Financial crises and social spending

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Abstract

This paper assesses the impact of financial crises on social spending and its components (healthcare, education, and social protection) on a panel of 108 countries for the years 1991-2019. An important novelty of this paper is that it tests for the distinct effects of different types of financial crises. Relying on a System-GMM estimator, we find that social spending – in particular, healthcare and social protection – increase when financial crises strike. This reaction is observed mainly in the aftermath of banking crises. However, debt crises tend to be detrimental for social spending, undermining social protection substantially and threatening social wellbeing. Furthermore, financial crises have a harmful effect on social expenditures in developing countries, deteriorating even more their living standards and welfare.

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1. Introduction

Financial crises not only have an immediate impact on economic activity but also a deep effect on people's lives. The social impact of financial crises has not received as much attention as the economic impact, but while the economy tends to recover relatively quickly, the social consequences may remain for a long time. Government policies may help to mitigate these consequences, or they can inflate them. The competing objectives of reducing the deficit and protecting citizens from the negative effects of a crisis are a big challenge for policymakers. If their priority during and in the aftermath of a crisis is to reduce spending, especially social spending, and restructure budgets to return to financial solvency, this might be a recipe for disaster with regard to the welfare of a society. How harmful this can be is an important question for which we do not have a clear answer. However, before being able to answer this question we need to understand how social spending reacts to financial crises.

Financial crises, which are episodic in nature, could be associated with permanent consequences. For example, during periods of financial crises, a modest reduction in food consumption for children in their early ages could permanently influence their cognitive and physical development (Lewis and Verhoeven, 2010). In this regard, increasing social spending is important to prevent an irreversible negative impact of financial crises on human development as it ensures that low-income groups have adequate consumption levels and basic social services (Lustig et al., 2000; Conceicao et al., 2011; Kiendrebeogo et al., 2017).

This brings us to the question of why many countries implemented drastic cuts in social spending despite the associated long-term consequences on future generations. Nevertheless, other countries did expand social protection to reduce the real effects of financial crises, but their reactions also raised several concerns. For example, Joseph Stiglitz points out that spending on social protection and unemployment schemes in the US during the Great Recession was not only too little, but also implemented too late and not well designed (Stiglitz,

2013). The same lesson can be witnessed in Latin American and Asian crises, which shown that most countries do not have appropriate instruments to shield low-income groups from real effects of financial crises (Lustig et al., 2000).

Despite these observations, little attention has been given in the literature to the effects of financial crises – especially different types of financial crises – on social spending and its components (healthcare, education, and social protection expenditures). Previous studies tend to focus on the change of social spending before and after the Great Recession of 2007/08 (see, for example, Otker-Robe and Podpiera, 2013; Kiendrebeogo et al., 2017; Lewis and Verhoeven, 2010; Prasad and Gerecke, 2010; McManus, 2019). One exception is Mohseni-Cheraghlou (2016), who examine how financial crises (banking and currency crises) affect human wellbeing by looking at government welfare expenditures on health, education, income, and suicide rate. Still, the author does not distinguish the effects of banking and currency crises on social spending, which means that the heterogeneous effects of different types of financial crises are ignored. Moreover, the author does not account for the effects of debt crises and twin and triple crises. This provides an incomplete picture of the impact of financial crises on welfare expenditures and wellbeing.

As a way of filling in this gap in the literature, this paper investigates the impact of different types of financial crises on public social spending using a sample of 108 countries over the period 1991-2019. Unlike Mohseni-Cheraghlou (2016), and most of the previous empirical works that focused essentially on social spending in the aftermath of financial crises in general or banking crises – especially in what regards the Great Recession of 2007/08 – we depart from them in terms of types of financial crises considered. In this study, we account for not only banking crises but also currency, debt, and twin and triple crises.[1] This is important

[1] The existing literature agrees on banking, currency and debt crises and their combinations (twin and triple crises) being the main types of financial crises (see Laeven and Valencia, 2020; Nguyen et al., 2020, 2021b).

as financial crises differ in terms of origin and scope. Understanding the reactions of governments to different types of financial crises will pave the way for a more detailed assessment on how harmful government conservatisms can be for social welfare in the aftermath of crises and, at the same time, help to shape appropriate policy measures aimed at alleviating the repercussions of financial crises and prevent them from leaving long-lasting consequences to future generations.

To gain a further insight into the relationship between different types of financial crises and social spending, we delve into the main components of social spending – education, healthcare, and social protection – allowing us to draw a more detailed picture of the relationship between financial crises, social spending, and government policies. Our findings could be of critical significance for policymakers to adjust their conservative approach in the aftermath of financial crises and to invest more in mitigating the adverse long-run effects of different types of financial crises on social welfare.

The rest of this paper is organised as follows. Section 2 provides a broad review of the literature around the link between financial crisis and social spending. Section 3 presents the data and describes the empirical methodology. The main findings are presented and discussed in Section 4, where some robustness checks are also provided. Finally, Section 5 concludes.

2. Literature review

While financial crises have been demonstrated to be associated with various short- and long-term consequences on various dimensions of human wellbeing (see, for example, Marmot et al., 2013; Rewilak, 2017; Nguyen et al., 2021a), there is also a considerable consensus in the literature that welfare state expansion in times of crisis help to alleviate those consequences by providing in-kind support to families (see Lewis and Verhoeven, 2010; Prasad and Gerecke, 2010; Marmot et al., 2013; Kiendrebeogo et al., 2017; Nguyen et al., 2021a). However, besides

some countries significantly expanding social spending to support their citizens – especially after the recent financial crisis (e.g. France, Italy, Spain, UK, among other developed countries) – what we mainly observe is that drastic welfare state retrenchments were implemented in many countries in the aftermath of financial crises despite the surging demand for social safety nets.[2] While this heterogeneous behaviour might be driven by fiscal constraints (Otker-Robe and Podpiera, 2013; Rewilak, 2018; Nguyen et al., 2021a) and political factors (McManus, 2017; Gautam, 2020), little attention has been given to the different types of financial crises. In what follows, we shed more light on this dimension by providing a brief summary on how banking, currency, and debt crises can affect social spending.

Banking crises can deteriorate human wellbeing through an income effect, which is a result of income losses associated with a slump in the economic activity, collapse of the payment system, and credit crunch (Nikoloski, 2011). This income effect, which affects both formal and informal sectors, can be explained by a decline in real wages and long-term unemployment due to jobs losses when firms shrink their operations or closedown during periods of banking crises. Credit crunch along with tightening lending standards in the banking sector not only increase unemployment when firms face more difficulties to finance their operations and pursue their projects, but also put an additional strain on the ability of low-income groups to borrow from banks for their consumption (Fallon and Lucas, 2002; Nikoloski, 2010). Consequently, the demand for social protection will surge during periods of banking crises. In response to this demand, most countries increase social spending to reduce the negative impact of financial crises on human wellbeing. For example, most Asian developing countries expanded welfare spending during the Great Recession (Wan and Francisco, 2009).

[2] This has been the case mainly in developing countries, but Greece and Portugal are two examples of developed countries that suffered cutbacks is social spending (among other areas) as consequence of the derail of their public accounts in the aftermath of the recent financial crisis.

