

A Service of

ZBW

Leibniz-Informationszentrum Wirtschaft Leibniz Information Centre for Economics

Dörr, Leo; Maennig, Wolfgang

#### Working Paper Globalization in the food sector and poverty

Hamburg Contemporary Economic Discussions, No. 78

**Provided in Cooperation with:** University of Hamburg, Chair for Economic Policy

*Suggested Citation:* Dörr, Leo; Maennig, Wolfgang (2024) : Globalization in the food sector and poverty, Hamburg Contemporary Economic Discussions, No. 78, University of Hamburg, Faculty of Business, Economics and Social Sciences, Chair for Economic Policy, Hamburg

This Version is available at: https://hdl.handle.net/10419/302139

#### Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

#### Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



## WWW.ECONSTOR.EU



Faculty of Business, Economics and Social Sciences Chair for Economic Policy

## LEO DÖRR / WOLFGANG MAENNIG GLOBALIZATION IN THE FOOD SECTOR AND POVERTY



Hamburg Contemporary Economic Discussions University of Hamburg Faculty of Business, Economics and Social Sciences Chair for Economic Policy Von-Melle-Park 5 20146 Hamburg | Germany Tel +49 40 42838-4622 https://www.wiso.uni-hamburg.de/en/fachbereichvwl/professuren/maennig/home.html Editor: Wolfgang Maennig

Wolfgang Maennig Universität Hamburg Faculty of Business, Economics and Social Sciences Chair for Economic Policy Von-Melle-Park 5 20146 Hamburg | Germany Tel +49 40 42838-4622 Wolfgang.Maennig@uni-hamburg.de

Leo Dörr University of Hamburg Faculty of Business, Economics and Social Sciences Chair for Economic Policy Von-Melle-Park 5 20146 Hamburg | Germany Tel.: +49 40 42838-5569 Leo.Doerr@uni-hamburg.de

Photo Cover: Peter Senger/eigenes Foto Font: TheSans UHH by LucasFonts

#### Leo Dörr, Wolfgang Maennig

### **Globalization in the Food sector and Poverty**

**Abstract:** This paper provides new evidence on the globalization–poverty nexus. We innovate by using an indicator of globalization in the food sector, finding evidence of a significantly aggravating impact on poverty prevalence, adding to earlier studies that use indicators of general globalization. The opening of food markets since the mid-1990s in Latin America might have accounted for approximately 2 additional percentage points of the population living below the absolute poverty line of \$2 a day in our sample.

*Keywords*: Economic Impacts of Globalization, Agriculture in International Trade, Food Policy *JEL*: F66, Q17, Q18

#### 1 Introduction

The effects of globalization on poverty are a much debated topic in economics, with no consensus on the sign and magnitude of the effects. A summary of the empirical results of the last three decades is given by Winters et al. (2004) and Winters and Martuscelli (2014). Most commonly proxied with trade openness, globalization is unlikely to reduce poverty on a large scale unless it stimulates economic growth, which itself is poverty reducing (Ravallion and Datt 2002; Dollar and Kraay 2002). Most papers that link trade openness directly to poverty prevalence find no significant effects (Dollar and Kraay 2002, 2004; Ravallion 2006).

The effects of globalization have also been analyzed in other dimensions, and some studies have explicitly tested globalization in the food sector. It has been reported to aggravate inequality (Artuc et al. 2021), hunger (Mary 2019), employment (Porto 2008), and food security (Chikhuri 2013). On the other hand, food prices rise with inflation, often followed by decreasing unemployment rates (Berentsen et al. 2011; Ball et al. 2013); market opening can stimulate agricultural exports, which can promote growth and therefore reduce poverty (Porto 2008; Sanjuán-López and Dawson 2010).

We add to the discussion by implementing a first cross-country model to estimate the effect of globalization in the food sector instead of general globalization on absolute poverty. Using food trade openness rather than general globalization measures is reasonable since the majority of people experiencing poverty live in rural areas and depend on agriculture, which is dominated by small-scale family farmers (Gollin et al. 2005). For people who live in poverty but do not directly depend on agriculture for their livelihoods, staple foods make up a large proportion of their daily expenses, and fluctuations in food prices can put them in financial distress (Winters and Martuscelli 2014). Mary (2019) collects a new proxy for globalization in the food sector that we use as an explanatory variable in a poverty equation on the basis of the model of Polloni-Silva et al. (2021).

Researchers early on have acknowledged that estimating cross-country poverty models is prone to errors, as the assumption that poverty in Angola and Austria, for example, is comparable, does not hold (Winters et al. 2004). Artuc et al. (2021) attempt to unify the evidence at the household level by pooling household-level data from different countries, but their database is limited to one year, as the surveys were conducted using different methods and the indicators are not uniform. Data quality and availability do not yet allow the extension of cross-country data at the household level over several years.

Following Neaime and Gaysset (2018) and Polloni-Silva et al. (2021), we take a middle path and use aggregated poverty data for countries within a continent that share similar socioeconomic and geographical conditions. In this way, we maintain comparability between countries while providing answers at a larger scale.

Using our newly constructed database and poverty equation, our results suggest that globalization in the food sector, in contrast to overall globalization, has a significantly aggravated impact on poverty prevalence. The orientation of the food sector in Latin America toward international markets described by Weisskoff (1992) and Carter et al. (1996), not yet analyzed by its impacts, may account for approximately 2 percentage points of the population living below the absolute poverty line of \$2 a day in our sample.

Section 2 presents our data, and Section 3 introduces the empirical model and presents the results. Section 4 presents the robustness analysis, and Section 5 concludes.

#### 2 Data

We construct a dataset with 12 Latin American countries covering approximately 84% of Latin America's total population, resulting in a balanced panel dataset with observations from 1995 to 2020 similar to that of Polloni-Silva et al. (2021) but covering a much larger time span of 26 years <sup>1</sup>.

In line with the previous literature, we define absolute poverty as the percentage of people living below the absolute poverty line (poverty), which is currently set at USD 2.15 a day at the 2017 Purchasing Power Parity (PPP) (World Bank, 2022). As mentioned in the introduction, the economic literature commonly proxies globalization by a country's openness to international trade, defined as the share of imports and exports relative to GDP (Trade). Both indicators are taken from the World Bank's World Development indicators database (World Bank 2005).

To assess the extent of globalization in the food sector, we follow Mary (2019). We begin by collecting data from the United Nations Food and Agriculture Organization statistics database on total agricultural exports and imports, as well as food exports and imports, which include both crop and livestock products (FAOSTAT 1998). Second, we calculate the ratios of agricultural exports (imports) to the total volume of exports (imports). These ratios are then multiplied by the total value of exports (imports) in constant local

<sup>&</sup>lt;sup>1</sup> A list of countries can be found in Table A1 in the Appendix. The only Latin American country with a population of more than 30 million missing from the dataset is Venezuela, for which reliable data are not available.

currency units, resulting in agricultural imports and exports. We then calculate agricultural GDP by multiplying the percentage of agriculture to total value added, obtained from the WDI database, by total GDP in constant local currency units. This allows us to construct a measure of (non)agricultural trade openness by dividing the sum of agricultural exports and imports by (non)agricultural GDP. Finally, we further decompose agricultural trade openness into trade openness in the food sector and trade openness in the remaining sectors. FAOSTAT and WDI data can then be used to calculate the share of food exports (imports) in the agricultural sector and the share of food GDP in agricultural GDP. Thus, we constructed trade openness in the food sector (*Trade Food*) and trade openness in the remaining sectors (*Trade other*) that target nonfood nonagricultural goods as subcomponents of overall trade openness.

