Supplementary Files

This online appendix provides supplementary information on the empirical results presented in the article "Wage Bargaining, Inequality, and the Dutch Disease" Please note that references to Tables and Figures in the article are represented by roman numerals whereas references to Tables and Figures in this appendix are denoted by capitalized letters.

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1 The Process of Coordinated Wage Bargaining

The process of wage bargaining differs significantly between countries with decentralized and coordinated wage bargaining systems. In the former, individual firms are free to reach wage agreements with the workers they employ, irrespective of the agreements reached in other firms and sectors. In contrast, countries with wage bargaining coordination feature different types of actors, a distinct process of negotiations, and different measures of enforcing agreements. The following section describes the essential elements of coordinated wage bargaining, drawing on the example of Norway but also referencing other countries.

1.1 The Actors

The actors involved in coordinated wage bargaining are not individual firms and workers employed in specific companies. Rather, large employer associations represent employers. For example, the largest employer association in Norway is the Confederation of Norwegian Enterprise (NHovedorganisasjon, NHO). It represents about 24,000 firms ranging from small family-owned businesses to multinational companies, covering most sectors and employing roughly 450,000 workers (NHO, 2013). The second largest employer organization is Hovedorganisasjonen Virke (formerly the Federation of Norwegian Commercial and Service Enterprises [Handels- og ServicenHovedorganisasjon] HSH), representing 20,000 member companies employing around 225,000 people (Virke, 2016). These two organizations alone cover about 30% of the Norwegian workforce.

Workers are also represented by large organizations, the most prominent of which is the Norwegian Federation of Trade Unions (Landsorganisasjonen i Norge, LO) (LO, 2016). It represents about 900,000 workers, which equals about 35% of the working age population in Norway.

This tendency to form large employer and employee associations in countries with

coordinated wage bargaining is not unique to Norway. For example, the most recent data indicates that 25,351 individual unions existed in 2006 in the United States, a country without a coordinated wage bargaining system (Basefsky, 2006). In contrast, Germany, a country with a coordinated wage bargaining system, had a total of eight unions.

1.2 Union Size and Union Behavior

Due to their size, unions tend to behave differently in coordinated than non-coordinated settings. Even if several individual unions exist, they tend to be incorporated into union federations who negotiate for multiple unions simultaneously. The larger number of workers covered by negotiations provides unions with the incentive to moderate their wage demands as they are more likely to internalize the inflationary consequences.

The following example illustrates the internalization argument. Assume two countries, A and B with a population of ten citizens each. In country A, a union represents a single worker. Assume the union succeeds in securing a nominal wage increase of \$1 for its members. The total increase in money supply in the economy amounts to $1 \times \$1 = \$1$. The inflationary cost of this increase is shared among the entire population, resulting in a cost of $\$1 \div 10 = \$0.10$ per citizen. The real wage increase for the union member is therefore $\$1 - \$0.10 = \$0.90$. This rationale applies to each individual union in country A.

In contrast, in country B a coordinated wage bargaining system implies that multiple unions are jointly negotiating wage agreements. Assume that nine out of ten citizens are covered by the same agreement. A nominal wage increase of \$1 per worker results in an increase in the money supply of $9 \times \$1 = \$9$, and an inflation cost of $\$9 \div 10 = \$0.90$ per citizen. The real wage increase for each union member in country B is therefore only $\$1 - \$0.90 = \$0.10$.

The decentralized nature of wage bargaining in country A implies that each union

in country A has the incentive to maximize nominal wage increases for its members. In contrast, unions in country B have incentives to exercise wage moderation: The joint negotiation leads to the realization that potential nominal wage increases might be consumed by the inflationary consequences. For this reason, unions in coordinated wage bargaining systems exercise wage restraint by matching nominal wage increases with productivity increases.

1.3 The Bargaining Process

In addition to the behavior of unions, the process of reaching wage agreements also differs across countries with and without coordinated wage bargaining. In decentralized systems, individual firms can negotiate with their workers without being constrained by external guidelines concerning maximum wage increases.

In contrast, coordinated wage bargaining imposes limits on wage increases. For example, the so-called Frontfag (or "trend-setting industries") model guides wage bargaining in Norway. This method of coordinating wage increases across sectors is based on the idea that wage growth in industries that compete in international markets sets the norm for what can be achieved in other industries" (Nergaard, 2014, p. 9). In the words of the Norwegian government,

> "Wage growth in Norway must be adapted to what the exposed sector over time can tolerate. This means that wage inflation in Norway must not be very much larger than that of our trading partners in a long-term perspective (5–20 years), because this will weaken the competitiveness of Norwegian industry." (NOU, 2013)

To accomplish this goal, employer associations and unions representing the manufacturing sector are the first to reach a collective agreement.

Expert knowledge is a key component guiding the bargaining at the peak level. In Norway, the Technical Calculations Committee (Det Tekniske Beregningsutvalget for Inntektsoppgjørene) provides such information. This neutral agency computes productivity increases in the manufacturing sector (Larsen, 2006), which serve as the basis for calculations of a wage corridor capturing a recommended maximum wage increase (Mjøset and Cappelen, 2011).

The outcome of this bargaining round sets an upper limit on the wage increases that workers in other sectors of the economy can hope to obtain in subsequent negotiations. The norms operate both across different sectors of the economy—as no agreement will be signed before a settlement is reached for the trend-setting industries (Van Gyes and Schulten, 2015)—as well as across different levels of bargaining: The hierarchical structure of the Norwegian agreement system implies that local bargaining outcomes cannot be in breach of the provisions included in agreements concluded at a higher level (Nergaard, 2014).

Norway is not the only OECD country that coordinates wage bargaining using a trend-setting industries model. Similar approaches exist in other countries such as Germany, Sweden, and Austria.

1.4 The Enforcement of Wage Agreements

However, once a wage agreement has been reached, enforcement is not without difficulties. In the case of Norway, there are plenty of examples where limits on wage increases were not popular. For example, Mjøset and Cappelen (2011) shows how the oil sector labor force challenged Norwegian labor relations. After oil production began in earnest from the 1970s onwards, workers in the oil sector realized that they could obtain much higher wages if they were not bound by a trend-setting industries wage bargaining system. After all, the marginal utility of the booming oil sector was much higher than that of the manufacturing

sector. As a consequence, a wave of strikes started in the late 1970s, peaked in 1981, and continued through to 1986 (Ryggvik, 2009, p. 164). This policy of moderating wages in oil sectors took a heavy toll on the unions since they risked a loss of confidence from some parts of its working class constituency (Mjøset and Cappelen, 2011). However, while the policy of wage compression was controversial in unions representing high-wage workers in oil sectors, unions of low-wage workers enthusiastically supported it. (Iversen, 1996).

Institutions: compulsory arbitration Considering that wage compression is not uniformly popular, it is worthwhile to examine the mechanisms by which these agreements are enforced. In short, there are three factors that explain the success of Norwegian bargaining agreements.

First, the Norwegian legal system allows for the possibility of compulsory arbitration. Particularly in the oil sector, there were instances of wage demands above and beyond what was granted to the leading manufacturing sector. In such situations, negotiations frequently broke down with the result that compulsory arbitration was initiated. This process involves three steps (Mjøset and Cappelen, 2011): First, a national mediator (Riksmeklingsmannen) acts as an arbitrator between the parties. If the mediator is unable to resolve the issue and the conflict erupts into a strike, a second step allows the two parties to voluntarily establish a wage committee (lønnsnemd) to resolve the conflict. If they do not, the third step gives the parliament the power to set it up for them. Such a forced committee (tvungen voldgift) consists of seven members, with a majority a four members appointed by the state. In the words of an IMF report on Norway, this institutionalized mechanism of compulsory arbitration "[...] was critical in limiting strike activity in both the private and public sector, and helped avoid oil workers' appropriation of oil rent by eliminating the scope for effective minority strikes that could undermine the centrally negotiated wage increases" (IMF, 2001).

Unions: Cross-sector enforcement Besides the institutional solution of compulsory arbitration, a second factor contributing to the enforcement of unpopular wage bargaining agreements in Norway is the incorporation of oil workers in larger union federations. For example, the LO has 24 individual affiliated unions. Among the members is the Industri Energi (IE) union that organizes workers in the oil and chemical industries. IE is the product of a merger between an oil-only union and the furniture industry union. The merging of unions representing oil workers with those of manufacturing sectors as well as the organization of unions in a common federation contributed to the internalization of conflicts between workers in different sectors. For example, it allowed the leadership of the LO and employers' association to force high-wage unions to accept an egalitarian wage policy by threatening lockouts against uncooperative unions (Moene and Wallerstein, 2006, p.20). For this reason, unions themselves have the ability "to control the militancy of privileged 'maverick' unions and restore cost-competitiveness to Norwegian industry" (Iversen, 1996, p.428). The resulting "[...] wage restraint through centralized solidarity negotiations have constrained the possibilities of boosting wage differentials with oil money" (Mehlum, Moene, and Torvik, 2012, p.180).

Employers: Cross-sector enforement A third factor is a similar development within employer associations. Oil firms were initially members of the Norwegian Employers' Confederation (Norsk Arbeidsgiverforening, NAF), which jointly represented the interests of firms in the mining, manufacturing, and construction sectors. Thus, from the outset, the same agents as those of manufacturing firms' represented the interests of oil and gas companies (Kahn, 1998). The subsequent merger between the NAF and other employer associations into the Confederation of Norwegian Enterprise (NHovedorganisasjon, NHO) further contributed to the increased heterogeneity within employer associations. This matters for wage outcomes as it internalizes conflict. In 1988, the NAF imposed a wage

agreement by threatening its members with fees as high as NOK 3 million, or even expulsion, if industries (i.e., the oil sector) willing to pay higher wages would not conform to a lower wage level demanded by manufacturing industries(Mjøset, 1989). Foreign oil companies were also forced to participate: They had to meet with the prime minister, who let them know that they would lose their positions in the North Sea if they did not comply with the norms of Norwegian labor relations (Ryggvik and Smith Solbakken, 1997, p. 271).

1.5 Distributional Consequences of Wage Agreements

What are the distributional consequences of coordinated wage bargaining in a country with substantial income from natural resources? In particular, if coordinated wage bargaining ensures that wages in the resource sector do not rise, where do the extra profits go? I will use the example of Norway to illustrate the distributional consequences.

Tax revenue First, what part of the natural resource rents accrues to the government? The Petroleum Taxation Act (Act of 13 June 1975 No. 35) covers the taxation of subsea petroleum deposits. It states that oil companies have to pay the normal tax rate for profits, just like any other business. However, in the words of Norwegian Energy Minister Ola Borton Moe, "There is an extraordinary return by production of the natural resources. Hence, the government as resource owner should capture its economic rent by taxing the oil companies. That is why we have a special tax rate at 50% in addition to the normal corporate tax rate of 28% " (Moe, 2013). Oil companies are therefore subject to an additional special tax (Norwegian Petroleum, 2015).

However, the fact that Norway uses taxes (rather than royalties) implies that companies can deduct all the costs incurred in producing their product. Lower wages in the oil sector due to coordinated wage bargaining therefore imply lower deductions for oil

companies, and consequently higher tax revenues for the government. The entirety of the tax revenues obtained from oil companies are paid into the Norwegian Sovereign Wealth Fund, not the general budget. As the Sovereign Wealth Fund is investing its resources abroad, these rent to not enter the Norwegian economy.

Profits Taxes on profits are a direct way for the government to appropriate natural resource rents. A second, indirect way operates through the after-tax profits accruing to oil companies. As some oil companies are state-owned, their after-tax profits go directly to the government as well. Most prominent among the state-owned oil companies is Statoil, whose leases control 80% of all oil output produced in Norway. The Norwegian state owns 67% of the shares in Statoil, and receives dividends in the same way as other shareholders (Moe, 2013). In addition, Norway owns holdings in a number of oil and gas fields, pipelines, and onshore facilities via the State's Direct Financial Interest (SDFI). The government covers its share of investments and costs, and receives a corresponding share of the income from production licenses (Moe, 2013). All profits by Statoil and SDFI are transferred to the Sovereign Wealth Fund. If coordinated wage bargaining results in comparatively low wages for workers in the oil sector, the after-tax profit margins of these companies should increase, resulting in higher net-profits transferred into the Sovereign Wealth Fund. As mentioned above, these funds are not used for redistribution, but are invested abroad.

If the oil companies are privately owned, the additional profits due to lower wages accrue to the private owners of these companies. As noted above, unions representing oil workers are not necessarily pleased with this arrangement. Roar Eilertsen, CEO of De Facto knowledge center for union members, stated that coordinated wage bargaining "is a recipe that owners should make even greater share of the profits at the expense of workers" (Svelle, 2009). After another instance where compulsory arbitration was evoked

by the government in 2012, Leif Sande, President of the IndustriALL—Norway's largest oil workers union, which is affiliated with Industri Energi (IE)—stated that, "The companies wanted compulsory arbitration and now they have it. However, what does this say about the right to collective bargaining and the right to strike in our country?" (Industriall Union, 2012)

2 An Example of Coordinated Wage Bargaining in an Oil-Rich Country: The strikes and lockouts of 1986 in Norway

This section provides an example of how coordinated wage bargaining in oil-rich countries can limit the Dutch Disease. To best illustrate the workings of coordinated wage bargaining, I chose a situation that clearly illustrates the potential for the Dutch Disease and how subsequent bargaining avoided it. In short, the service sector in Norway's oil industry pushed hard for higher wages in 1986—ignoring wage agreements reached in the leading manufacturing sectors—but was ultimately prevented from accomplishing its goal due to compulsory arbitration proceedings.

The wage negotiations of 1986 were not expected to be particularly controversial. For example, on February 15, Paal Kraby, managing director of Norsk Arbeidsgiverforening (NAF, the Norwegian Employers' Association), publicly stated that "This spring's negotiations should be the easiest for years" (Dow Jones, 1986). Parallel negotiations relating to six collective agreements began soon thereafter in the various sectors, with the understanding that the outcome of the leading sector's negotiations would provide a norm for the subsequent agreements.

Yet, negotiations progressed slower than expected, partly due to crossfire by militant

maverick unions. Three unions involved in the negotiations—the Catering Workers' Federation (CAF) the Oil Drillers' Federation (OBF), and the Operator Workers' Federation (OAF)—demanded pay increases of 28% for their workers (The Financial Times, 1986d). In contrast, the negotiations in non-oil sectors involved issues such as relatively higher wage rises for low-paid workers, a shorter working week, and a limit of 5% for overall pay increases (The Times, 1986).

These wage demands are consistent with the theoretical predictions of the Dutch Disease: In light of high marginal productivity of the booming oil sector, workers in these sectors expect higher wage increases than those in non-booming sectors. In addition, smaller unions—the CAF, which represents a total of only 675 workers (Associated Press, 1986)—tend to discount the inflationary pressures generated by high wage demands due to their small size.

However, granting such extreme wage increases would have fueled the Resource Movement Effect (motivating more workers to move from the manufacturing into the oil and service sector) and the Spending Effect (a disproportional increase in income is likely to be spent on services and imports rather than domestic goods). Furthermore, employer associations were keen to prevent any signals to other unions in parallel negotiations that wage increases of this magnitude were possible. For this reason, oil companies refused to give in to these wage demands.

After several weeks of unsuccessful negotiations, the CAF, OBF, and OAF broke off negations on March 19 and gave notice of a strike involving its members. Two days later, on March 21, the employer federations gave notice of a lockout of members of these unions (ILO, 1987). Both strikes and the lockout commenced on April 6 (The Financial Times, 1986d). The lockout itself affected around 3,000 workers on Norwegian production installations, prompting unions engaged in this sector to call on about 15,000 union members in both oil and non-oil related sectors to go on strike. This, in turn, triggered

lockouts from employers in non-oil related sectors such as iron and metal, building and construction, hotel and restaurant trades, textiles, and electro-chemicals. This resulted in a total of 120,000 people (about 10% of the employed population) being unable to work (The Times, 1986). Anecdotes illustrate the ensuing chaos: "Bewildered hotel residents were asked to leave their rooms as about a quarter of the nation's hotels locked their doors [...] Several newspapers were unable to publish, including the leading quality daily Aftenposten, which was forced to postpone its launch of a 32-page tabloid supplement on Saturday" (The Times, 1986).

This escalation alarmed the government. After all, the Ministry of Finance had calculated that the strikes were costing the country between $34-million to $40-million *daily* due to forgone taxes on profits in the petroleum sector (The Globe and Mail, 1986b). However, recognizing unions' rights to strike as well as the fact that negotiations occurred between private parties, the government decided not to intervene at this point. On April 11, Prime Minister Kaare Willoch and Labor Minister Arne Rettedal publicly stated that they did not have any plans to seek a solution to the conflict by mandatory arbitration (The Globe and Mail, 1986b). They did, however, appoint Assistant National Conciliator Reidar Webster as a mediator in an attempt to get both sides back to the negotiation table. Nevertheless, at this point, commentators speculated over the end of the Norwegian bargaining system: "The so-called Swedish model of highly centralized wage bargaining, coupled with a state-run arbitration system, breathes what many observers see as its last gasp" (The Times, 1986).