However, not all countries respond to banking crises in a similar way. This heterogeneous behaviour can be driven by countries' income levels. Low-income and indebted countries may implement austerity programmes as they do not have sufficient resources to finance costly crisis mitigation policies and welfare expansion programmes (Conceicao et al., 2011; Nguyen et al., 2021a). In contrast, high-income countries tend to respond to financial crises more aggressively (Mohseni-Cheraghlou, 2016; Kiendrebeogo et al., 2017). Furthermore, many countries initially expanded their welfare programmes, but those programmes were short-lived and replaced by long-lasting austerity programmes due to the rapid escalation of debt and deficit (Nguyen et al., 2021a). This was clear in Greece, Iceland, Ireland, Portugal, and Spain during and after the Great Recession. Thus, many crisis-hit countries implemented drastic austerity programmes in the hope of reducing the financial burden. These actions might have disproportionally affected the more vulnerable individuals and irreversibly undermined wellbeing.

Currency crises are harmful to the poor as the depreciation of the domestic currency will increase the price of imported goods, especially those with an inelastic demand such as food and energy (Fallon and Lucas, 2002; Nguyen et al., 2021a). While low-income households can borrow money to smooth their consumption, increasing the interest rate – a standard measure to respond to currency crises – causes more damage to those households as they will be under greater burden on their debts. In this regard, governments should expand welfare programmes that provide safety nets to low-income groups. However, this not always happens in practice due to two main reasons: (i) unlike banking crises, currency crises are a phenomenon of low- and middle-income countries (Nguyen et al., 2020, 2021b), where the resources for welfare expansion and social assistance during crisis episodes could be limited (Lewis and Verhoeven, 2010; Mohseni-Cheraghlou, 2016); and (ii) not all low-income groups suffer from currency crises. In fact, by depreciating the domestic currency, currency crises benefit

employment in tradable sectors due to an increased demand for exports (Nikoloski, 2010; Kiendrebeogo et al., 2017).

Debt crises, regardless their internal or external origins, could be associated with spending cuts for debt repayments (Kiendrebeogo et al., 2017; Rewilak, 2018). In fact, governments can increase taxes and/or reduce spending to repay their debts. The latter option, which includes social spending cuts, is more likely to be chosen as it is more effective and less harmful to the economy (Lobao et al., 2018; Nguyen et al., 2021a). It is also easier to implement spending cuts as low-income groups do not usually form large-organised groups, which means that they lack political voice to influence political decisions (Lustig et al., 2000). Thus, welfare state retrenchment tends to be implemented in times of debt crisis, despite their negative impact on vulnerable groups, who are more dependent on social protection. This could be more pronounced in countries receiving financial aid from external organisations, such as the IMF and ECB, as these organisations may require the implementation of drastic welfare state reforms as a condition for their financial support (Nguyen et al., 2021a).

Despite these observed interrelations, little attention has been given in the literature to the effects of financial crises – especially different types of financial crises – on social spending and its components (healthcare, education, and social protection expenditures). This study aims at filling in this gap in the literature by assessing the impact of different types of financial crises on public social spending and its components using a sample of 108 countries over the period 1991-2019. Understanding these relationships is critical to shape appropriate policy measures to avoid welfare losses and to mitigate any long-lasting consequences of financial crises.

3. Data and methodology

In this section, we present the data, describing the variables and respective sources, and provide some descriptive statistics. Then we introduce the methodological approach used in the empirical analysis.

3.1. Data

To assess the impact of financial crises on social spending, we gather annual data for a panel of 108 countries over the period 1991-2019. Countries were selected according to the availability of data.[3]

Data for social spending and its components (healthcare, education, social protection) as percentage of GDP are obtained from the International Monetary Fund Government Finance Statistics (IMF-GFS). In line with the literature discussed above, we created the following variables to account for the impact of financial crises on social spending: *Banking crisis*, *Currency crisis*, *Debt crisis*, *Twin and triple crises*, and *All crises*. These are dummy variables that take the values of 1 for the respective episodes, and 0 otherwise.[4]

These types of financial crises could have heterogeneous effects on social spending. While we conjecture that banking crises have a positive impact on social spending as governments expand their welfare programmes to protect their citizens against economic shocks (Lewis and Verhoeven, 2010; Prasad and Gerecke, 2010), debt crises could be associated with lower social spending due to fiscal pressures (Kiendrebeogo et al., 2017; Rewilak, 2018). Ambiguities remain on the effects of currency crises on welfare expenditure

[3] The list of 108 countries used in the estimations is provided at the bottom of Table 1.

[4] For example, *All crises* dummy variable takes the values of 1 for crisis episodes of any type of financial crisis, and 0 otherwise. Data for these variables is obtained from Nguyen et al. (2021b). The use of binary financial crises variables may reduce the variation in the data and the explanatory power of the model. However, this simplification is enough to assess a meaningful reaction of social spending to periods of financial crises. Also note that twin and triple crises occur when a financial crisis coincides or is preceded by another/other types of financial crises within one year.

as these crises could hurt the poor (Fallon and Lucas, 2002; Nguyen et al., 2021a) but also benefit exporters (Nikoloski, 2010; Kiendrebeogo et al., 2017).

Considering that advanced and emerging/developing countries may respond to financial crises differently, we also explore whether the potential heterogeneous effects of financial crises on social spending are driven by country income levels. Figure 1 provides some examples that give support to this expectation: social spending rises during financial crises in advanced countries (e.g. US, Germany and UK), while the opposite trend is observed in some developing countries over the period 1990-2019 (e.g. Sri Lank, Bulgaria, Uruguay).

[Insert Figure 1 around here]

In addition to our crisis variables of interest identified above, several traditional socio-economic and political drivers of social spending are also accounted for, such as:[5]

Unemployment: Unemployment rate. According to McManus (2019) and Kerstenetzky and Guedes (2020), an increase in this variable is expected to foster social spending due to the increase in social protection benefits for unemployed.

FDI: Foreign direct investment as a percentage of GDP. As a higher level of FDI will benefit domestic production and economic growth (Solow, 1957; Anderson, 1990; Martins and Veiga, 2014), we anticipate it may have a positive impact on social spending, especially on education and health.

Trade openness: Sum of imports and exports as a percentage of GDP. The effects of economic openness on social spending are ambiguous as there are disagreements about the efficiency hypothesis versus the compensation hypothesis (Huber and Stephens, 2001; Brown and Hunter, 1999; Lobao et al., 2018).

[5] For references from the literature, for example, Huber et al. (2008), Lobao et al., (2018), and McManus (2019). Data for these control variables were obtained from several sources. See Table 1 for further details.

LnGDPpc: The natural logarithm of real GDP per capita. Countries with higher levels of GDP per capita tend to be characterised by more generous welfare state (Mohseni-Cheraghlou, 2016; Kiendrebeogo et al., 2017), so we expect that social spending is higher when GDP per capita increases.

Age 65 above: Population ages 65 and above as a percentage of total population. It is expected that the higher the percentage of older people, the greater social spending will be (McManus, 2019).