While the specific impact of openness in the food sector on absolute poverty has not been the subject of research, there is rich literature on the determinants of (absolute) poverty, and we draw our control variables from it. Using data from the World Bank, we include (real) per capita GDP in USD (*gdppc*) as the measure of economic performance. To cover effects from the labor market, we include national unemployment rates as a percentage of the total labor force (*Unemployment*) and the female labor force participation rate as a percentage of the overall female population aged older than fifteen years (*Female workforce*). Moreover, we add consumer prices (*CPI*, 2010=100) to account for poverty, which is driven by inflation. Finally, we include the word governance indicator rule of law (*rule of law*) and the WDI's percentage of the urban population (*urbanization*) of the total population to account for general political stability and rural exodus.

Table 1 presents the summary statistics and suggests that (Total Exports + total Imports)/GDP amounts to 66% on average. In the food sector, openness to trade is much greater, with the volume of trade in food being 141% of the volume of food produced domestically. This number reflects the agricultural and food export boom in Latin American countries from the 1990s onward (Weisskoff 1992; Carter et al. 1996), standing in

stark contrast to the food sectors of other developing countries, which are highly protected (Anderson 2016).

VARIABLES	Definition	Ν	mean	sd	min	max
Poverty hr \$2.15	Poverty headcount ratio at \$2.15 a day (2017 PPP) (%)	273	8.092	6.309	0.400	28.60
Poverty gap \$2.15	Poverty gap at \$2.15 a day (2017 PPP) (%)	273	3.320	3.098	0.200	15.10
Poverty hr \$3.65	Poverty headcount ratio at \$3.65 a day (2017 PPP) (%)	273	17.32	10.35	2.100	48.90
Poverty gap \$3.65	Poverty gap at \$2.15 a day (2017 PPP) (%)	273	7.130	5.164	0.700	23.50
MPI	Multidimensional poverty headcount ra- tio (World Bank) (% of population)	105	6.467	4.959	0.600	21.90
Trade	Log (imports + Exports)/GDP	312	0.669	0.349	0.146	1.728
Trade Food	Log (Food imports + Food Exports)/Food GDP	312	1.411	0.880	0.306	4.318
Trade other	Log (Non-Food, non-agricultural imports + Non-Food, non-agricultural Exports)/ Non-Food, non-agricultural GDP	312	0.640	0.361	0.130	1.735
GDPPC	Initial GDP per capita in 100 US\$ (con- stant 2015)	312	63.48	33.85	16.94	151.2
CPI	Consumer price index (2010 = 100)	307	88.31	33.94	20.59	172.8
Unemployment	Unemployment, total (% of total labour force)	291	7.118	3.702	2.021	20.52
Fem. workforce	Labor force participation rate, female (% of female population ages 15+)	312	49.71	7.785	33.86	72.07
Urbanization	Urban population (% of total population)	312	70.24	11.50	42.94	92.11
Food exporter	dummy=1 if country is a net food ex- porter	312	0.670	0.471	0	1

Table 1: Variable description	ons and summary statistics
-------------------------------	----------------------------

### 3 Empirical strategy and results

The determinants of poverty have been modeled in different frameworks (Ravallion 2006; Nikoloski 2011; Kwon and Kim 2014; Awaworyi Churchill and Smyth 2017; Omar

and Inaba 2020; Polloni-Silva et al. 2021)<sup>2</sup>. As a starting point, we draw on Polloni-Silva et al. (2021) as one of the most recent empirical models that takes into account the current state of the literature; they also model absolute poverty for a sample of Latin American countries similar to ours:

$$\begin{split} Poverty_{it} &= \alpha_0 + \beta_1 GDPPC_i + \beta_2 Inflation_{it} + \beta_3 Unemployment_{it} + \beta_4 Female \ Workforce_{it} + \\ & \beta_5 Urbanization_{it} + \beta_6 Rule \ of \ law_{it} + c_i + \varepsilon_{it}, \end{split}$$

(1)

where *Poverty* is the percentage of people living below the poverty line defined by the World Bank, *GDPPC* is (real) per capita GDP, *Inflation* is Consumer Prices, *Trade* is the share of imports and exports relative to GDP, *Unemployment* is the national unemployment rate, *Female workforce* is the female participation rate in national labor markets, *Urbanization* is the urbanization rate, *Rule of law* is the rule of law index and  $c_i$  is a full set of country fixed effects.

Table 2 Column 1.1 presents the results of estimating Equation (1) for the same years as in on Polloni-Silva et al.Polloni-Silva et al. (2021) (2004-2017) and shows that we were able to replicate their results in general. The per capita GDP has a significant negative effect on poverty prevalence; a one percent increase in initial levels of the GDPPC is followed by a decrease of 0.18 percent of people living below the absolute poverty line of \$2.15 per day. Our results show weaker (negative) effects than those of Polloni-Silva et al. (2021) but are in line with most of the relevant literature (Nikoloski 2011; Kwon and Kim 2014; Awaworyi Churchill and Smyth 2017). Consumer prices also have a significant negative effect on poverty, in line with Polloni-Silva et al. (2021), but at odds with theory and other empirical evidence (Winters et al. 2004; Winters and Martuscelli 2014; Omar and Inaba 2020). Unemployment significantly aggravates poverty, and a one percent increase in the national unemployment rate is associated with a 0.7 percent increase in

<sup>&</sup>lt;sup>2</sup> A comprehensive summary of studies analyzing the determinants of poverty is given in Table A2 in the Appendix.

the number of people living in absolute poverty, which is in line with estimates of Polloni-Silva et al. (2021). A one percent increase in female labor force participation causes a 0.17 percent decrease in national poverty levels, whereas Polloni-Silva et al.Polloni-Silva et al. (2021) find no correlations. Consistent with Polloni-Silva et al.Polloni-Silva et al. (2021), urbanization has a significant negative impact on poverty in our sample, with a one percent increase in the national urbanization rate being associated with a 0.2 percent decrease in the number of people living in extreme poverty. Finally, there is no significant effect of the rule of law, which is also in line with the baseline paper.

When the database is expanded to full coverage (1995-2020) and includes a linear time trend (Column 1.2) or yearly fixed effects (Column 1.3) to account for the (negative) trend in absolute poverty levels in Latin America in our sample (Fig. B1, left-hand panel, Annex), the significant negative effect from urbanization and female labor force participation disappears, whereas the negative effect of consumer prices becomes significantly positive, with magnitude and sign in line with the literature (Winters et al. 2004; Omar and Inaba 2020).

Variables	PHC \$2.15					
	(1.1)	(1.2)	(1.3)			
GDPPC	-0.184***	-0.205***	-0.172***			
	(0.0570)	(0.0302)	(0.0310)			
CPI	-0.0699***	0.0314*	0.0541***			
	(0.0126)	(0.0175)	(0.0176)			
Unemployment	0.688***	0.384***	0.112			
	(0.101)	(0.0826)	(0.118)			
Fem. workforce	-0.175*	-0.0896	-0.0265			
	(0.0930)	(0.0556)	(0.0550)			
Urbanization	-0.203*	0.0629	0.133			
	(0.115)	(0.0825)	(0.0816)			
Rule of law	-0.880	0.487	-0.189			
	(1.174)	(1.575)	(1.646)			
Linear trend		-0.712***				
		(0.0969)				
Year FEs	NO	NO	YES			
Country FEs	YES	YES	YES			
Observations	155	227	227			
R-squared	0.881	0.884	0.900			

Table 2: Determinants of (absolute) poverty: Replication of Polloni-Silva et al. (2021)

Notes: \* p < 0.1,\*\* p < 0.05,\*\*\* p < 0.01, Cluster-robust Std. errors are in parentheses. The dependent variable is poverty headcount ratio at \$2.08 a day (2017 PPP) in %.

