Sudden Stops and Exports Performance

*

Eric Ayamga[†]

Texas Tech University, Department of Economics, P. O. Box 41014 Lubbock-Texas 79409-1014, United States e-mail: ericayamga290@gmail.com

May 18, 2025

Abstract

This paper investigates the impact of sudden stops in capital inflows—particularly in the banking sector—on export performance across 78 emerging and developing economies from 1996 to 2022. While sudden stops are typically associated with financial distress and macroeconomic downturns, their effects on the external sector remain less understood. Using a novel dataset on sector-specific capital flows and a dynamic event study approach, the analysis reveals a counterintuitive positive correlation between sudden stops and export performance in the raw estimates. However, I found no significant effect when the sample is restricted to only three years before and after the sudden stops. The findings underscore the critical role of banking sector stability and exchange rate dynamics in shaping export responses to financial shocks and offer important insights for crisis management and trade policy in financially integrated economies.

Keywords: Sudden Stops, Export performance, High Dimension Fixed Effects, Banking Sector
JEL: F14, F38

---

1   Introduction

Sudden stops—sharp reversals in capital inflows—pose significant challenges for emerging and developed economies alike (Calvo, 1998). Sudden stops, which are characterized by a sharp decline in external financing and a collapse in credit availability, frequently lead to recessions, financial crises, and changes in policy. Their destabilizing effects on domestic output, investment, and financial intermediation have historically been the main focus (Calvo et al., 2006; Reinhart & Rogoff, 2009; Levine et al., 2000; and Niepmann & Schmidt-Eisenlohr, 2017). However, little is known about their effects on the external sector, particularly on export performance, which may be more complex.

This paper studies the effect of sudden stops on the export performance of 78 selected countries. Understanding the relationship between sudden stops and export performance is critical for two reasons. First, when domestic demand declines, exports can support economic activity and provide foreign exchange, acting as a stabilizing force during financial turmoil. Second, after capital flow reversals, policymakers frequently look to external adjustment, such as trade balance improvements, as a crucial recovery mechanism. In this situation, the way exports react to abrupt halts is crucial to crisis management and macroeconomic resilience.

Growing empirical literature shows that financial constraints reduce the chance of exporting, suggesting that financial constraints are an important determinant of international trade patterns (Goksel, 2012). Moreover, Niepmann & Schmidt-Eisenlohr (2017) argued that international trade exposes both exporters and importers to significant risks. To avoid these risks, businesses can purchase specialized trade financing products from banks. Similarly, Manova (2013) showed that financial market imperfections do not only restrict international trade flows, however, they affect the selection of heterogeneous firms into domestic production, the selection of domestic manufacturers into exporting, and the level of firm exports. Financial constraints or financial market imperfections come in different forms either under-developed financial market or distress financial institutions, thus limiting the among of capital available in the economy. Here, I define the halt or a sharp decline in international capital flows in

the banking sector as financial distress, since they are always associated with liquidity constraints and thus limiting the lending capacity of banks.

The literature on the implications of sudden stops, capital flight, or capital reversal is growing and diverse. One strand of the literature focus on the macro-level effects of sudden stops. For instance, Calvo et al. (2004) show that countries without access to external buffers suffer from declines in output and trade volumes during sudden stops. Edwards (2004) documents that although real depreciation may eventually support export growth, the short-run effect of sudden stops is a contraction due to financial dislocation and policy tightening. Recent work leverages micro-data to examine heterogeneous effects across sectors and firms. Chor & Manova (2012) used data from the 2008-2009 global financial crises to show that sectors more dependent on external finance saw larger export declines in countries with tighter credit conditions. Amiti & Weinstein (2011) demonstrate that Japanese firms especially those financially constrained reduce their exports in response to negative financial shocks. Beck (2002) and Kohn et al. (2016) found similar evidence for firms relying on trade credit or foreign bank intermediation.