Democracy: This variable measures the level of democracy in a country. The respective index ranges from -10 to 10, with higher values indicating stronger democracy. More democratic regimes are expected to benefit higher levels of social spending since intense electoral democratic competition promotes the responses of governments to citizen needs (Brown and Hunter, 1999; Huber et al., 2008).

Right-wing government: Dummy variable that is equal to 1 when the ruling government is right-wing, and 0 otherwise. Similar, *Centre* and *Left-wing* dummies are also considered. Right-wing governments, that traditionally represent the interests of middle and upper-class voters and favour balanced budgets and lean welfare states (Huber et al., 2008; Savage, 2019), are expected to be more conservative in what regards to social spending than centre and left-wing governments. The latter, in particular, are known by favouring higher public social expenditure and generous and redistributive welfare states (Garrett and Mitchell, 2001; McManus, 2017).

Election: Dummy variable that takes the value of 1 in election years, and 0 otherwise. In line with the political business cycles theory and the works of Shi and Svensson (2006), Bohn (2018), and Castro and Martins (2018a, b), we expect that social spending will be higher during election periods due to the short-term opportunistic effects.

Table 1 provides a description of all variables used in this study as well as the respective sources. Descriptive statistics for those variables are reported in Table A1 in Appendix.

[Insert Table 1 around here]

3.2. Methodology

The following dynamic panel data specification is considered to assess the impact of financial crises on social spending (and its components):

$$SocSpend_{it} = \rho SocSpend_{it-1} + \beta FinCrises_{it-1} + \boldsymbol{\gamma SocEco}_{it-1} + \boldsymbol{\delta Pol}_{it} + \alpha_i + \tau_t + \varepsilon_{it}$$

where $i = 1, \dots, 108$ and $t = 1991, \dots, 2019$.[6] The coefficient on the lag of the dependent variable (ρ) measures its persistence. The coefficient β captures the effect of financial crises (*Banking crisis*, *Currency crisis*, *Debt crisis*, *Twin and triple crises*, and *All crises*) on social spending, while the vectors $\boldsymbol{\gamma}$ and $\boldsymbol{\delta}$ assess the effect of the socio-economic (***SocEco***) and political (***Pol***) factors described above; α_i represents unobserved country-specific effects, while τ_t captures time-effects like global shocks, institutional and socio-economic changes or technological progress no accounted for in our set of variables;[7] finally, ε_{it} is the usual error term.

Given the presence of individual effects, α_i, the model can be estimated assuming those effects as fixed or random. However, the lagged value of the dependent variable would be correlated with the error term even if the latter is not serially correlated. This implies that OLS estimates (random or fixed effects) will be biased and inconsistent (Baltagi, 2013). As the number of individuals is relatively high in comparison with the time period considered, we rely

[6] A similar specification is employed in the estimations for the components of *Social Spending*, where *SocSpend* is successively replaced by *Healthcare Spending, Education Spending,* and *Social Protection Spending*. Financial crises dummies are lagged one period to account for the time it takes policymakers to discuss and approve changes to social expenditures; economic variables are also lagged to take into account the usual delay in reporting economic data and to avoid simultaneity problems.

[7] Given the relatively high number of time periods (and to avoid the proliferation of instruments in the estimator used), these time effects are captured by including a *trend* in the specification.

on a generalized method of moments (GMM) estimator to address the bias problem, thus allowing for a more consistent and efficient way of estimating dynamic models (Arellano and Bond,1991; Arellano and Bover, 1995; and Blundell and Bond, 1998). While the GMM approach yields consistent estimators, the original difference-GMM estimators developed by Holtz-Eakin *et al.* (1988) and Arellano and Bond (1991) may suffer from finite sample biases. These biases arise particularly when time series are persistent. Arellano and Bover (1995) and Blundell and Bond (1998) recommend additional moment conditions, since – as long as they are valid – they increase the efficiency of the estimators. This system-GMM estimator allows for higher accuracy and reduced finite sample bias (Bond, 2002; Baltagi, 2013).[8] To avoid over-fitting biases, instruments are collapsed as suggested by Roodman (2009a, b). Moreover, equally to avoid the proliferation of instruments, we treat only the lag of the dependent variable and financial crises as endogenous.[9]

4. Empirical analysis

This section begins with the discussion of the general results from the estimation of the model over social spending. Then we move to a closer analysis of the effects of financial crises on the components of social spending. Finally, we assess whether the results vary between developed and developing/emerging countries.

[8] A two-step approach is used in the estimation of our system-GMM estimator. For this estimator to be valid, it requires the stationarity of the variables and the lack of correlation between the first differences of the instruments and the specific effects (Baltagi, 2013). ADF Fisher-type panel unit root tests were performed for the dependent and independent variables used in this study. The results showed that the null hypothesis that all panels contain unit roots is rejected for all the variables that we use in our regressions. Those results are not reported here but they are available upon request.

[9] The lag of *SocSpend* and *FinCrises* are instrumented with their lags in the first-difference and level equations while the exogenous variables are instrumented with their own values. In additional robustness checks, we also treat the *Log GDP per capita* as endogenous to mitigate the problem of reverse causality further.

4.1. Main results

Table 2 reports the results for the effects of financial crises and its types on expenditures as percentage of GDP. Two-step results using robust standard errors corrected for finite samples (Windmeijer, 2005) are reported in parenthesis and the respective significance level is indicated with asterisks. The number of observations, countries, instruments, *p*-values for the serial correlation, Hansen, and Difference-in-Hansen tests are reported at the bottom of the table. These tests support the dynamic specification employed and the validity of the instruments used.

[Insert Table 2 around here]

The results show that social expenditures are higher when financial crises strike. As expected, governments tend to react to financial crises by boosting social spending to accommodate for welfare and job losses. In particular, we observe that social expenditures as percentage of GDP are on average around 0.86 points higher during financial crises, *ceteris paribus*. This is the short-run effect, but in the long run the impact is even higher: 4.3 (=0.86/(1-0.801)). Hence, financial crises lead to a 4.3 percentage points increase in social spending in the long run. This means that governments are sensitive to the social effects of financial crises and try to accommodate them in their social policy measures. Nevertheless, two main questions remain to be answered: (i) Is this positive effect observed for any type of financial crises? (ii) Which components of social spending are more substantially boosted to counteract the negative social effects of financial crises? While the answer to the former question is given in Table 2, the answer to the latter will be given in the next subsection.

Our results show that the positive effect identified above is mainly driven by banking crises. In other words, governments tend to increase social spending mainly to neutralise the negative social consequences of banking crises. This result is consistent with the observation that a significant number of countries expanded welfare spending during the Great Recession

(Wan and Francisco, 2009). In addition, it is likely that they are in a better financial position to do so than when they are dealing with a debt crisis. In fact, debt crises prompt a different reaction as spending cuts to bring the public deficit and debt under control end up impacting social expenditures negatively. Thus, welfare state retrenchment tends to be implemented in times of debt crisis, despite their negative impact on vulnerable groups, who are more dependent on social protection. Therefore, these crises are the ones that will undermine the most social wellbeing and welfare, with nefarious consequences for future generations. This effect can be even more pronounced when countries receive financial aid from external organisations, as they usually require the implementation of drastic welfare state reforms as a condition for their financial support (Nguyen et al., 2021a).

