS), but unfortunately it may also have brought about negative consequences for labour markets in high-income countries.

Another argument that postulates an adverse effect of financial globalisation on labour markets can be found in Stiglitz (2004) who, by describing a theoretical model with incomplete risk markets, shows that financial-market integration leads to increased income and consumption volatility and lower welfare growth. The model shows that opening up capital markets allows for greater variability of wages, and that this can have important adverse welfare implications for workers, via lower wages and employment.

Similarly, Diwan (2001) makes it clear that large capital inflows can provoke upward pressure on currency values, and that this can lead, in turn, to downsizing of the private corporate sector in order to restore profitability. Moreover, this is likely to generate unemployment and downward wage pressures.⁹ Eatwell (2000) and Eatwell and Taylor (2000) also argue that the structural changes that took place

⁹This is perhaps a pretty accurate prediction with which we adhere and our empirical model supports.

in world trade in the last four decades are associated with the increased mobility of capital, so that this is a possible explanation for a common source of increased unemployment in OECD countries since the 1970s.¹⁰

Nevertheless, to the best of our knowledge, empirical evidence on the link between labour markets and financial globalisation is rather scarce. An exception to this is Jayadev (2007), who reports that capital account openness has increased over time (particularly so for high income countries) while at the same time labour shares across the globe have stagnated or fallen. The author then separates these aggregates in two sample periods, Pre-1980 and Post-1980, and notes that after 1980 capital account openness, trade openness and the real interest rate are considerably higher than before that period. Finally, based on cross-country panels, the author shows that there is a negative association between capital account openness and the labour share (consistent across specifications), meaning that enhanced capital mobility since 1980 has been associated with a lower wage share (which ultimately means lower wages per worker and/or lower employment).

Our empirical model is perhaps the first to provide empirical evidence on the relationship between capital account openness and the unemployment rate in a panel of developed economies. The literature review just presented supports the view that financial liberalisation has had a detrimental effect on labour markets and, more precisely, it has had the undesirable effect of raising the unemployment rate in high-income economies.

2.3 Offshoring and foreign direct investment

Blinder (2009) defines offshoring as "moving jobs *out of the country*, whether or not they leave the company". This is different from outsourcing, which is equivalent to job contracts outside of the company. In other words, offshoring can be broadly defined as 'international outsourcing', and this takes place more often than not via FDI. Indeed, some offshoring is classified as foreign direct investment (FDI) rather than as trade (Blinder (2009)). Therefore, the study of offshoring in the empirical literature takes place by using FDI-related data.

The importance of this practice has increased greatly. For instance, it has been reported that FDI growth has far exceeded GDP growth since the late 1980s, and that this has almost entirely been driven by the developed countries, at least until 2000 (Crinò (2009)).

The basic (neoclassical) theory underlying the link between unemployment and

¹⁰Their argument is that the deregulation of financial markets that took place following the collapse of the Bretton Woods system provoked a significant increase in risk aversion in public and private sectors, that are a major source of deflationary pressures and persistent unemployment across the world nowadays.

offshoring is that offered by the Stolper-Samuelson theorem, whereby the most developed economies specialize in the production of skill-intensive goods. However, as argued in Crinò (2009), since the 1980s the relative price of skill-intensive goods has been declining and the skill intensity of production has been increasing. This in turn implies that more educated workers also appear to hold more offshorable jobs irrespective of their skill level (Blinder and Krueger (2013)), thus rendering the Stolper-Samuelson prediction rather ambiguous.

The relevant policy distinction to be made when it comes to the study of offshoring and its effects on the labour market, is the one between *personally-delivered services* and *impersonally-delivered services* (Blinder (2009)), rather than high-skill vs low-skill as it is still being taught in some economics courses. Since impersonally-delivered services (some of which require high technical skills) are offshorable, it is highly desirable to shield national employment by training the new generation to be able to specialize in the delivery of this type of services.

Setting temporarily aside these theoretical concerns, let us now describe the theoretical and empirical models developed on the link between FDI or offshoring and unemployment in developed countries.

Kravis and Lipsey (1988) study the effects of U.S. direct investment abroad on labour intensity of U.S. production, and the skill intensity of U.S. production by the investing firm. They find that a firm that produces more abroad has fewer employees in the U.S. and pays slightly higher average wages and salaries. Glickman and Woodward (1989) estimate the employment impact of FDI in the U.S. between 1982 and 1986, which leads them to conclude that the number of new jobs created via direct investment by foreigners in the U.S. has been modest and may even be negative. Messerlin (1995) uses data for France from 1989 to 1992 and finds that FDI by French firms was concentrated in industries in which he estimates that changes in trade (that is, trade differences) have brought about job gains, rather than in those sectors that experienced job losses through trade.

Agarwal (1996) distinguishes between three forms of investors' motivations, which can have an effect on employment: natural resources seeking, market seeking and efficiency seeking. According to the author, efficiency seeking FDI (for instance between developed and emerging economies) may cause more unemployment due to export substitution and reimports to host countries. In contrast, natural resources and market seeking FDI (i.e. among developed economies) is likely to create employment in the home country. The author also recognizes that the net employment effect of FDI depends on the stage of development of the home country.

Driffield and Taylor (2000) review the literature of employment effects of FDI in the U.K., and focus on the role of R&D as a transmission mechanism. In line with the neoclassical theory, they conclude that by increasing the relative demand for

unskilled labour, FDI is unlikely to contribute significantly to alleviating structural unemployment in certain regions. These results are further strengthened in the theoretical model in Bailey and Driffield (2007), who also regress the demand for unskilled and skilled labour in the U.K. on FDI, and find a negative causal effect running from FDI to labour demand.

Aykut and Sayek (2007) study the link between FDI and economic growth, and mention that "[w]hen it is purely efficiency seeking, FDI is more likely to bring in the technology and know-how that is compatible with the country. It usually generates significant employment and provides training" (p. 39). The authors, however, focus on the relationship between FDI and economic growth, rather than employment growth.

Ajaga and Nunnenkamp (2008) perform panel cointegration Granger causality tests in order to study the long-run output and employment effects of FDI in U.S. states, and conclude that FDI has overall positive effects on employment. However, the authors also warn that "[i]n contrast to the United States (...) many less advanced host countries may lack the absorptive capacity to benefit from FDI-related spillovers" (p. 9).

Laffineur and Mouhoud (2015) study the effect of outward FDI on the workforce composition of French firms. Using instrumental variables panel data for the 2002-2007 period, they find that FDI has important distributional effects that benefit executives and reduces the share of blue-collar workers, and that FDI going to high-income countries negatively affects the share of workers performing non-routine manual tasks.

Wolszczak-Derlacz and Parteka (2015) study a panel of European countries (EU-27), and show that domestic employment in the E.U. manufacturing sector can be pushed down by offshoring, defined here by an index calculated as the ratio of imported intermediates to value added. These empirical results are unsurprising in the light of Blinder's arguments seen above, but what strikes us as interesting is the fact that their sample of countries treats Eastern and Western European countries as being homogeneous. Had this distinction been made, it would be more enlightening to see the degree to which Eastern European countries are being negatively affected by FDI, which would run counter to the well-studied Eastern-industrialization/Western-deindustrialization thesis discussed in, for instance, Palma (2014).

As in the case of the relationship between trade and unemployment, there is a wide array of opinions and empirical findings. This further highlights the relevance of our empirical study.