However, the calls for the end of the Norwegian bargaining system were exaggerated. Three days later, on April 14, Norwegian Employer's Association (NAF) called off its lockout of over 100,000 workers in non-oil related sectors, a move that came after 24 hours of continuous bargaining (The Financial Times, 1986b). An agreement was reached in the leading sector—the heavy engineering industry—"which is expected to set the pattern for

the rest of this spring's labor settlements" (The Financial Times, 1986b). The agreement involved an industry-wide pay raise of NKr 1 per hour, and introduced a shorter working week for blue-collar workers (37.5 hours rather than 40 hours).

In contrast to the non-oil sector, the conflict in the oil sector showed no sign of ending. The combination of strike and lockout affecting a total of 15,000 workers went into its second week on Sunday (The Financial Times, 1986b). However, Bjorn Haug, the chief Government mediator in these negotiations, expected agreement soon. He indicated the oil-sector unions had changed their demands for an immediate 28% pay raise, although the new demands were not publicly known (The Globe and Mail, 1986a). However, by Friday, April 18, the Norwegian Oil Industry Employers Federation rejected the union offer (The Globe and Mail, 1986a). Consequently, Haug dashed hopes for an end to a dispute that had halted the country's oil and gas production for two weeks at this point (The Globe and Mail, 1986a).

The government became increasingly uneasy over the situation. By this point, the strikes and lockouts had cost the Norwegian state an estimated NKr 3bn to NKr 4bn in lost revenue (The Financial Times, 1986c). On April 22, the arbitrators called unions and employers to the negotiation table again, arguing that it was time to make a fresh attempt to negotiate a solution. The government did not want to evoke Compulsory Arbitration just yet, but was threatening to do so (The Financial Times, 1986a). Thus, unions and employers decided to end their non-cooperation shortly after Labor Minister Arne Rettedal told both sides that the government would impose a unilateral settlement on the deadlocked wage dispute by mandatory arbitration if necessary (Associated Press, 1986). The following day, April 23, employers made a new proposal during talks with union representatives, raising hopes for a settlement. However, commentators noted that the gap between the two sides was still believed to be very wide (The Financial Times, 1986a). Consequently, no agreement was reached that day.

A day later, on April 24, the government stated that there still appeared to be complete deadlock after three weeks despite additional efforts on the part of the state-appointed mediator (ILO, 1987). "After being informed by Webster about the mediation failure, Rettedal attended a Cabinet meeting during which the government drafted legislation for forced arbitration to be presented in the 157-member Storting, Norway's parliament" (Associated Press, 1986). "Justifying his decision to order a compulsory settlement, Mr. Arne Rettedal, the Labor Minister, pointed to safety risks involved in any shutdown, with platforms manned only by maintenance crews" (The Financial Times, 1986c). "There was broad political support for the coalition government's bill, which would set up an arbitration panel to come up with a binding settlement of the pay dispute" (Associated Press, 1986). The government went on to draft the a bill—as required each time a compulsory settlement is ordered—that will set up a State Wages Board, an impartial body of six people consisting (two neutral members, two union representatives, and two employer delegates). The bill was expected to be presented to the parliament within a week, and was widely expected to be approved (The Financial Times, 1986c).

The following day, April 25, revealed that neither unions nor employers were pleased when the government announced that compulsory arbitration procedures would be invoked (Toronto Star, 1986). However, they accepted the decision: "The employers' association lifted its lockout, which affected three unions, immediately after Mr. Rettedal made his announcement. Technically, both employers and unions can prolong their action until the parliament has approved the relevant bill. However, the unions, although bitter about the Government move, decided to return to work yesterday" (The Financial Times, 1986c). By April 28, the Norwegian oil rigs were operating again (Wall Street Journal, 1986). The bill introducing the compulsory wages board was discussed in the Parliament on April 30 and adopted on May 5. The final settlement was in line with the agreement reached in the leading sector (ILO, 1987).

While unions representing non-oil workers were pleased with the outcome, the unions representing workers in the oil and related service sectors continued to be furious. Although they were forced to accept the eventual outcome, in a letter dated November 28, 1986, the Catering Workers' Federation (CAF) the Oil Drillers' Federation (OBF), and the Operator Workers' Federation (OAF) filed a complaint with the International Labor Organization (ILO). These unions criticized that "the system of compulsory arbitration deprives workers in the oil industry of the right to strike and undermines the possibility of genuine negotiations between the parties to disputes" (ILO, 1987). However, from the perspective of the Dutch Disease, these measures did prevent extraordinary wage increases and avoided income differentials. For this reason, the Resource Movement Effect and the Spending Effect were avoided, and the competitiveness of the Norwegian non-oil industry preserved.

3 Description of Data

The data used for analyses reported in the article was obtained from various sources. Table A methodically displays definitions and sources of the variables used. In addition, Figure A displays the variation of non-tax revenues across industrialized economies.

	Definition	Source	Observations	Mean	SD	Minimum	Maximum
Dependent Variables	Exports of goods and services (% of GDP) - Oil rents (% of GDP)	World Bank (World Development Indicators)	692	32.44	17.36	5.24	99.98
	Exports of goods and services (% of GDP) - Total natural resources rents (% of GDP)	World Bank (World Development Indicators)	692	31.41	17.52	3.37	99.85
	Manufactures exports (% of merchandise exports)	World Bank (World Development Indicators)	839	66.92	22.73	4.37	96.79
	Wage index, 1990 or 1995=100 (depending on country)	Brady, Beckfield, and Stephens (2004)	653	51.80	35.60	1.90	126.41
	Wage Rates	IMF (International Financial Statistics)	511	51.36	34.80	1.45	116.93
	Manufacturing Wage Rates	IMF (International Financial Statistics)	197	46.43	33.45	1.55	112.30
	Real Effective Exchange Rate, Unit Labor Costs	IMF (International Financial Statistics)	451	101.88	21.50	65.27	209.45
	Real Effective Exchange Rate, Consumer	IMF (International Financial Statistics)	592	98.94	11.33	63.34	138.93
Key Independent Variables	Summary measure of centralisation of wage bargaining	Visser (2011)	843	0.41	0.20	0.08	0.98
	Gini Coefficient interpolated	OECD Statistics	413	0.29	0.04	0.20	0.38
	Total resource rents per capita in real US$	Dunning (2008)	576	156.22	311.47	0.00	2760.48
Control Variables	CBI index by Eijffinger: 1 not independent, 5 very ind.	Armingeon et al. (2014)	629	2.82	1.15	1.00	5.00
	Net union density	Golden, Lange, and Wallerstein (2009)	640	0.00	0.01	-0.07	0.08
	GDP per capita growth (annual %)	World Bank (World Development Indicators)	849	2.45	2.30	-6.77	12.51
	Manufacturing, value added (% of GDP) / Services, etc., value added (% of GDP)	World Bank (World Development Indicators)	508	0.32	0.10	0.15	0.64
	Unemployment Rate	International Financial Statistics (IMF)	447	7.11	3.52	0.50	19.00
	Mean income of wage employees in U.S. PPP$ at current prices	OECD Statistics	576	14659.83	8163.89	1339.00	36224.00
	Labor Productivity Index, 2000 = 100	OECD Statistics	677	81.14	20.07	27.50	123.10
	Inflation, consumer prices (annual %)	World Bank (World Development Indicators)	806	4.76	3.98	-9.63	23.18
	Nominal Effective Exchange Rate, Consumer	IMF (International Financial Statistics)	706	97.72	29.15	17.74	264.44
	Exchange rate regime	(Reinhart and Rogoff, 2016)	883	2.04	1.06	1.00	4.00

Table A: Definitions, sources, and descriptive statistics of each variable used in the analyses.

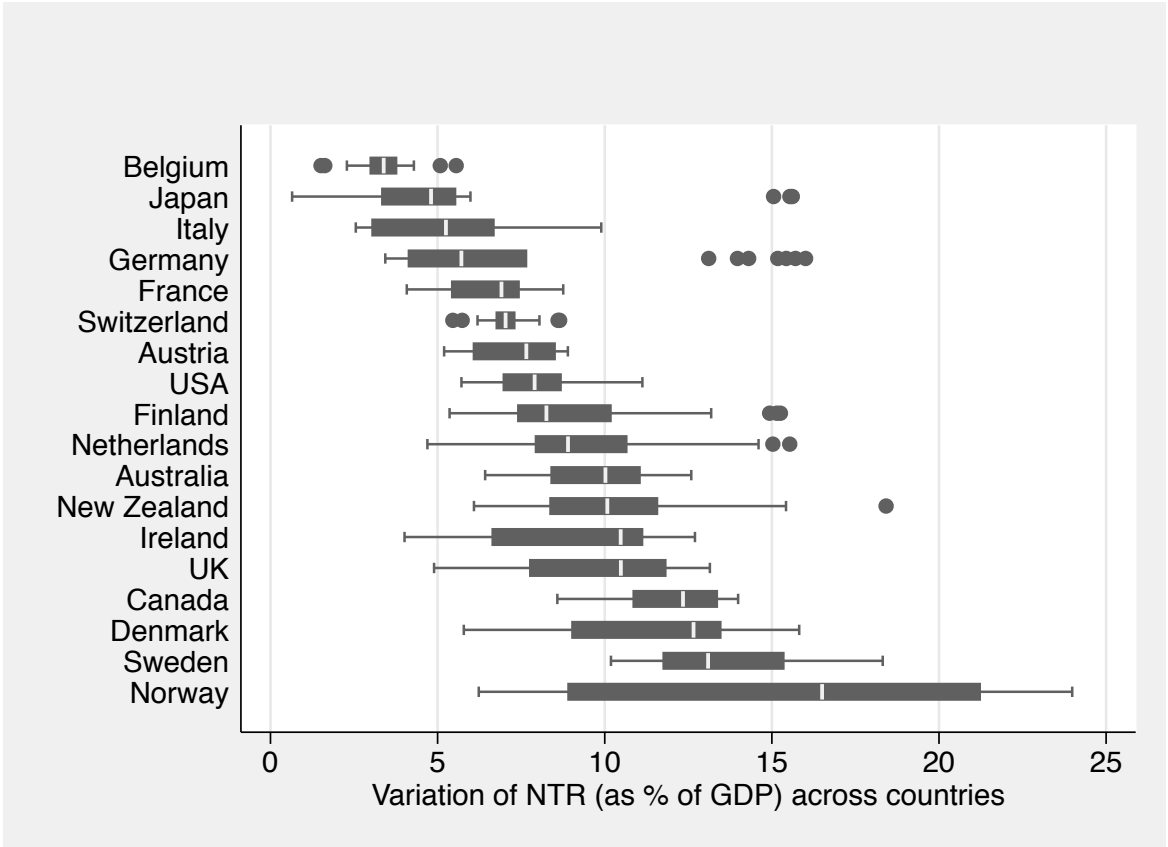


Figure A: Variation of non-tax revenues across industrialized economies.

4 Full Tables

For reasons of space, the article presented the main results using figures rather than tables. The estimation results on which these figures are based are presented in this section.

4.1 Tables for Figures 6 and 7

	(1) Exports minus Oil exports (% of GDP)	(2) Exports minus Natural Resource exports (% of GDP)	(3) Manufacture exports (% merch. exports)	(4) Exports minus Oil exports (% of GDP)	(5) Exports minus Natural Resource exports (% of GDP)	(6) Manufacture exports (% merch. exports)
Resource Rents per capita	-0.008**	-0.010***	-0.013***	0.021**	0.022**	0.029***
	(0.003)	(0.003)	(0.003)	(0.010)	(0.009)	(0.011)
Wage Coordination	1.741	1.495	-5.781			
	(3.265)	(3.075)	(3.553)			
Wage Coordination × Resource Rents	0.018**	0.020***	0.018**			
	(0.007)	(0.007)	(0.008)			
Gini				-65.953***	-64.519***	-36.122*
				(20.090)	(20.201)	(20.927)
Gini × Resource Rents				-0.082**	-0.088***	-0.126***
				(0.036)	(0.033)	(0.039)
GDP per capita growth	0.167	0.148	-0.036	0.214*	0.182*	-0.005
	(0.106)	(0.103)	(0.085)	(0.113)	(0.108)	(0.090)
De facto crawling peg	-1.429*	-1.391*	-1.541**	-0.842	-0.816	-1.367**
	(0.737)	(0.731)	(0.665)	(0.783)	(0.780)	(0.682)
Managed floating	0.121	0.138	-1.282	-0.656	-0.551	-1.954
	(0.865)	(0.859)	(1.079)	(1.484)	(1.484)	(1.740)
Freely floating	-0.248	-0.068	1.893	0.700	0.840	1.969
	(0.917)	(0.905)	(1.192)	(0.967)	(0.962)	(1.223)
Unemployment Rate	-0.415***	-0.417***	-0.327***	-0.384***	-0.394***	-0.306***
	(0.121)	(0.118)	(0.109)	(0.120)	(0.118)	(0.096)
Mean income of wage employees	0.122	0.138	0.156	0.207	0.218	0.327**
	(0.127)	(0.126)	(0.112)	(0.173)	(0.175)	(0.142)
Labor Productivity Index	0.306***	0.309***	0.095*	0.368***	0.365***	0.063
	(0.073)	(0.072)	(0.055)	(0.081)	(0.082)	(0.062)
Nominal Exchange Rate	-0.147***	-0.145***	0.042**	-0.182***	-0.177***	0.010
	(0.016)	(0.016)	(0.019)	(0.017)	(0.016)	(0.019)
Constant	0.306	-1.993	14.431***	18.070**	15.887**	30.585***
	(5.152)	(5.110)	(4.243)	(7.226)	(7.194)	(5.999)
N	271	271	269	242	242	240

Table B: Estimation results for the effect of natural resource rents on three measures of exports, conditional on the degree of wage coordination and inequality respectively. Standard Errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

4.2 Tables for Figures 8 and 9

	(1) Wage Index (Total)	(2) Wage Rates (Total)	(3) Wage Rates (Manufacturing)	(4) Wage Index (Total)	(5) Wage Rates (Total)	(6) Wage Rates (Manufacturing)
Resource Rents per capita	0.014**	0.032***	0.044***	-0.035***	-0.022*	-0.103***
	(0.007)	(0.012)	(0.007)	(0.012)	(0.011)	(0.038)
Wage Coordination	-27.931	7.534	182.196***			
	(19.978)	(12.131)	(47.437)			
Wage Coordination × Resource Rents	-0.033**	-0.066***	-0.180***			
	(0.013)	(0.025)	(0.031)			
Gini				179.714***	145.956***	-115.991
				(40.576)	(25.538)	(99.289)
Gini × Resource Rents				0.127***	0.085**	0.340***
				(0.046)	(0.042)	(0.117)
GDP per capita growth	-0.876***	-0.342*	-0.916***	-0.748***	-0.399**	-0.842***
	(0.185)	(0.199)	(0.153)	(0.182)	(0.180)	(0.154)
Union density	-1.165	-60.004*	39.294	12.039	-10.584	48.504
	(35.264)	(32.815)	(36.311)	(31.217)	(26.134)	(33.446)
Unemployment Rate	-0.186	-0.190	-0.781***	-0.200	0.017	-0.675***
	(0.222)	(0.180)	(0.190)	(0.196)	(0.166)	(0.146)
Labor Productivity Index	1.784***	1.139***	1.477***	1.480***	1.053***	1.525***
	(0.064)	(0.047)	(0.077)	(0.054)	(0.037)	(0.159)
Inflation	-0.769***	-0.982***	-1.109***	-0.735***	-0.449**	-1.006***
	(0.242)	(0.260)	(0.211)	(0.244)	(0.216)	(0.216)
Constant	-42.485***	-37.435***	-89.177***	-83.444***	-75.121***	-12.406
	(13.661)	(8.505)	(10.974)	(13.314)	(8.927)	(17.803)
N	199	131	63	177	128	58

Table C: Estimation results for the effect of natural resource rents on three measures of wages, conditional on the degree of wage coordination and inequality respectively. Standard Errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

4.3 Tables for Figures 10 and 11

	(1) REER (Consumer Prices)	(2) REER (Unit Labor Costs)	(3) REER (Consumer Prices)	(4) REER (Unit Labor Costs)
Resource Rents per capita	0.067**	0.073***	-0.176***	-0.150***
	(0.030)	(0.014)	(0.049)	(0.026)
Wage Coordination	43.249**	17.357		
	(21.167)	(14.001)		
Wage Coordination × Resource Rents	-0.138**	-0.125***		
	(0.054)	(0.024)		
Gini			-355.557***	-248.572***
			(122.531)	(62.655)
Gini × Resource Rents			0.698***	0.623***
			(0.212)	(0.112)
GDP per capita growth	-1.109***	0.078	-0.832*	-0.055
	(0.416)	(0.180)	(0.473)	(0.248)
Central Bank Independence	-10.210**	15.598***	13.123	7.097***
	(4.826)	(1.932)	(9.157)	(1.284)
De facto crawling peg	-3.302	2.647	-0.272	5.011**
	(6.283)	(1.786)	(6.666)	(2.286)
Managed floating	6.765	3.680	2.090	-4.105**
	(4.335)	(2.627)	(3.096)	(1.813)
Freely floating	-45.819**	41.118***	47.711	23.898***
	(18.996)	(9.212)	(34.051)	(4.897)
Inflation	0.138	-0.196	0.071	-0.225*
	(0.200)	(0.138)	(0.188)	(0.119)
VA tradable vs. non-tradable sector	116.245***	-68.644***	88.296*	-22.197
	(43.304)	(18.474)	(47.147)	(19.821)
Nominal Exchange Rate	0.977***	0.418***	0.988***	0.599***
	(0.109)	(0.060)	(0.114)	(0.073)
N	160	227	145	170

Table D: Estimation results for the effect of natural resource rents on two measures of the real exchange rate, conditional on the degree of wage coordination and inequality respectively. Standard Errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

5 Alternative Measures of Natural Resources

The results reported in the article could depend on the particular measure for natural resources used. To demonstrate their robustness, I re-estimate the models presented in the main article using variables that operationalize natural resource wealth differently.