Regarding currency crises, no significant effect is found. While they are harmful as the depreciation of the domestic currency will increase the price of imported goods (Fallon and Lucas, 2002; Nguyen et al., 2021a), that same depreciation can benefit employment in tradable sectors due to an increased demand for exports (Nikoloski, 2010; Kiendrebeogo et al., 2017). Therefore, on average, the effect negative effect can be cancelled. This is precisely the direction at which our results are pointing out.

Finally, twin and triple crises do not lead to a significant change in social spending. This might be the case because debt crises following banking crises might be cancelling any of the previous positive effects. In fact, the initial social measures implemented by countries like Portugal and Spain in the aftermath of the Great Recession, and promoted by the European Commission, had to be reversed later on when they had to accommodate a subsequent debt crisis.

In what regards to the control variables, while no significant effects are found for *Unemployment*, *Trade openness* and *FDI*, the other factors provide interesting and significant results. More specifically, higher levels of GDP per capita are positively associated with more

social spending, corroborating the idea that countries with higher income levels tend to have more generous welfare systems (Cheraghlou, 2016; Kiendrebeogo et al., 2017). As expected, a higher percentage of elderly people in a society leads to higher levels of social expenditures, which we anticipate being due to their greater needs for healthcare and social protection.

More democratic regimes have also proved to benefit higher levels of social spending. In fact, intense electoral democratic competition is expected to promote the selection of more competent executives and to the implementation of more efficient social policies (Brown and Hunter, 1999; Huber et al., 2008). Our results also confirm that social spending is lower under more conservative right-wing governments – which tend to favour balanced budgets and lean welfare states (Huber et al., 2008; Savage, 2019) – than under left-wing ones (and even centre parties). This is not surprising as left-wing governments are known for promoting generous and redistributive welfare policies (Garrett and Mitchell, 2001; McManus, 2017). The results for electoral cycle are also in line with the literature (Shi and Svensson, 2006; Bohn, 2018; Castro and Martins, 2018a, b, among others), confirming our expectation that social spending is higher during election periods, making clear the short-term opportunistic effects associated to these expenditures (Castro and Martins, 2018b).[10]

4.2. Components of social spending

The results found so far establish a robust relationship between financial crises and social spending. Now we can proceed with our analysis to find an answer to the second question we raised above: Which components of social spending are more substantially boosted to counteract the negative social effects of financial crises? The results that will helps us to

[10] Our findings for the effects of financial crises and control variables remain valid even when we use contemporaneous values for the financial crisis dummies or when treat the lag of *LnGDPpc* as endogenous (see Tables A2 and A3 in Appendix for further details).

address this question are presented in Tables 3 to 5. We start by looking at the findings from the healthcare spending estimation reported in Table 3.

[Insert Table 3 around here]

Overall, financial crises also boost healthcare spending, despite the magnitude of the coefficient on *All crises* is smaller than the one observed above for *Social spending*. In particular, this kind of expenditures increase with banking crises, but they are also boosted by the occurrence of currency crises. This evidence is in line with Prasad and Gerecke (2010) who argue that governments – especially those in democratic regimes – tend to protect social spending in health in times of crisis.

In what regards to the control variables, we confirm that higher levels of income per capita and elderly population are associated with more healthcare spending. Our results also show that healthcare spending benefits from highly democratic regimes and left-wing governments. The electoral cycle effects have not proved to be as strong in this case.

The results for education spending revealed to be the weakest (see Table 4). In particular, financial crises only have a marginally significant impact on education spending. This seems to be in line with the reasoning that while education expenditures are often more protected during periods of financial crises, they are not the social expenditures that need to be boosted in face of a crises to mitigate the social problems it causes. Many countries successfully kept the same level of education spending in the aftermath of the Great Recession such as Singapore, Mexico, Kenya, and Namibia (UNESCO, 2009). Hence, financial crises do not have a significant impact on education spending.

[Insert Table 4 around here]

While education spending benefits from higher levels of GDP per capita, it is not influenced by the percentage of elderly population. Despite the results for the political factors

being weaker, they show that the level of democracy, left-wing governments, and elections impact education spending positively.

Finally, the results for social protection spending reported in Table 5 mirror quite closely the ones for social spending. This is a clear indication that the reaction of social expenditures to financial crises is mainly driven by the required increase in social protection expenditures to mitigate their negative consequences to the society, and especially those more vulnerable citizens (Gautam, 2020).

[Insert Table 5 around here]

Social protection expenditures increase during financial crises, mainly in the aftermath of banking crises. However, if a country is dealing with a debt crisis, social protection is undermined by the spending cuts implemented by the government to control the spiral in public deficit and debt. Again, these crises end up being the ones to have the greater negative consequences on social wellbeing and welfare.

4.3. Developed versus developing countries

According to Starke (2006) and Lobao et al. (2018), social spending tends to be higher in high-income countries than in low-income ones. Therefore, we can assume that social spending response to financial crises could also be driven by the level of economic development. Conceicao et al. (2011) and Lewis and Verhoeven (2010) suggest that low-income countries are more likely to curtail spending in times of crisis. In contrast, upper-middle- and high-income countries tend to increase their social spending. Lower-middle-income countries tend to fall somewhere in between. Similarly, Mohseni-Cheraghlou (2016) finds that social spending declines stronger in the aftermath of financial crises in low- and middle-income countries when compared to high-income countries. Taking this literature into consideration, we split our sample in two groups: developed and developing/emerging

countries.[11] This separation in the analysis is essential to disentangle potential opposite effects of financial crises on social spending and, most importantly, uncover its origin in what concerns to the type of crises that generate those effects.

The results of this separate analysis are presented in table 6. They reinforce our main findings on the positive effect of financial crises (and banking crises, in particular) on social spending for the group of developed countries.[12] However, social spending in developing countries is negatively affected by financial crises, especially banking and debt crises. Therefore, financial crises will have substantial detrimental social consequences on the most vulnerable citizens in these countries, affecting even more their social development. One explanation for this problem might be the fact that mitigation policies to fight the crisis in these countries tend to be inefficient due to fiscal constraints (Lewis and Verhoeven, 2010; Prasad and Gerecke, 2010; Kiendrebeogo et al., 2017) and institutional conflicts (Ferreira and Schady, 2009).

[Insert Table 6 around here]

Finally, while the effects from the political variables remain quite similar and in line with our findings above, the results for some economic variables vary slightly: aging population is a more relevant factor for social spending in developing economies. Trade openness and FDI are negatively associated with social spending in advanced economies, which lend support to the efficiency hypothesis (Huber and Stephens, 2001; Lobao et al., 2018). In particular, governments tend to enhance market efficiency and the competitive power of domestic producers by lowering taxes and social spending.

[11] The classifications of advanced and emerging/developing countries are available at: https://www.imf.org/external/pubs/ft/weo/2018/02/weodata/groups.htm

[12] Due to the small number of episodes of banking, currency and twin/triple crises for developed countries, we were not able to estimate the respective models for those cases.

5. Conclusions

This study provides some new insights on the effects of financial crises on social expenditures and three of its main components: healthcare, education and social protection. In particular, we assess the role that different types of crises play on social spending.