3 Data and descriptive statistics

Having studied the relevant literature concerning the link between globalisation and unemployment, we now turn to the description of the data used in our modeling exercise and a brief description of their evolution. The list of variables included in our models is in line with the existing literature on the determinants of unemployment, and includes recently-studied measures of economic globalisation.

3.1 Data

Starting with our dependent variable, we use the harmonised unemployment rate taken from the OECD database. As for the macroeconomic explanatory variables, we first consider the real effective exchange rate (REER) index (obtained from the World Development Indicators) to account for price competitiveness of national products. This variable is defined such that an increase in the REER implies an appreciation, i.e. a loss of price competitiveness. We also include the output gap (taken from the OECD's World Economic Outlook) in order to consider the effects of the business cycle. In line with the mainstream literature on the institutional determinants of unemployment, we include the employment protection legislation indicator for regular contracts (EPL), the tax wedge for unemployment benefits, the union density and the replacement rate, all provided by the OECD.

Let us now turn to our indicators of globalisation, namely our variables capturing trade openness, capital account liberalisation and offshoring/FDI. First, as it is usually the case, trade openness is defined as the sum of exports and imports divided by GDP (source: World Bank).¹¹ Note that, in line with the discussion in 2.1 above, the sign of this variable can be positive, negative or even nil.

Indeed, whereas for the Heckscher-Ohlin model trade liberalisation may increase unemployment, the neoclassical trade model suggests that the coefficient in this case should be negative and significant. We could also argue that the coefficient associated to trade openness should be positive and significant if we expect that higher trade openness implies that there are more foreign firms in the destination market. In this case, globalisation affects unemployment through its effect on the share of foreign products in the domestic market, increasing the domestic unemployment rate. However, higher trade openness also implies that more domestic goods can be sold abroad, which in turn implies higher demand for domestic products that has the potential of reducing the unemployment rate.¹²

¹¹The variable trade openness has the advantage that it provides a relative measure of total volume traded across borders, regardless of the possible contradictory/compensatory effects actual flows and restrictions, taken individually, may have.

¹²Of course, this depends on whether there is demand for these, which depends on the degree of substitutability of foreign to national goods, price and non-price competitiveness, the ability of

Second, we also analyze the effect of rising Chinese import competition –another indicator of higher trade openness– on the unemployment rate. The idea here is that, although freer trade with countries at any income level may affect wages and employment, trade theory identifies low-wage countries as a likely source of disruption to high-wage labour markets (Krugman (2008)). Indeed, there have been fears, now institutionalized in political campaigns in a growing number of developed countries, that flows of low-skilled labour migration will raise unemployment in high-income countries. However, if globalisation is at all causing the increase in unemployment observed in developed countries over the past four decades, this is not due to workers from low- and middle-income countries migrating to developed economies (see Dadush (2014)). The ‘threat’ may not lie in these migrant inflows, but in the possibility of foreign workers being hired by firms based in developed countries to perform these jobs in a different country.

Thus, the current division of labour has favoured dynamic labour markets and economic growth in some countries (for instance China, or the ‘East’), at the expense of generating slack in others (mainly Western economies). This explains at least in part the resentment of affected Western workers towards foreign workers. In some media outlets, Chinese manufacturing firms are often depicted as promoting employment in their home country by carelessly and mercilessly “taking away” Western jobs. It must be noted, however, that this discourse seems to blame China as much as it absolves Western firms for hiring Chinese workers, who (along with Western economic authorities) are also responsible for the current job exodus.

In addition to this, the strongly restrictive monetary policies that were implemented in the first half of the 1980s in advanced economies had the desired effect of bringing down price increases in the real sector. However, the drawback is that it also made Western workers/exporters overwhelmingly uncompetitive, due in large part to the appreciation of the dollar and other Western currencies provoked by the interest rate hike (Feldstein (1993)). With China opening up to the rest of the world since the late seventies (thanks in part to the reforms implemented from 1978 onwards), and with Western workers becoming more expensive, this turned out to be beneficial for Chinese exporting manufacturing firms and cheap Chinese labour.¹³

Given the relevance of the question, we investigate the impact of the growth of imports of this low-wage country on OECD unemployment by considering China’s imports share over total imports (source: UN Comtrade Database). As it is clear from our previous discussion, the sign of the coefficients can be either positive –if China is “stealing” Western jobs– or negative –if, for example, advanced economies are somehow compensating for jobs offshored.

national and foreign firms to substitute labour for machines, etc.

¹³The data presented in table 1 of the next subsection shows some evidence of the importance of China in Western imports.

Our third measure of trade openness and liberalisation is based on trade tariffs. Indeed, although tariffs represent only a fraction of overall trade costs, they remain an important underlying factor, meaning greater trade integration. In this respect, it is argued that tariffs protect local jobs, at least in the short-run. Indeed, if nominal prices are sticky, tariffs shift demand from imports to domestic goods, which is absorbed by increased labour demand and output (see Shi (1997)). Under this perspective, a country will see its unemployment rate go up following a trade liberalisation episode (i.e., the coefficient should be positive). However, increasing trade tariffs is also seen as a limit to higher trade integration and, as such, it should be negatively related to unemployment according to the Ricardian prediction (negative coefficient). We test these contrasting hypotheses using data on import tariff rates corresponding to the most favoured nation rate (simple average) on manufacturing (Source: UNCTAD).

In order to capture the effects of higher capital account liberalisation, we distinguish between *de facto* and *de jure* financial liberalisation. The former –the *de facto* measure– is the indicator constructed by Lane and Milesi-Ferretti (2007). This indicator is defined as the volume of a country’s foreign assets and liabilities (as % of GDP).¹⁴ Our second measure of financial openness –the *de jure* measure– is the Chinn and Ito (2008) index of capital account openness (KAOPEN). This measure is constructed from four binary dummy variables that codify restrictions on cross-border financial transactions that are reported in the IMF’s Annual Report on Exchange Arrangements and Exchange Restrictions. Chinn and Ito (2008) reverse these binary variables –so that they are equal to unity when capital account restrictions are non-existent– and derive the first principal component, which is their summary measure.¹⁵

By relying on these two variables, we want to study if and how financial globalisation affects the unemployment rate. Indeed, financial resources now flow much more freely across borders than in the past¹⁶, which facilitates the funding of investment projects, regardless of the origin of capital. The nuance, however, is how affordable these financial resources are. Therefore, the combination of trade liberalisation and capital account liberalisation has the potential benefits, at least in theory, of promoting employment.

Under a market efficiency perspective, we should expect a negative association

¹⁴This measure provides a useful summary of a country’s history of financial openness. It is an advantage over flow-based measures like the World Development Indicators (WDI) measure of gross private capital flows, which places all the emphasis on the current observation.

¹⁵This variable is available for windows of 5 years.

¹⁶As an example of how much more integrated markets have become than in the past, the world trade-to-GDP ratio tripled between 1960 and 2000, and the ratio of FDI-to-world output tripled in the nineties alone. In contrast to this impressive trends, the world migration rate increased only slightly, from 2.5 to 2.9% from 1960 to 2005 (see Docquier and Rapoport (2012)).

between unemployment and financial openness, which would imply that financial openness fosters economic growth and development by making the allocation of capital more efficient. In contrast to this, others have stressed that the presence of market distortions may lead to welfare reducing effects of financial liberalisation (see the discussion in 2.2). These market distortions can take various forms, such as asymmetric information that favours financial markets at the expense of reducing wages and/or employment (see Stiglitz (2004)).