Alternative Measures Recall that I utilize 'Natural Resource Rents per capita in real US$' developed by Dunning (2008), which subtracts the production costs from the natural resources price and then multiplies the unit-rent by the overall production volume. This measure captures rents obtained from all types of natural resources, such as minerals, gas and oil. However, the negative effects of natural resources have been associated with oil in particular. In order to assess whether the inclusion of minerals and gas in the operationalization of natural resources dilutes the effect of oil, I reassess the models using the variable 'Oil Rents per capita in real US$' also developed by Dunning (2008).

However, both these variables are calculated on a per capita basis. While this is the preferable operationalization of natural resource wealth, other denominators have also been suggested. Particularly, 'Oil Rents as a percentage of GDP' can be used instead since it is available from the World Bank's World Development Indicators (WDI). Furthermore, it can be argued that oil does not generate income to a country, but only the products developed from oil that are subsequently exported. Similarly, the denominator should correspond to the type of nominator instead of referencing population or GDP. The variable 'Fuel Exports as a percentage of Merchandise Exports' provided by the World Bank accounts for these points.

In addition, I re-estimate the models using 'Oil rents per capita' calculated using oil reserves instead of oil production (Humphreys, 2005), and 'Oil rents per capita' calculated as the prices of resources produced minus the production costs Hamilton and Clemens (1999). The findings remain unaffected by these changes.

Findings – Exports I re-estimate the models presented in Table B examining the effect of the five alternative measures of natural resources on exports.

Table E presents the replication with respect to the interactions between natural resources and wage coordination. To facilitate a direct comparison to the results presented in the article, models 1, 7, and 13 are the original estimations across the three different dependent variables. The additional columns display the replication efforts using alternative measures of natural resources. The original models are characterized by a negative and statistically significant coefficient for natural resources, an insignificant coefficient for wage coordination, and a positive and statistically significant coefficient of the interaction term. This result remains that same regardless of alternative measurements of natural resources.

Table F repeats the exercise for the interactions between natural resources and inequality. Again, using alternative measures for natural resources does not change the results: The original model as well as the alternative estimations feature a positive and significant coefficient for natural resources as well as a negative but significant coefficient for inequality, while the interaction coefficient is negative and significant.

Findings – Wages I also re-estimate the models presented in Table C examining the effect of the five alternative measures of natural resources on wages.

Tables G present the robustness tests regarding the interaction effect between wage coordination and natural resources on wages. Both the sign and significance of the original coefficients in models 1, 7, and 13 correspond closely to these of the alternative specifications.

Similarly, the interaction between natural resources and inequality are presented in Table H. While there are selected instances where coefficients fail to display statistical significance, the the sign of the coefficients is consistent with those of the main model.

Most of the time, however, the findings do not change if alternative measures of natural resources are used.

Findings – REER Table D presents the original models examining the effect of wage coordination and inequality on the real exchange rate. I replicate these models using alternative measures of natural resources as well.

Table I and Table J present the replication efforts for the interactions with wage coordination and inequality, respectively. In both cases, using the alternative measures for natural resources does not change the results: Both the sign and statistical significance of the coefficients remain consistent with the original models presented in columns 1 and 7.

	(1) Exports minus Oil exports (% of GDP)	(2) Exports minus Oil exports (% of GDP)	(3) Exports minus Oil exports (% of GDP)	(4) Exports minus Oil exports (% of GDP)	(5) Exports minus Oil exports (% of GDP)	(6) Exports minus Oil exports (% of GDP)	(7) Exports minus Natural Resource exports (% of GDP)	(8) Exports minus Natural Resource exports (% of GDP)	(9) Exports minus Natural Resource exports (% of GDP)	(10) Exports minus Natural Resource exports (% of GDP)	(11) Exports minus Natural Resource exports (% of GDP)	(12) Exports minus Natural Resource exports (% of GDP)	(13) Exports minus Natural Resource exports (% of GDP)	(14) Manufacture exports (% merch. exports)	(15) Manufacture exports (% merch. exports)	(16) Manufacture exports (% merch. exports)	(17) Manufacture exports (% merch. exports)	(18) Manufacture exports (% merch. exports)
Wage Coordination	1.741	2.695	-1.294	2.552	-1.564	-0.906	1.495	2.638	-1.447	2.303	-0.413	-1.160	-5.781	-4.933	-3.460	-3.420	-6.676**	-9.629***
	(3.265)	(3.294)	(3.875)	(3.341)	(2.490)	(2.570)	(3.075)	(3.143)	(3.661)	(3.169)	(2.255)	(2.259)	(3.553)	(3.505)	(3.512)	(3.292)	(3.370)	(3.344)
Resource Rents per capita [Dunning]	-0.008**						-0.010***						-0.013***					
	(0.003)						(0.003)						(0.003)					
Wage Coordination × Resource Rents	0.018**						0.020***						0.018**					
	(0.007)						(0.007)						(0.008)					
Oil Rents per capita [Dunning]		-0.007**						-0.009***						-0.013***				
		(0.003)						(0.003)						(0.004)				
Wage Coordination × Oil Rents		0.017**						0.018***						0.020**				
		(0.007)						(0.007)						(0.008)				
Fuel exports (% of merchandise exports) [World Bank]			-0.454**						-0.596***						-0.681***			
			(0.227)						(0.214)						(0.188)			
Wage Coordination × Fuel exports			0.990**						1.068**						0.003			
			(0.461)						(0.439)						(0.437)			
Oil rents (% of GDP) [World Bank]				-1.564**						-2.066***						-1.817***		
				(0.664)						(0.612)						(0.661)		
Wage Coordination × Oil rents				2.760*						3.358**						0.648		
				(1.491)						(1.354)						(1.466)		
Oil rents (per capita) [Humphreys]					-0.116***						-0.102***						-0.027	
					(0.036)						(0.032)						(0.043)	
Wage Coordination × Oil rents					0.226***						0.204***						0.077	
					(0.064)						(0.058)						(0.075)	
Oil rents [Humphreys + Hamilton and Clemens]						-0.007**						-0.010***						-0.014***
						(0.003)						(0.003)						(0.003)
Wage Coordination × Oil rents						0.014**						0.019***						0.025***
						(0.006)						(0.005)						(0.006)
GDP per capita growth	0.167	0.171	0.134	0.169	0.165**	0.102	0.148	0.152	0.119	0.143	0.161**	0.100	-0.036	-0.040	-0.009	-0.003	0.082	0.070
	(0.106)	(0.106)	(0.104)	(0.110)	(0.068)	(0.067)	(0.103)	(0.103)	(0.101)	(0.105)	(0.064)	(0.062)	(0.085)	(0.085)	(0.078)	(0.081)	(0.092)	(0.085)
De facto crawling peg	-1.429*	-1.473**	-1.228	-1.385*	-0.719	-0.606	-1.391*	-1.447**	-1.224	-1.275*	-0.753	-0.631	-1.541**	-1.529**	-1.588**	-1.373**	-1.167	-1.167
	(0.737)	(0.739)	(0.774)	(0.740)	(0.579)	(0.621)	(0.731)	(0.732)	(0.773)	(0.721)	(0.579)	(0.609)	(0.665)	(0.660)	(0.644)	(0.625)	(0.852)	(0.823)
Managed floating	0.121	0.100	-0.046	0.232	-0.946	-0.533	0.138	0.135	-0.018	0.250	-0.840	-0.443	-1.282	-1.199	-0.213	-1.059	-0.019	0.153
	(0.865)	(0.864)	(0.954)	(0.877)	(0.726)	(0.664)	(0.859)	(0.857)	(0.963)	(0.861)	(0.750)	(0.686)	(1.079)	(1.070)	(1.193)	(1.018)	(1.572)	(1.547)
Freely floating	-0.248	-0.278	-0.318	-0.462	-1.645**	-1.477*	-0.068	-0.125	-0.329	-0.342	-1.841**	-1.551**	1.893	1.886	0.580	1.032	-0.984	-0.556
	(0.917)	(0.917)	(1.009)	(0.937)	(0.783)	(0.827)	(0.905)	(0.904)	(1.007)	(0.911)	(0.759)	(0.791)	(1.192)	(1.182)	(1.137)	(1.117)	(1.173)	(1.140)
Unemployment Rate	-0.415***	-0.413***	-0.475***	-0.452***	-0.215	-0.240*	-0.417***	-0.413***	-0.460***	-0.442***	-0.188	-0.220*	-0.327***	-0.315***	-0.188*	-0.256**	-0.089	-0.086
	(0.121)	(0.121)	(0.123)	(0.119)	(0.130)	(0.138)	(0.118)	(0.117)	(0.119)	(0.114)	(0.119)	(0.124)	(0.109)	(0.109)	(0.106)	(0.107)	(0.190)	(0.177)
Mean income of wage employees	0.122	0.122	0.006	0.075	0.564***	0.602***	0.138	0.137	0.012	0.078	0.654***	0.619**	0.156	0.155	0.143	0.091	1.107***	1.000***
	(0.127)	(0.126)	(0.161)	(0.124)	(0.124)	(0.134)	(0.126)	(0.125)	(0.159)	(0.122)	(0.115)	(0.121)	(0.112)	(0.113)	(0.150)	(0.114)	(0.159)	(0.157)
Labor Productivity Index	0.306***	0.302**	0.373**	0.330**	0.004	-0.014	0.309**	0.305***	0.383***	0.342***	-0.031	-0.025	0.095*	0.097*	0.092	0.127**	-0.426***	-0.371***
	(0.073)	(0.072)	(0.091)	(0.070)	(0.068)	(0.076)	(0.072)	(0.071)	(0.090)	(0.069)	(0.063)	(0.068)	(0.055)	(0.055)	(0.068)	(0.054)	(0.080)	(0.083)
Nominal Exchange Rate	-0.147***	-0.146***	-0.138***	-0.148***	-0.121***	-0.121***	-0.145***	-0.144***	-0.135***	-0.151***	-0.120***	-0.121***	0.042**	0.042**	0.045**	0.035**	0.015	0.017
	(0.016)	(0.016)	(0.017)	(0.017)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.017)	(0.015)	(0.015)	(0.019)	(0.019)	(0.018)	(0.018)	(0.021)	(0.019)
Constant	0.306	0.802	-3.000	0.519	16.735***	17.514***	-1.993	-1.896	-4.194	-2.303	14.939***	15.359***	14.431***	13.197***	27.037***	13.253***	40.396***	39.570***
	(5.152)	(5.118)	(5.985)	(4.941)	(4.112)	(4.515)	(5.110)	(5.070)	(5.875)	(4.916)	(3.819)	(4.100)	(4.243)	(4.173)	(4.921)	(3.876)	(4.670)	(4.632)
N	271	271	240	272	173	173	271	271	240	272	173	173	269	269	240	270	171	171

Table E: Re-estimating the effect of natural resources on exports conditional on wage coordination (see Table B) using alternative measures of natural resource wealth. Standard Errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

	(1) Exports minus Oil exports (% of GDP)	(2) Exports minus Oil exports (% of GDP)	(3) Exports minus Oil exports (% of GDP)	(4) Exports minus Oil exports (% of GDP)	(5) Exports minus Oil exports (% of GDP)	(6) Exports minus Oil exports (% of GDP)	(7) Exports minus Natural Resource exports (% of GDP)	(8) Exports minus Natural Resource exports (% of GDP)	(9) Exports minus Natural Resource exports (% of GDP)	(10) Exports minus Natural Resource exports (% of GDP)	(11) Exports minus Natural Resource exports (% of GDP)	(12) Exports minus Natural Resource exports (% of GDP)	(13) Exports minus Natural Resource exports (% of GDP)	(14) Manufacture exports (% merch. exports)	(15) Manufacture exports (% merch. exports)	(16) Manufacture exports (% merch. exports)	(17) Manufacture exports (% merch. exports)	(18) Manufacture exports (% merch. exports)
Gini	-65.953***	-66.915***	-40.908**	-69.178***	-5.490	-9.500	-64.519***	-65.645***	-40.927**	-67.347***	-0.130	-2.988	-36.122*	-37.812*	-21.271	-42.617**	77.916***	76.977***
	(20.090)	(20.162)	(19.337)	(19.843)	(17.682)	(16.972)	(20.201)	(20.310)	(19.621)	(19.782)	(17.028)	(17.007)	(20.927)	(21.015)	(21.562)	(19.643)	(23.904)	(26.594)
Resource Rents per capita [Dunning]	0.021**						0.022**						0.029***					
	(0.010)						(0.009)						(0.011)					
Gini × Resource Rents	-0.082**						-0.088***						-0.126***					
	(0.036)						(0.033)						(0.039)					
Oil Rents per capita [Dunning]		0.021**						0.022**						0.029**				
		(0.010)						(0.009)						(0.011)				
Gini × Oil Rents		-0.082**						-0.088***						-0.127***				
		(0.036)						(0.034)						(0.040)				
Fuel exports (% of merchandise exports) [World Bank]			2.334***						2.078***						1.158***			
			(0.411)						(0.411)						(0.346)			
Gini × Fuel exports			-8.916***						-8.340***						-6.897***			
			(1.556)						(1.563)						(1.274)			
Oil rents (% of GDP) [World Bank]				7.127***						6.953***						4.741**		
				(1.697)						(1.587)						(1.900)		
Gini × Oil rents				-28.728***						-28.850***						-23.635***		
				(6.446)						(6.061)						(7.035)		
Oil rents (per capita) [Humphreys]					0.212***						0.162***						0.094	
					(0.046)						(0.049)						(0.058)	
Gini × Oil rents					-0.850***						-0.633***						-0.283	
					(0.190)						(0.204)						(0.245)	
Oil rents [Humphreys + Hamilton and Clemens]						0.026***						0.026***						0.024***
						(0.004)						(0.004)						(0.006)
Gini × Oil rents						-0.104***						-0.104***						-0.099***
						(0.015)						(0.015)						(0.022)
GDP per capita growth	0.214*	0.210*	0.173*	0.201*	0.197***	0.147**	0.182*	0.178*	0.146	0.175	0.171***	0.121*	-0.005	-0.008	-0.006	0.008	0.133	0.110
	(0.113)	(0.112)	(0.103)	(0.112)	(0.069)	(0.073)	(0.108)	(0.108)	(0.099)	(0.107)	(0.066)	(0.066)	(0.090)	(0.091)	(0.078)	(0.085)	(0.097)	(0.092)
De facto crawling peg	-0.842	-0.827	-0.063	-0.565	-0.160	0.200	-0.816	-0.799	-0.120	-0.565	-0.217	0.082	-1.367**	-1.349**	-0.679	-0.960	0.197	0.089
	(0.783)	(0.782)	(0.769)	(0.749)	(0.763)	(0.776)	(0.780)	(0.779)	(0.768)	(0.742)	(0.753)	(0.745)	(0.682)	(0.680)	(0.608)	(0.618)	(0.895)	(0.842)
Managed floating	-0.656	-0.767	-0.834	-1.052	15.745***	14.509***	-0.551	-0.638	-0.700	-0.917	14.388***	8.302***	-1.954	-2.044	-1.967	-2.140	-4.870	6.598**
	(1.484)	(1.500)	(1.483)	(1.475)	(2.272)	(1.804)	(1.484)	(1.496)	(1.490)	(1.470)	(2.297)	(1.549)	(1.740)	(1.743)	(1.821)	(1.677)	(3.791)	(3.061)
Freely floating	0.700	0.703	0.396	0.530	-1.591**	-1.326*	0.840	0.836	0.400	0.573	-1.606*	-1.254	1.969	1.963	0.838	1.257	-1.314	-0.927
	(0.967)	(0.965)	(0.905)	(0.957)	(0.794)	(0.785)	(0.962)	(0.959)	(0.917)	(0.933)	(0.821)	(0.774)	(1.223)	(1.226)	(1.174)	(1.225)	(1.093)	(1.094)
Unemployment Rate	-0.384***	-0.384***	-0.371***	-0.375***	-0.010	-0.083	-0.394***	-0.392***	-0.366***	-0.378***	-0.055	-0.083	-0.306***	-0.303***	-0.186**	-0.266***	-0.119	-0.044
	(0.120)	(0.120)	(0.113)	(0.118)	(0.131)	(0.138)	(0.118)	(0.118)	(0.111)	(0.114)	(0.126)	(0.124)	(0.096)	(0.097)	(0.093)	(0.095)	(0.193)	(0.185)
Mean income of wage employees	0.207	0.206	0.239	0.127	0.708***	0.734***	0.218	0.217	0.226	0.121	0.752***	0.736***	0.327**	0.328**	0.231	0.166	1.078***	0.964***
	(0.173)	(0.174)	(0.166)	(0.169)	(0.118)	(0.121)	(0.175)	(0.176)	(0.168)	(0.170)	(0.118)	(0.115)	(0.142)	(0.144)	(0.145)	(0.137)	(0.149)	(0.151)
Labor Productivity Index	0.368***	0.369**	0.407**	0.415***	0.046	0.060	0.365***	0.367***	0.409***	0.419***	0.003	0.047	0.063	0.065	0.128**	0.148**	-0.468***	-0.399***
	(0.081)	(0.081)	(0.082)	(0.081)	(0.065)	(0.067)	(0.082)	(0.082)	(0.084)	(0.082)	(0.065)	(0.065)	(0.062)	(0.062)	(0.058)	(0.060)	(0.088)	(0.088)
Nominal Exchange Rate	-0.182***	-0.182***	-0.201***	-0.204***	-0.162***	-0.172***	-0.177***	-0.177***	-0.192***	-0.198***	-0.148***	-0.162***	0.010	0.011	0.004	-0.009	0.017	0.010
	(0.017)	(0.017)	(0.017)	(0.018)	(0.016)	(0.016)	(0.016)	(0.016)	(0.017)	(0.017)	(0.015)	(0.015)	(0.019)	(0.019)	(0.019)	(0.019)	(0.020)	(0.019)
Constant	18.079**	16.886**	15.103**	18.106**	12.527**	13.723**	15.887**	14.279**	13.979*	15.059**	10.805**	10.029**	30.585***	27.483***	38.567***	27.816***	20.954***	18.957***
	(7.226)	(7.198)	(7.208)	(7.105)	(4.646)	(4.770)	(7.194)	(7.195)	(7.226)	(6.980)	(4.575)	(4.676)	(5.999)	(5.989)	(6.444)	(5.636)	(5.882)	(6.273)
N	242	242	225	242	162	162	242	242	225	242	162	162	240	240	225	240	160	160