In a second step, we add the trade openness proxy (*Trade*) explained in Section 2 to Model (1) to isolate the effect of globalization on poverty prevalence. We follow Mary (2019) and take logs of *Trade* to monitor short-term spikes in imports or exports of individual products. In addition, year fixed effects are included to control for structural breaks due to exogenous shocks and trend behavior in poverty prevalence, and clusterrobust standard errors are used to control for heteroskedasticity. We use country fixed effects to capture sociocultural determinants of poverty that may be correlated with trade, such as ethnic diversity and colonial history (Cagatay 1998; Dollar and Kraay 2002), which are known to be fairly constant over limited time horizons (Dollar and Kraay 2004). This also applies to the rule of law index (Dollar and Kraay 2004Dollar and Kraay

2004), which we have excluded in the following to avoid loss of information, as its coverage does not extend to the mid-1990s.<sup>3</sup>

As endogeneity concerns may arise when analyzing determinants of poverty, we follow Ravallion (2006) and Anser et al. (2020), who assume that income is affected by poverty or shocks to it and therefore rely on initial levels of the observation period. We follow (Dollar and Kraay 2002) and assume that consumer prices are unaffected by the level of absolute poverty and that the level of urbanization is independent of the prevalence of poverty.<sup>4</sup>

Finally, we follow Nikoloski (2011), Kwon and Kim (2014), Awaworyi Churchill and Smyth (2017), and Polloni-Silva et al. (2021) by relying on absolute poverty levels rather than changes.<sup>5</sup> To protect our results from potential spurious correlations, we check all dependent variables on unit roots via a panel unit root test according to Breitung and Das (2005) but find no evidence of random behavior in our poverty measures. Our model for estimating the effect of overall trade openness on poverty prevalence writes

$$Poverty_{it} = \alpha_0 + \beta_1 Trade_{it} + \beta_2 GDPPC_i + \beta_3 inflation_{it} + \beta_4 Unemployment_{it} + \beta_5 Female Workforce_{it} + \beta_6 Urbanization_{it} + c_i + \varphi_t + \varepsilon_{it}$$
(2)

Most of the variables are equivalent to the model in (1), with the exception of GDPPC, which now represents the initial level of GDP per capita. *Trade* is the log of imports+exports/GDP, and  $\varphi_t$  is a full set of year fixed effects.

Table 3 reports the results of estimating equation (2) (Columns 2.1-2.3) and the same model with trade openness split into food and nonfood sectors (Columns 2.4-2.6). We

<sup>&</sup>lt;sup>3</sup> We have also estimated the baseline specifications including the rule of law index, but the results remain unchained. They are available from the authors on request.

<sup>&</sup>lt;sup>4</sup> We control for the "rural exodus" effect (Shaw 1974), caused by poor rural populations migrating to urban areas in the hope of better living conditions. However, by estimating the model with initial values of urbanization, we obtain similar results.

<sup>&</sup>lt;sup>5</sup> Nikoloski 2011 note that gaps in poverty data and overall data availability issues make it difficult to estimate how variables affect poverty changes across countries.

note that the initial values of GDP per capita may be correlated with both year and country intercepts. To ensure that our estimates are not affected by multicollinearity, we follow Kwon and Kim (2014) and estimate Equation (2) without fixed effects (2.1) but add year fixed effects (2.2) and both year and country fixed effects (2.3). If there is a significant change in the model results, this would indicate interdependence between the fixed effects and the initial values. We repeat this procedure for the models assessing globalization by sector (Columns 2.4-2.6). We find that the model outcomes remain stable in all specifications, suggesting that the initial values of GDP per capita are not orthogonal to the fixed effects.

With respect to the determinants of poverty, we observe effects in line with our replication of (Polloni-Silva et al. 2021) and with the literature. The proportion of the population living below the absolute poverty line responds negatively to per capita GDP. An increase in initial per capita income reduces the share of people living below the absolute poverty line by 0.2 percentage points, which is in line with the literature (Nikoloski 2011; Kwon and Kim 2014; Awaworyi Churchill and Smyth 2017). A separate estimation of the corresponding beta weights revealed that (initial) GDP per capita has by far the strongest impact on poverty prevalence in terms of changes in the standard deviation, in line with Ravallion and Datt (2002), Dollar and Kraay (2002) and Dollar and Kraay (2004); the observed decline in absolute poverty from approximately 2002 to 2019 (pre-COVID-19) is consistent with the strong growth in GDP per capita throughout the period (Figure B1, right-hand Panel, Annex).

In terms of poverty-enhancing effects, depending on the model chosen, a one percentage point increase in consumer prices is followed by an increase of 0.6-0.8 percentage points in absolute poverty levels, whereas a rise in unemployment by one percentage point leads to an increase of 0.13-0.24 percentage points in the number of people below the absolute poverty line, in line with Cardoso (1992), Janvry and Sadoulet (2000), Hojman (2004) and Omar and Inaba (2020). We find some evidence of a potential positive effect of urbanization on poverty rates, which is at odds with Polloni-Silva et al. (2021) but in line with Ravallion (2002) and Ravallion et al. (2007)

Most importantly, aggregate levels of globalization in Collumns 2.1-2.3 (*trade*) do not have significant effects on poverty prevalence, which is in line with the previous literature (Ravallion 2006; Kwon and Kim 2014; Anser et al. 2020; Omar and Inaba 2020). To identify the impact of globalization in the food sector on the prevalence of absolute poverty, we follow Mary (2019) and divide overall trade openness into trade openness in the food sector (*Trade Food*) and trade openness in the remaining sectors (*Trade other*).<sup>6</sup> Figure 1 shows that globalization has been more dynamic in the food sector than in the general economy in our sample (see also Weisskoff (1992) and Carter et al. (1996)). For example, the share of food exports and imports in GDP rose from approximately 90 percent in 1995 to more than 200 percent on average in 2020 in the countries in our sample. Thus, pooling all sectors into a single proxy for globalization may hide the dynamics in the food sector, which may be most relevant for poorer persons.

<sup>&</sup>lt;sup>6</sup> Mary (2019) disaggregates trade openness into food trade openness, nonfood agricultural trade openness and nonagricultural trade openness. We find that food trade openness and nonfood agricultural trade openness are highly collinear, so we exclude any agricultural share from our proxy for trade openness in the remaining sectors





In the third step, we analyze trade openness separately for food sector-specific trade and other sectors. The sectoral models in Table 3, Columns 2.4-2.6 suggest that a one percent increase in our measure of the openness of a country's food sector is associated with an increase of 0.018 percentage points in the number of people living in absolute poverty (log-level relationship). If this effect is scaled up by the observed increase in food global-ization in Figure 1 (120%), the absolute effect of globalization in the food sector since the mid-1990s sums to (120\*0.018) = 2.16 percentage points. Note that in all specifications, the impact of general trade remains insignificant.

Variables	PHR \$2.15					
	(2.1)	(2.2)	(2.3)	(2.4)	(2.5)	(2.6)
	OLS	FE	FE	OLS	FE	FE
Ln Trade	-0.794	-0.479	1.576			
	(0.501)	(0.550)	(1.719)			
Ln Trade Food				1.704***	1.810***	1.871***
				(0.482)	(0.501)	(0.710)
Ln Trade other				-0.442	-0.165	1.429
				(0.457)	(0.499)	(1.520)
GDPPC	-0.136***	-0.131***	-0.197***	-0.143***	-0.137***	-0.212***
	(0.0143)	(0.0147)	(0.0267)	(0.0133)	(0.0137)	(0.0282)
CPI	0.0737***	0.0827***	0.0639***	0.0759***	0.0876***	0.0606***
	(0.0215)	(0.0232)	(0.0162)	(0.0199)	(0.0222)	(0.0165)
Unemployment	0.242***	0.158**	0.0662	0.223***	0.126*	0.0841
	(0.0709)	(0.0725)	(0.103)	(0.0739)	(0.0756)	(0.101)
Fem. workforce	-0.0203	-0.0170	-0.0373	0.00310	0.00785	-0.0629
	(0.0334)	(0.0337)	(0.0512)	(0.0318)	(0.0310)	(0.0504)
Urbanization	-0.0669	-0.0513	0.222***	-0.0134	0.00384	0.195**
	(0.0419)	(0.0434)	(0.0795)	(0.0379)	(0.0400)	(0.0784)
Year FEs	NO	NO	YES	NO	NO	YES
Country FES	NO	YES	YES	NO	YES	YES
Observations	260	260	260	260	260	260
R-squared	0.710	0.733	0.905	0.725	0.751	0.909