We also investigate how foreign direct investment (FDI) affects the unemployment rate. The proposition is that the flow of foreign direct investment is one of the indicators of economic interconnection with the rest of the world since, by means of FDI, firms join the national economies into the world market. FDI then erodes national boundaries, integrates national economies and produces relations of mutual interdependence (this is the Global Value Chains view held by the OECD, see for instance OECD (2010)). As mentioned before (see subsection 2.3), a part of the literature considers that FDI improves economic growth, thereby enhancing employment opportunities and reducing unemployment. However, a different story of multinational companies inhibiting competition would imply that FDI is positively related to the unemployment rate. By using data on the flows of FDI to GDP (source: UNCTAD), we analyze how this fourth measure of globalisation affects the unemployment rate for our panel of countries.¹⁷ Moreover, given recent concerns that outward FDI substitutes or complements domestic production and consequently, domestic jobs, we further distinguish between outflows and inflows of FDI. If there is a substitution of jobs or reallocations given the large gap of labour costs between advanced and emerging economies –for instance, Western and Eastern Europe– then we should expect a positive and significant coefficient of the unemployment rate to outward FDI.

Finally, to provide a complete picture regarding globalisation, we consider the KOF index of economic globalisation provided by the Swiss Federal Institute of Technology Zürich. This measure aims at summarising characteristics related to flows of goods, capital and services as well as information and perceptions that accompany worldwide exchanges. The global index has two components: i) actual flows and, ii) restrictions. In the first case, flows include data on trade (the sum of a country's exports and imports to GDP), FDI and portfolio investment (the sum of a country's stock of assets and liabilities to GDP). The second refers to restrictions on trade and capital using implicit import barriers, mean tariff rates, taxes on international trade (as a share of current revenue) and an index of capital controls. Each of the variables introduced above is transformed into an index on

¹⁷Note that FDI is also a component of the financial liberalisation index by Lane and Milesi-Ferretti (2007).

a scale of 1 to 100, where 100 is the maximum level of globalisation and 1 the minimum. Higher values of the KOF index denote a greater level of globalisation.

3.2 Descriptive statistics

Table 1 summarises the globalisation indicators and the unemployment rate for our group of countries. It shows two columns for each variable belonging to the economies under study for the period that goes from 1981 to 2013. The first of these two columns shows the average level of the corresponding series, whereas the second shows their average growth rates in percentages.

The data presented is vast. Fortunately, its analysis is simple. By taking the group mean (6.99) and standard deviation (3.45) of the unemployment rates shown in the table, we are able to make categories of countries by unemployment level and draw some preliminary generalisations of the relationship between this variable and different measures of globalisation.¹⁸

The first of these groups is made up of the countries whose unemployment rate is lower than 6.2%, namely; Austria, Denmark, Japan, the Netherlands, New Zealand, Norway, Switzerland and Sweden. One of the most open economies of the sample (the Netherlands) belongs to the group. Paradoxically, however, one of the least open economies of the sample (Japan) also belongs to this group. Even though the Netherlands has the highest trade openness, capital openness and FDI levels, its exposure to Chinese imports is well below that of Japan and New Zealand. Japan, on the other hand, with the record low unemployment rate of the high income countries, has the lowest levels of trade openness, capital openness and FDI, but has a large exposure to Chinese imports. Since the share of Chinese imports in the total is not included in the KOF index (last column), the Netherlands has a much higher globalisation level than Japan (88.44 and 43.62, respectively).

The second group (countries with an unemployment rate between 6.2 and 9.2%) includes Australia, Belgium, Canada, Germany, the U.K. and the U.S., with Belgium being the most open and the U.S. the least open. As is the case with his Dutch neighbour, Belgium (with a high but decreasing unemployment rate) also exhibits high levels of trade, capital and FDI openness, as well as low exposure to Chinese imports. The U.S. is the opposite in the group.

¹⁸This is done by taking the mean and adding/subtracting 1.72 (half of the standard deviation), and taking the values of the mean unemployment rate that lies the closest to the corresponding values as references.

Table 1: Unemployment and globalisation indicators at the country level. Descriptive statistics

Country	Unemployment		Trade open		Capital open		FDI		China's share		Tariffs		KOF Index	
	Level	Growth	Level	Growth	Level	Growth	Level	Growth	Level	Growth	Level	Growth	Level	Growth
Australia	7.01	0.97	37.3	0.88	1.47	7.10	0.49	5.6	8.93	9.52	5.53	-4.09	67.78	1.29
Austria	4.77	2.16	81.2	1.32	2.62	5.71	0.36	10.14	3.13	7.04	5.1	-0.81	76.3	1.11
Belgium	8.41	-0.30	132.2	1.35	5.51	5.27	1.37	9.8	3.45	5.56	5.1	-0.81	88.72	0.27
Canada	8.46	0.38	62.4	0.82	1.89	3.67	0.7	5.73	4.69	12.14	4.83	-5.32	75.59	0.27
Denmark	6.16	0.38	79.9	1.16	2.57	6.23	0.47	9.34	3.23	10.41	5.1	-0.81	79.47	0.61
Germany	7.85	-0.22	58.9	2.14	2.1	6.96	0.51	6.11	5.37	7.64	5.1	-0.81	61.18	0.68
Finland	9.26	5.72	65.5	0.76	2.47	9.65	0.42	11.86	3.17	13.82	5.1	-0.81	74.98	1.35
France	9.99	0.78	49.1	1.05	2.69	6.67	0.42	8.45	3.57	9.88	5.1	-0.81	63.48	0.85
Italy	9.29	1.86	45.7	0.91	1.45	6.01	0.21	8.6	3.1	9.13	5.1	-0.81	62.87	1.27
Ireland	10.97	0.42	143	2.43	10.88	10.28	1.8	4.98	2.81	14.36	5.1	-0.81	91.69	0.29
Japan	3.57	1.69	23.9	1.23	1.1	6.46	0.1	8.81	13.4	6.08	4.24	-2.11	43.62	1.55
Netherlands	6.09	-0.05	118.6	1.28	4.73	6.46	1.16	5.65	3.61	11.56	5.1	-0.81	88.44	0.38
New Zealand	5.93	2.66	58	-2.93	1.64	5.94	0.43	6.78	7.11	11.44	4.37	-4.21	75.17	1.02
Norway	4.04	0.43	70.9	-0.28	2.1	5.98	0.41	6.72	3.89	12.46	2.39	-8.99	76.16	0.34
Portugal	9.28	3.23	64.2	1.25	2.28	7.18	0.4	7.34	N/A	N/A	N/A	N/A	75.25	0.82
Spain	16.72	1.53	48.1	1.95	1.66	6.91	0.42	10.44	3.33	10.96	5.1	-0.81	69.6	1.29
Sweden	6.19	4.61	73	1.4	2.6	8.02	0.69	10.57	1.94	10.74	5.1	-0.81	79.35	1.13
Switzerland	4.37	0.22	94.6	1.01	6.48	4.73	1.26	8.66	1.92	11.29	5.58	-0.54	N/A	N/A
United Kingdom	7.47	-1.59	51.9	0.58	5.91	6.58	0.66	4.68	3.84	11.89	5.1	-0.81	69.75	0.18
United States	6.40	0.04	23	1.28	1.37	6.57	0.38	6.64	9.47	10.78	4.81	-1.49	59.1	0.39

Note: The table reports the average values of the globalisation indicators over the period under consideration. The columns called 'growth' show the yearly arithmetical average growth rate of the corresponding series.