Table F: Re-estimating the effect of natural resources on exports conditional on inequality (see Table B) using alternative measures of natural resource wealth. Standard Errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

	(1) Wage Index (Total)	(2) Wage Index (Total)	(3) Wage Index (Total)	(4) Wage Index (Total)	(5) Wage Index (Total)	(6) Wage Index (Total)	(7) Wage Rates (Total)	(8) Wage Rates (Total)	(9) Wage Rates (Total)	(10) Wage Rates (Total)	(11) Wage Rates (Total)	(12) Wage Rates (Total)	(13) Wage Rates (Manufacturing)	(14) Wage Rates (Manufacturing)	(15) Wage Rates (Manufacturing)	(16) Wage Rates (Manufacturing)	(17) Wage Rates (Manufacturing)	(18) Wage Rates (Manufacturing)
Wage Coordination	-27.931	-31.963	-4.851	-32.994*	-23.712	-20.244	7.534	-0.142	18.588	6.173	2.277	-1.474	182.196***	181.201***	62.731	87.569*	38.188	59.570
	(19.978)	(19.878)	(20.651)	(19.205)	(20.689)	(20.055)	(12.131)	(11.182)	(14.066)	(10.621)	(9.954)	(9.629)	(47.437)	(46.613)	(54.184)	(45.139)	(49.942)	(49.863)
Resource Rents per capita [Dunning]	0.014**						0.032***						0.044***					
	(0.007)						(0.012)						(0.007)					
Wage Coordination × Resource Rents	-0.033**						-0.066***						-0.180***					
	(0.013)						(0.025)						(0.031)					
Oil Rents per capita [Dunning]		0.013**						0.033***						0.046***				
		(0.006)						(0.012)						(0.007)				
Wage Coordination × Oil Rents		-0.032***						-0.067***						-0.189***				
		(0.012)						(0.026)						(0.031)				
Fuel exports (% of merchandise exports) [World Bank]			0.402						1.021***						-0.391			
			(0.506)						(0.368)						(1.035)			
Wage Coordination × Fuel exports			-1.725*						-2.368***						0.972			
			(1.031)						(0.807)						(3.689)			
Oil rents (% of GDP) [World Bank]				0.809						10.422**						4.427**		
				(1.321)						(2.720)						(2.059)		
Wage Coordination × Oil rents				-3.209						-21.855***						-21.652**		
				(2.613)						(5.800)						(10.095)		
Oil rents (per capita) [Humphreys]					-0.039						0.664***						0.123	
					(0.067)						(0.175)						(0.122)	
Wage Coordination × Oil rents					0.062						-1.246***						-0.647	
					(0.122)						(0.328)						(0.518)	
Oil rents [Humphreys + Hamilton and Clemens]						0.006						0.034***						0.023
						(0.009)						(0.013)						(0.014)
Wage Coordination × Oil rents						-0.011						-0.070***						-0.107*
						(0.016)						(0.026)						(0.056)
GDP per capita growth	-0.876***	-0.874***	-0.684***	-0.833***	-0.737***	-0.777***	-0.342*	-0.341*	-0.326*	-0.343*	-0.350**	-0.318*	-0.916***	-0.926***	-0.778***	-0.775***	-0.585***	-0.610***
	(0.185)	(0.184)	(0.163)	(0.169)	(0.195)	(0.205)	(0.199)	(0.200)	(0.197)	(0.178)	(0.144)	(0.173)	(0.153)	(0.153)	(0.153)	(0.153)	(0.161)	(0.158)
Union density	-1.165	1.105	-29.937	-2.072	-10.585	-6.607	-60.004*	-60.284*	-73.751**	-43.901	-17.386	-32.622	39.294	37.267	38.489	40.602	57.117	66.295
	(35.264)	(34.955)	(27.430)	(31.756)	(37.122)	(38.290)	(32.815)	(33.126)	(34.173)	(30.386)	(29.818)	(33.668)	(36.311)	(35.713)	(33.500)	(32.994)	(44.126)	(46.027)
Unemployment Rate	-0.186	-0.186	-0.151	-0.085	-0.394	-0.499	-0.190	-0.204	-0.188	-0.155	-0.644***	-0.795***	-0.781***	-0.775***	-0.420**	-0.593***	0.435	0.365
	(0.222)	(0.221)	(0.197)	(0.217)	(0.326)	(0.349)	(0.180)	(0.178)	(0.201)	(0.175)	(0.181)	(0.181)	(0.190)	(0.186)	(0.201)	(0.210)	(0.400)	(0.417)
Labor Productivity Index	1.784***	1.791***	1.811***	1.816***	1.819***	1.819***	1.139***	1.152***	1.134***	1.152***	1.057***	1.036***	1.477***	1.482***	1.518***	1.530***	1.787***	1.783***
	(0.064)	(0.063)	(0.066)	(0.064)	(0.082)	(0.087)	(0.047)	(0.046)	(0.051)	(0.043)	(0.047)	(0.050)	(0.077)	(0.075)	(0.084)	(0.084)	(0.102)	(0.102)
Inflation	-0.769***	-0.747***	-0.674***	-0.619***	-0.901***	-1.028***	-0.982***	-1.021***	-1.001***	-0.838***	-1.076***	-1.476***	-1.109***	-1.097***	-0.466**	-0.812***	-0.167	-0.307
	(0.242)	(0.239)	(0.216)	(0.234)	(0.293)	(0.327)	(0.260)	(0.265)	(0.266)	(0.249)	(0.292)	(0.324)	(0.211)	(0.209)	(0.218)	(0.275)	(0.200)	(0.240)
Constant	-42.485***	-42.107***	-48.585***	-45.007***	-48.252***	-48.347***	-37.435***	-35.447***	-38.096***	-38.164***	-22.934***	-16.568*	-89.177***	-88.993***	-67.767***	-72.601***		
	(13.661)	(13.719)	(13.849)	(13.618)	(15.994)	(16.014)	(8.505)	(8.557)	(8.460)	(7.824)	(8.362)	(8.593)	(10.974)	(10.873)	(14.686)	(11.706)		
N	199	199	178	199	137	137	131	131	117	131	83	83	63	63	63	63	47	47

Table G: Re-estimating the effect of natural resources on wages conditional on wage coordination (see Table C) using alternative measures of natural resource wealth. Standard Errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

	(1) Wage Index (Total)	(2) Wage Index (Total)	(3) Wage Index (Total)	(4) Wage Index (Total)	(5) Wage Index (Total)	(6) Wage Index (Total)	(7) Wage Rates (Total)	(8) Wage Rates (Total)	(9) Wage Rates (Total)	(10) Wage Rates (Total)	(11) Wage Rates (Total)	(12) Wage Rates (Total)	(13) Wage Rates (Manufacturing)	(14) Wage Rates (Manufacturing)	(15) Wage Rates (Manufacturing)	(16) Wage Rates (Manufacturing)	(17) Wage Rates (Manufacturing)	(18) Wage Rates (Manufacturing)
Gini	179.714***	181.071***	187.066***	197.912***	216.095***	199.181***	145.956***	147.924***	143.001***	149.028***	191.370***	185.407***	-115.991	-114.965	-35.164	-43.968	228.415*	117.702
	(40.576)	(40.381)	(41.819)	(39.398)	(71.667)	(71.493)	(25.538)	(25.611)	(27.067)	(25.457)	(65.445)	(64.828)	(99.289)	(98.046)	(100.546)	(99.881)	(137.602)	(126.877)
Resource Rents per capita [Dunning]	-0.035***						-0.022*						-0.103***					
	(0.012)						(0.011)						(0.038)					
Gini × Resource Rents	0.127***						0.085**						0.340***					
	(0.046)						(0.042)						(0.117)					
Oil Rents per capita [Dunning]		-0.034***						-0.014						-0.109***				
		(0.012)						(0.011)						(0.037)				
Gini × Oil Rents		0.124***						0.056						0.361***				
		(0.046)						(0.040)						(0.116)				
Fuel exports (% of merchandise exports) [World Bank]			-0.890						-0.699						3.531*			
			(0.599)						(0.692)						(2.005)			
Gini × Fuel exports			2.240						2.896						-12.352*			
			(1.969)						(2.490)						(6.771)			
Oil rents (% of GDP) [World Bank]				-0.677						-2.221						-31.412***		
				(2.457)						(3.246)						(11.486)		
Gini × Oil rents				0.200						9.371						99.576***		
				(9.342)						(12.108)						(36.153)		
Oil rents (per capita) [Humphreys]					-0.019						0.306						-0.667	
					(0.083)						(0.440)						(0.411)	
Gini × Oil rents					0.056						-1.186						1.990	
					(0.351)						(1.677)						(1.362)	
Oil rents [Humphreys + Hamilton and Clemens]						-0.017*						-0.029**						-0.052
						(0.008)						(0.012)						(0.046)
Gini × Oil rents						0.066*						0.111**						0.162
						(0.034)						(0.045)						(0.149)
GDP per capita growth	-0.748***	-0.751***	-0.724***	-0.741***	-0.783***	-0.762***	-0.399**	-0.402**	-0.407**	-0.402**	-0.347**	-0.361**	-0.842***	-0.853***	-0.759***	-0.880***	-0.501**	-0.581***
	(0.182)	(0.182)	(0.187)	(0.186)	(0.208)	(0.195)	(0.180)	(0.180)	(0.197)	(0.182)	(0.162)	(0.155)	(0.154)	(0.153)	(0.147)	(0.167)	(0.201)	(0.198)
Union density	12.039	13.667	9.090	8.867	40.693	40.837	-10.584	-8.050	-14.564	-6.118	14.600	19.589	48.504	45.853	48.245	42.985	46.426	51.080
	(31.217)	(31.161)	(31.681)	(29.852)	(36.470)	(34.555)	(26.134)	(26.294)	(27.825)	(26.644)	(30.408)	(26.912)	(33.446)	(33.296)	(30.428)	(35.691)	(49.549)	(53.250)
Unemployment Rate	-0.200	-0.193	-0.118	-0.126	-0.728**	-0.780**	0.017	0.019	0.024	0.010	-0.538***	-0.539***	-0.675***	-0.669***	-0.611***	-0.750***	0.586	0.406
	(0.196)	(0.194)	(0.199)	(0.187)	(0.361)	(0.358)	(0.166)	(0.167)	(0.184)	(0.166)	(0.181)	(0.180)	(0.146)	(0.142)	(0.154)	(0.156)	(0.538)	(0.581)
Labor Productivity Index	1.480***	1.482***	1.502***	1.513***	1.326***	1.313***	1.053***	1.055***	1.068***	1.055***	0.845***	0.839***	1.525***	1.526***	1.524***	1.484***	1.421***	1.607***
	(0.054)	(0.054)	(0.056)	(0.054)	(0.107)	(0.106)	(0.037)	(0.037)	(0.041)	(0.037)	(0.079)	(0.077)	(0.159)	(0.156)	(0.158)	(0.159)	(0.208)	(0.192)
Inflation	-0.735***	-0.732***	-0.650***	-0.626**	-0.940***	-0.940***	-0.449**	-0.445**	-0.449*	-0.453**	-0.480*	-0.540**	-1.006***	-1.039***	-0.730***	-1.144***	-0.325	-0.364
	(0.244)	(0.245)	(0.250)	(0.251)	(0.282)	(0.275)	(0.216)	(0.217)	(0.230)	(0.219)	(0.260)	(0.256)	(0.216)	(0.213)	(0.222)	(0.273)	(0.255)	(0.303)
Constant	-83.444***	-82.488***	-82.609***	-90.547***	-72.546***	-66.488***	-75.121***	-74.178***	-77.632***	-74.349***	-61.922***	-61.220***	-12.406					
	(13.314)	(13.473)	(14.502)	(13.486)	(18.517)	(18.739)	(8.927)	(8.844)	(9.646)	(8.868)	(15.211)	(15.378)	(17.803)					
N	177	177	165	177	126	126	128	128	114	128	80	80	58	58	58	58	42	42

Table H: Re-estimating the effect of natural resources on wages conditional on inequality (see Table C) using alternative measures of natural resource wealth. Standard Errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