Much of the literature explored the asymmetries and amplification effects of sudden stops. For instance, Melitz (2003) showed that larger and productive firms are better positioned to absorb credit shocks, whereas small and medium scale enterprises (SMEs) are more likely to exit from export markets during sudden stops (Berman & Héricourt, 2010). At the geographical level, Varelo (2017) documents that firms with diversified export destinations are more resilient to country-specific demand shocks not necessarily financial contractions. In contrast, Alfaro & Kanczuk (2009) and Ghosh et al. (2014) find that having countercyclical reserve accumulation and/or flexible exchange rate regimes act as buffers in reducing the effects of sudden stops on exports.

Although the empirical literature on sudden stops and export dynamics is growing and diverse, nothing is known of the cross-country effects of sudden stops on export performance especially sudden stops in the banking sector. Banking sector sudden stops are most essential to exporting firms than other sudden stops. Thus, I contribute to the sudden stops and exports literature by using data for

a panel of 78 emerging economies, I show that, in addition to the typical characteristics of sudden stop crises (fall in output and investment, falling prices and depreciating exchange rates), the domestic banking sector faces significant liquidity constraints. As financial institutions grapple with liquidity constraints, firms that rely on external financing are faced with financial constraints. This affects the number of firms that are selected into domestic production, exporting, and the level of firm exports.

This research aims to unpack these dynamics by systematically analyzing the effects of sudden stops in the banking sector on export performance. It explores whether and how financial disruptions can paradoxically strengthen the tradable sector, and what this implies for macroeconomic adjustment and policy design in financially integrated economies. The study revealed a positive correlation between sudden stop episodes and export performance. This counterintuitive outcome warrants closer examination. One possible explanation is the reallocation of output: firms facing domestic demand contractions may redirect sales abroad. Additionally, sudden stops often trigger real exchange rate depreciations, enhancing external price competitiveness. Larger or more productive firms—typically more export-oriented—may also be better positioned to withstand financial tightening, leading to a compositional shift in favor of export-intensive sectors.

The rest of the paper is structured as follows. Section II presents the empirical strategic and data used in the analysis. Section III presents and discusses the results and section IV concludes.

2   Methodology

2.1   Data

This analysis uses export performance data from the World Bank database and capital flows data from the AHKS dataset to investigate how international capital flows affect export performance. Quarterly sector-specific capital flows data from 1996 to 2022 are included in the AHKS dataset, which was made available by Avdjiev et al. (2022). The overall inflow of capital across all economic sectors is shown in Figure 1, emphasizing the significant capital movement in the banking industry in developing and emerging nations. The importance of capital in the banking industry is highlighted in Figure 2, which

shows that a significant portion of total liabilities for emerging markets are attributable to the banking industry's share of total liability flows (calculated as the ratio of bank inflows to total inflows).
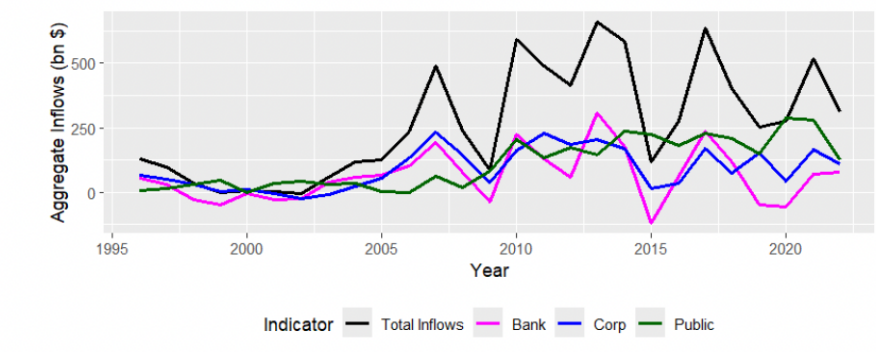