The third group (made up of countries with an unemployment rate higher than 9.2%) is constituted by Finland, France, Ireland, Italy, Portugal and Spain, with Ireland being the most open (also of the whole sample) and Italy the least open. Ireland exhibits record high trade, capital and FDI openness. This contrasts with Italy, which is the least open economy of this group (although much more open than Japan and the U.S.) and low exposure to Chinese imports.

Of all the countries studied, the unemployment rate increased the most rapidly in Finland, New Zealand and Sweden in the period under study. In sharp contrast, Belgium, Germany, the Netherlands and the U.K. saw reductions in their unemployment rate. Trade openness has overall been reduced in New Zealand and Norway, but has grown spectacularly in Ireland, Germany and Spain.

Capital account openness is the highest in Ireland, Switzerland, the U.K., Belgium and the Netherlands. Surprisingly, the U.S. is not part of this list, despite the *privilège exorbitant* of its currency in international financial markets. Perhaps ironically, this country is found among the least financially open countries of the list, along with Japan, Australia and Italy. Among the countries that have experienced the fastest average growth in capital account openness we find Ireland, Finland and Sweden.

The level of FDI is the highest in Ireland, Belgium, Switzerland and the Netherlands, and the lowest in Japan, Italy, Austria and the U.S., and has grown the most in Finland, Austria, Sweden and Spain.

The share of Chinese imports out of total imports is the highest in Japan, the U.S. and Australia, and the lowest in Sweden, Switzerland and Ireland. This share has increased considerably (on average) in Ireland, Finland, Norway and Canada.

With this information, it is hardly possible to draw any reliable inference concerning the causal link that runs from economic globalisation to unemployment. However, some clues are provided that will make the subsequent discussion clearer, and will help answer the question raised in the title of the article.

The data just presented suggests that, for each group separately, the countries that are the least open (Japan, the U.S. and Italy) experience the lowest unemployment rates, whereas those that are the most open (the Netherlands, Belgium and Ireland) exhibit high unemployment rates. Of course, this should be taken with a grain of salt, given that two of the least open economies just cited (Japan and the U.S.) have seen their trade exposure increased during the period and are also the most exposed to Chinese imports. Note also that the sectoral structure and economic characteristics of Ireland (Italy) are hardly comparable to those of Belgium and the Netherlands (Japan and the U.S.).

Could we admit that trade, capital and FDI liberalisation are taking the jobs? Not at this point. The descriptive statistics just presented are inconclusive at best,

with the least open economy and a low (but growing) unemployment rate (Japan) as well as a high import dependence from China; and the most open economy (Ireland) with a high unemployment rate and low (but rapidly growing) dependence on Chinese imports.

4 Methodology

In order to empirically assess the impact of economic globalisation on unemployment, we carried out a modeling exercise that consists of a panel including 20 OECD countries (Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom and United States) that covers the period 1981-2013 (depending on the availability of the data) on a yearly basis.¹⁹ The general specification of our empirical model is the following:

$$U_{i,t} = \alpha_i + \beta U_{i,t-1} + \chi MACRO_{i,t} + \delta INST_{i,t} + \phi GLOB_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where $U_{i,t}$ is the unemployment rate of country i at period t , α_i is a country fixed effect, β is the one-lag autoregressive component of the dependent variable, χ , δ and ϕ are vectors of parameters related to labour market institutions ($INST$), macroeconomic determinants ($MACRO$) and globalisation variables ($GLOB$), respectively. Last, but certainly not least, $\varepsilon_{i,t}$ is the error term.

As we are dealing with a dynamic equation, we employ the system-GMM estimator developed by Arellano and Bover (1995), which combines a regression in differences with one in levels. As it is well known, the consistency of the GMM estimator depends on the validity of the instruments used in the model, as well as on the assumption that the error term does not exhibit serial correlation. In our case, the instruments are chosen from the lagged endogenous and explanatory variables. In order to test the validity of the selected instruments, we perform the Hansen-Sargan test of over-identifying restrictions. In addition, we also check for the presence of any residual autocorrelation.

Now, other than providing empirical evidence on the relationship between globalisation and unemployment, an additional objective of our work is to provide some insights on the issues related to the inclusion of additional determinants into a well-studied specification (in this case global factors on unemployment). This is of particular interest for modellers, given that adding information to well-studied specifications (as well as the discussion about such inclusions) often contributes in

¹⁹Unfortunately, the last year available for most of the institutional variables entering the model is 2013, so that obtaining estimates for a more recent time span was not possible.

filling gaps between observed variables and models' outcomes, which in this case is represented by $\varepsilon_{i,t}$.

In this respect, an important argument made by Hendry and Nielsen (2007) concerning specification invariance is that the latter means that the conditional relation of Y_i [i.e. $U_{i,t}$] given Z_i [i.e. $\alpha_i + \beta U_{i,t-1} + \chi MACRO_{i,t} + \delta INST_{i,t}$] does not change when Z_i changes. The "changes" can be expressed either in terms of varying parameters or in terms of an additional variable.

Specifically, it is unlikely that *all* the determinants of unemployment have already been empirically found. One of the main arguments of our article is that global factors do play a role in explaining unemployment, whereas these have been left out in several empirical works. By adding global factors to the standard unemployment specification we are able to study the relation between this variable and globalisation, confirming some of the established/accepted theoretical associations between unemployment and its determinants. However, it is also possible to find some ambiguous results either theoretically (wrong sign) or empirically (statistical significance). This is due to the fact that additional information in $g(Z_i)$, i.e. $GLOB_{i,t}$ in Eq. (1), is now present in an otherwise standard equation. The theoretical and empirical discussions of sections 2 and 3 support the inclusion of global factors in the standard unemployment equation, and the statistical significance of these terms in the estimated equations shown in the next section further confirm that these are important determinants of the unemployment.

5 Results

Let us first comment the results of the baseline equation (i.e. without considering the globalisation indicators). These are presented in the first column of table 2²⁰, which indicates that the parameter associated with the lagged unemployment rate has the expected positive and significant sign, highlighting an important inertia in the evolution of unemployment. Regarding the macroeconomic variables, the positive and significant sign of the exchange rate indicates that, as expected, a loss in price competitiveness is related to an increase in the unemployment rate (Klein, Schuh, and Triest (2003)). In turn, the other macro variable included in our models (the output gap) is not significant. With respect to the institutional variables, results are generally in accordance to the existing empirical literature on the determinants of unemployment (Nickell, Nunziata, and Ochel (2005), Fiori, Nicoletti, Scarpetta, and Schiantarelli (2007), Baccaro and Rei (2007), etc). In particular, higher labour market protection and union density are associated with

²⁰We test for unit roots in all the variables entering the models (results are available upon request from the authors). Non stationary variables enter the equation in first differences. Note also that our GMM models pass all the standard diagnostic tests for dynamic panels.

higher unemployment. Note, however, that the coefficient of the tax wedge and the replacement rate are not significant.