#### Table 3: Poverty and (food) trade openness

Notes: \* p < 0.1,\*\* p < 0.05,\*\*\* p < 0.01, Cluster-robust Std. errors are in parentheses. The dependent variable is poverty headcount ratio at \$2.15 a day (2017 PPP) in %; Models 2.1-2.3 correspond to equation (2) gradually adding fixed effects. Models 3.1-3.3 correspond to equation (2), where trade openness is split into food and non-food sectors. A linear trend variable was estimated in all specifications without FEs, but not reported

#### 4 Robustness

Mary (2019) demonstrated that the openness of the food trade may be affected by the prevalence of hunger. Since hunger is closely linked to poverty, we test for potential reverse causality. Following Nikoloski (2011), we therefore estimate the effects of singleand double-lagged food trade openness (Table 4, Columns 4.1 and 4.2) on poverty prevalence but arrive at similar results indicating no bias due reverse causality. Interestingly, the coefficient of our proxy for food market globalization becomes stronger as the lag increases, suggesting that the negative effects of market liberalization take time to fully manifest, which is consistent with Polloni-Silva et al. (2021). Ravallion (2006) noted that longer lags may be required to capture the poverty benefits from increased factor productivity due to the trade-induced adoption of new technologies. These effects have also been shown for agricultural markets (the Green Revolution) but are mostly restricted to earlier time periods and Asian economists (Litchfield et al. 2003).

The descriptive data in Table 1 showed that the majority of the countries in our sample are food exporters. The impact of food trade openness on hunger, and thus on the very poor, may depend on whether the country is a food exporter or importer (Mary 2019). We therefore reestimate the baseline equation with a dummy = 1 if the country was a net food exporter in the current year (Column 4.3), which we additionally interact with food trade openness (Column 4.4). The corresponding results do not show evidence that the effect of food trade openness depends on whether the country is a net food exporter. These results are consistent with those of Thirlwall (2013), who argues that the export gains from greater openness to international markets might be overrated, and Gacitia and Bello (1991), who reported that primary exports have not increased the general welfare of Latin Americans.

Variables			PHR \$2.15		
	(2.6)	(4.1)	(4.2)	(4.3)	(4.4)
Ln Trade Food	1.871***			1.825***	1.910**
	(0.710)			(0.678)	(0.876)
L. Ln Trade Food		2.145***			
		(0.624)			
L2. Ln Trade Food			2.656***		
			(0.632)		
Ln Trade other	1.429	0.468	0.703	1.463	1.485
	(1.520)	(1.686)	(1.619)	(1.511)	(1.542)
Initial GDPPC	-0.212***	-0.214***	-0.209***	-0.200***	-0.198***
	(0.0282)	(0.0272)	(0.0257)	(0.0296)	(0.0306)
CPI	0.0606***	0.0598***	0.0643***	0.0606***	0.0619***
	(0.0165)	(0.0159)	(0.0154)	(0.0167)	(0.0171)
Unemployment	0.0841	0.138	0.138	0.105	0.108
	(0.101)	(0.0942)	(0.0870)	(0.106)	(0.110)
Fem. workforce	-0.0629	-0.0676	-0.0520	-0.0508	-0.0521
-	(0.0504)	(0.0498)	(0.0482)	(0.0500)	(0.0512)
Urbanization	0.195**	0.158*	0.166**	0.161*	0.156*
	(0.0784)	(0.0815)	(0.0810)	(0.0855)	(0.0909)
Food exporter				-0.573	-0.572
1				(0.762)	(0.765)
Food exp * FTO				ι <i>γ</i>	-0.182
I I					(1.079)
					<b>、</b>
Year FEs	YES	YES	YES	YES	YES
Country FES	YES	YES	YES	YES	YES
Observations	260	254	248	260	260
R-squared	0.909	0.910	0.915	0.909	0.909

Table 4: Poverty and Food T	Γrade openness: Robustness
-----------------------------	----------------------------

Notes: \* p < 0.1,\*\* p < 0.05,\*\*\* p < 0.01, Cluster-robust Std. errors are in parentheses. The dependent variable is poverty headcount ratio at \$2.15 a day (2017 PPP) in %; Model (4.1) corresponds to the baseline specification in equation (2). Models (4.2) and (4.3) correspond the baseline specification with once and double lagged Food Trade openness. Model (4.4) is the baseline specification including a food exporter dummy that is additionally

Finally, we follow Awaworyi Churchill and Smyth (2017) and regress a full set of alternative poverty indicators in our base Equation (2). First, as the results in Table 4 show evidence of potential delayed poverty effects of globalization, we follow Ravallion (2006) and include first lags of our trade proxy into the robustness specifications in the next steps. We first use the poverty headcount ratio at \$3.65 to address people who live in less severe poverty (Columns 5.1 and 5.2 in Table 5). As expected, the agricultural and food market effects estimated for our sample are less strong than those estimated for people living in less severe poverty, which is consistent with the findings of Artuc et al. (2021). However, the underlying pattern remains unchanged; we obtain evidence of a significant negative effect of globalization in the food sector on poverty, in contrast to the lack of effect of overall globalization.

The poverty headcount ratio has been criticized as a measure of absolute poverty because it does not consider how far people's incomes are below the absolute poverty line (Nikoloski 2011; Awaworyi Churchill and Smyth 2017). To address this shortcoming, the World Bank Research Group developed the poverty gap index, defined as the ratio by which the average income of the poor falls below the absolute poverty line. To determine whether the dept of poverty reacts differently to increased food market globalization, we reestimate our baseline equation with the poverty gap at \$2.15 (Columns 5.3 and 5.4) and \$3.65 (Columns 5.5 and 5.6) as the dependent variable. We observe some evidence of an aggravating effect of globalization in all other sectors on the poverty gap at \$2.15, which is consistent with Winters et al. (2004), who find that overall trade openness may only have an effect on the very poorest.

Finally, we use the multidimensional poverty index (MPI) proposed by Alkire and Santos (2014) as a complete indicator that assesses more dimensions of poverty than just available income, such as access to clean water, electricity and housing, as well as education, health care and good nutrition (Columns 5.7 and 5.8). Despite a much smaller data coverage, and similar to Awaworyi Churchill and Smyth (2017), the MPI responds strongly to all covariates, including general trade. However, and similar to the other poverty indicators used, the results remain stable over both specifications, especially concerning the significant effect of food trade openness.