Relying on a sample of 108 countries over the period 1991-2019 and using a system-GMM estimator we find that social spending (and its components) increases when financial crises strike. The novelty of this study is that it shows that this effect is mainly observed during banking crises. When a country is dealing with a debt crisis and has to implement cuts in expenditures or austerity measures to control public deficit and debt, social expenditures are one area that is substantially affected, in particular health care and social protection. Therefore, we conclude that debt crises end up undermining social protection and threatening social wellbeing. Furthermore, while advanced countries react positively to financial crises by increasing social spending to protect the most vulnerable, these crises tend to have a detrimental impact on social expenditures in developing countries, deteriorating even more the quality of living of their citizens.

The practical implications of our results introduce grounds for caution regarding the effect of debt crises on social welfare. An important policy implication arising from our analysis is that governments should maintain a high level of fiscal balance for financing welfare state expansion programmes during periods of financial crises, especially in what regards to those in emerging/developing countries. Moreover, a long-term welfare development programme is needed to ensure that welfare expenditure is less influenced by any type of financial crisis. Governments should also promote private social expenditure (such as private health insurance, early childhood education, care for children and elderly, private pension provision, and other social benefits) to share the budget burden in times of crisis.

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TABLES

Table 1. Description of variables

Variable	Definition	Sources
Dependent variables		
Social spending	Total social spending as a percentage of GDP	Government Finance Statistics (IMF-GFS)
Healthcare spending	Healthcare expenditure as a percentage of GDP	IMG-GFS
Education spending	Education expenditure as a percentage of GDP	IMF-GFS
Social protection spending	Social protection expenditure as a percentage of GDP	IMF-GFS
Crisis variables		
Banking crisis	Dummy variables that is equal to 1 for banking crisis episodes and 0 otherwise.	Nguyen et al. (2021)
Currency crisis	Dummy variables that is equal to 1 for currency crisis episodes and 0 otherwise.	Nguyen et al. (2021)
Debt crisis	Dummy variables that is equal to 1 for sovereign debt crisis episodes and 0 otherwise.	Nguyen et al. (2021)
Twin and triple crises	Dummy variables that is equal to 1 for twin and triple crises episodes and 0 otherwise.	Nguyen et al. (2021)
All crises	Dummy variables that is equal to 1 for crisis crises episodes and 0 otherwise.	Nguyen et al. (2021)
Control variables		
Unemployment	Unemployment rate	World Development Indicator (WDI)
FDI	Foreign direct investment as a percentage of GDP	WDI
Trade openness	Sum of imports and exports to GDP	WDI
LnGDPpc	The natural logarithm of GDP per capita	WDI
Age 65 above	Population ages 65 and above as a percentage of total population	WDI
Democracy	Measures the level of democracy in a country. The index ranges from -10 to 10 with higher values indicating higher levels of democracy.	Polity IV Database
Right-wing government	Dummy variable that is equal to 1 when the ruling government is right-wing and 0 otherwise	Database of Political Institutions (DPI)
Centre government	Dummy variable that is equal to 1 when the ruling government is centrist and 0 otherwise.	DPI
Election	Dummy variables that is equal to 1 for election years and 0 otherwise.	DPI

Notes: Descriptive statistics for the 108 countries considered over the period 1991-2019. The list of countries is the following: Albania, Algeria, Angola, Argentina, Armenia, Australia, Austria, Belarus, Belgium, Bolivia, Botswana, Brazil, Bulgaria, Burkina Faso, Burundi, Cabo Verde, Cameroon, Canada, Chile, China, Colombia, Democratic Republic of the Congo, Republic of the Congo, Costa Rica, Croatia, Cyprus, Czech Republic, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Ethiopia, Fiji, Finland, France, Georgia, Germany, Ghana, Greece, Guatemala, Haiti, Honduras, Hungary, India, Indonesia, Iran, Ireland, Israel, Italy, Jamaica, Japan, Kenya, Korea, Kyrgyz Republic, Latvia, Lebanon, Liberia, Lithuania, Luxembourg, Madagascar, Malaysia, Mexico, Moldova, Mongolia, Morocco, Mozambique, Myanmar, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Nigeria, Norway, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Romania, Russian Federation, Senegal, Singapore, Slovak Republic, Slovenia, South Africa, Spain, Sri Lanka, Sudan, Sweden, Tajikistan, Thailand, Tunisia, Turkey, Uganda, Ukraine, United Kingdom, United States, Uruguay, Uzbekistan, Venezuela, Vietnam, Zambia, and Zimbabwe.

Table 2. Financial crises and social spending

	(1)	(2)	(3)	(4)	(5)
L.Social spending	0.801***	0.766***	0.816***	0.787***	0.799***
	(0.044)	(0.047)	(0.053)	(0.045)	(0.049)
All crises	0.862***				
	(0.210)				
Banking crisis		0.669**			
		(0.305)			
Currency crisis			0.559		
			(0.499)		
Debt crisis				-0.661**	
				(0.327)	
Twin and triple crises					-0.685
					(0.852)
Unemployment	-0.0079	0.0014	-0.0060	0.0310*	-0.0085
	(0.0168)	(0.0185)	(0.0163)	(0.0172)	(0.0215)
Trade openness	-0.0010	-0.0015	-0.0014*	-0.0013*	-0.0013
	(0.0006)	(0.0010)	(0.0008)	(0.0008)	(0.0008)
FDI	-0.0011	-0.0035	-0.0010	-0.0013	-0.0010
	(0.0031)	(0.0032)	(0.0028)	(0.0033)	(0.0034)
LnGDPpc	0.589***	0.533***	0.446***	0.452**	0.460***
	(0.159)	(0.152)	(0.149)	(0.184)	(0.151)
Age 65 above	0.222***	0.266***	0.208***	0.242***	0.222***
	(0.056)	(0.058)	(0.065)	(0.058)	(0.061)
Democracy	0.062**	0.062**	0.050**	0.050*	0.056**
	(0.031)	(0.025)	(0.020)	(0.027)	(0.023)
Right	-0.432***	-0.574***	-0.438***	-0.419***	-0.440***
	(0.137)	(0.145)	(0.135)	(0.154)	(0.156)
Centre	-0.182	-0.228	-0.185	-0.278	-0.156
	(0.213)	(0.225)	(0.192)	(0.232)	(0.260)
Election	0.130*	0.137**	0.148*	0.121*	0.152*
	(0.072)	(0.0670)	(0.078)	(0.066)	(0.081)
Time effects	Yes	Yes	Yes	Yes	Yes
Observations	1632	1632	1615	1659	1632
Countries	108	108	108	108	108
Instruments	106	81	106	99	86
AR(2)	0.249	0.246	0.243	0.249	0.245
Hansen J	0.404	0.657	0.424	0.520	0.410
Diff-Hansen 1	0.349	0.647	0.427	0.566	0.423
Diff-Hansen 2	0.387	0.545	0.471	0.611	0.340

Notes: See Table 1 for the definition of the variables. Two-step system-GMM estimations using robust standard errors corrected for finite samples (standard errors in parentheses). Significance levels at which the null hypothesis is rejected: ***, 1%; **, 5%; and *, 10%. Financial crises dummies and economic variables are lagged. The lag of the dependent variable and financial crises variables are treated as endogenous in the GMM estimations; the respective lagged values and the other explanatory variables are used as instruments in the first-difference equation and their differences are used in the levels equation; they were collapsed to avoid the problem of having too many instruments. The values reported for AR(2) are the p-values of the Arellano-Bond tests for the second order auto-correlated disturbances in the first differences equations. The Hansen test reports the *p*-value for the null hypothesis of instrument validity; Diff-Hansen1 tests the exogeneity of the instruments used in the level part (of the system) as a whole. Diff-Hansen 2 tests the exogeneity of the lagged level of social spending used as an instrument in the level part.