Let us now focus on the results when we include the globalisation indicators to this baseline equation. Other than the usual macro and institutional market effects included in standard unemployment equations, our findings generally support the idea that unemployment also has global determinants. Column (2) in table 2 shows that a higher level of economic globalisation, as measured by the KOF index, reduces the unemployment rate. This is in line with the Ricardian prediction whereby tighter global links favour employment. However, note that this result is nuanced when we include other dis-aggregated global factors on the right-hand side of the equation.

The results shown in column (3) indicate that actual flows (of trade, FDI and portfolio investment) are statistically insignificant under this specification, so that these do not *directly* influence the unemployment rate or its other determinants. In contrast to this, higher restrictions on trade and capital reduce the unemployment rate. These restrictions may be useful to correct balance of payments disequilibria, for it helps dodging the deflationary bias provoked by, say, undesirable (e.g. excessive) financial flows that could provoke pressure on the exchange rate²¹. This line of argument is consistent with the critiques on globalisation made by Krugman and Venables (1995), Rodrik (1997), Stiglitz (2002) and Spence (2011) cited in the introduction. Moreover, restrictions are equivalent to throwing sand in the wheels of international finance, and these can have positive effects in the aggregate, as argued by Eichengreen, Tobin, and Wyplosz (1995).

Let us now consider the inclusion of indicators of trade and financial openness. This is done in columns (4)-(7). The estimates shown in the table do not seem to provide evidence of a direct link between trade openness and the unemployment rate, given that the corresponding coefficient is not significant at conventional levels in none of the specifications. In stark contrast to this, financial openness and capital account liberalisation indicators seem to be positively associated with the unemployment rate, at least for the 1980-2013 period and our set of countries. Indeed, economies that were subject to a high level of capital account openness (or, alternatively, financial globalisation) witnessed a more sensitive increase in their unemployment rates than less opened economies, which is in line with the views of some globalisation critics previously cited. This is shown in columns (4) and (5).²²

²¹This may seem surprising given that the variable *actual flows* is not significant under this specification. However, it must be noted that the latter also includes trade and FDI flows, and that the ultimate effect of these flows translates into exchange rate overvaluation (and often also deflation), which is included in the equation and its positive sign is consistent with the negative sign of restrictions.

²²In these two specifications the exchange rate has a (negative and significant) sign that is inconsistent with what is being postulated. Note, however, that a currency overvaluation raises the unemployment rate for at least two reasons. The first and most obvious one is that it reduces the

Table 2: Globalisation and unemployment. Estimation results

	Coeff. (<i>t</i> -stat)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Unemployment _{<i>t</i>-1}	0.572 (3.86)	0.634 (4.34)	0.697 (4.75)	0.520 (4.36)	0.240 (2.38)	0.350 (2.89)	0.623 (3.04)
Exchange rate _{<i>t</i>}	0.064 (4.29)	0.063 (4.86)	0.098 (5.94)	-0.099 (-3.18)	-0.144 (-3.79)	-0.115 (-3.34)	-0.004 (-0.60)
Output Gap _{<i>t</i>}	-0.051 (-0.69)	-0.054 (-0.81)	-0.049 (-0.72)	-0.123 (-2.05)	-0.351 (-7.76)	-0.223 (-3.99)	0.122 (1.09)
EPL _{<i>t</i>}	0.057 (2.90)	0.012 (0.57)	0.007 (0.33)	-0.063 (-2.89)	-0.060 (-3.23)	-0.038 (-3.34)	-0.020 (-1.03)
Tax Wedge _{<i>t</i>}	-0.012 (-0.25)	-0.076 (-1.46)	-0.010 (-0.15)	-0.050 (-0.94)	-0.026 (-0.54)	-0.066 (-1.18)	-0.251 (-2.30)
Union density _{<i>t</i>}	0.422 (4.19)	0.546 (5.12)	0.349 (2.65)	0.421 (4.34)	0.636 (5.78)	0.342 (4.29)	0.328 (2.77)
Replacement rate _{<i>t</i>}	-0.034 (-1.53)	-0.018 (-0.81)	0.009 (0.36)	-0.039 (-1.29)	-0.031 (-1.36)	-0.016 (-0.74)	-0.008 (-0.31)
Globalisation indicators							
Growth in eco. globalisation index _{<i>t</i>}		-0.056 (-2.03)					
Actual flows			-0.002 (-0.14)				
Restrictions			-0.062 (-2.50)				
Growth in trade openness _{<i>t</i>}				-0.006 (-0.64)	-0.001 (-0.10)	0.003 (0.38)	0.019 (1.34)
Growth in financial openness _{<i>t</i>}				0.009 (3.20)			
Capital account openness _{<i>t</i>}					0.246 (1.98)		
Flows of FDI _{<i>t</i>}						-0.017 (-0.87)	
Inflows							0.047 (1.92)
Outflows							-0.148 (-3.37)
Growth in tariffs _{<i>t</i>}							-0.007 (-2.87)
Growth in China's import share _{<i>t</i>}							0.006 (1.43)
J-test	0.544	0.312	0.798	0.517	1.000	0.115	0.914
AR(2) test	0.802	0.183	0.474	0.351	0.118	0.212	0.721
N. obs	416	416	391	397	416	413	314

Notes: (a) This table reports the estimated coefficients from Equation (1). Corresponding *t*-statistics are given in parentheses, (b) The null hypothesis of the J-test is the validity of instruments, (c) The null hypothesis of the AR(2) test is the absence of serial autocorrelation of order 2.

Now, given that foreign direct investment is also an important component of economic globalisation (which is also related to capital account openness), column (6) in the table presents the results when we include FDI in the model and control for trade openness.²³ Consistent with the previous results, trade liberalisation and FDI flows are both statistically insignificant. In contrast to this, column (7) shows the results of a model that distinguishes between FDI inflows and outflows, while at the same time includes growth in trade openness, tariffs and China's import share in total imports. In this specification all terms included are statistically significant at a 10% significance level except for the China's share coefficient. The signs found are consistent with the view that trade openness and, to a lesser extent, inward FDI (that is, inward offshoring) raise the unemployment rate, whereas FDI outflows and tariffs reduce it. Note that the negative impact on unemployment of FDI outflows are far more important than the positive impact of FDI inflows. In other words, outflows of FDI, i.e., the value of outward direct investment made by the residents of the reporting economy to external economies, rather than substituting domestic jobs, could improve employment growth outcomes as well as sales growth of parent firms²⁴. Indeed, according to some studies, the intra-firm trade balance, the geographical distribution of exports and the importance of local sales are important determinants of the demand for labour at home resulting from outward FDI (see Cantwell (1994) for instance). The overall impact of FDI on trade, domestic employment and unemployment is the sum of negative effects due to export substitution and growing (re-)imports of goods and services produced abroad and positive effects associated to exports of goods and services and induced exports of other product lines, neither produced by the foreign affiliate nor exported earlier by the parent firm (Agarwal (1996); Bellak and Altzinger (1999)). Our results indicate that the FDI positive effect dominates the negative one for our sample period and group of countries.

economy's price competitiveness. A second argument is that currency overvaluation is quite often followed by a drop in the price level (via the pass-through effect), which in turn makes debt burdens rise, provoking downward pressure on investment and employment. Therefore, this second (rather indirect) effect could be at work without necessarily manifesting itself into a direct relationship between unemployment and the exchange rate.