	(1) REER (Consumer Prices)	(2) REER (Consumer Prices)	(3) REER (Consumer Prices)	(4) REER (Consumer Prices)	(5) REER (Consumer Prices)	(6) REER (Consumer Prices)	(7) REER (Unit Labor Costs)	(8) REER (Unit Labor Costs)	(9) REER (Unit Labor Costs)	(10) REER (Unit Labor Costs)	(11) REER (Unit Labor Costs)	(12) REER (Unit Labor Costs)
Wage Coordination	43.249**	37.761*	37.659*	31.870	38.804*	29.556	17.357	12.749	27.178	4.720	11.367	11.445
	(21.167)	(20.200)	(22.874)	(21.827)	(20.304)	(20.647)	(14.001)	(13.987)	(16.976)	(14.708)	(10.283)	(10.605)
Resource Rents per capita [Dunning]	0.067**						0.073***					
	(0.030)						(0.014)					
Wage Coordination × Resource Rents	-0.138**						-0.125***					
	(0.054)						(0.024)					
Oil Rents per capita [Dunning]		0.054*						0.066***				
		(0.031)						(0.014)				
Wage Coordination × Oil Rents		-0.116**						-0.114***				
		(0.055)						(0.025)				
Fuel exports (% of merchandise exports) [World Bank]			2.255						3.849***			
			(1.665)						(0.978)			
Wage Coordination × Fuel exports			-4.376						-6.675***			
			(2.690)						(1.750)			
Oil rents (% of GDP) [World Bank]				11.863						8.382***		
				(7.315)						(3.202)		
Wage Coordination × Oil rents				-23.331*						-14.390**		
				(13.347)						(5.733)		
Oil rents (per capita) [Humphreys]					0.504***						0.417***	
					(0.159)						(0.104)	
Wage Coordination × Oil rents					-0.954***						-0.741***	
					(0.286)						(0.185)	
Oil rents [Humphreys + Hamilton and Clemens]						0.015						0.034**
						(0.031)						(0.015)
Wage Coordination × Oil rents						-0.032						-0.059**
						(0.054)						(0.026)
GDP per capita growth	-1.109***	-1.098***	-1.045**	-1.122***	-0.953**	-0.724	0.078	0.084	0.131	0.017	-0.406	-0.284
	(0.416)	(0.418)	(0.440)	(0.422)	(0.435)	(0.466)	(0.180)	(0.181)	(0.204)	(0.202)	(0.266)	(0.278)
Central Bank Independence	-10.210**	-10.502**	2.090	-8.683*	3.092*	2.582	15.598***	15.789***	7.319***	16.224***	5.608***	5.603***
	(4.826)	(4.783)	(2.249)	(4.926)	(1.869)	(1.891)	(1.932)	(1.949)	(1.140)	(2.037)	(1.191)	(1.246)
De facto crawling peg	-3.302	-3.143	-3.560	-4.018	-18.061	-19.179	2.647	2.500	0.842	2.272	0.238	0.388
	(6.283)	(6.297)	(6.394)	(6.310)	(13.833)	(13.275)	(1.786)	(1.775)	(1.656)	(1.807)	(2.045)	(1.948)
Managed floating	6.765	6.988	5.223	5.080	2.378	0.889	3.680	3.573	0.124	3.235	-0.165	-0.448
	(4.335)	(4.406)	(4.163)	(4.283)	(5.704)	(4.221)	(2.627)	(2.611)	(2.640)	(2.692)	(1.650)	(1.480)
Freely floating	-45.819**	-48.073**	11.089	-41.754**	-63.863**	-58.906**	41.118***	43.530***	7.148	47.598***	2.119	38.568***
	(18.996)	(18.907)	(11.551)	(19.554)	(25.617)	(26.165)	(9.212)	(9.433)	(5.102)	(9.832)	(4.236)	(11.347)
Inflation	0.138	0.158	0.165	0.126	0.005	-0.001	-0.196	-0.178	-0.095	-0.164	-0.024	-0.084
	(0.200)	(0.204)	(0.200)	(0.190)	(0.216)	(0.202)	(0.138)	(0.138)	(0.126)	(0.143)	(0.122)	(0.113)
VA tradable vs. non-tradable sector	116.245***	122.420***	115.092**	107.921**	151.939***	159.642***	-68.644***	-66.939***	-62.670***	-64.974***	-32.369	-35.423
	(43.304)	(43.350)	(45.507)	(44.363)	(50.534)	(52.229)	(18.474)	(18.649)	(19.180)	(19.059)	(24.830)	(25.599)
Nominal Exchange Rate	0.977***	0.987***	0.948***	0.966***	0.924***	0.911***	0.418***	0.417***	0.360***	0.415***	0.477***	0.524***
	(0.109)	(0.109)	(0.126)	(0.116)	(0.118)	(0.125)	(0.060)	(0.061)	(0.063)	(0.063)	(0.075)	(0.079)
N	160	160	149	160	133	133	227	227	216	227	154	154

Table I: Re-estimating the effect of natural resources on the real exchange rate conditional on wage coordination (see Table D) using alternative measures of natural resource wealth. Standard Errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

	(1) REER (Consumer Prices)	(2) REER (Consumer Prices)	(3) REER (Consumer Prices)	(4) REER (Consumer Prices)	(5) REER (Consumer Prices)	(6) REER (Consumer Prices)	(7) REER (Unit Labor Costs)	(8) REER (Unit Labor Costs)	(9) REER (Unit Labor Costs)	(10) REER (Unit Labor Costs)	(11) REER (Unit Labor Costs)	(12) REER (Unit Labor Costs)
Gini	-355.557***	-340.332***	-348.413***	-340.219***	-269.965**	-273.896**	-248.572***	-240.294***	-232.200***	-239.275***	-136.043**	-134.264*
	(122.531)	(121.233)	(134.679)	(128.855)	(121.868)	(124.539)	(62.655)	(62.669)	(75.891)	(63.203)	(61.225)	(71.617)
Resource Rents per capita [Dunning]	-0.176***						-0.150***					
	(0.049)						(0.026)					
Gini × Resource Rents	0.698***						0.623***					
	(0.212)						(0.112)					
Oil Rents per capita [Dunning]		-0.159***						-0.144***				
		(0.049)						(0.027)				
Gini × Oil Rents		0.619***						0.596***				
		(0.214)						(0.114)				
Fuel exports (% of merchandise exports) [World Bank]			-4.450***						-2.497***			
			(0.773)						(0.905)			
Gini × Fuel exports			17.146***						10.860***			
			(3.568)						(3.519)			
Oil rents (% of GDP) [World Bank]				-28.936***						-18.703***		
				(6.701)						(5.000)		
Gini × Oil rents				114.974***						75.755***		
				(28.633)						(20.493)		
Oil rents (per capita) [Humphreys]					-0.688***						-0.532***	
					(0.149)						(0.123)	
Gini × Oil rents					2.857***						2.376***	
					(0.656)						(0.538)	
Oil rents [Humphreys + Hamilton and Clemens]						-0.059***						-0.032**
						(0.015)						(0.013)
Gini × Oil rents						0.231***						0.131**
						(0.064)						(0.054)
GDP per capita growth	-0.832*	-0.831*	-0.861*	-0.929**	-0.727	-0.584	-0.055	-0.059	-0.221	-0.160	-0.506	-0.372
	(0.473)	(0.472)	(0.466)	(0.469)	(0.474)	(0.505)	(0.248)	(0.252)	(0.271)	(0.282)	(0.338)	(0.361)
Central Bank Independence	13.123	0.501	3.680	0.676	0.515	0.628	7.097***	23.224***	6.342***	3.310***	3.065**	2.985**
	(9.157)	(2.339)	(2.986)	(2.379)	(2.395)	(2.346)	(1.284)	(4.537)	(1.767)	(1.181)	(1.389)	(1.386)
De facto crawling peg	-0.272	-0.244	-0.496	-0.887	50.530	57.601	5.011**	4.941**	3.143	4.829**	3.232	3.206
	(6.666)	(6.649)	(6.627)	(6.530)	(42.981)	(43.747)	(2.286)	(2.276)	(2.435)	(2.191)	(2.510)	(2.307)
Managed floating	2.090	2.033	1.432	0.297	1.736	0.956	-4.105**	-4.121**	-4.394***	-5.602***	-3.985*	-3.830**
	(3.096)	(3.106)	(2.952)	(3.124)	(5.043)	(3.905)	(1.813)	(1.753)	(1.164)	(1.613)	(2.214)	(1.572)
Freely floating	47.711	21.750**	5.939	20.011*	43.752	45.736	23.898***	84.965***	85.480***	5.183	78.698***	16.688***
	(34.051)	(10.038)	(14.291)	(10.399)	(44.923)	(45.335)	(4.897)	(17.799)	(26.573)	(6.766)	(25.181)	(5.578)
Inflation	0.071	0.073	0.102	0.072	0.062	0.027	-0.225*	-0.214*	-0.083	-0.216*	-0.096	-0.091
	(0.188)	(0.188)	(0.191)	(0.187)	(0.183)	(0.180)	(0.119)	(0.120)	(0.114)	(0.120)	(0.131)	(0.112)
VA tradable vs. non-tradable sector	88.296*	92.857**	93.923*	91.583*	132.553**	132.152**	-22.197	-19.697	-5.793	-15.453	28.033	24.120
	(47.147)	(47.197)	(48.523)	(47.618)	(58.427)	(58.677)	(19.821)	(20.096)	(22.069)	(20.836)	(30.885)	(33.849)
Nominal Exchange Rate	0.988***	0.991***	0.986***	0.994***	0.925***	0.912***	0.599***	0.596***	0.576***	0.580***	0.446***	0.531***
	(0.114)	(0.114)	(0.122)	(0.115)	(0.124)	(0.129)	(0.073)	(0.074)	(0.082)	(0.077)	(0.090)	(0.096)
N	145	145	141	145	125	125	170	170	166	170	134	134

Table J: Re-estimating the effect of natural resources on the real exchange rate conditional on inequality (see Table D) using alternative measures of natural resource wealth. Standard Errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

6 Alternative measures of Wage Coordination and Inequality

Regression results reported in the article offer evidence that the negative effect of natural resources is moderated by a) the degree of wage bargaining coordination and b) the degree of inequality. This section tests whether the results are robust to using alternative measures for wage coordination and inequality.

Alternative Measures In the article, I utilize the 'summary measure of centralization of wage bargaining' provided by Visser (2011). This summarizes the extent of union coverage, the degree of bargaining authority that unions command, and the degree of centralization within various unions of a particular country. The index offers conceptual and empirical advantages. With respect to the former, the variable captures the degree to which externalities of wage increases are internalized by the workers. Empirically, this index is characterized by substantial variation over time and across countries. However, there are alternative indicators measuring the degree of coordination in an economy. For example, Hall and Gingerich (2004) create a coordination index combining information on the degree of coordination in corporate governance and labor relations. While Visser's measure focuses on union incentives for internalizing wage externalities, Hall and Gingerich's variable incorporates both employer and employee sides. However, the disadvantage is that it does not vary across time within countries. Their index nevertheless is an accepted measure, so I utilize it as an additional robustness check.

To measure inequality, the article's estimations use the Gini coefficient of the total population after taxes. I interpolate the variable between known observations – a justified procedure because income distributions typically do not change rapidly. While the data comes from a common source — the OECD — it is based on data supplied by its

member organizations. Thus, there is the potential that countries use different sampling techniques, different questions and different frequencies to collect their data, potentially resulting in discrepancies. To account for this possibility, Babones and Alvarez-Rivadulla (2007) have estimated adjustment factors in order to adjust the raw data. If the assumptions of the adjustment factor estimations are accurate, they are able to create Gini estimates permitting more accurate comparisons across time and countries. As an additional robustness test, I recalculate the models presented in the paper with their SIDD1 Gini estimate.

Findings – Exports I re-estimate the effect of natural resources on exports — presented in Table B — using the alternative measures for wage coordination and inequality described above. Table K presents the results of this robustness test. To facilitate direct comparisons, columns with odd model numbers represent the original estimation results reported in Table B of the article, while those with even numbers represent the robustness tests using alternative measures of wage coordination and inequality. The results indicate the direction and statistical significance of the key variable's coefficients closely track those of the original models.

Findings – Wages In Table C I report the effect of natural resources on wages, conditional on the degree of wage coordination and inequality. To ascertain the robustness of these results, I re-estimate these models using the alternative measurements of wage coordination and inequality. Table L displays both estimations from the original models (columns with odd model numbers) as well as the robustness checks (columns with even model numbers). The tests reveal that in all cases — apart from the Wage Rates results — both the sign and statistical significance of the key variables correspond with the coefficients of the original model.

Findings – REER I repeat this exercise for Table D, which presents the estimations of natural resources' effect on the real exchange rate. Table M allows the comparison of the original models (columns with odd model numbers) to the robustness checks using the alternative specifications of wage coordination and inequality (columns with even numbers). When using the alternative specifications, the coefficients of the interaction and constituent terms closely resemble the estimation results of the original models.

	(1) Exports minus Oil exports (% of GDP)	(2) Exports minus Oil exports (% of GDP)	(3) Exports minus Natural Resource exports (% of GDP)	(4) Exports minus Natural Resource exports (% of GDP)	(5) Manufacture exports (% merch. exports)	(6) Manufacture exports (% merch. exports)	(7) Exports minus Oil exports (% of GDP)	(8) Exports minus Oil exports (% of GDP)	(9) Exports minus Natural Resource exports (% of GDP)	(10) Exports minus Natural Resource exports (% of GDP)	(11) Manufacture exports (% merch. exports)	(12) Manufacture exports (% merch. exports)
Resource Rents per capita	-0.008**	-0.001	-0.010***	-0.003	-0.013***	-0.007**	0.021**	0.025***	0.022**	0.021***	0.029***	0.009
	(0.003)	(0.002)	(0.003)	(0.002)	(0.003)	(0.003)	(0.010)	(0.008)	(0.009)	(0.007)	(0.011)	(0.012)
Wage Coordination (Visser)	1.741		1.495		-5.781							
	(3.265)		(3.075)		(3.553)							
Wage Coordination (Visser) × Resource Rents	0.018**		0.020***		0.018**							
	(0.007)		(0.007)		(0.008)							
Wage Coordination (Hall and Gingerich)		0.000		0.000		0.000						
		(.)		(.)		(.)						
Wage Coordination (Hall and Gingerich) × Resource Rents		0.011***		0.011***		0.012**						
		(0.004)		(0.004)		(0.005)						
Gini (OECD)							-65.953***		-64.519***		-36.122*	
							(20.090)		(20.201)		(20.927)	
Gini (OECD) × Resource Rents							-0.082**		-0.088***		-0.126***	
							(0.036)		(0.033)		(0.039)	
Gini (SIDD1)								0.310***		0.277***		0.237**
								(0.105)		(0.100)		(0.112)
Gini (SIDD1) × Resource Rents								-0.001***		-0.000***		-0.000
								(0.000)		(0.000)		(0.000)
GDP per capita growth	0.167	0.310***	0.148	0.281***	-0.036	-0.032	0.214*	0.394***	0.182*	0.375***	-0.005	-0.061
	(0.106)	(0.103)	(0.103)	(0.100)	(0.085)	(0.074)	(0.113)	(0.101)	(0.108)	(0.096)	(0.090)	(0.095)
De facto crawling peg	-1.429*	-1.658*	-1.391*	-1.662*	-1.541**	-1.373*	-0.842	-3.735***	-0.816	-3.849***	-1.367**	-2.378**
	(0.737)	(0.968)	(0.731)	(0.950)	(0.665)	(0.810)	(0.783)	(0.985)	(0.780)	(0.929)	(0.682)	(1.043)
Managed floating	0.121	-1.032	0.138	-0.925	-1.282	-0.241	-0.656	-3.297***	-0.551	-3.333***	-1.954	-0.593
	(0.865)	(0.983)	(0.859)	(0.955)	(1.079)	(1.182)	(1.484)	(1.255)	(1.484)	(1.179)	(1.740)	(1.278)
Freely floating	-0.248	-2.752**	-0.068	-2.389*	1.893	-0.501	0.700	-6.487***	0.840	-6.238***	1.969	-4.031**
	(0.917)	(1.350)	(0.905)	(1.310)	(1.192)	(1.421)	(0.967)	(1.419)	(0.962)	(1.302)	(1.223)	(1.776)
Unemployment Rate	-0.415***	-0.139	-0.417***	-0.152	-0.327***	-0.245**	-0.384***	0.283***	-0.394***	0.266***	-0.306***	-0.059
	(0.121)	(0.099)	(0.118)	(0.098)	(0.109)	(0.103)	(0.120)	(0.103)	(0.118)	(0.100)	(0.096)	(0.136)
Mean income of wage employees	0.122	0.525***	0.138	0.532***	0.156	0.379***	0.207	0.855***	0.218	0.883***	0.327**	0.679***
	(0.127)	(0.095)	(0.126)	(0.095)	(0.112)	(0.088)	(0.173)	(0.189)	(0.175)	(0.178)	(0.142)	(0.207)
Labor Productivity Index	0.306***	0.082	0.309***	0.088	0.095*	0.017	0.368***	-0.223**	0.365***	-0.223**	0.063	-0.162
	(0.073)	(0.056)	(0.072)	(0.054)	(0.055)	(0.055)	(0.081)	(0.104)	(0.082)	(0.099)	(0.062)	(0.104)
Nominal Exchange Rate	-0.147***	-0.133***	-0.145***	-0.130***	0.042**	0.024	-0.182***	-0.086***	-0.177***	-0.084***	0.010	0.061**
	(0.016)	(0.017)	(0.016)	(0.017)	(0.019)	(0.019)	(0.017)	(0.022)	(0.016)	(0.021)	(0.019)	(0.026)
Constant	0.306	10.945***	-1.993	8.629**	14.431***	15.842***	18.070**	13.417**	15.887**	12.513**	30.585***	13.688*
	(5.152)	(3.927)	(5.110)	(3.822)	(4.243)	(3.762)	(7.226)	(6.615)	(7.194)	(6.281)	(5.999)	(7.149)
N	271	226	271	226	269	224	242	132	242	132	240	130

Table K: Re-estimating the effect of natural resources on exports conditional on wage coordination (see Table B) using alternative measures of wage coordination and inequality. Standard Errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