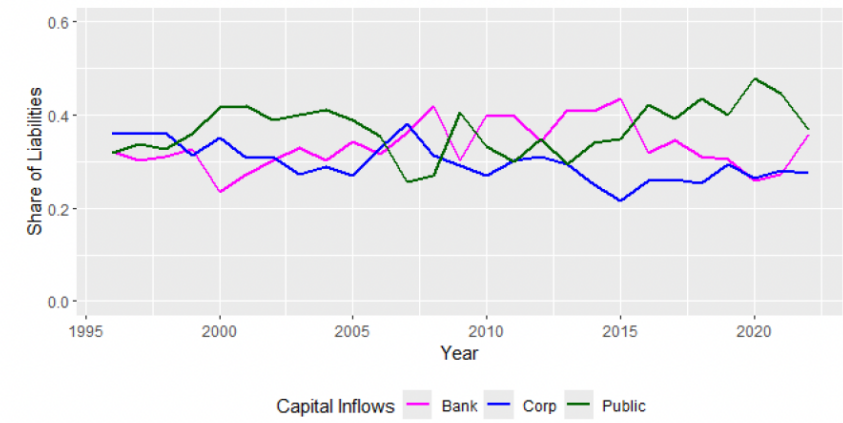Figure 1: Total capital and sector specific inflows

Figure 2: Share of sectors(bank, corp, public) in total external liabilities

These figures above, highlight the importance of capital inflows in the domestic economy especially capital inflows in the banking sector. The banking sector acts as the lubricant of the economy, fueling business expansions, entrepreneurship, and infrastructure, all of which are key drivers of economic growth (Levine et al., 2000). According to Niepmann & Schmidt-Eisenlohr (2017) international trade exposes both exporters and importers to significant risks. To avoid these risks, businesses can purchase specialized trade financing products from banks. Thus, sudden stops episodes may affect international

trade performance.

2.2 Identifying Sudden Stop Episodes

A sudden stop refers to a sharp reversal in capital inflows to an economy, often leading to financial crises, especially in emerging markets Calvo (1998). Usually, shifts in investor sentiment, outside shocks, or worldwide financial conditions cause these reversals. An abrupt halt can result in financial crises, a sharp decline in the value of the currency, a collapse in asset prices, and large drops in output and consumption (Calvo et al., 2006 and Reinhart & Rogoff; (2009)). In empirical macroeconomics and international finance, constructing a measure of sudden stops involves identifying episodes where a country experiences a large, abrupt decline in capital inflows, typically relative to its past trends or historical averages. In order to identify sudden stop episodes, I used data from

In order to identify sudden stop episodes, we construct capital inflows as

$$Capital\ flow_t = \frac{Net inflows}{GDP}$$

Where, net inflows is the change in capital inflows in the banking sector and GDP is real gross domestic product of the country in consideration. Change in capital inflows is defined as

$$\Delta C_t = C_t - C_{t-1}$$

Where C_t is the capital flow variable constructed. After computing the change in capital inflows, I compute the five-year rolling means and standard deviations, and define a sudden stop as a situation when the ΔC_t value falls more than two standard deviations below the mean. The episode starts and ends when ΔC_t falls one standard deviation below the mean, given it falls more than two standard deviations below the mean during that window, and the episode lasts for at least two quarters. In sudden stop literature, the standard practice is to often isolate sudden stop episodes accompanied or coincided with economic downturns such as falling GDP. No such filters are applied in the present paper as the episodes are being identified using the net capital flows of the banking sector alone.

At the annual level, a sudden stop episode is identified in a year when at least one of the quarters of the year, the country had a sudden stop (similar to Calvo et al. (2008) and Forbes & Warnock (2012)). Following the procedure outlined by Cavallo et al. (2015), event windows are constructed to examine financial indicators before and after each sudden stop episode. For each episode, t = 0 marks the first quarter of the sudden stop, with an event window spanning 3 years before and after the starting year. This yields a total of 7 observations per episode, covering 577 sudden stop episodes across 78 emerging and developing economies.