²³The relationship between FDI and the capital account can be seen following a simple example between, say, China and the U.S. When Chinese workers are hired by U.S. firms in order to produce U.S. goods in China, inward FDI in the U.S. increases. This contrasts with the obligated drop in the capital account balance for the U.S. (and corresponding rise in the same account and for the same amount for China) that is provoked by the flow of dollars that, after being transformed in yuan, land in China to pay for the delivery of such labour.

²⁴Outflows of FDI are registered with a positive sign on the balance of payments. As a consequence, they are equivalent to exports. Moreover, as argued by Hawkins (cited in Agarwal (1996)) (p. 9) "FDI outflows for establishing new plants are well known to stimulate often exports of capital goods, spare parts, raw materials, etc., to the related foreign affiliates (...) [these] and additional product lines have a positive impact on employment in the home country".

Table 3: Globalisation and unemployment. Estimation results with interaction terms

	Coeff. (<i>t</i> -stat) (1)	Coeff. (<i>t</i> -stat) (2)
Unemployment _{<i>t</i>-1}	0.555 (4.74)	0.288 (2.93)
Exchange rate _{<i>t</i>}	-0.108 (-0.386)	-0.096 (-2.88)
Output Gap _{<i>t</i>}	-0.065 (-1.01)	-0.370 (-5.56)
EPL _{<i>t</i>}	-0.042 (-3.31)	-0.087 (-4.71)
Tax Wedge _{<i>t</i>}	0.027 (0.44)	-0.106 (-2.06)
Union density _{<i>t</i>}	0.398 (3.49)	0.482 (4.99)
Replacement rate _{<i>t</i>}	-0.034 (-1.19)	-0.023 (-1.03)
Globalisation indicators		
Growth in trade openness _{<i>t</i>}	-0.009 (-1.08)	-0.015 (-0.72)
Growth in financial openness _{<i>t</i>}	0.015 (4.76)	
Capital account openness _{<i>t</i>}		0.461 (4.04)
Interaction Trade Openness x Financial Openness _{<i>t</i>}	0.001 (0.00)	
Interaction Trade Openness x Capital account Openness _{<i>t</i>}		0.006 (0.66)
J-test	0.351	0.230
AR(2) test	0.849	0.641
N. obs	397	416

Notes: (a) This table reports the estimated coefficients from Equation (1). Corresponding *t*-statistics are given in parentheses, (b) The null hypothesis of the J-test is the validity of instruments, (c) The null hypothesis of the AR(2) test is the absence of serial autocorrelation of order 2.

The results related to the share of Chinese imports in total imports are also worth commenting. Our specifications indicate that enhanced global links with China is not significant to explain unemployment in OECD countries. This last result provides evidence against trade theory that identifies low-wage countries as a likely source of disruption to high(er)-wage labour markets. It is also in contradiction with the empirical finding that labour markets that are exposed to rising low-income-country imports (due, for instance, to strong competitiveness) experience increased unemployment, as in the case of the U.S. with respect to China (e.g. Autor, Dorn, and Hanson (2013)). Our finding then adds to this strand of literature since aggregate evidence for other advanced economies is, to the best of our knowledge, non existent so far.²⁵

Table 3 exhibits two more specifications with interaction terms. The hypothesis

²⁵Even though we restrict our analysis to the Chinese case, we could imagine that trade with other low-wage and middle-income nations, such as Brazil, India, Mexico or East-European countries, may also matter for labour-market outcomes in advanced economies.

we want to test here is if there are some complementarities between trade and capital markets, i.e. if, for instance, relatively closed economies would benefit from opening up to trade when well-developed financial systems are in place. Consistent with the results shown above, in both equations trade openness is statistically insignificant and capital account openness significant and positive. The non significance of the interaction terms indicates that, even in the presence of both types of openness, reductions in the unemployment rate do not take place. Thus, if globalisation is making developed countries' unemployment rate rise, it is not because of freer trade, it is rather (under the light of these results) the result of unregulated financial flows.

Finally, note that when we include globalisation indicators, the coefficients for control variables do not systematically have the expected signs. This is particularly the case of the exchange rate, EPL (both have the wrong sign and are not significant in some specifications) and the replacement rate (not significant).

6 Concluding remarks

Despite the fact that one of the most important discussions in public and political debates in recent years is the potential impact of globalisation on unemployment, the empirical literature has tended to neglect this link. We contribute to the debate by empirically analyzing the role of the globalisation process in the unemployment rate of a sample of 20 OECD countries over the 1981-2013 period. With the threat of protectionism on the rise, we believe that the question becomes even more relevant.

We show that there is a complex and rather ambiguous relationship between globalisation and unemployment. First, we find that an expansion of international trade is unrelated to a country's aggregate unemployment rate. Second, offshoring (captured by outflows of FDI) contributes to reduce unemployment. Third, some aspects of the globalisation process are detrimental for labour markets in advanced economies. In particular, our findings point out that higher financial liberalisation and lower restrictions make unemployment rise. We also present evidence that countries that are more exposed to Chinese imports (the most notable current example being the U.S.) do not necessary experience higher unemployment.

We now discuss these results in order to make some meaningful policy proposals. For the sake of clarity, let us begin by reasoning *ad absurdum* in order to develop our point. Since we find that financial liberalisation and low restrictions increase unemployment, should we recommend isolation from foreign financial markets and raise related barriers to incommensurate heights? Should we promote absolute protectionism at a time when this is likely to generate diplomatic frictions that could ultimately lead to armed conflicts? The answer to all these questions is a sound no!

We prefer to interpret our results as a clear sign that *globalisation has been*

oversold (Stiglitz (2005) and Stiglitz (2017)). Therefore, efforts have to be made that push the international policy agenda in the opposite direction than it has been the case in the past four decades in order to reshape the balance of power, by promoting economic policy that redistributes income and wealth, from globalisation's over-privileged to its discontents. Financial liberalisation and the near-disappearance of restrictions wreaked havoc with the third world's financial and real sectors since the 1980s (Palma (2012)), and is now reaching further into the lowest deciles in developed economies. It is highly desirable that these trends be reversed, not via absolute protectionism, but with an administered dose of it.

We propose a set of measures that are strongly based on the well-known Keynes' plan (Keynes (1943)) with, for example, capital controls of some sort. This does not mean banning all foreign capital. Rather, it means orderly controlling capital flows in order to avoid further capital account imbalances. With respect to restrictions, we follow Greenwald and Stiglitz (2006) and propose targeted tariffs to protect infant industries. This has the strong potential to promote local firms' exports that will naturally be positively predisposed to free trade in the future, when new infant industries will need some sort of protection in order to develop and grow. Vulnerable producers should obviously be the target of this protection, not well-established multinationals that wish to expand at the expense of nascent firms. Under the same logic but with respect to offshoring, it would be highly desirable to shield national employment by training the new generation to be able to specialize in, for instance, personally-delivered services, vocational training of un-offshorable jobs.

We conclude by noting that, even if some aspects of the globalisation process have been successful in reducing unemployment in advanced economies (outward FDI for instance), this improvement may have also been accompanied by a process of *immiserising growth* which, according to Kaplinsky (2000) (p. 120) "describes a situation where there is increasing economic activity (more output and more employment) but falling economic returns". This phenomenon can be better illustrated by the sharp fall in aggregate wage shares in national income that has been going on since the early eighties (OECD (2012), Karabarounis and Neiman (2013)), which contrasts strongly with the rise in corporate savings (Chen, Karabarounis, and Neiman (2017)). Needless to say, the link between globalisation and its effects on the labour market is an issue that deserves further research.