Variables	PHR	\$3.65	PG S	52.15	PG \$3.65		M	PI
	(5.1)	(5.2)	(5.3)	(5.4)	(5.5)	(5.6)	(5.7)	(5.8)
Ln Trade Food	0.784		2.041***		1.672***		2.482***	
	(0.962)		(0.483)		(0.596)		(0.622)	
L. Ln Trade Food		1.736**		1.985***		1.905***		2.002***
		(0.823)		(0.420)		(0.511)		(0.612)
Ln Trade other	-3.203	-4.230	1.910**	1.182	0.737	-0.105	6.740***	7.045***
	(2.320)	(2.568)	(0.859)	(0.939)	(1.213)	(1.338)	(1.309)	(1.441)
Initial GDPPC	-0.43***	-0.441***	-0.076***	-0.072***	-0.174***	-0.175***	-0.31***	-0.30***
	(0.0386)	(0.0371)	(0.0186)	(0.0180)	(0.0227)	(0.0219)	(0.0403)	(0.0426)
CPI	0.0591**	0.0597***	0.0320***	0.0282***	0.0466***	0.0445***	0.143***	0.129***
	(0.0236)	(0.0221)	(0.0103)	(0.00991)	(0.0130)	(0.0124)	(0.0214)	(0.0225)
Unemployment	0.187	0.306**	0.108*	0.116**	0.103	0.144*	0.412***	0.367***
	(0.157)	(0.143)	(0.0553)	(0.0522)	(0.0807)	(0.0736)	(0.0742)	(0.0740)
Fem. workforce	-0.154**	-0.183**	-0.00868	0.00231	-0.0439	-0.0444	-0.15***	-0.16***
	(0.0731)	(0.0722)	(0.0327)	(0.0327)	(0.0403)	(0.0404)	(0.0501)	(0.0538)
Urbanization	0.296**	0.254**	0.0505	0.0273	0.137**	0.106	0.543***	0.516***
	(0.123)	(0.127)	(0.0442)	(0.0463)	(0.0625)	(0.0647)	(0.127)	(0.132)
Year FEs	YES	YES	YES	YES	YES	YES	YES	YES
Country FES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	260	254	260	254	260	254	100	100
R-squared	0.929	0.933	0.863	0.862	0.913	0.915	0.986	0.985

Table 5: Poverty and Food Trad	openness: alternative	indicators
--------------------------------	-----------------------	------------

Notes: \* p < 0.1,\*\* p < 0.05,\*\*\* p < 0.01, Cluster-robust Std. errors are in parentheses. Models (5.1) and (5.2) correspond to the baseline specification with the poverty headcount ratio at \$3.65 a day (2017 PPP) as the dependent variable. Models (5.3) and (5.4) correspond to the baseline specification with the poverty gap at \$2.15 a day (2017 PPP) as the dependent variable. Models (5.5) and (5.6) correspond to the baseline specification with the poverty gap at \$3.65 a day (2017 PPP) as the dependent variable. Models (5.5) and (5.6) correspond to the baseline specification with the poverty gap at \$3.65 a day (2017 PPP) as the dependent variable. Models (5.7) and (5.8) correspond to the baseline specification with the Multidimensional Poverty Index from the World Bank as the dependent variable

#### 5 Discussion and Conclusion

We replicate Polloni-Silva et al. (2021) findings on the determinants of poverty via a restricted and complete dataset of 12 Latin American countries covering the years 1995-2020. In a second step, we add our (overall) globalization proxy to the model and find no significant poverty effects, in line with Ravallion (2006), Kwon and Kim (2014), Anser et al. (2020) and Omar and Inaba (2020).

In contrast, when we use globalization in the food sector instead of overall globalization in a third step, we find evidence of a significant effect that is consistent across the different estimation techniques and poverty measures used. According to our estimates, the globalization in the food sector since the mid-1990s may account for approximately 2 percentage points of the population living below the absolute poverty line of \$2.15 a day in our sample. The results are robust to potential endogeneity issues, time series characteristics and potential weaknesses in the absolute poverty measure used.

With respect to other determinants of poverty prevalence, our models identify GDP per capita as the main driver of poverty prevalence, which is in line with the relevant literature. Our estimates may be viewed in addition to the findings of Porto, 2008; Chikhuri, 2013; Mary, 2019, who find aggravating effects of food and agricultural trade openness on variables such as unemployment, food security and hunger prevalence. Our results also add to the literature concerning the impact of agricultural globalization at the local level, where authors find negative poverty effects for selected Asian countries (Litchfield et al., 2003; Huang et al., 2007). Finally, our findings may add to the literature concerning the general determinants of poverty (Ravallion 2006; Nikoloski 2011; Kwon and Kim 2014; Awaworyi Churchill and Smyth 2017; Anser et al. 2020; Omar and Inaba 2020; Polloni-Silva et al. 2021)

Our findings suggest that despite its small share in overall trade, the food sector may play a crucial role in the globalization-poverty nexus. To put these effects into context, there are different channels through which globalization in the food sector can affect absolute poverty. First, consumers experiencing poverty have more problems substituting basic foods (Winters and Martuscelli 2014). Second, globalization may lead to a stronger effect on national food CPIs in times of shortages (Flachsbarth and Garrido (2014)), and such food price shocks are transmitted to poverty rates (Ivanic et al. (2012)). Third, an agri-food export boom may lead to additional land concentration and employment instability, leading to an increase in rural poverty (Carter et al. (1996).

With respect to political implications, globalization in the food sector may have to be accompanied by appropriate policies, including the necessary support to small-scale domestic producers. For example, Ben Hassen and El Bilali (2022) propose a package of policies for greater food sovereignty in MENA countries in response to the price explosion of staple foods triggered by the Russian attack on Ukraine, ranging from reducing reliance and dependence on a small number of cereal crops and exporting countries to substituting wheat and maize with traditional and locally adapted crops. Barham et al. (1995) suggest that land market reforms that improve smallholders' ability to pay for land can help protect them from the potential poverty traps of the agri-food export boom triggered by food trade liberalization in Chile in the 1990s.

We note potential limitations of our analysis. For example, upscaled effects such as those in Section 3 are based on a particular time period and a specific region. Moreover, the size of these absolute effects could lead to the impression that globalization in the food sector is a major determinant of poverty in our sample. However, our models suggest that the main driver of poverty in our sample remains economic activity: Upscaling the effect of (initial) income, as was done for our proxy for food globalization, reveals a poverty-reducing effect that is more than three times as strong as the poverty impact of our food trade variable, in line with the literature (Dollar and Kraay 2002, 2004).

#### References

- Alkire, Sabina; Santos, Maria Emma (2014): Measuring Acute Poverty in the Developing World: Robustness and Scope of the Multidimensional Poverty Index. In *World Development* 59, pp. 251–274. DOI: 10.1016/j.worlddev.2014.01.026.
- Anderson, Kym (2016): Agricultural trade, policy reforms, and global food security: Springer.
- Anser, Muhammad Khalid; Yousaf, Zahid; Nassani, Abdelmohsen A.; Alotaibi, Saad M.; Kabbani, Ahmad; Zaman, Khalid (2020): Dynamic linkages between poverty, inequality, crime, and social expenditures in a panel of 16 countries: two-step GMM estimates. In *Economic Structures* 9 (1). DOI: 10.1186/s40008-020-00220-6.
- Artuc, Erhan; Porto, Guido; Rijkers, Bob (2021): Household Impacts of Tariffs: Data and Results from Agricultural Trade Protection. In *The World Bank Economic Review* 35 (3), pp. 563–585. DOI: 10.1093/wber/lhaa005.
- Awaworyi Churchill, Sefa; Smyth, Russell (2017): Ethnic Diversity and Poverty. In *World Development* 95, pp. 285–302. DOI: 10.1016/j.worlddev.2017.02.032.
- Ball, Laurence; Roux, Nicolás de; Hofstetter, Marc (2013): Unemployment in Latin America and the Caribbean. In *Open Econ Rev* 24 (3), pp. 397–424. DOI: 10.1007/s11079-012-9248-2.
- Barham, Bradford; Carter, Michael R.; Sigelko, Wayne (1995): Agro-export production and peasant land access: Examining the dynamic between adoption and accumulation. In *Journal of development economics* 46 (1), pp. 85–107.
- Ben Hassen, Tarek; El Bilali, Hamid (2022): Impacts of the Russia-Ukraine War on Global Food Security: Towards More Sustainable and Resilient Food Systems? In *Foods (Ba-sel, Switzerland)* 11 (15). DOI: 10.3390/foods11152301.
- Berentsen, Aleksander; Menzio, Guido; Wright, Randall (2011): Inflation and unemployment in the long run. In *American Economic Review* 101 (1), pp. 371–398.
- Breitung, Jörg; Das, Samarjit (2005): Panel unit root tests under cross-sectional dependence. In *Statistica Neerlandica* 59 (4), pp. 414–433.