2.3 Empirical Strategy

Our goal is to estimate the effect of capital inflow sudden stops (financial instability) on export performance. To quantify this effect, we use a reduced form model as follows:

$$Exports_{it} = \alpha + \beta_1 SS_{it} + \beta_2 SS\_Post_{it} + \gamma X_{it} + \lambda_t + \eta_i + \varepsilon_{it} \tag{1}$$

Where, $Exports$ is a measure of export performance (value of total exports, percentage change in exports value, and number of export destinations), SS is an indicator variables with 1 for periods with sudden stops and 0 otherwise, SS_Post is also an indicator variable with 1 for first three years after a sudden stop and zero otherwise, X is a vector of relevant variables, and λ_t, eta_i are time and country fixed effects.

2.3.1 Dynamic Event Study

To examine how sudden stops affect export performance over time, we employ a dynamic event study specification. This allows us to trace the impact of a sudden stop both before and after its onset. Let $Exports_{i,t}$ denote the natural log of real exports for country i at time t. We estimate the following panel regression:

$$\text{Exports}_{i,t} = \alpha_i + \lambda_t + \sum_{k=-K}^{K} \beta_k \cdot \mathbb{1}(t = t_0 + k)_{i,t} + \gamma \cdot \mathbf{X}_{i,t} + \varepsilon_{i,t} \tag{2}$$

6

where, α_i are country fixed effects, λ_t are time fixed effects, $\mathbb{1}(t = t_0 + k)$ is a dummy equal to 1 if period t is k periods away from the onset of a sudden stop (t_0), $\mathbf{X}_{i,t}$ is a vector of control variables (e.g., real exchange rate, terms of trade, world demand), $\varepsilon_{i,t}$ is the error term, clustered at the country level.

We omit $k = -1$ to normalize the period before the sudden stop as the reference point, allowing other β_k coefficients to be interpreted as deviations from that baseline. The model is estimated using fixed effects and robust standard errors clustered at the country level. The dynamic coefficients β_k provide a time profile of export responses around sudden stop events. The sequence $\{\beta_k\}$ traces the effect of a sudden stop on exports relative to the period immediately preceding the episode. Plotting these coefficients with confidence intervals offers a visual summary of the dynamics, including pre-trends, immediate impact, and persistence.

3   Results and Discussions

This section discusses the empirical results, emphasizing the overall patterns as well as the hetero-geneous impacts across geographies. With special attention to the functions of input dependencies, exchange rate adjustments, and financial frictions, the results are interpreted in the context of the mechanisms suggested in the literature. In order to corroborate the relationship between sudden stops and export performance, I adopt the high-dimensional fixed effects (HDFE) estimator proposed by Correia et al. (2016). This estimator allows for the inclusion of multiple fixed effects in a com-putationally efficient manner. This estimator treats the high-dimensional fixed effect structure as a multi-way fixed effect problem, which can be reformulated as solving a linear system over a weighted graph. It represents a significant improvement over the earlier generalized within-estimator approaches of Guimaraes & Portugal (2010) and Gaure (2013), both in terms of scalability and estimation speed. HDFE allows researchers to control for multiply layers of unobserved heterogeneity, thus improving the precision and reducing omitted variable bias. HDFE over perform the ordinary least squares approach by strengthens causal inference by isolating variation of interest while accounting for complex data

structures.