References

- ACEMOGLU, D., D. AUTOR, D. DORN, G. H. HANSON, AND B. PRICE (2016): “Import Competition and the Great US Employment Sag of the 2000s,” *Journal of Labor Economics*, 34(S1), 141–198.
- AGARWAL, J. P. (1996): “Does foreign direct investment contribute to unemployment in home countries? An empirical survey,” Discussion paper, Kiel Working Paper.
- AJAGA, E., AND P. NUNNENKAMP (2008): “Inward FDI, value added and employment in US states: A panel cointegration approach,” *Aussenwirtschaft*, 63(4), 347.
- ARELLANO, M., AND O. BOVER (1995): “Another look at the instrumental variable estimation of error-components models,” *Journal of econometrics*, 68(1), 29–51.
- AUTOR, D. H., D. DORN, AND G. H. HANSON (2013): “The China Syndrome: Local Labor Market Effects of Import Competition in the United States,” *American Economic Review*, 103(6), 2121–2168.
- AYKUT, D., AND S. SAYEK (2007): “The role of the sectoral composition of foreign direct investment on growth,” *Do multinationals feed local development and growth*, 22, 35–62.
- BACCARO, L., AND D. REI (2007): “Institutional determinants of unemployment in OECD countries: Does the deregulatory view hold water?,” *International Organization*, 61(3), 527–569.
- BAILEY, D., AND N. DRIFFIELD (2007): “Industrial Policy, FDI and Employment: Still ‘Missing a Strategy’,” *Journal of industry, competition and trade*, 7(3-4), 189.
- BALDWIN, R. E. (1995): “The effects of trade and foreign direct investment on employment and relative wages,” Discussion paper, National Bureau of Economic Research.
- BELENKIY, M., AND D. RIKER (2015): “Theory and Empirical Evidence Linking International Trade to Unemployment Rates,” .
- BELLAK, C., AND W. ALTZINGER (1999): “Direct Versus Indirect FDI: Impact On Domestic Exports And Employment,” Working Papers geewp09, Vienna University of Economics and Business Research Group: Growth and Employment in Europe: Sustainability and Competitiveness.

- BERTOLA, G., F. D. BLAU, AND L. M. KAHN (2001): “Comparative Analysis of Labor Market Outcomes: Lessons for the US from International Long-Run Evidence,” NBER Working Papers 8526, National Bureau of Economic Research, Inc.
- BISCOURP, P., AND F. KRAMARZ (2007): “Employment, skill structure and international trade: Firm-level evidence for France,” *Journal of International Economics*, 72(1), 22–51.
- BLANCHARD, O., AND J. WOLFERS (2000): “The Role of Shocks and Institutions in the Rise of European Unemployment: The Aggregate Evidence,” *Economic Journal*, 110(462), 1–33.
- BLINDER, A. S. (1988): “The challenge of high unemployment,” .
- (2009): “Offshoring: Big deal, or business as usual?,” *Offshoring of American jobs. What response from US economic policy*, pp. 19–60.
- BLINDER, A. S., AND A. B. KRUEGER (2013): “Alternative Measures of Offshorability: A Survey Approach,” *Journal of Labor Economics*, 31(S1), 97–128.
- BRAINARD, W. C., AND J. TOBIN (1992): “On the internationalization of portfolios,” *Oxford Economic Papers*, 44(4), 533–565.
- CANTWELL, J. (1994): *Surveys in International Trade* chap. The Relationship between International Trade and International Production, pp. 303–328. Blackwell, Oxford.
- CHEN, P., L. KARABARBOUNIS, AND B. NEIMAN (2017): “The global rise of corporate saving,” *Journal of Monetary Economics*.
- CHINN, M. D., AND H. ITO (2008): “A New Measure of Financial Openness,” *Journal of Comparative Policy Analysis: Research and Practice*, 10(3), 309–322.
- COMBES, J.-L., T. KINDA, AND P. PLANE (2012): “Capital flows, exchange rate flexibility, and the real exchange rate,” *Journal of Macroeconomics*, 34(4), 1034–1043.
- CRINÒ, R. (2009): “Offshoring, multinationals and labour market: a review of the empirical literature,” *Journal of Economic Surveys*, 23(2), 197–249.
- DADUSH, U. (2014): “The effect of low-skilled labor migration on the host economy,” *World Bank KNOMAD Working Paper Series*, (1).

- DAVIDSON, C., L. MARTIN, AND S. MATUSZ (1999): “Trade and search generated unemployment,” *Journal of International Economics*, 48(2), 271–299.
- DAVIDSON, C., AND S. J. MATUSZ (2004): *International trade and labor markets: Theory, evidence, and policy implications*. WE Upjohn Institute.
- DIWAN, I. (2001): “Debt as sweat: Labor, financial crises, and the globalization of capital,” Discussion paper, Mimeo, The World Bank.
- DOCQUIER, F., AND H. RAPOPORT (2012): “Globalization, brain drain, and development,” *Journal of Economic Literature*, 50(3), 681–730.
- DORNBUSCH, R., S. FISCHER, AND P. A. SAMUELSON (1977): “Comparative advantage, trade, and payments in a Ricardian model with a continuum of goods,” *The American Economic Review*, 67(5), 823–839.
- DREHER, A., AND N. GASTON (2007): “Has globalisation really had no effect on unions?,” *Kyklos*, 60(2), 165–186.
- (2008): “Has globalization increased inequality?,” *Review of International Economics*, 16(3), 516–536.
- DRIFFIELD, N., AND K. TAYLOR (2000): “FDI and the labour market: a review of the evidence and policy implications,” *Oxford Review of Economic Policy*, 16(3), 90–103.
- DUTT, P., D. MITRA, AND P. RANJAN (2009): “International trade and unemployment: Theory and cross-national evidence,” *Journal of International Economics*, 78(1), 32–44.
- EATWELL, J. (2000): “Unemployment: National policies in a global economy,” *International Journal of Manpower*, 21(5), 343–373.
- EATWELL, J., AND L. TAYLOR (2000): “Global Finance at Risk,” .
- EGGER, H., AND U. KREICKEMEIER (2007): “VFirm Heterogeneity and the Labour Market Effects of Trade Liberalisation,” Discussion paper, V CESifo Working Paper Series CESifo Working Paper.
- EICHENGREEN, B., J. TOBIN, AND C. WYPLOSZ (1995): “Two cases for sand in the wheels of international finance,” *The Economic Journal*, 105(428), 162–172.
- FELBERMAYR, G., J. PRAT, AND H.-J. SCHMERER (2011a): “Globalization and labor market outcomes: Wage bargaining, search frictions, and firm heterogeneity,” *Journal of Economic Theory*, 146(1), 39–73.