Table 3. Financial crises and healthcare spending

	(1)	(2)	(3)	(4)	(5)
L.Healthcare spending	0.630***	0.639***	0.694***	0.692***	0.687***
	(0.104)	(0.111)	(0.092)	(0.100)	(0.103)
All crises	0.230***				
	(0.062)				
Banking crisis		0.185**			
		(0.087)			
Currency crisis			0.262**		
			(0.126)		
Debt crisis				-0.0172	
				(0.112)	
Twin and triple crises					-0.146
					(0.264)
Unemployment	-0.0080	-0.0068	-0.0068	-0.0057	-0.0118
	(0.0079)	(0.0076)	(0.0064)	(0.0071)	(0.0075)
Trade openness	-0.0009	-0.0006	-0.00017	-0.0005	-0.0004
	(0.0013)	(0.0013)	(0.0010)	(0.0011)	(0.0010)
FDI	-0.0007	-0.0009	-0.0003	-0.0005	-0.0005
	(0.0006)	(0.0007)	(0.0003)	(0.0005)	(0.0005)
LnGDPpc	0.234***	0.214***	0.196***	0.189***	0.199**
	(0.079)	(0.080)	(0.063)	(0.072)	(0.082)
Age 65 above	0.087***	0.084***	0.071***	0.073***	0.068***
	(0.025)	(0.028)	(0.022)	(0.026)	(0.023)
Democracy	0.035***	0.032***	0.023***	0.029***	0.032***
	(0.010)	(0.010)	(0.009)	(0.008)	(0.010)
Right	-0.159**	-0.156***	-0.142***	-0.116**	-0.121**
	(0.066)	(0.057)	(0.053)	(0.056)	(0.058)
Centre	-0.249**	-0.229**	-0.220**	-0.208*	-0.218**
	(0.112)	(0.100)	(0.0960)	(0.110)	(0.107)
Election	0.025	0.030*	0.029*	0.027	0.028*
	(0.018)	(0.016)	(0.017)	(0.017)	(0.017)
Time effects	Yes	Yes	Yes	Yes	Yes
Observations	1630	1630	1613	1630	1630
Countries	108	108	108	108	108
Instruments	106	81	106	98	86
AR(2)	0.923	0.890	0.920	0.923	0.917
Hansen J	0.524	0.540	0.435	0.542	0.525
Diff-Hansen 1	0.494	0.520	0.422	0.537	0.480
Diff-Hansen 2	0.496	0.500	0.420	0.409	0.468

Notes: See Tables 1 and 2.

Table 4. Financial crises and education spending

	(1)	(2)	(3)	(4)	(5)
L.Education spending	0.734***	0.768***	0.713***	0.734***	0.784***
	(0.076)	(0.079)	(0.068)	(0.090)	(0.080)
All crises	0.127*				
	(0.076)				
Banking crisis		0.002			
		(0.115)			
Currency crisis			0.397*		
			(0.208)		
Debt crisis				0.094	
				(0.129)	
Twin and triple crises					-0.038
					(0.312)
Unemployment	0.0099	0.0106	0.0122	0.0116	0.0044
	(0.0094)	(0.0092)	(0.0093)	(0.0099)	(0.0079)
Trade openness	0.0009	0.0002	0.0012	0.0008	0.0009
	(0.0009)	(0.0009)	(0.0011)	(0.0009)	(0.0008)
FDI	0.0001	0.0004	0.0004	0.0002	0.0001
	(0.0004)	(0.0004)	(0.0005)	(0.0005)	(0.0004)
LnGDPpc	0.0883*	0.0945*	0.0999**	0.0951*	0.0797*
	(0.0494)	(0.0570)	(0.0483)	(0.0559)	(0.0459)
Age 65 above	0.0058	0.0056	0.0050	0.0096	0.0027
	(0.0110)	(0.0109)	(0.0109)	(0.0112)	(0.0083)
Democracy	0.0236**	0.0267**	0.0273***	0.0224**	0.0206**
	(0.0106)	(0.0101)	(0.0105)	(0.0112)	(0.00809)
Right	-0.1071*	-0.0972*	-0.1182*	-0.1133*	-0.0880*
	(0.0572)	(0.0589)	(0.0602)	(0.0601)	(0.0496)
Centre	-0.1161	-0.0736	-0.129	-0.118	-0.0964
	(0.0831)	(0.0823)	(0.0819)	(0.0782)	(0.0741)
Election	0.0441*	0.0443*	0.0475*	0.0440**	0.0557**
	(0.0235)	(0.0246)	(0.0253)	(0.0221)	(0.0260)
Time effects	Yes	Yes	Yes	Yes	Yes
Observations	1630	1633	1613	1630	1600
Countries	108	108	108	108	108
Instruments	106	81	106	98	85
AR(2)	0.314	0.330	0.362	0.347	0.329
Hansen J	0.352	0.228	0.546	0.461	0.498
Diff-Hansen 1	0.302	0.271	0.516	0.441	0.449
Diff-Hansen 2	0.335	0.325	0.508	0.329	0.262

Notes: See Tables 1 and 2.

Table 5. Financial crises and social protection spending

	(1)	(2)	(3)	(4)	(5)
L.Social protection spending	0.822***	0.809***	0.835***	0.815***	0.821***
	(0.088)	(0.080)	(0.097)	(0.095)	(0.111)
All crises	0.599***				
	(0.164)				
Banking crisis		0.461***			
		(0.175)			
Currency crisis			-0.508		
			(0.351)		
Debt crisis				-0.575**	
				(0.238)	
Twin and triple crises					-0.530
					(0.486)
Unemployment	-0.0136	-0.0102	-0.0099	-0.0085	-0.0097
	(0.0096)	(0.0091)	(0.0091)	(0.0088)	(0.0079)
Trade openness	-0.0021	-0.0038*	-0.0024	-0.0019	-0.0019
	(0.0017)	(0.0021)	(0.0017)	(0.0019)	(0.0025)
FDI	-0.0011*	-0.0009	-0.0017**	-0.0010	-0.0011
	(0.0006)	(0.0008)	(0.0007)	(0.0009)	(0.0010)
LnGDPpc	0.314**	0.223**	0.221*	0.211*	0.228*
	(0.130)	(0.0901)	(0.122)	(0.108)	(0.132)
Age 65 above	0.154**	0.177**	0.165**	0.168**	0.160**
	(0.078)	(0.076)	(0.078)	(0.085)	(0.079)
Democracy	0.0297**	0.0304***	0.0300***	0.0293***	0.0295***
	(0.0118)	(0.0109)	(0.0112)	(0.0107)	(0.0110)
Right	-0.271***	-0.299***	-0.250**	-0.242*	-0.267**
	(0.0948)	(0.102)	(0.109)	(0.126)	(0.108)
Centre	-0.011	-0.023	-0.0087	0.076	-0.008
	(0.161)	(0.177)	(0.146)	(0.147)	(0.155)
Election	0.109*	0.0927*	0.107*	0.0913	0.115**
	(0.061)	(0.056)	(0.057)	(0.059)	(0.056)
Time effects	Yes	Yes	Yes	Yes	Yes
Observations	1578	1581	1564	1549	1578
Countries	106	106	106	106	106
Instruments	107	81	107	98	86
AR(2)	0.430	0.444	0.451	0.442	0.443
Hansen J	0.483	0.546	0.629	0.817	0.386
Diff-Hansen 1	0.373	0.487	0.701	0.774	0.397
Diff-Hansen 2	0.357	0.365	0.558	0.666	0.407

Notes: See Tables 1 and 2.