Considering the full sample, I find positive and sizable impact of sudden stops on export performance. This results is showed in Figure 1. The results are contrary to the prevailing narrative, thus I investigate the source of the effect. One possible explanation is that this pattern may reflect rapid real exchange rate depreciation, which enhanced export competitiveness, combined with less imports. In order to investigate this I introduce into the empirical estimation framework, variables for exchange rate regime and real effective exchange rate to control for the confounding effect of exchange rate.
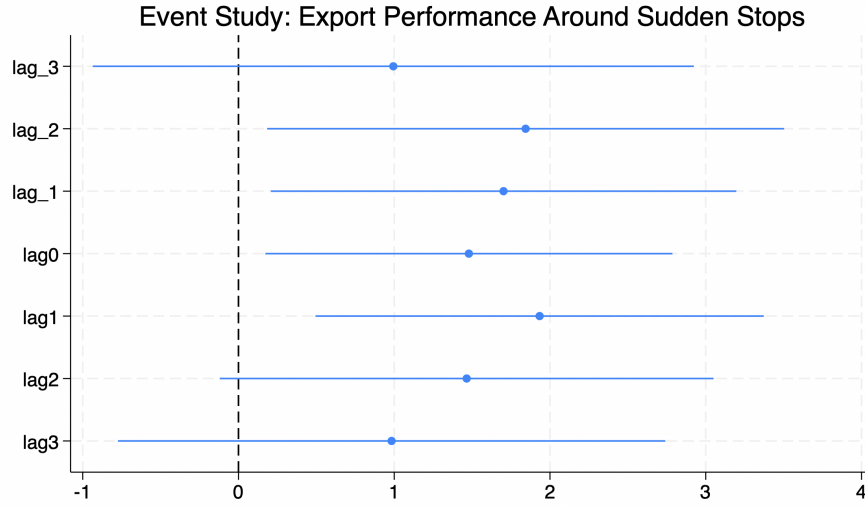

Figure 3: Results of the Dynamic Event Study

Another way to check for validity of the sign is to reduce the sample to only capture the year of the sudden stop and three years before and after the sudden stop. This resulted in an unbalanced panel since the chance or occurrence of sudden stops differ for countries. This necessitates the need for the high dimensional fixed effects which is much appropriate for unbalanced panels. The HDFE results are shown in Table 1 below. The show that sudden stops in banking sector capital flows are associated with statistically and sizable significant decline in export performance across our sampled countries only when country fixed effects are not absorbed in the HDFE framework. This finding is consistent with Calvo et al. (2004) and other authors that found that disruptions to the external sector will spill over into the real economy via trade. This is also consistent with the literature on

trade finance disruptions or constraints (Manova (2013). However, the effect does not exist when country-fixed effects are controlled for. Therefore, there is no significant relationship between sudden stops and export performance.

Table 1: Results of the effect of Sudden Stops on Export Performance

Variable	1	2	3	4	5
Lag3					0.1072)
					(0.9824)
Lag2					0.9604
					(1.0172)
Lag1					0.8871
					(0.9111)
Lag0	−2.5375***	−2.5000***	−0.1997	−0.2063	0.5630
	(0.9056)	(0.9274)	(0.3753)	(0.4894)	(0.8301)
Lead1				0.3116	1.0778
				(0.4177)	(0.7865)
Lead2				−0.1151	0.6507
			(0.5272)	(0.6045)	
Lead3				−0.7576	
			(0.8735)		
Constant	36.1387	36.1252	35.2986	35.3141	34.548
	(0.5428)	(2.0722)	(0.1348)	(0.3076)	(0.7122)
Year fixed effects	No	Yes	Yes	Yes	Yes
Country fixed effects	No	No	Yes	Yes	Yes
R-squared	0.0045	0.0280	0.8424	0.8425	0.8426
Obs	1,742	1,742	1,742	31,742	1,742

Note: *, ** and *** denote statistical significance at 10%, 5% and 1% respectively

[]

4   Conclusion

This paper investigates the relationship between sudden stops in the banking sector and export performance across 78 emerging and developing economies. The findings challenge conventional expectations by initially revealing a positive correlation between sudden stop episodes and export outcomes. One possible explanation is that this pattern may reflect rapid real exchange rate depreciation, which enhanced export competitiveness, combined with less imports. This paper explores the relationship between sudden stops in banking sector capital inflows and export performance across 78 emerging

and developing economies. The findings challenge conventional expectations by initially revealing a positive correlation between sudden stop episodes and export outcomes. However, I found no significant effect when the sample is restricted to only three years before and after the sudden stops. This suggests that the apparent improvement in export performance may be driven by compositional shifts, exchange rate effects, or cross-country differences rather than a direct causal link.