Cagatay, Nilüfer (1998): Gender and poverty: UNDP, Social Development and Poverty Elimination Division New York.

Cardoso, E. A. (1992): Inflation and Poverty. In NBER working paper.

- Carter, Michael R.; Barham, Bradford L.; Mesbah, Dina (1996): Agricultural Export Booms and the Rural Poor in Chile, Guatemala, and Paraguay. In *Latin American Research Review* 31 (1), pp. 33–65.
- Chikhuri, Krishna (2013): Impact of alternative agricultural trade liberalization strategies on food security in the Sub-Saharan Africa region. In *International Journal of Social Economics* 40 (3), pp. 188–206. DOI: 10.1108/03068291311291491.
- Dollar, David; Kraay, Aart (2002): Growth is Good for the Poor. In *Journal of economic* growth 7, pp. 195–225.
- Dollar, David; Kraay, Aart (2004): Trade, growth, and poverty. In *The Economic Journal* 114 (493), F22-F49.
- FAOSTAT (1998): Food And Agriculture Organization Of The United Nations.: United Nations (1998).
- Flachsbarth, Insa; Garrido, Alberto (2014): The effects of agricultural trade openness on food price transmission in Latin American countries. In *Span J Agric Res* 12 (4), p. 927.
   DOI: 10.5424/sjar/2014124-6292.
- Gacitia, E.; Bello, R. (1991): Agricultural Exports, Food Production and Food Security in Latin America. In *Rural Sociology* 56, pp. 391-405.
- Gollin, Douglas; Morris, Michael; Byerlee, Derek (2005): Technology Adoption in Intensive Post-Green Revolution Systems. In *American Journal of Agricultural Economics* 87 (5), pp. 1310–1316.
- Hojman, D. E. (2004): Inequality, unemployment and crime in Latin American cities. In *Crime, law and social change* 41, pp. 33–51.
- Ivanic, Maros; Martin, Will; Zaman, Hassan (2012): Estimating the short-run poverty impacts of the 2010-11 surge in food prices. In *World Development* 40 (11), pp. 2302–2317.

- Janvry, Alain de; Sadoulet, Elisabeth (2000): GROWTH, POVERTY, AND INEQUALITY IN LATIN AMERICA: A CAUSAL ANALYSIS, 1970–94. In *Review of Income and Wealth* 46 (3), pp. 267–287. DOI: 10.1111/j.1475-4991.2000.tb00843.x.
- Kwon, Huck-ju; Kim, Eunju (2014): Poverty Reduction and Good Governance: Examining the Rationale of the Millennium Development Goals. In *Development and Change* 45 (2), pp. 353–375. DOI: 10.1111/dech.12084.
- Litchfield, Julie; McCulloch, Neil; Winters, L. Alan (2003): Agricultural trade liberalization and poverty dynamics in three developing countries. In *American Journal of Agricultural Economics* 85 (5), pp. 1285–1291.
- Mary, Sébastien (2019): Hungry for free trade? Food trade and extreme hunger in developing countries. In *Food Sec*. 11 (2), pp. 461–477. DOI: 10.1007/s12571-019-00908-z.
- Neaime, Simon; Gaysset, Isabelle (2018): Financial inclusion and stability in MENA: Evidence from poverty and inequality. In *Finance Research Letters* 24, pp. 230–237. DOI: 10.1016/j.frl.2017.09.007.
- Nikoloski, Zlatko (2011): Impact of Financial Crises on Poverty in the Developing World: An Empirical Approach. In *Journal of Development Studies* 47 (11), pp. 1757–1779. DOI: 10.1080/00220388.2011.561329.
- Omar, Md Abdullah; Inaba, Kazuo (2020): Does financial inclusion reduce poverty and income inequality in developing countries? A panel data analysis. In *Economic Structures* 9 (1). DOI: 10.1186/s40008-020-00214-4.
- Polloni-Silva, Eduardo; Da Costa, Naijela; Moralles, Herick Fernando; Sacomano Neto, Mario (2021): Does Financial Inclusion Diminish Poverty and Inequality? A Panel Data Analysis for Latin American Countries. In *Social indicators research* 158 (3), pp. 889– 925. DOI: 10.1007/s11205-021-02730-7.

Porto, Guido G. (2008): Agro-Manufactured Export Prices, Wages and Unemployment. In *American J Agri Economics* 90 (3), pp. 748–764. DOI: 10.1111/j.1467-8276.2007.01129.x.

Ravallion, Martin (2002): On the urbanization of poverty. In *Journal of development economics* 68 (2), pp. 435–442.

- Ravallion, Martin (2006): Looking beyond averages in the trade and poverty debate. In *World Development* 34 (8), pp. 1374–1392.
- Ravallion, Martin; Chen, Shaohua; Sangraula, Prem (2007): New Evidence on the Urbanization of Global Poverty. In *Population & Development Rev* 33 (4), pp. 667–701. DOI: 10.1111/j.1728-4457.2007.00193.x.
- Ravallion, Martin; Datt, Gaurav (2002): Why has economic growth been more pro-poor in some states of India than others? In *Journal of development economics* 68 (2), pp. 381–400.
- Sanjuán-López, Ana I.; Dawson, P. J. (2010): Agricultural Exports and Economic Growth in Developing Countries: A Panel Cointegration Approach. In *J Agricultural Economics* 61 (3), pp. 565–583. DOI: 10.1111/j.1477-9552.2010.00257.x.
- Shaw, R. Paul (1974): Land Tenure and the Rural Exodus in Latin America. In *Economic* Development and Cultural Change 23 (1), pp. 123–132.
- Thirlwall, A. P. (2013): Rhetoric and Reality of Trade Liberalisation in Developing Countries. In *Rivista italiana degli economisti* 18 (1), pp. 3–24.
- Weisskoff, Richard (1992): The Paraguayan agro-export model of development. In *World Development* 20 (10), pp. 1531–1540.
- Winters, L. Alan; Martuscelli, Antonio (2014): Trade Liberalization and Poverty: What Have We Learned in a Decade? In *Annu. Rev. Resour. Econ.* 6 (1), pp. 493–512. DOI: 10.1146/annurev-resource-110713-105054.

Winters, L. Alan; McCulloch, Neil; McKay, Andrew (2004): Trade Liberalization and Poverty: The Evidence so Far. In *Journal of economic literature* 42 (1), pp. 72–115.

World Bank (2005): World development indicators.: The World Bank.

## Appendix



### Figure B1: Averaged poverty headcount ratio at \$2.15 and per capita GDP in our sample

Table A1: List of	countries covered	in the dataset
-------------------	-------------------	----------------

country	coverage
Argentina	1996-2017
Bolivia	1997-2020
Brazil	1996-2020
Colombia	1996-2020
Costa Rica	1996-2020
Dominican Republic	1996-2020
El Salvador	1996-2020
Honduras	1996-2020
Mexico	1996-2020
Panama	1997-2020
Paraguay	1996-2020
Peru	1997-2020