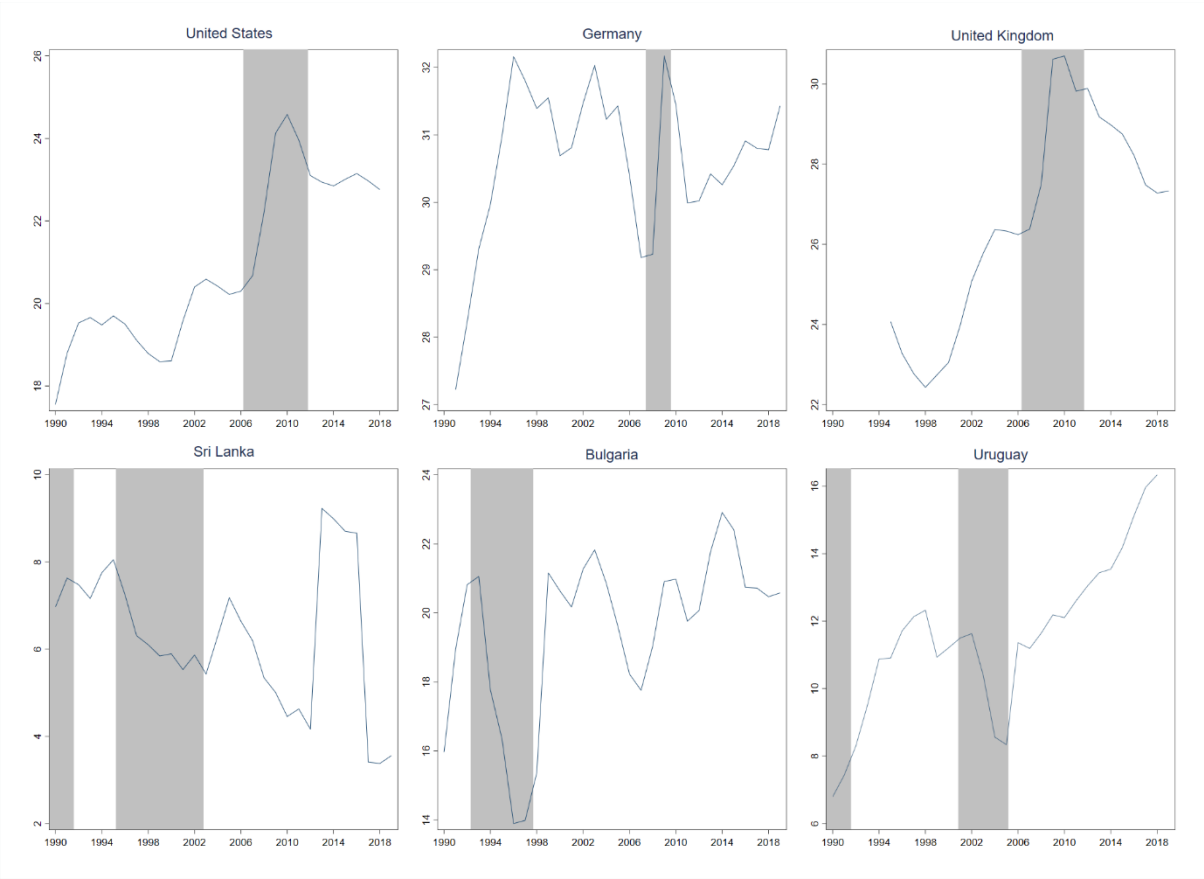
Table 6. Financial crises and social spending: Developed versus developing countries

	Developed		Developing				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
L.Social spending	0.831***	0.834***	0.809***	0.835***	0.770***	0.814***	0.803***
	(0.028)	(0.028)	(0.054)	(0.056)	(0.059)	(0.054)	(0.057)
All crises	0.912***		-0.322**				
	(0.171)		(0.156)				
Banking crisis		0.883***		-0.381**			
		(0.172)		(0.151)			
Currency crisis					0.134		
					(0.181)		
Debt crisis						-0.544***	
						(0.201)	
Twin/triple crises							-0.424
							(0.345)
Unemployment	0.0327	0.0297	0.0063	0.0075	0.0136	0.0073	0.0066
	(0.0250)	(0.0254)	(0.0211)	(0.0162)	(0.0243)	(0.0199)	(0.0214)
Trade openness	-0.00643*	-0.00656*	0.0101	0.00651	0.0114	0.0107	0.0100
	(0.0037)	(0.0037)	(0.0068)	(0.0053)	(0.0077)	(0.0067)	(0.0070)
FDI	-0.0016**	-0.0016*	-0.0076	0.0025	-0.0048	-0.0059	-0.0085
	(0.0008)	(0.0008)	(0.0191)	(0.0157)	(0.0217)	(0.0177)	(0.0200)
LnGDPpc	1.634**	1.654**	0.448**	0.369**	0.521**	0.393*	0.474**
	(0.705)	(0.707)	(0.202)	(0.154)	(0.239)	(0.204)	(0.212)
Age 65 above	-0.124	-0.130	0.157***	0.142***	0.193***	0.147***	0.163***
	(0.084)	(0.084)	(0.056)	(0.052)	(0.064)	(0.056)	(0.058)
Democracy	0.331**	0.351***	0.369**	0.340*	0.312*	0.381**	0.368**
	(0.153)	(0.173)	(0.167)	(0.196)	(0.184)	(0.160)	(0.174)
Right	-0.371***	-0.422***	-0.283**	-0.343*	-0.365**	-0.282**	-0.287**
	(0.118)	(0.118)	(0.129)	(0.178)	(0.168)	(0.126)	(0.130)
Centre	0.610**	0.620**	-0.165	-0.146	-0.226	-0.162	-0.168
	(0.289)	(0.290)	(0.217)	(0.174)	(0.250)	(0.210)	(0.220)
Election	0.159*	0.164*	0.158**	0.124*	0.130*	0.156**	0.154**
	(0.091)	(0.092)	(0.075)	(0.074)	(0.075)	(0.076)	(0.072)
Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	576	576	1031	1031	1025	1029	1031
Countries	29	29	79	79	79	79	79
Instruments			41	41	41	41	41
AR(2)			0.257	0.255	0.258	0.288	0.265
Hansen J			0.500	0.641	0.340	0.529	0.505
Diff-Hansen 1			0.450	0.590	0.318	0.476	0.464
Diff-Hansen 2			0.412	0.450	0.311	0.384	0.336

Notes: See Table 1. As the sample for developed countries is small, a Bruno bias-corrected least-squares dummy variable method is employed in Models (1) and (2). For the group of developing countries we use the same system-GMM estimator as before. See Table 2 for further details.