	(1) Wage Index (Total)	(2) Wage Index (Total)	(3) Wage Rates (Total)	(4) Wage Rates (Total)	(5) Wage Rates (Manufacturing)	(6) Wage Rates (Manufacturing)	(7) Wage Index (Total)	(8) Wage Index (Total)	(9) Wage Rates (Total)	(10) Wage Rates (Total)	(11) Wage Rates (Manufacturing)	(12) Wage Rates (Manufacturing)
Resource Rents per capita	0.014**	0.012*	0.032***	0.003	0.044***	0.023***	-0.035***	-0.033**	-0.022*	-0.048	-0.103***	-0.165***
	(0.007)	(0.007)	(0.012)	(0.030)	(0.007)	(0.002)	(0.012)	(0.014)	(0.011)	(0.049)	(0.038)	(0.023)
Wage Coordination (Visser)	-27.931		7.534		182.196***							
	(19.978)		(12.131)		(47.437)							
Wage Coordination (Visser) × Resource Rents	-0.033**		-0.066***		-0.180***							
	(0.013)		(0.025)		(0.031)							
Wage Coordination (Hall and Gingerich)		0.000		0.000		0.000						
		(.)		(.)		(.)						
Wage Coordination (Hall and Gingerich) × Resource Rents		-0.021**		-0.012		-0.161***						
		(0.008)		(0.052)		(0.043)						
Gini (OECD)							179.714***		145.956***		-115.991	
							(40.576)		(25.538)		(99.289)	
Gini (OECD) × Resource Rents							0.127***		0.085**		0.340***	
							(0.046)		(0.042)		(0.117)	
Gini (SIDD1)								0.029		-0.280		-1.346***
								(0.215)		(0.338)		(0.416)
Gini (SIDD1) × Resource Rents								0.001**		0.002		0.005***
								(0.000)		(0.001)		(0.001)
GDP per capita growth	-0.876***	-0.874***	-0.342*	-0.300	-0.916***	-0.886***	-0.748***	-0.993***	-0.399**	-1.113***	-0.842***	-0.830***
	(0.185)	(0.189)	(0.199)	(0.212)	(0.153)	(0.136)	(0.182)	(0.201)	(0.180)	(0.375)	(0.154)	(0.115)
Union density	-1.165	-1.788	-60.004*	-37.586	39.294	15.545	12.039	-40.448	-10.584	-43.570	48.504	46.894
	(35.264)	(38.632)	(32.815)	(36.949)	(36.311)	(41.671)	(31.217)	(42.243)	(26.134)	(46.739)	(33.446)	(36.142)
Unemployment Rate	-0.186	-0.149	-0.190	0.131	-0.781***	-1.197***	-0.200	-0.245	0.017	0.618**	-0.675***	-1.091***
	(0.222)	(0.250)	(0.180)	(0.209)	(0.190)	(0.141)	(0.196)	(0.175)	(0.166)	(0.305)	(0.146)	(0.122)
Labor Productivity Index	1.784***	1.808***	1.139***	1.198***	1.477***	1.853***	1.480***	2.138***	1.053***	1.414***	1.525***	1.889***
	(0.064)	(0.078)	(0.047)	(0.050)	(0.077)	(0.054)	(0.054)	(0.082)	(0.037)	(0.110)	(0.159)	(0.089)
Inflation	-0.769***	-0.647***	-0.982***	-0.560**	-1.109***	-1.014***	-0.735***	-0.407*	-0.449**	-0.247	-1.006***	-0.953***
	(0.242)	(0.241)	(0.260)	(0.245)	(0.211)	(0.164)	(0.244)	(0.244)	(0.216)	(0.288)	(0.216)	(0.144)
Constant	-42.485***	-67.626***	-37.435***	-46.108***	-89.177***	-69.755***	-83.444***	-94.831***	-75.121***	-60.589***	-12.406	0.000
	(13.661)	(8.034)	(8.505)	(8.141)	(10.974)	(6.578)	(13.314)	(11.249)	(8.927)	(22.693)	(17.803)	(.)
N	199	182	131	107	63	53	177	121	128	53	58	50

Table L: Re-estimating the effect of natural resources on wages conditional on wage coordination (see Table C) using alternative measures of wage coordination and inequality. Standard Errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

	(1) REER (Consumer Prices)	(2) REER (Consumer Prices)	(3) REER (Unit Labor Costs)	(4) REER (Unit Labor Costs)	(5) REER (Consumer Prices)	(6) REER (Consumer Prices)	(7) REER (Unit Labor Costs)	(8) REER (Unit Labor Costs)
Resource Rents per capita	0.067**	0.042	0.073***	0.056***	-0.176***	-0.107**	-0.150***	-0.013
	(0.030)	(0.026)	(0.014)	(0.012)	(0.049)	(0.043)	(0.026)	(0.014)
Wage Coordination (Visser)	43.249**		17.357					
	(21.167)		(14.001)					
Wage Coordination (Visser) × Resource Rents	-0.138**		-0.125***					
	(0.054)		(0.024)					
Wage Coordination (Hall and Gingerich)		0.000		0.000				
		(.)		(.)				
Wage Coordination (Hall and Gingerich) × Resource Rents		-0.068**		-0.070***				
		(0.034)		(0.015)				
Gini (OECD)					-355.557***		-248.572***	
					(122.531)		(62.655)	
Gini (OECD) × Resource Rents					0.698***		0.623***	
					(0.212)		(0.112)	
Gini (SIDD1)						-1.735***		-0.115
						(0.499)		(0.176)
Gini (SIDD1) × Resource Rents						0.003**		0.001
						(0.001)		(0.000)
GDP per capita growth	-1.109***	-1.028**	0.078	0.090	-0.832*	-1.298**	-0.055	0.024
	(0.416)	(0.411)	(0.180)	(0.188)	(0.473)	(0.538)	(0.248)	(0.283)
Central Bank Independence	-10.210**	3.776	15.598***	16.722***	13.123	0.623	7.097***	18.529***
	(4.826)	(2.525)	(1.932)	(1.694)	(9.157)	(5.613)	(1.284)	(2.328)
De facto crawling peg	-3.302	-2.840	2.647	2.667	-0.272	5.577	5.011**	1.651
	(6.283)	(6.435)	(1.786)	(1.776)	(6.666)	(8.917)	(2.286)	(1.851)
Managed floating	6.765	6.497	3.680	4.071	2.090	0.096	-4.105**	0.973
	(4.335)	(4.457)	(2.627)	(2.671)	(3.096)	(5.074)	(1.813)	(2.812)
Freely floating	-45.819**	-46.946***	41.118***	40.239***	47.711	31.536	23.898***	61.796***
	(18.996)	(17.084)	(9.212)	(7.368)	(34.051)	(20.658)	(4.897)	(8.616)
Inflation	0.138	0.234	-0.196	-0.188	0.071	-0.075	-0.225*	0.036
	(0.200)	(0.197)	(0.138)	(0.140)	(0.188)	(0.433)	(0.119)	(0.237)
VA tradable vs. non-tradable sector	116.245***	115.268***	-68.644***	-69.775***	88.296*	216.614***	-22.197	-34.725
	(43.304)	(43.962)	(18.474)	(18.384)	(47.147)	(42.097)	(19.821)	(25.609)
Nominal Exchange Rate	0.977***	0.979***	0.418***	0.415***	0.988***	0.691***	0.599***	0.200***
	(0.109)	(0.106)	(0.060)	(0.059)	(0.114)	(0.139)	(0.073)	(0.074)
o._cons	0.000	0.000	0.000	0.000	0.000	0.000	66.632***	0.000
	(.)	(.)	(.)	(.)	(.)	(.)	(19.569)	(.)
N	160	163	227	230	145	112	170	164

Table M: Re-estimating the effect of natural resources on the real exchange rate conditional on wage coordination (see Table D) using alternative measures of wage coordination and inequality. Standard Errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

7 Accounting for Social Spending

Alternative Measures The results presented in the main articles include a battery of control variables, ranging from GDP per capita, unemployment, labor productivity, to the exchange rate regime. However, there is reason to expect that public spending might be relevant as well. For example, the welfare states of Nordic countries, which seem to handle resource booms relatively well, might function as automatic stabilizers, curbing consumption and possibly movement into overheated sectors during booms. Section 7 of the Supplementary Materials accounts for this possibility by controlling for six different measures: Total social expenditure (% of GDP and per capita), unemployment assistance (% of GDP and per capita), and spending on active labor market policies (% of GDP and per capita) obtained from the OECD (2016) . I addition, I control for the enrollment in vocational training programs (% of total secondary education) obtained from the UNESCO (2011).

Findings – Exports Tables N presents the models estimating the effect of natural resources interacted with wage coordination on exports while subsequently adding different control variables for social spending. Table O repeats the exercise for the models estimating the effect of natural resources on exports, conditional on the degree of inequality. In both cases, the inclusion of the additional control variables does not affect the results.

Findings – Wages I repeat this exercise of addition additional control variables for social spending with the models estimating wages. Table P analyzes whether the interaction between natural resources and wage coordination is affected by the additional control variables, while Table Q examines the same for the interaction between natural resources and inequality. In both cases, the results remain robust.

Findings – REER Lastly, I conduct this robustness test with respect to the real exchange rate. Tables R and S examine whether the inclusion of additional control variables accounting for social spending affect the effect of natural resources on the REER, conditional on wage coordination (Table R) and inequality (Table S). The results are unaffected by the inclusion of these controls.

	(1) Exports minus Natural Resource exports (% of GDP)	(2) Exports minus Natural Resource exports (% of GDP)	(3) Exports minus Natural Resource exports (% of GDP)	(4) Exports minus Natural Resource exports (% of GDP)	(5) Exports minus Natural Resource exports (% of GDP)	(6) Exports minus Natural Resource exports (% of GDP)	(7) Exports minus Natural Resource exports (% of GDP)	(8) Exports minus Natural Resource exports (% of GDP)
Resource Rents per capita	-0.010***	-0.013***	-0.013***	-0.014***	-0.014***	-0.012***	-0.012***	-0.035***
	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.007)
Wage Coordination	1.495	-0.164	-0.435	-0.713	-0.970	2.141	1.884	-7.422**
	(3.075)	(3.133)	(3.053)	(3.210)	(3.222)	(3.323)	(3.299)	(3.404)
Wage Coordination × Resource Rents	0.020***	0.023***	0.027***	0.027***	0.027***	0.021**	0.021**	0.070***
	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)	(0.009)	(0.009)	(0.013)
Total Social Spending (% GDP)		-0.487***						
		(0.155)						
Total Social Spending (per capita)			-0.003***					
			(0.001)					
Unemployment Spending (% GDP)				-0.393				
				(0.743)				
Unemployment Spending (per capita)					0.001			
					(0.003)			
Active Labor Market Policy Spending (% GDP)						-1.971**		
						(0.916)		
Active Labor Market Policy Spending (per capita)							-0.008**	
							(0.004)	
Enrollment in Vocational Training (% of total enrollment)								-0.125***
								(0.041)
GDP per capita growth	0.148	0.132	0.116	0.195*	0.203*	0.200*	0.198*	0.438***
	(0.103)	(0.112)	(0.108)	(0.111)	(0.111)	(0.114)	(0.114)	(0.127)
De facto crawling peg	-1.391*	-1.342	-1.576*	-1.206	-1.281	-1.289	-1.259	-1.373
	(0.731)	(0.825)	(0.813)	(0.814)	(0.798)	(0.799)	(0.798)	(0.863)
Managed floating	0.138	0.622	0.627	1.072	1.141	0.301	0.435	0.148
	(0.859)	(1.140)	(1.116)	(1.148)	(1.162)	(1.301)	(1.291)	(1.119)
Freely floating	-0.068	-0.446	-0.894	-0.256	-0.067	0.351	0.479	-1.013
	(0.905)	(1.011)	(0.996)	(1.054)	(1.103)	(0.877)	(0.881)	(0.989)
Unemployment Rate	-0.417***	-0.242*	-0.287**	-0.392**	-0.491***	-0.345***	-0.381***	-0.205**
	(0.118)	(0.124)	(0.112)	(0.167)	(0.144)	(0.109)	(0.110)	(0.103)
Mean income of wage employees	0.138	0.114	0.553***	0.035	0.018	0.064	0.088	0.189*
	(0.126)	(0.138)	(0.186)	(0.142)	(0.141)	(0.140)	(0.144)	(0.115)
Labor Productivity Index	0.309***	0.348***	0.507***	0.342***	0.343***	0.410***	0.429***	0.230***
	(0.072)	(0.073)	(0.074)	(0.074)	(0.073)	(0.074)	(0.075)	(0.054)
Nominal Exchange Rate	-0.145***	-0.155***	-0.176***	-0.160***	-0.158***	-0.158***	-0.163***	-0.138***
	(0.016)	(0.015)	(0.016)	(0.015)	(0.016)	(0.016)	(0.017)	(0.017)
Constant	-1.993	3.029	-14.833**	0.075	0.181	-8.542	-10.137*	11.853**
	(5.110)	(5.067)	(5.903)	(5.177)	(5.017)	(5.508)	(5.614)	(4.751)
N	271	255	255	256	256	238	238	203

Table N: Estimation results for the effect of natural resource rents on a measure of exports (Exports minus total natural resource exports as a percentage of GDP), conditional on the degree of wage coordination — while controlling for different measures of public expenditures. Standard Errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

	(1) Exports minus Natural Resource exports (% of GDP)	(2) Exports minus Natural Resource exports (% of GDP)	(3) Exports minus Natural Resource exports (% of GDP)	(4) Exports minus Natural Resource exports (% of GDP)	(5) Exports minus Natural Resource exports (% of GDP)	(6) Exports minus Natural Resource exports (% of GDP)	(7) Exports minus Natural Resource exports (% of GDP)	(8) Exports minus Natural Resource exports (% of GDP)
Resource Rents per capita	0.022**	0.024**	0.029***	0.030***	0.031***	0.028***	0.029***	0.045***
	(0.009)	(0.010)	(0.009)	(0.010)	(0.010)	(0.011)	(0.011)	(0.010)
Gini	-64.519***	-85.255***	-77.065***	-67.175***	-73.329***	-84.476***	-80.730***	-26.161
	(20.201)	(19.353)	(18.811)	(18.932)	(18.506)	(22.577)	(22.847)	(20.360)
Gini × Resource Rents	-0.088***	-0.102***	-0.118***	-0.121***	-0.124***	-0.115***	-0.119***	-0.181***
	(0.033)	(0.037)	(0.035)	(0.037)	(0.037)	(0.041)	(0.041)	(0.041)
Total Social Spending (% GDP)		-0.680***						
		(0.160)						
Total Social Spending (per capita)			-0.004***					
			(0.001)					
Unemployment Spending (% GDP)				-0.433				
				(0.691)				
Unemployment Spending (per capita)					-0.004			
					(0.003)			
Active Labor Market Policy Spending (% GDP)						-3.025***		
						(0.966)		
Active Labor Market Policy Spending (per capita)							-0.013***	
							(0.004)	
Enrollment in Vocational Training (% of total enrollment)								-0.081**
								(0.041)
GDP per capita growth	0.182*	0.085	0.112	0.209*	0.206*	0.211*	0.210*	0.413***
	(0.108)	(0.111)	(0.109)	(0.114)	(0.113)	(0.117)	(0.117)	(0.130)
De facto crawling peg	-0.816	-0.632	-0.947	-0.658	-0.634	-1.045	-1.017	-0.685
	(0.780)	(0.835)	(0.797)	(0.864)	(0.855)	(0.850)	(0.837)	(0.750)
Managed floating	-0.551	-0.504	-0.572	-0.344	-0.355	-0.683	-0.172	-1.484
	(1.484)	(1.379)	(1.233)	(1.515)	(1.456)	(1.408)	(1.393)	(1.400)
Freely floating	0.840	-0.802	-0.568	0.502	0.429	0.079	0.281	-0.789
	(0.962)	(0.837)	(0.814)	(0.860)	(0.816)	(0.802)	(0.799)	(0.872)
Unemployment Rate	-0.394***	-0.079	-0.213*	-0.339**	-0.292**	-0.271**	-0.334***	-0.128
	(0.118)	(0.116)	(0.110)	(0.151)	(0.135)	(0.110)	(0.112)	(0.112)
Mean income of wage employees	0.218	0.193	0.642***	0.110	0.144	0.053	0.090	0.277
	(0.175)	(0.175)	(0.198)	(0.187)	(0.183)	(0.191)	(0.196)	(0.222)
Labor Productivity Index	0.365***	0.417***	0.580***	0.409***	0.426***	0.482***	0.513***	0.249***
	(0.082)	(0.082)	(0.092)	(0.084)	(0.087)	(0.086)	(0.088)	(0.090)
Nominal Exchange Rate	-0.177***	-0.180***	-0.206***	-0.191***	-0.195***	-0.183***	-0.189***	-0.182***
	(0.016)	(0.015)	(0.016)	(0.016)	(0.016)	(0.017)	(0.018)	(0.019)
Constant	15.887**	29.972***	6.553	17.990***	18.217***	18.086**	13.894*	18.864***
	(7.194)	(6.767)	(6.385)	(6.683)	(6.831)	(8.284)	(8.149)	(6.780)
N	242	235	235	237	237	221	221	185

Table O: Estimation results for the effect of natural resource rents on a measure of exports (Exports minus total natural resource exports as a percentage of GDP), conditional on the degree of inequality — while controlling for different measures of public expenditures. Standard Errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