- FELBERMAYR, G., J. PRAT, AND H.-J. SCHMERER (2011b): “Trade and unemployment: What do the data say?,” *European Economic Review*, 55(6), 741–758.
- FELBERMAYR, G. J., M. LARCH, AND W. LECHTHALER (2013): “Unemployment in an interdependent world,” *American Economic Journal: Economic Policy*, 5(1), 262–301.
- FELDSTEIN, M. (1993): “The dollar and the trade deficit in the 1980s: A personal view,” Discussion paper, National Bureau of Economic Research.
- FIORI, G., G. NICOLETTI, S. SCARPETTA, AND F. SCHIANTARELLI (2007): “Employment outcomes and the interaction between product and labor market deregulation: are they substitutes or complements?,” .
- GLICKMAN, N. J., AND D. P. WOODWARD (1989): “The new competitors,” *Basic Book, New York (as found in Friedman J, Gerlowski DA, Silberman J (1992), p 409)*.
- GÖRG, H. (2011): “Globalization, offshoring and jobs,” *Making Globalization Socially Sustainable*, p. 21.
- GOZGOR, G. (2014): “The impact of trade openness on the unemployment rate in G7 countries,” *The Journal of International Trade & Economic Development*, 23(7), 1018–1037.
- GREENWALD, B., AND J. E. STIGLITZ (2006): “Helping infant economies grow: Foundations of trade policies for developing countries,” *The American Economic Review*, 96(2), 141–146.
- GROSSMAN, G. M. (1982): “The employment and wage effects of import competition in the United States,” .
- (1986): “Imports as a cause of injury: The case of the US steel industry,” *Journal of International Economics*, 20(3-4), 201–223.
- HELPMAN, E., AND O. ITSKHOKI (2010): “Labour Market Rigidities, Trade and Unemployment,” *Review of Economic Studies*, 77(3), 1100–1137.
- HENDRY, D. F., AND B. NIELSEN (2007): *Econometric modeling: a likelihood approach*. Princeton University Press.
- HIJZEN, A., R. UPWARD, AND P. W. WRIGHT (2010): “Job Creation, Job Destruction and the Role of Small Firms: Firm-Level Evidence for the UK,” *Oxford Bulletin of Economics and Statistics*, 72(5), 621–647.

- IBSEN, R., F. WARZYNSKI, AND N. WESTERGARD-NIELSEN (2009): “Employment Growth and International Trade: A Small Open Economy Perspective,” *Aarhus University, Aarhus School of Business Working Paper*, pp. 09–9.
- IMF (1997): *World Economic Outlook May 1997* chap. Meeting the challenges of globalization in the advanced economies, pp. 45–71. IMF, <http://www.imf.org/external/pubs/weomay/chapter3.pdf> edn.
- JANIAK, A. (2006): “Does Trade liberalization lead to unemployment? theory and some evidence. ECARES, Universite Libre de Bruxelles Working Paper,” .
- JAYADEV, A. (2007): “Capital account openness and the labour share of income,” *Cambridge Journal of Economics*, 31(3), 423–443.
- KAPLINSKY, R. (2000): “Globalisation and unequalisation: What can be learned from value chain analysis?,” *Journal of development studies*, 37(2), 117–146.
- KARABARBOUNIS, L., AND B. NEIMAN (2013): “The global decline of the labor share,” *The Quarterly Journal of Economics*, 129(1), 61–103.
- KEOHANE, R. O., AND J. S. NYE JR (2000): “Globalization: What’s new? What’s not?(And so what?),” *Foreign policy*, pp. 104–119.
- KEYNES, J. (1943): “Proposals for an International Clearing Union, Cmd. 6437,” .
- KLEIN, M. W., S. SCHUH, AND R. K. TRIEST (2003): “Job creation, job destruction, and the real exchange rate,” *Journal of International Economics*, 59(2), 239–265.
- KLETZER, L. G. (2000): “Trade and job loss in us. manufacturing, 1979-1994,” in *The impact of international trade on wages*, pp. 349–396. University of Chicago Press.
- KRAVIS, I., AND R. E. LIPSEY (1988): “The effect of multinational firms’ operations on their domestic employment,” .
- KRUGMAN, P. (2008): “TRADE AND WAGES, RECONSIDERED,” .
- KRUGMAN, P., AND A. J. VENABLES (1995): “Globalization and the Inequality of Nations,” NBER Working Papers 5098, National Bureau of Economic Research, Inc.
- LAFFINEUR, AND MOUHOUD (2015): “The jobs at risk from globalization: the French case,” *Review of World Economics*, 151(3), 477–531.

- LANE, P. R., AND G. M. MILESI-FERRETTI (2007): “The external wealth of nations mark II: Revised and extended estimates of foreign assets and liabilities, 1970–2004,” *Journal of International Economics*, 73(2), 223–250.
- LAYARD, R., S. NICKELL, AND R. JACKMAN (1991): *Unemployment: Macroeconomic Performance and the Labour Market*, no. 9780198284345 in OUP Catalogue. Oxford University Press.
- MELITZ, M. J. (2003): “The impact of trade on intra-industry reallocations and aggregate industry productivity,” *Econometrica*, 71(6), 1695–1725.
- MESSERLIN, P. (1995): “The impact of trade and capital movements on labour: evidence on the French case,” *OECD Economic Studies*, (24), 89–124.
- NICKELL, S., L. NUNZIATA, AND W. OCHEL (2005): “Unemployment in the OECD Since the 1960s. What Do We Know?,” *Economic Journal*, 115(500), 1–27.
- OECD (2010): *Measuring Globalisation: OECD Economic Globalisation Indicators 2010*. OECD.
- (2012): “Labour Losing to Capital: What Explains the Declining Labour Share?,” .
- PALMA, J. G. (2012): “How the full opening of the capital account to highly liquid financial markets led Latin America to two and a half cycles of ‘mania, panic and crash’,” .
- (2014): “De-industrialisation,?premature?de-industrialisation and the dutch-disease,” *Revista NECAT-Revista do Núcleo de Estudos de Economia Catarinense*, 3(5), 7–23.
- POTRAFKE, N. (2015): “The evidence on globalisation,” *The World Economy*, 38(3), 509–552.
- RODRIK, D. (1997): *Has Globalization Gone Too Far?* Peterson Institute for International Economics.
- SHI, S. (1997): “Tariffs, Unemployment, and the Current Account: An Intertemporal Equilibrium Model,” Working Papers 967, Queen’s University, Department of Economics.
- SPENCE, M. (2011): “The impact of globalization on income and employment: The downside of integrating markets,” *Foreign Affairs*, pp. 28–41.

- STIGLITZ, J. (2005): *Globalization: What's New?* chap. The Overselling of Globalization, pp. 228–262. Columbia University Press.
- STIGLITZ, J. E. (2002): *Globalization and Its Discontents*. W. W. Norton and Company.
- STIGLITZ, J. E. (2004): “Capital-market liberalization, globalization, and the IMF,” *Oxford Review of Economic Policy*, 20(1), 57–71.
- STIGLITZ, J. E. (2017): “The overselling of globalization,” *Business Economics*, 52(3), 129–137.
- TOBIN, J. (1982): “Money and finance in the macroeconomic process,” *Journal of money, credit and banking*, 14(2), 171–204.
- TREFLER, D. (2004): “The Long and Short of the Canada-U.S. Free Trade Agreement,” *The American Economic Review*, 94(4), 870–895.
- WOLSZCZAK-DERLACZ, J., AND A. PARTEKA (2015): “Does offshoring affect industry employment? Evidence from a wide European panel of countries,” *Journal of International Studies Vol*, 8(1).