FIGURES

Figure 1. Social spending series with shaded crisis episodes: Selected countries 1990-2019



APPENDIX

Table A1. Descriptive statistics

Variable	*Obs.*	*Mean*	*Std. Dev.*	*Min*	*Max*
Social spending	2,720	15.04	9.92	0.59	38.06
Healthcare spending	2,718	3.45	2.42	0.13	9.50
Education spending	2,717	4.34	1.95	0.34	12.11
Social protection spending	2,641	7.43	6.77	0	24.00
Banking crisis	9,791	0.05	0.21	0	1
Currency crisis	12,269	0.05	0.22	0	1
Debt crisis	10,400	0.08	0.26	0	1
Twin and triple crises	9,295	0.02	0.14	0	1
All crises	13,551	0.22	0.41	0	1
Unemployment	5,096	8.09	6.22	0.11	37.97
FDI	7,518	8.57	36.30	-4.84	305.95
Trade openness	8,094	77.45	49.67	11.44	315.74
LnGDPpc	8,994	8.28	1.51	4.88	12.19
Age 65 above	11,144	6.31	4.35	0.69	27.58
Democracy	9,200	1.02	7.30	-10	10
Right-wing government	5,501	0.38	0.49	0	1
Centre government	5,505	0.14	0.35	0	1
Election	7,651	0.18	0.39	0	1

Notes: See Table 1.

Table A2. Financial crises and social spending: Contemporaneous financial crises

	(1)	(2)	(3)	(4)	(5)
L.Social spending	0.806***	0.765***	0.791***	0.774***	0.784***
	(0.051)	(0.063)	(0.055)	(0.053)	(0.058)
All crises	0.786***				
	(0.276)				
Banking crisis		0.762***			
		(0.286)			
Currency crisis			0.374		
			(0.461)		
Debt crisis				-0.523**	
				(0.249)	
Twin and triple crises					-0.386
					(0.319)
Unemployment	0.0144	0.0214	0.0231	0.0234	0.0185
	(0.0155)	(0.0152)	(0.0178)	(0.0165)	(0.0181)
Trade openness	-0.00186	-0.00450	-0.00171	-0.00200	-0.00266
	(0.00292)	(0.00296)	(0.00298)	(0.00336)	(0.00266)
FDI	-0.00106	-0.00162	-0.00196	-0.000947	-0.00202
	(0.000821)	(0.00114)	(0.00132)	(0.00121)	(0.00142)
LnGDPpc	0.534***	0.520***	0.526***	0.538***	0.503***
	(0.148)	(0.174)	(0.167)	(0.185)	(0.167)
Age 65 above	0.215***	0.268***	0.229***	0.245***	0.239***
	(0.0657)	(0.0758)	(0.0650)	(0.0721)	(0.0717)
Democracy	0.0679***	0.0571***	0.0838***	0.0626**	0.0469**
	(0.0234)	(0.0217)	(0.0239)	(0.0297)	(0.0235)
Right	-0.381***	-0.525***	-0.462***	-0.416***	-0.435**
	(0.138)	(0.159)	(0.156)	(0.146)	(0.179)
Centre	-0.104	-0.206	-0.150	-0.282	-0.102
	(0.208)	(0.241)	(0.216)	(0.234)	(0.214)
Election	0.151**	0.147**	0.135*	0.144**	0.161**
	(0.0713)	(0.0659)	(0.0718)	(0.0674)	(0.0695)
Time effects	Yes	Yes	Yes	Yes	Yes
Observations	1664	1664	1647	1659	1664
Countries	108	108	108	108	108
Instruments	107	82	106	99	86
AR(2)	0.257	0.261	0.246	0.249	0.249
Hansen J	0.394	0.662	0.439	0.520	0.466
Diff-Hansen 1	0.339	0.649	0.428	0.566	0.453
Diff-Hansen 2	0.558	0.465	0.333	0.611	0.303

Notes: See Tables 1 and 2 for further details. In these set of estimations, we use contemporaneous values for the financial crisis dummies; they are treated as endogenous in the GMM estimations as before.

Table A3. Financial crises and social spending: Endogenous *LnGDPpc*

	(1)	(2)	(3)	(4)	(5)
L.Social spending	0.678***	0.618***	0.709***	0.691***	0.638***
	(0.053)	(0.078)	(0.072)	(0.067)	(0.068)
All crises	0.641**				
	(0.300)				
Banking crisis		0.787*			
		(0.450)			
Currency crisis			-0.192		
			(0.390)		
Debt crisis				-1.195***	
				(0.376)	
Twin and triple crises					-0.821
					(0.970)
Unemployment	0.00538	0.00501	0.0285	0.0331	0.0185
	(0.0319)	(0.0249)	(0.0280)	(0.0346)	(0.0181)
Trade openness	-0.00182	-0.00172*	-0.00191	-0.00229*	-0.00266
	(0.00124)	(0.000995)	(0.00118)	(0.00124)	(0.00266)
FDI	-0.0113	-0.00721	-0.00847	-0.0136	-0.00202
	(0.0118)	(0.00930)	(0.00954)	(0.0122)	(0.00142)
LnGDPpc	2.704*	2.103**	2.176*	3.152**	0.503***
	(1.389)	(0.887)	(1.144)	(1.234)	(0.167)
Age 65 above	0.336*	0.292**	0.314*	0.439**	0.239***
	(0.177)	(0.119)	(0.161)	(0.186)	(0.0717)
Democracy	0.0820	0.0584	0.0783	0.103	0.0469**
	(0.0752)	(0.0498)	(0.0674)	(0.0798)	(0.0235)
Right	-0.956***	-0.786***	-0.749***	-0.937***	-0.435**
	(0.351)	(0.233)	(0.272)	(0.354)	(0.179)
Centre	-0.619	-0.511	-0.511	-0.440	-0.102
	(0.547)	(0.459)	(0.526)	(0.727)	(0.214)
Election	0.115*	0.123*	0.135*	0.0989*	0.161**
	(0.0646)	(0.0693)	(0.0690)	(0.0523)	(0.0695)
Time effects	Yes	Yes	Yes	Yes	Yes
Observations	1632	1615	1661	1661	1664
Countries	108	108	108	108	108
Instruments	139	164	156	144	86
AR(2)	0.244	0.241	0.247	0.243	0.249
Hansen J	0.981	0.100	0.100	0.986	0.466
Diff-Hansen 1	0.935	0.100	0.998	0.988	0.453
Diff-Hansen 2	0.941	0.100	0.994	0.938	0.303

Notes: See Tables 1 and 2 for further details. In these set of estimations, the lag of the dependent variable, financial crises and *LnGDPpc* are treated as endogenous in the GMM estimations.