	(1) Wage Rates (Total)	(2) Wage Rates (Total)	(3) Wage Rates (Total)	(4) Wage Rates (Total)	(5) Wage Rates (Total)	(6) Wage Rates (Total)	(7) Wage Rates (Total)	(8) Wage Rates (Total)
Resource Rents per capita	0.032***	0.031**	0.026***	0.032***	0.035***	0.028***	0.031***	0.017**
	(0.012)	(0.012)	(0.009)	(0.012)	(0.013)	(0.011)	(0.010)	(0.008)
Wage Coordination	7.534	8.166	11.139	7.987	12.086	5.343	0.754	17.045
	(12.131)	(12.145)	(7.920)	(12.569)	(13.221)	(11.224)	(10.366)	(14.392)
Wage Coordination × Resource Rents	-0.066***	-0.063**	-0.055***	-0.066***	-0.071***	-0.057***	-0.063***	-0.033*
	(0.025)	(0.025)	(0.019)	(0.025)	(0.026)	(0.022)	(0.021)	(0.017)
Total Social Spending (% GDP)		0.139						
		(0.306)						
Total Social Spending (per capita)			0.008***					
			(0.001)					
Unemployment Spending (% GDP)				0.176				
				(1.307)				
Unemployment Spending (per capita)					0.009*			
					(0.005)			
Active Labor Market Policy Spending (% GDP)						2.004		
						(1.989)		
Active Labor Market Policy Spending (per capita)							0.026***	
							(0.007)	
Enrollment in Vocational Training (% of total enrollment)								-0.049
								(0.075)
GDP per capita growth	-0.342*	-0.313	-0.121	-0.339*	-0.329*	-0.379**	-0.348**	-0.479**
	(0.199)	(0.204)	(0.135)	(0.200)	(0.192)	(0.191)	(0.167)	(0.211)
Union density	-60.004*	-61.822*	-27.024	-61.143*	-60.538*	-93.656***	-72.169**	-55.338
	(32.815)	(33.001)	(24.900)	(33.147)	(34.229)	(36.258)	(31.683)	(33.975)
Unemployment Rate	-0.190	-0.236	-0.152	-0.217	-0.387**	-0.024	-0.032	-0.042
	(0.180)	(0.179)	(0.131)	(0.192)	(0.163)	(0.198)	(0.180)	(0.184)
Labor Productivity Index	1.139***	1.132***	0.352***	1.140***	1.087***	1.192***	1.049***	1.142***
	(0.047)	(0.048)	(0.110)	(0.048)	(0.057)	(0.049)	(0.064)	(0.043)
Inflation	-0.982***	-0.959***	-0.426**	-0.990***	-0.990***	-0.595**	-0.466**	-0.776***
	(0.260)	(0.271)	(0.184)	(0.259)	(0.256)	(0.240)	(0.211)	(0.276)
Constant	-37.435***	-39.173***	3.305	-37.718***	-35.985***	-44.398***	-30.916***	-40.985***
	(8.505)	(9.521)	(7.967)	(9.241)	(7.981)	(8.764)	(8.804)	(10.741)
N	131	131	131	131	131	120	120	116

Table P: Estimation results for the effect of natural resource rents on a measure of wages (Wage rates), conditional on the degree of wage coordination — while controlling for different measures of public expenditures. Standard Errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

	(1) Wage Rates (Total)	(2) Wage Rates (Total)	(3) Wage Rates (Total)	(4) Wage Rates (Total)	(5) Wage Rates (Total)	(6) Wage Rates (Total)	(7) Wage Rates (Total)	(8) Wage Rates (Total)
Resource Rents per capita	-0.022*	-0.022*	-0.011	-0.023**	-0.021**	-0.025**	-0.032***	-0.030**
	(0.011)	(0.011)	(0.008)	(0.011)	(0.011)	(0.011)	(0.011)	(0.013)
Gini	145.956***	144.557***	164.752***	150.780***	146.050***	150.421***	155.363***	139.159***
	(25.538)	(25.981)	(27.112)	(24.631)	(26.321)	(29.899)	(24.669)	(26.190)
Gini × Resource Rents	0.085**	0.087**	0.039	0.091**	0.084**	0.097**	0.123***	0.118**
	(0.042)	(0.042)	(0.032)	(0.042)	(0.040)	(0.040)	(0.041)	(0.047)
Total Social Spending (% GDP)		-0.087						
		(0.282)						
Total Social Spending (per capita)			0.007***					
			(0.001)					
Unemployment Spending (% GDP)				-1.292				
				(1.073)				
Unemployment Spending (per capita)					0.004			
					(0.004)			
Active Labor Market Policy Spending (% GDP)						3.943*		
						(2.058)		
Active Labor Market Policy Spending (per capita)							0.032***	
							(0.007)	
Enrollment in Vocational Training (% of total enrollment)								-0.100
								(0.066)
GDP per capita growth	-0.399**	-0.421**	-0.130	-0.424**	-0.389**	-0.304*	-0.280*	-0.428*
	(0.180)	(0.184)	(0.117)	(0.180)	(0.170)	(0.183)	(0.153)	(0.227)
Union density	-10.584	-9.245	4.467	-7.940	-9.753	-41.081	-28.969	-33.079
	(26.134)	(25.878)	(19.383)	(25.958)	(25.862)	(30.171)	(26.734)	(31.411)
Unemployment Rate	0.017	0.045	0.001	0.194	-0.069	0.081	0.099	0.062
	(0.166)	(0.161)	(0.124)	(0.175)	(0.153)	(0.185)	(0.162)	(0.185)
Labor Productivity Index	1.053***	1.058***	0.318***	1.038***	1.032***	1.116***	0.944***	1.053***
	(0.037)	(0.040)	(0.109)	(0.038)	(0.045)	(0.045)	(0.055)	(0.039)
Inflation	-0.449**	-0.454**	-0.103	-0.452**	-0.421**	-0.213	-0.176	-0.646***
	(0.216)	(0.219)	(0.133)	(0.218)	(0.207)	(0.222)	(0.195)	(0.239)
Constant	-75.121***	-73.775***	-39.533***	-75.083***	-73.645***	-86.788***	-74.415***	-69.696***
	(8.927)	(9.828)	(7.862)	(9.006)	(8.686)	(11.047)	(9.055)	(9.811)
N	128	128	128	128	128	118	118	118

Table Q: Estimation results for the effect of natural resource rents on a measure of wages (Wage rates), conditional on the degree of inequality — while controlling for different measures of public expenditures. Standard Errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

	(1) REER (Consumer Prices)	(2) REER (Consumer Prices)	(3) REER (Consumer Prices)	(4) REER (Consumer Prices)	(5) REER (Consumer Prices)	(6) REER (Consumer Prices)	(7) REER (Consumer Prices)	(8) REER (Consumer Prices)
Resource Rents per capita	0.067**	0.073**	0.062**	0.071**	0.073**	0.062*	0.062*	-0.037
	(0.030)	(0.030)	(0.027)	(0.031)	(0.031)	(0.035)	(0.035)	(0.049)
Wage Coordination	43.249**	46.584**	47.108**	44.692**	46.427**	52.376**	52.260**	25.825
	(21.167)	(20.795)	(20.618)	(21.004)	(20.601)	(24.610)	(24.556)	(19.739)
Wage Coordination × Resource Rents	-0.138**	-0.154***	-0.144***	-0.143***	-0.148***	-0.128**	-0.128**	0.048
	(0.054)	(0.052)	(0.050)	(0.054)	(0.055)	(0.063)	(0.063)	(0.086)
Total Social Spending (% GDP)		-1.442**						
		(0.590)						
Total Social Spending (per capita)			-0.008***					
			(0.001)					
Unemployment Spending (% GDP)				-3.531*				
				(1.989)				
Unemployment Spending (per capita)					-0.029***			
					(0.006)			
Active Labor Market Policy Spending (% GDP)						-5.473		
						(3.443)		
Active Labor Market Policy Spending (per capita)							-0.035**	
							(0.014)	
Enrollment in Vocational Training (% of total enrollment)								-0.243
								(0.275)
GDP per capita growth	-1.109***	-1.083**	-0.607	-1.062**	-0.964**	-1.130***	-1.013**	-1.210***
	(0.416)	(0.428)	(0.402)	(0.435)	(0.423)	(0.429)	(0.428)	(0.368)
Central Bank Independence	-10.210**	-1.257	11.019***	3.868*	5.009***	-7.600*	-6.534	2.479
	(4.826)	(6.316)	(2.070)	(2.026)	(1.817)	(4.151)	(4.098)	(1.995)
De facto crawling peg	-3.302	-3.146	-5.675	-4.359	-5.934	-3.509	-4.266	-1.433
	(6.283)	(5.473)	(5.293)	(5.740)	(5.251)	(6.189)	(6.131)	(5.736)
Managed floating	6.765	5.957	5.815	5.420	4.729	6.156	5.911	8.711*
	(4.335)	(4.273)	(4.138)	(3.919)	(3.811)	(4.117)	(4.013)	(4.644)
Freely floating	-45.819**	-14.976	-15.766	-44.998*	-37.414*	-39.622**	-37.442**	-6.930
	(18.996)	(21.828)	(19.471)	(26.348)	(22.409)	(17.786)	(17.393)	(6.192)
Inflation	0.138	0.142	-0.005	0.137	0.058	0.058	0.043	0.176
	(0.200)	(0.224)	(0.167)	(0.216)	(0.194)	(0.205)	(0.183)	(0.217)
VA tradable vs. non-tradable sector	116.245***	58.028	-14.629	91.567*	66.129	98.125**	84.159*	81.753**
	(43.304)	(47.433)	(38.291)	(46.765)	(41.248)	(45.778)	(44.505)	(37.123)
Nominal Exchange Rate	0.977***	0.916***	1.006***	0.912***	0.912***	0.894***	0.907***	1.134***
	(0.109)	(0.111)	(0.104)	(0.123)	(0.106)	(0.114)	(0.114)	(0.085)
N	160	152	152	154	154	142	142	131

Table R: Estimation results for the effect of natural resource rents on the real effective exchange rate, conditional on the degree of wage coordination — while controlling for different measures of public expenditures. Standard Errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

	(1) REER (Consumer Prices)	(2) REER (Consumer Prices)	(3) REER (Consumer Prices)	(4) REER (Consumer Prices)	(5) REER (Consumer Prices)	(6) REER (Consumer Prices)	(7) REER (Consumer Prices)	(8) REER (Consumer Prices)
Resource Rents per capita	-0.176***	-0.215***	-0.207***	-0.194***	-0.208***	-0.170***	-0.175***	-0.078*
	(0.049)	(0.044)	(0.045)	(0.049)	(0.050)	(0.053)	(0.055)	(0.047)
Gini	-355.557***	-481.039***	-347.382***	-393.218***	-423.852***	-389.336***	-376.762***	-229.513*
	(122.531)	(118.186)	(111.332)	(116.225)	(115.691)	(114.826)	(117.172)	(131.100)
Gini × Resource Rents	0.698***	0.840***	0.781***	0.780***	0.829***	0.671***	0.688***	0.288
	(0.212)	(0.196)	(0.187)	(0.213)	(0.216)	(0.228)	(0.232)	(0.200)
Total Social Spending (% GDP)		-2.413***						
		(0.628)						
Total Social Spending (per capita)			-0.009***					
			(0.002)					
Unemployment Spending (% GDP)				-4.353**				
				(1.960)				
Unemployment Spending (per capita)					-0.038***			
					(0.006)			
Active Labor Market Policy Spending (% GDP)						-7.682**		
						(3.450)		
Active Labor Market Policy Spending (per capita)							-0.044***	
							(0.014)	
Enrollment in Vocational Training (% of total enrollment)								-0.211
								(0.281)
GDP per capita growth	-0.832*	-0.790*	-0.262	-0.805	-0.640	-0.967**	-0.819*	-0.980**
	(0.473)	(0.462)	(0.443)	(0.491)	(0.489)	(0.489)	(0.485)	(0.386)
Central Bank Independence	13.123	13.481***	13.804***	25.437***	7.997***	5.048*	6.085**	2.424
	(9.157)	(3.632)	(2.784)	(9.048)	(2.717)	(2.744)	(2.582)	(2.529)
1.DG_regime								
De facto crawling peg	-0.272	-4.602	-7.775	-3.102	-7.685*	-1.534	-2.833	0.647
	(6.666)	(4.930)	(5.561)	(5.038)	(4.393)	(6.617)	(6.645)	(5.837)
Managed floating	2.090	2.116	3.951	1.005	0.783	1.485	1.664	4.250
	(3.096)	(2.849)	(2.888)	(2.924)	(2.708)	(2.682)	(2.564)	(3.215)
Freely floating	47.711	-60.150***	25.913***	67.263**	2.696	-37.806***	88.117**	35.121
	(34.051)	(14.140)	(8.346)	(31.886)	(7.984)	(11.838)	(42.497)	(43.348)
Inflation	0.071	0.072	0.010	0.094	0.029	-0.051	-0.041	0.111
	(0.188)	(0.222)	(0.168)	(0.210)	(0.192)	(0.211)	(0.192)	(0.192)
VA tradable vs. non-tradable sector	88.296*	-41.820	-78.273	49.007	2.792	76.433	60.052	56.291
	(47.147)	(55.092)	(54.019)	(48.608)	(46.338)	(49.791)	(49.172)	(34.550)
Nominal Exchange Rate	0.988***	0.840***	0.998***	0.887***	0.872***	0.827***	0.847***	1.120***
	(0.114)	(0.119)	(0.111)	(0.123)	(0.109)	(0.117)	(0.117)	(0.094)
1b.OB_01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
N	145	139	139	141	141	132	132	117

Table S: Estimation results for the effect of natural resource rents on the real effective exchange rate, conditional on the degree of inequality — while controlling for different measures of public expenditures. Standard Errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

8 Excluding outliers (i.e. Norway)

Influential cases may bias an analysis, resulting in inaccurate estimates. Considering its natural resource wealth and exceptional political stability, Norway might be considered an outlier. Since it is characterized by both a high degree of wage bargaining coordination as well as low inequality—while at the same time having avoided the Dutch Disease—including Norway in the sample might pre-determine the results. In particular, without Norway, the hypothesized relationship between natural resources and exports, wages and the real exchange rate might not exist. To test this claim, I re-estimate the models presented in the article without Norway.

Findings – Exports Table T shows the results for the effect of natural resources on exports. Columns ending with odd numbers correspond to the original model presented in Table B in the article. Models with even numbers exclude Norway from the sample. The results remain robust to these changes.

Findings – Wages Similarly, I re-estimate the models presented in Table C to check whether effect of natural resources on wages changes if Norway is excluded from the sample. Table U displays the result of this exercise: The estimation results of the original model (columns with odd numbers) do not differ in direction or statistical significance from the alternative specification that excludes Norway (columns with even numbers)[1].

Findings – REER Lastly, Table V presents the re-estimation of Table D. The effect of natural resources on the real exchange rate, as moderated through wage coordination or inequality, does not change in either direction or statistical significance if Norway is excluded from the sample.

[1]Note that no data on manufacturing wage rates in Norway is available which explains the identical results in the respective columns.