The results highlight the importance of accounting for unobserved country-level factors when evaluating the macroeconomic effects of financial disruptions. They also underscore the complex role played by the banking sector in supporting export activity, particularly through trade finance.

5   Going Forward

Figure 4 show that the sudden stop of Angola is associated with a sizable negative effect on export performance prior and post the sudden stop in 2014. Similarly, Belgium had a sudden stop in 2011 and its effect started after one year but lasted to 2020. However, Bolivia is associated with frequency sudden stops in the banking sector and the intriguing is that most of these sudden stops boost export performance while others decrease export performance. This implies that the effect of sudden stops on export performance depends on country specific macroeconomic policies and condition. Thus, the need to examine what macroeconomic policies and conditions that offset the adverse effects of sudden stops. In order to achieve thiss, the study will incorporate country specific macroeconomic policies (such as exchange rate regime, macro-prudential policies, inflation management regimes, export destination characteristics, composition of exports, etc) into the model and their interactive effects. The effects might vary heterogeneous across sectors and firms, the study seek to further decompose the data to either firm level or sector level and also based on commodities exported, to identify which firms or sectors or commodities are most affected by sudden stops. The study would also investigate the specific role of trade finance disruptions during sudden stops, particularly the availability and cost of export credit and insurance.

By addressing these dimensions, the research can provide a more comprehensive understanding of

the external adjustment mechanisms during financial turbulence and better inform policy aimed at export resilience and financial stability.
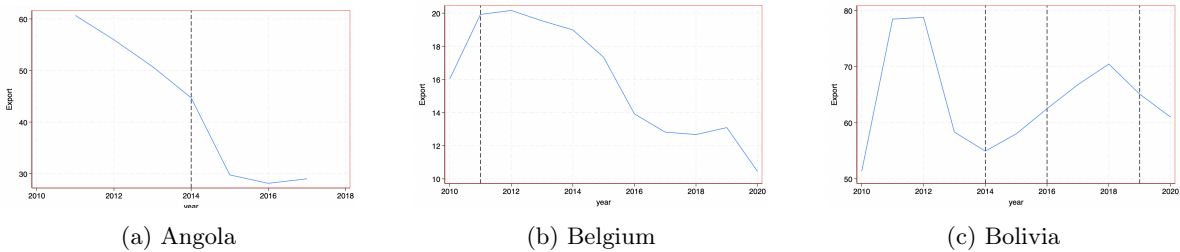

(a) Angola

(b) Belgium

(c) Bolivia

Figure 4: Export Performance around sudden stop episodes

References

Alfaro, L. & Kanczuk, F. (2009), 'Optimal reserve management and sovereign debt', *Journal of International Economics* **77**(1), 23–36.

Amiti, M. & Weinstein, D. E. (2011), 'Exports and financial shocks', *The Quarterly Journal of Economics* **126**(4), 1841–1877.

Avdjiev, S., Hardy, B., Kalemli-Özcan, Ş. & Servén, L. (2022), 'Gross capital flows by banks, corporates, and sovereigns', *Journal of the European Economic Association* **20**(5), 2098–2135.

Beck, T. (2002), 'Financial development and international trade: Is there a link?', *Journal of international Economics* **57**(1), 107–131.

Berman, N. & Héricourt, J. (2010), 'Financial factors and the margins of trade: Evidence from cross-country firm-level data', *Journal of Development Economics* **93**(2), 206–217.

Bianchi, J. & Mendoza, E. G. (2020), 'A fisherian approach to financial crises: Lessons from the sudden stops literature', *Review of Economic Dynamics* **37**, S254–S283.