							tic frac.	conven-
Fixed effects	оц	yes	yes	yes	yes	yes	yes	cinginia trive on
Credit to private sector	ou	Р	<u>e</u>	оц	in- sig	оц	no	ly nega
Government exp.	ои	ou	ou	ои	in- sig	ои	no	nificant
Democratization	ои	in- sig	ои	ои	ои	ои	no F+h	nns sign
Female workforce	ou	оц	or	оц	ou	оц	in- sig	eg' med
Urbanization	ou	or D	2	yes	e L	e L	neg	ant, 'n
Unemployment	р	or D	e	6	6	in - sig	pos	signific
Institution		ou	0Ľ	neg	in sig	ou	neg	but ins vels
Education	ou	in sig	2	neg	neg	- ig sig	u no	cluded, ance le
Aid	р	ou	yes	or	ou	ou	ou ou	er, wir ans ind gninfic
Public health	ou	in- sig	neg	ou	ou	neg	no	sig' me onal si
Inflation	ou	-in sig	2	or D	neg	ou	pos	uc pour hor, 'in nventi
GINI	sig	ou	0Ľ	sod	sod	- is sig	no	he auti he auti e on co
Trade Openness	sig	neg	in- sig	0L	sig	in sig	no	lel bei t positiv
Income	neg	neg	neg	neg	in - sig	neg	neg n+ the c	icantly
Main explanator	Trade	Econ. crisis	Gouvernance	Ethnofrac	Financial in- clusion	Crime rates	Financial in- clusion	ncluded into the interval in
Dep. Variable	Poverty	Poverty hr & gap	Poverty hr	Poverty hr & gap, MPI	Poverty hr	Poverty hr	Poverty hr 2 Doverty he	e levels, 'pos
Study	Ravallion	Nikoloski (2011)	Kwon & Kim (2014)	Churchill & Smyth (2017)	Omar and Kazuo (2020)	Anser et al (2020)	Polloni-Silva et al. (2021) Votes: Doverty bri	tional signinficanc

# Hamburg Contemporary Economic Discussions (Download: https://www.wiso.uni-hamburg.de/en/fachbereich-vwl/professuren/maennig/research/hceds.html)

78	DÖRR, L. / MAENNIG, W.: Globalization in the Food sector and Poverty, 2024.
77	DÖRR, L., LEPPERT, E., MAENNIG, W.: Olympic games and Democracy, 2024.
76	DÖRR, L.: Aid and growth: Asymmetric effects?, 2024.
75	CREUTZBURG, C. / MAENNIG, W. / MUELLER, S. Q.: From bias to bliss: Racial preferences and worker productivity in tennis, 2024.
74	MAENNIG, W. / WILHELM, S.: Crime Prevention Effects of Data Retention Policies, 2023.
73	MAENNIG, W.: Centralization in national high-performance sports systems: Reasons, processes, dimensions, characteristics, and open questions, 2023.
72	MAENNIG, W. / WILHELM, S.: News and noise in crime politics: The role of announcements and risk attitudes, 2022.
71	MAENNIG, W.: Auch in Peking 2022: Relativ schwache Medaillenausbeute der SportsoldatInnen, 2022.
70	MAENNIG, W. / MUELLER, S. Q.: Heterogeneous consumer preferences for product quality and uncertainty, 2021.
69	MAENNIG, W. / MUELLER, S. Q.: Consumer and employer discrimination in professional sports markets – New evidence from Major League Baseball, 2021.
68	ECKERT, A. / MAENNIG, W.: Pharma-Innovationen: Überragende Position der USA und Schwächen der deutschen universitären und außeruniversitären Forschung, 2021.
67	MUELLER, S. Q. / RING, P. / FISCHER, M.: Excited and aroused: The predictive importance of simple choice process metrics, 2020.
66	MUELLER, S. Q. / RING, P. / SCHMIDT, M.: Forecasting economic decisions under risk: The predictive importance of choice-process data, 2019.
65	MUELLER, S. Q.: Pre- and within-season attendance forecasting in Major League Baseball: A random forest approach, 2018.
64	KRUSE, F. K. / MAENNIG, W.: Suspension by choice – determinants and asymmetries, 2018.

# Hamburg Contemporary Economic Discussions (Download: https://www.wiso.uni-hamburg.de/en/fachbereich-vwl/professuren/maennig/research/hceds.html)

63	GROTHE, H. / MAENNIG, W.: A 100-million-dollar fine for Russia's doping policy? A billion-dollar penalty would be more correct! Millionenstrafe für Russlands Doping-Politik? Eine Milliarden-Strafe wäre richtiger! 2017.
62	MAENNIG, W., / SATTARHOFF, C. / STAHLECKER, P.: Interpretation und mögliche Ursachen statistisch insignikanter Testergebnisse - eine Fallstudie zu den Beschäftigungseffekten der Fußball-Weltmeisterschaft 2006, 2017.
61	KRUSE, F. K. / MAENNIG, W.: The future development of world records, 2017.
60	MAENNIG, W.: Governance in Sports Organizations, 2017.
59	AHLFELDT, G. M. / MAENNIG, W. / FELIX J. RICHTER: Zoning in reunified Berlin, 2017.
58	MAENNIG, W.: Major Sports Events: Economic Impact, 2017.
57	MAENNIG, W.: Public Referenda and Public Opinion on Olympic Games, 2017.
56	MAENNIG, W. / WELLBROCK, C.: Rio 2016: Sozioökonomische Projektion des Olympischen Medaillenrankings, 2016.
55	MAENNIG, W. / VIERHAUS, C.: Which countries bid for the Olympic Games? Economic, political, and social factors and chances of winning, 2016.
54	AHLFELDT, G. M. / MAENNIG, W. / STEENBECK, M.: Après nous le déluge? Direct democracy and intergenerational conflicts in aging societies, 2016.
53	LANGER, V. C. E.: Good news about news shocks, 2015.
52	LANGER, V. C. E. / MAENNIG, W. / RICHTER, F. J.: News Shocks in the Data: Olympic Games and their Macroeconomic Effects – Reply, 2015.
51	MAENNIG, W.: Ensuring Good Governance and Preventing Corruption in the Planning of Major Sporting Events – Open Issues, 2015.
50	MAENNIG, W. / VIERHAUS, C.: Who Wins Olympic Bids? 2015 (3 <sup>rd</sup> version).
49	AHLFELDT, G. M. / MAENNIG, W. / RICHTER, F.: Urban Renewal after the Berlin Wall, 2013.
48	BRANDT, S. / MAENNIG, W. / RICHTER, F.: Do Places of Worship Affect Housing Prices? Evidence from Germany, 2013.
47	ARAGÃO, T. / MAENNIG, W.: Mega Sporting Events, Real Estate, and Urban Social Economics – The Case of Brazil 2014/2016, 2013.

## Hamburg Contemporary Economic Discussions

(Download: https://www.wiso.uni-hamburg.de/en/fachbereich-vwl/professuren/maennig/research/hceds.html)

- 46 MAENNIG, W. / STEENBECK, M. / WILHELM, M.: Rhythms and Cycles in Happiness, 2013.
- 45 RICHTER, F. / STEENBECK, M. / WILHELM, M.: The Fukushima Accident and Policy Implications: Notes on Public Perception in Germany, 2014 (2<sup>nd</sup> version).
- 44 MAENNIG, W.: London 2012 das Ende des Mythos vom erfolgreichen Sportsoldaten, 2012.
- 43 MAENNIG, W. / WELLBROCK, C.: London 2012 Medal Projection Medaillenvorausberechnung, 2012.
- 42 MAENNIG, W. / RICHTER, F.: Exports and Olympic Games: Is there a Signal Effect? 2012.
- 41 MAENNIG, W. / WILHELM, M.: Becoming (Un)employed and Life Satisfaction: Asymmetric Effects and Potential Omitted Variable Bias in Empirical Happiness Studies, 2011.
- 40 MAENNIG, W.: Monument Protection and Zoning in Germany: Regulations and Public Support from an International Perspective, 2011.
- 39 BRANDT, S. / MAENNIG, W.: Perceived Externalities of Cell Phone Base Stations – The Case of Property Prices in Hamburg, Germany, 2011.
- 38 MAENNIG, W. / STOBERNACK, M.: Do Men Slow Down Faster than Women? 2010.
- 37 DU PLESSIS, S. A. / MAENNIG, W.: The 2010 World Cup High-frequency Data Economics: Effects on International Awareness and (Self-defeating) Tourism, 2010.
- 36 BISCHOFF, O.: Explaining Regional Variation in Equilibrium Real Estate Prices and Income, 2010.
- 35 FEDDERSEN, A. / MAENNIG, W.: Mega-Events and Sectoral Employment: The Case of the 1996 Olympic Games, 2010.
- 34 FISCHER, J.A.V. / SOUSA-POZA, A.: The Impact of Institutions on Firms Rejuvenation Policies: Early Retirement with Severance Pay versus Simple Lay-Off. A Cross-European Analysis, 2010.