Bordo, M. D., Cavallo, A. F. & Meissner, C. M. (2010), 'Sudden stops: Determinants and output effects in the first era of globalization, 1880–1913', *Journal of Development Economics* **91**(2), 227–241.

Calvo, G. A. (1998), 'Capital flows and capital-market crises: the simple economics of sudden stops', *Journal of applied Economics* **1**(1), 35–54.

Calvo, G. A., Izquierdo, A. & Mejia, L.-F. (2004), 'On the empirics of sudden stops: the relevance of balance-sheet effects'.

Calvo, G. A., Izquierdo, A. & Mejía, L.-F. (2008), Systemic sudden stops: the relevance of balance-sheet effects and financial integration, Technical report, National Bureau of Economic Research.

Calvo, G. A., Izquierdo, A. & Talvi, E. (2006), 'Sudden stops and phoenix miracles in emerging markets', *American Economic Review* **96**(2), 405–410.

Cavallo, E., Powell, A., Pedemonte, M. & Tavella, P. (2015), 'A new taxonomy of sudden stops: Which sudden stops should countries be most concerned about?', *Journal of International Money and Finance* **51**, 47–70.

Chari, V. V., Kehoe, P. J. & McGrattan, E. R. (2005), 'Sudden stops and output drops', *American Economic Review* **95**(2), 381–387.

Chor, D. & Manova, K. (2012), 'Off the cliff and back? credit conditions and international trade during the global financial crisis', *Journal of international economics* **87**(1), 117–133.

Correia, S. et al. (2016), 'A feasible estimator for linear models with multi-way fixed effects', *Preprint at http://scorreia. com/research/hdfe. pdf* .

Edwards, S. (2004), 'Thirty years of current account imbalances, current account reversals, and sudden stops', *IMF staff papers* **51**(Suppl 1), 1–49.

Forbes, K. J. & Warnock, F. E. (2012), Debt-and equity-led capital flow episodes, Technical report, National Bureau of Economic Research.

Gaure, S. (2013), 'Ols with multiple high dimensional category variables', *Computational Statistics & Data Analysis* **66**, 8–18.

Ghosh, M. A. R., Ostry, M. J. D. & Tsangarides, M. C. G. (2011), *Exchange rate regimes and the stability of the international monetary system*, International Monetary Fund.

Goksel, T. (2012), 'Financial constraints and international trade patterns', *Economic Modelling* **29**(6), 2222–2225.

Guimaraes, P. & Portugal, P. (2010), 'A simple feasible procedure to fit models with high-dimensional fixed effects', *The Stata Journal* **10**(4), 628–649.

Kehoe, T. J. & Ruhl, K. J. (2009), 'Sudden stops, sectoral reallocations, and the real exchange rate', *Journal of Development Economics* **89**(2), 235–249.

Kelner, J. A., Orecchia, L., Sidford, A. & Zhu, Z. A. (2013), A simple, combinatorial algorithm for solving sdd systems in nearly-linear time, *in* 'Proceedings of the forty-fifth annual ACM symposium on Theory of computing', pp. 911–920.

Kohn, D., Leibovici, F. & Szkup, M. (2016), 'Financial frictions and new exporter dynamics', *International economic review* **57**(2), 453–486.

Levine, R., Loayza, N. & Beck, T. (2000), 'Financial intermediation and growth: Causality and causes', *Journal of monetary Economics* **46**(1), 31–77.

Manova, K. (2013), 'Credit constraints, heterogeneous firms, and international trade', *Review of Economic Studies* **80**(2), 711–744.

Melitz, M. J. (2003), 'The impact of trade on intra-industry reallocations and aggregate industry productivity', *econometrica* **71**(6), 1695–1725.

Niepmann, F. & Schmidt-Eisenlohr, T. (2017), 'International trade, risk and the role of banks', *Journal of International Economics* **107**, 111–126.

Reinhart, C. M. & Rogoff, K. S. (2009), *This time is different: Eight centuries of financial folly*, princeton university press.