## Hamburg Contemporary Economic Discussions

(Download: https://www.wiso.uni-hamburg.de/en/fachbereich-vwl/professuren/maennig/research/hceds.html)

- 33 FEDDERSEN, A. / MAENNIG, W.: Sectoral Labor Market Effects of the 2006 FIFA World Cup, 2010.
- 32 AHLFELDT, G.: Blessing or Curse? Appreciation, Amenities, and Resistance around the Berlin "Mediaspree", 2010.
- 31 FALCH, T. / FISCHER, J.A.V.: Public Sector Decentralization and School Performance: International Evidence, 2010.
- 30 AHLFELDT, G./MAENNIG, W./ÖLSCHLÄGER, M.: Lifestyles and Preferences for (Public) Goods: Professional Football in Munich, 2009.
- 29 FEDDERSEN, A. / JACOBSEN, S. / MAENNIG, W.: Sports Heroes and Mass Sports Participation – The (Double) Paradox of the "German Tennis Boom", 2009.
- 28 AHLFELDT, G. / MAENNIG, W. / OSTERHEIDER, T.: Regional and Sectoral Effects of a Common Monetary Policy: Evidence from Euro Referenda in Denmark and Sweden, 2009.
- 27 BJØRNSKOV, C. / DREHER, A. / FISCHER, J.A.V. / SCHNELLENBACH, J.: On the Relation Between Income Inequality and Happiness: Do Fairness Perceptions Matter? 2009.
- 26 AHLFELDT, G. / MAENNIG, W.: Impact of Non-Smoking Ordinances on Hospitality Revenues: The Case of Germany, 2009.
- 25 FEDDERSEN, A. / MAENNIG, W.: Wage and Employment Effects of the Olympic Games in Atlanta 1996 Reconsidered, 2009.
- 24 AHLFELDT, G. / FRANKE, B. / MAENNIG, W.: Terrorism and the Regional and Religious Risk Perception of Foreigners: The Case of German Tourists, 2009.
- 23 AHLFELDT, G. / WENDLAND, N.: Fifty Years of Urban Accessibility: The Impact of Urban Railway Network on the Land Gradient in Industrializing Berlin, 2008.
- 22 AHLFELDT, G. / FEDDERSEN, A.: Determinants of Spatial Weights in Spatial Wage Equations: A Sensitivity Analysis, 2008.
- 21 MAENNIG, W. / ALLMERS, S.: South Africa 2010: Economic Scope and Limits, 2008.

# Hamburg Contemporary Economic Discussions (Download: https://www.wiso.uni-hamburg.de/en/fachbereich-vwl/professuren/maennig/research/hceds.html)

20	MAENNIG, W. / WELLBROCK, CM.: Sozio-ökonomische Schätzungen Olympischer Medaillengewinne: Analyse-, Prognose- und Benchmark- möglichkeiten, 2008.
19	AHLFELDT, G.: The Train has Left the Station: Real Estate Price Effects of Mainline Realignment in Berlin, 2008.
18	MAENNIG, W. / PORSCHE, M.: The Feel-good Effect at Mega Sport Events – Recommendations for Public and Private Administration Informed by the Experience of the FIFA World Cup 2006, 2008.
17	AHLFELDT, G. / MAENNIG, W.: Monumental Protection: Internal and External Price Effects, 2008.
16	FEDDERSEN, A./GRÖTZINGER, A./MAENNIG, W.: New Stadia and Regional Economic Development – Evidence from FIFA World Cup 2006 Stadia, 2008.
15	AHLFELDT, G. / FEDDERSEN, A.: Geography of a Sports Metropolis, 2007.
14	FEDDERSEN, A. / MAENNIG, W.: Arenas vs. Multifunctional Stadia – Which Do Spectators Prefer? 2007.
13	AHLFELDT, G.: A New Central Station for a Unified City: Predicting Impact on Property Prices for Urban Railway Network Extension, 2007.
12	AHLFELDT, G.: If Alonso was Right: Accessibility as Determinant for Attractiveness of Urban Location, 2007.
11	AHLFELDT, G., MAENNIG, W.: Assessing External Effects of City Airports: Land Values in Berlin, 2007.
10	MAENNIG, W.: One Year Later: A Re-Appraisal of the Economics of the 2006 Soccer World Cup, 2007.
09	HAGN, F. / MAENNIG, W.: Employment Effects of the World Cup 1974 in Germany.
08	HAGN, F. / MAENNIG W.: Labour Market Effects of the 2006 Soccer World Cup in Germany, 2007.
07	JASMAND, S. / MAENNIG, W.: Regional Income and Employment Effects of the 1972 Munich Olympic Summer Games, 2007.

# Hamburg Contemporary Economic Discussions (Download: https://www.wiso.uni-hamburg.de/en/fachbereich-vwl/professuren/maennig/research/hceds.html)

06	DUST, L. / MAENNIG, W.: Shrinking and Growing Metropolitan Areas – Asymmetric Real Estate Price Reactions? The Case of German Single-family Houses, 2007.
05	HEYNE, M. / MAENNIG, W. / SUESSMUTH, B.: Mega-sporting Events as Experience Goods, 2007.
04	DU PLESSIS, S. / MAENNIG, W.: World Cup 2010: South African Economic Perspectives and Policy Challenges Informed by the Experience of Germany 2006, 2007.
03	AHLFELDT, G. / MAENNIG, W.: The Impact of Sports Arenas on Land Values: Evidence from Berlin, 2007.
02	FEDDERSEN, A. / MAENNIG, W. / ZIMMERMANN, P.: How to Win the Olympic Games – The Empirics of Key Success Factors of Olympic Bids, 2007.
01	AHLFELDT, G. / MAENNIG, W.: The Role of Architecture on Urban Revitalization: The Case of "Olympic Arenas" in Berlin-Prenzlauer Berg, 2007.
04/2006	MAENNIG, W. / SCHWARTHOFF, F.: Stadium Architecture and Regional Economic Development: International Experience and the Plans of Durban, October 2006.
03/2006	FEDDERSEN, A. / VÖPEL, H.: Staatliche Hilfen für Profifußballclubs in fi- nanziellen Notlagen? – Die Kommunen im Konflikt zwischen Ima- geeffekten und Moral-Hazard-Problemen, September 2006.
02/2006	FEDDERSEN, A.: Measuring Between-season Competitive Balance with Markov Chains, July 2006.
01/2006	FEDDERSEN, A.: Economic Consequences of the UEFA Champions League for National Championships – The Case of Germany, May 2006.
04/2005	BUETTNER, N. / MAENNIG, W. / MENSSEN, M.: Zur Ableitung einfacher Multiplikatoren für die Planung von Infrastrukturkosten anhand der Aufwendungen für Sportstätten – eine Untersuchung anhand der Fußball- WM 2006, May 2005.

## Hamburg Contemporary Economic Discussions

(Download: https://www.wiso.uni-hamburg.de/en/fachbereich-vwl/professuren/maennig/research/hceds.html)

- 03/2005 SIEVERS, T.: A Vector-based Approach to Modeling Knowledge in Economics, February 2005.
- 02/2005 SIEVERS, T.: Information-driven Clustering An Alternative to the Knowledge Spillover Story, February 2005.
- 01/2005 FEDDERSEN, A. / MAENNIG, W.: Trends in Competitive Balance: Is there Evidence for Growing Imbalance in Professional Sport Leagues? January 2005.