	(1) Exports minus Oil exports (% of GDP)	(2) Exports minus Oil exports (% of GDP)	(3) Exports minus Natural Resource exports (% of GDP)	(4) Exports minus Natural Resource exports (% of GDP)	(5) Manufacture exports (% merch. exports)	(6) Manufacture exports (% merch. exports)	(7) Exports minus Oil exports (% of GDP)	(8) Exports minus Oil exports (% of GDP)	(9) Exports minus Natural Resource exports (% of GDP)	(10) Exports minus Natural Resource exports (% of GDP)	(11) Manufacture exports (% merch. exports)	(12) Manufacture exports (% merch. exports)
Resource Rents per capita	-0.008**	0.012**	-0.010***	0.010*	-0.013***	0.029***	0.021**	0.068***	0.022**	0.063***	0.029***	-0.043*
	(0.003)	(0.006)	(0.003)	(0.006)	(0.003)	(0.006)	(0.010)	(0.022)	(0.009)	(0.022)	(0.011)	(0.025)
Wage Coordination	1.741	25.001***	1.495	24.942***	-5.781	5.925						
	(3.265)	(6.229)	(3.075)	(6.206)	(3.553)	(7.936)						
Wage Coordination × Resource Rents	0.018**	-0.070***	0.020***	-0.073***	0.018**	-0.209***						
	(0.007)	(0.023)	(0.007)	(0.023)	(0.008)	(0.021)						
Gini							-65.953***	-135.155***	-64.519***	-133.385***	-36.122*	-33.491
							(20.090)	(20.656)	(20.201)	(20.540)	(20.927)	(26.074)
Gini × Resource Rents							-0.082**	-0.236***	-0.088***	-0.230***	-0.126***	0.085
							(0.036)	(0.074)	(0.033)	(0.073)	(0.039)	(0.083)
GDP per capita growth	0.167	0.246*	0.148	0.238*	-0.036	0.116	0.214*	0.286	0.182*	0.273	-0.005	0.029
	(0.106)	(0.143)	(0.103)	(0.141)	(0.085)	(0.165)	(0.113)	(0.177)	(0.108)	(0.174)	(0.090)	(0.137)
De facto crawling peg	-1.429*		-1.391*		-1.541**		-0.842		-0.816		-1.367**	
	(0.737)		(0.731)		(0.665)		(0.783)		(0.780)		(0.682)	
Managed floating	0.121		0.138		-1.282		-0.656		-0.551		-1.954	
	(0.865)		(0.859)		(1.079)		(1.484)		(1.484)		(1.740)	
Freely floating	-0.248		-0.068		1.893		0.700		0.840		1.969	
	(0.917)		(0.905)		(1.192)		(0.967)		(0.962)		(1.223)	
Unemployment Rate	-0.415***	0.214	-0.417***	0.201	-0.327***	-0.421**	-0.384***	0.478*	-0.394***	0.466*	-0.306***	-0.194
	(0.121)	(0.208)	(0.118)	(0.204)	(0.109)	(0.181)	(0.120)	(0.250)	(0.118)	(0.247)	(0.096)	(0.166)
Mean income of wage employees	0.122	0.661**	0.138	0.683***	0.156	0.484**	0.207	1.125***	0.218	1.158***	0.327**	0.529*
	(0.127)	(0.259)	(0.126)	(0.258)	(0.112)	(0.241)	(0.173)	(0.263)	(0.175)	(0.262)	(0.142)	(0.271)
Labor Productivity Index	0.306***	0.092	0.309***	0.086	0.095*	-0.063	0.368***	-0.055	0.365***	-0.067	0.063	-0.105
	(0.073)	(0.136)	(0.072)	(0.135)	(0.055)	(0.115)	(0.081)	(0.148)	(0.082)	(0.147)	(0.062)	(0.129)
Nominal Exchange Rate	-0.147***	-0.108***	-0.145***	-0.103***	0.042**	0.051	-0.182***	-0.093**	-0.177***	-0.088*	0.010	0.029
	(0.016)	(0.039)	(0.016)	(0.038)	(0.019)	(0.039)	(0.017)	(0.046)	(0.016)	(0.046)	(0.019)	(0.039)
DG_regime		2.277**		2.331**		0.619		3.062***		3.127***		0.382
		(0.925)		(0.922)		(0.782)		(1.140)		(1.140)		(0.663)
Constant	0.306	8.585	-1.993	7.981	14.431***	66.923***	18.070**	57.061***	15.887**	56.075***	30.585***	80.393***
	(5.152)	(8.112)	(5.110)	(8.027)	(4.243)	(6.979)	(7.226)	(8.729)	(7.194)	(8.581)	(5.999)	(11.861)
N	271	250	271	250	269	250	242	226	242	226	240	226

Table T: Re-estimating the effect of natural resources on exports conditional on wage coordination and inequality including Norway in the sample (columns with odd numbers) and excluding Norway (columns with even numbers). Standard Errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

	(1) Wage Index (Total)	(2) Wage Index (Total)	(3) Wage Rates (Total)	(4) Wage Rates (Total)	(5) Wage Rates (Manufacturing)	(6) Wage Rates (Manufacturing)	(7) Wage Index (Total)	(8) Wage Index (Total)	(9) Wage Rates (Total)	(10) Wage Rates (Total)	(11) Wage Rates (Manufacturing)	(12) Wage Rates (Manufacturing)
Resource Rents per capita	0.014**	0.023***	0.032***	0.030***	0.044***	0.044***	-0.035***	-0.116***	-0.022*	-0.004	-0.103***	-0.103***
	(0.007)	(0.009)	(0.012)	(0.010)	(0.007)	(0.007)	(0.012)	(0.041)	(0.011)	(0.024)	(0.038)	(0.038)
Wage Coordination	-27.931	-20.896	7.534	7.836	182.196***	182.196***						
	(19.978)	(20.080)	(12.131)	(12.199)	(47.437)	(47.437)						
Wage Coordination × Resource Rents	-0.033**	-0.080**	-0.066***	-0.072**	-0.180***	-0.180***						
	(0.013)	(0.032)	(0.025)	(0.029)	(0.031)	(0.031)						
Gini							179.714***	169.420***	145.956***	146.543***	-115.991	-115.991
							(40.576)	(39.216)	(25.538)	(25.964)	(99.289)	(99.289)
Gini × Resource Rents							0.127***	0.380***	0.085**	0.035	0.340***	0.340***
							(0.046)	(0.130)	(0.042)	(0.075)	(0.117)	(0.117)
GDP per capita growth	-0.876***	-0.810***	-0.342*	-0.333*	-0.916***	-0.916***	-0.748***	-0.700***	-0.399**	-0.404**	-0.842***	-0.842***
	(0.185)	(0.199)	(0.199)	(0.197)	(0.153)	(0.153)	(0.182)	(0.198)	(0.180)	(0.179)	(0.154)	(0.154)
Union density	-1.165	6.170	-60.004*	-56.722*	39.294	39.294	12.039	11.159	-10.584	-5.915	48.504	48.504
	(35.264)	(41.692)	(32.815)	(33.704)	(36.311)	(36.311)	(31.217)	(33.509)	(26.134)	(25.495)	(33.446)	(33.446)
Unemployment Rate	-0.186	-0.212	-0.190	-0.202	-0.781***	-0.781***	-0.200	-0.166	0.017	0.031	-0.675***	-0.675***
	(0.222)	(0.228)	(0.180)	(0.178)	(0.190)	(0.190)	(0.196)	(0.203)	(0.166)	(0.161)	(0.146)	(0.146)
Labor Productivity Index	1.784***	1.780***	1.139***	1.135***	1.477***	1.477***	1.480***	1.473***	1.053***	1.055***	1.525***	1.525***
	(0.064)	(0.066)	(0.047)	(0.047)	(0.077)	(0.077)	(0.054)	(0.056)	(0.037)	(0.038)	(0.159)	(0.159)
Inflation	-0.769***	-0.840***	-0.982***	-0.965***	-1.109***	-1.109***	-0.735***	-0.822***	-0.449**	-0.433**	-1.006***	-1.006***
	(0.242)	(0.268)	(0.260)	(0.259)	(0.211)	(0.211)	(0.244)	(0.258)	(0.216)	(0.212)	(0.216)	(0.216)
Constant	-42.485***	-36.796***	-37.435***	-34.571***	-89.177***	-89.177***	-83.444***	-79.025***	-75.121***	-76.468***	-12.406	-12.406
	(13.661)	(13.413)	(8.505)	(8.341)	(10.974)	(10.974)	(13.314)	(13.620)	(8.927)	(8.572)	(17.803)	(17.803)
N	199	182	131	128	63	63	177	165	128	125	58	58

Table U: Re-estimating the effect of natural resources on wages conditional on wage coordination and inequality including Norway in the sample (columns with odd numbers) and excluding Norway (columns with even numbers). Standard Errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

	(1) REER (Consumer Prices)	(2) REER (Consumer Prices)	(3) REER (Unit Labor Costs)	(4) REER (Unit Labor Costs)	(5) REER (Consumer Prices)	(6) REER (Consumer Prices)	(7) REER (Unit Labor Costs)	(8) REER (Unit Labor Costs)
Resource Rents per capita	0.067**	0.075***	0.073***	0.076***	-0.176***	-0.405***	-0.150***	-0.288***
	(0.030)	(0.022)	(0.014)	(0.014)	(0.049)	(0.114)	(0.026)	(0.062)
Wage Coordination	43.249**	39.255*	17.357	20.624				
	(21.167)	(22.863)	(14.001)	(14.716)				
Wage Coordination × Resource Rents	-0.138**	-0.178***	-0.125***	-0.150***				
	(0.054)	(0.047)	(0.024)	(0.035)				
Gini					-355.557***	-470.677***	-248.572***	-273.880***
					(122.531)	(133.801)	(62.655)	(67.279)
Gini × Resource Rents					0.698***	1.444***	0.623***	1.081***
					(0.212)	(0.376)	(0.112)	(0.225)
GDP per capita growth	-1.109***	-0.982**	0.078	0.129	-0.832*	-0.643	-0.055	-0.059
	(0.416)	(0.418)	(0.180)	(0.178)	(0.473)	(0.477)	(0.248)	(0.239)
Central Bank Independence	-10.210**	1.480	15.598***	6.263***	13.123	4.069	7.097***	7.550***
	(4.826)	(2.714)	(1.932)	(1.437)	(9.157)	(3.110)	(1.284)	(1.417)
De facto crawling peg	-3.302		2.647		-0.272		5.011**	
	(6.283)		(1.786)		(6.666)		(2.286)	
Managed floating	6.765		3.680		2.090		-4.105**	
	(4.335)		(2.627)		(3.096)		(1.813)	
Freely floating	-45.819**		41.118***		47.711		23.898***	
	(18.996)		(9.212)		(34.051)		(4.897)	
Inflation	0.138	0.282	-0.196	-0.154	0.071	0.139	-0.225*	-0.163
	(0.200)	(0.213)	(0.138)	(0.139)	(0.188)	(0.205)	(0.119)	(0.128)
VA tradable vs. non-tradable sector	116.245***	96.411**	-68.644***	-67.562***	88.296*	57.866	-22.197	-29.750
	(43.304)	(45.009)	(18.474)	(19.580)	(47.147)	(48.261)	(19.821)	(20.309)
Nominal Exchange Rate	0.977***	0.980***	0.418***	0.451***	0.988***	0.991***	0.599***	0.621***
	(0.109)	(0.118)	(0.060)	(0.064)	(0.114)	(0.117)	(0.073)	(0.072)
DG_regime		-9.450**		-1.487		-10.325***		0.002
		(4.287)		(1.478)		(3.837)		(1.366)
N	160	147	227	205	145	133	170	158

Table V: Re-estimating the effect of natural resources on the real exchange rate conditional on wage coordination and inequality including Norway in the sample (columns with odd numbers) and excluding Norway (columns with even numbers). Standard Errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

9 Interaction between Wage Coordination and Inequality

The results presented in the article test the effect of wage coordination and inequality separately: The models include either only the interaction between wage coordination and natural resources or only the interaction between inequality and wage coordination. However, inequality and wage institutions are highly correlated. This section presents two robustness tests that examine the two mechanisms simultaneously.

9.1 Accounting for Wage Coordination and Inequality jointly

My intention is to test the two mechanisms jointly in order to identify if a) once accounting for the one mechanism, the second mechanism does not exhibit a significant effect anymore, or b) the two mechanisms exert an independent (additive) effect on the severity of the Dutch Disease. I therefore estimate regressions that includes the interaction terms between natural resource with wage coordination *and* natural resources with inequality. The numerical results are presented in Table W. Both interaction terms remain statistically significant.

However, the marginal effect ($\frac{\partial Y}{\partial X}$) of natural resources on exports is not immediately obvious due to the inclusion of two interaction effects. Therefore, Figure B displays the marginal effects of natural resources on exports for particular combinations of either high or low degree of wage bargaining coordination and either high or low inequality across three dependent variables. The Figure illustrates that natural resources have a much more favorable effect on exports in countries with a high degree of wage bargaining coordination *and* low inequality than in countries with any other combination in levels of wage bargaining and inequality.

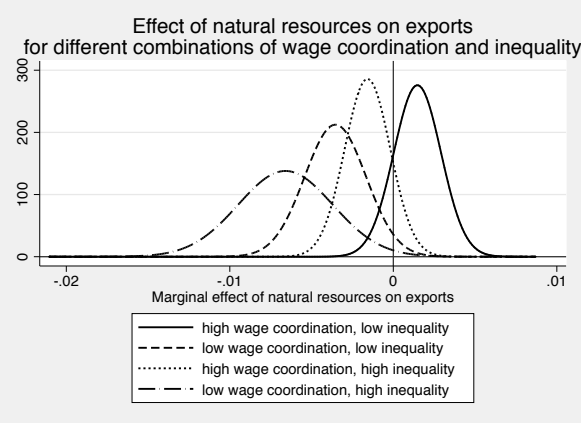
In sum, both wage coordination and inequality exert an independent effect — even

when jointly included in the model — with the most favorable results obtained in countries with high wage coordination and low inequality.

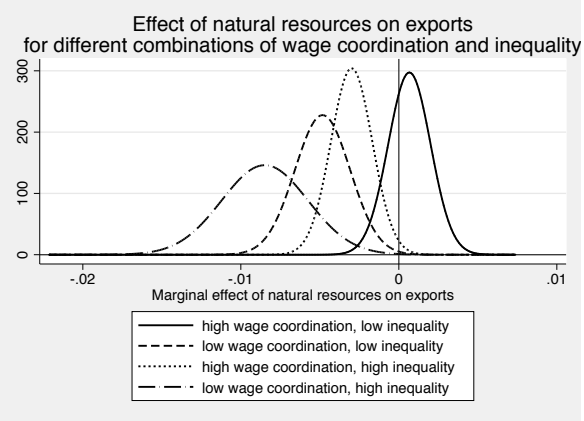
	(1) Exports minus Oil exports (% of GDP)	(2) Exports minus Natural Resource exports (% of GDP)	(3) Manufacture exports (% merch. exports)
Resource Rents per capita	0.000	0.000	0.002
	(0.002)	(0.002)	(0.004)
Wage Coordination	1.282	1.217	-3.516
	(3.333)	(3.097)	(3.541)
Wage Coordination × Resource Rents	0.012*	0.013**	0.014*
	(0.007)	(0.006)	(0.008)
Gini	-68.546***	-66.950***	-43.043**
	(20.423)	(20.447)	(21.340)
Gini × Resource Rents	-0.024**	-0.029***	-0.052***
	(0.011)	(0.010)	(0.013)
GDP per capita growth	0.221**	0.190*	-0.006
	(0.113)	(0.109)	(0.090)
De facto crawling peg	-0.901	-0.886	-1.478**
	(0.786)	(0.782)	(0.711)
Managed floating	-0.586	-0.490	-1.820
	(1.487)	(1.483)	(1.739)
Freely floating	0.646	0.783	1.942
	(0.962)	(0.959)	(1.235)
Unemployment Rate	-0.376***	-0.387***	-0.307***
	(0.120)	(0.119)	(0.100)
Mean income of wage employees	0.163	0.175	0.259*
	(0.174)	(0.177)	(0.145)
Labor Productivity Index	0.378***	0.375***	0.086
	(0.082)	(0.083)	(0.064)
Nominal Exchange Rate	-0.178***	-0.174***	0.015
	(0.016)	(0.016)	(0.019)
Constant	16.872**	14.501*	32.947***
	(7.658)	(7.533)	(6.610)
N	239	239	237

Table W: Estimation results for the effect of natural resource rents on three measures of exports, conditional on the degree of wage coordination and inequality simultaneously. Standard Errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Exports minus Oil exports (% of GDP)



Exports minus Natural Resource exports (% of GDP)



Manufacturing exports (% of merchandise exports)

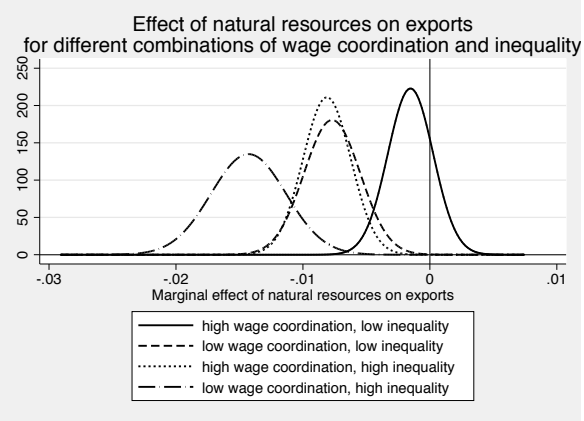


Figure B: Impact of natural resource rents on exports when both wage coordination and inequality are included. The figure illustrates the marginal effect ($\frac{\partial Y}{\partial X}$) of natural resources on exports for particular combinations of (high/low degree of) wage coordination and (high/low) inequality. Effects based on Table W.

9.2 Triple-Interaction between Natural Resources, Wage Coordination *and* Inequality

The previous section added both interaction terms jointly, assuming an additive affect of wage coordination and inequality. However, it might be the case that the effect of wage coordination (inequality) moderating the impact of natural resources on exports is conditional on the degree of inequality (wage coordination). This would warrant not only including the interaction between wage coordination and inequality with natural resources, respectively, but a triple-interaction between all three variables.

There are good theoretical reasons to expect that this might be an appropriate model. I argue in the article that inequality leads to more demand for services, resulting in wage increases, which in turn decrease in exports. In addition, I argued that coordinated wage bargaining moderates wage increases in face of a resource boom. However, it might also moderate wage increases associated with inequality by keeping wages in services lower and therefore preventing them from outdistancing manufacturing wages. If this is the case, the theory would predict a negative sign on the interaction term between coordinated wage bargaining and inequality.

I therefore estimate a model with triple interaction between natural resources, coordinated wage bargaining, and inequality. The numerical results are presented in Table X. Table X shows that — as predicted — the interaction between wage coordination and inequality is negative and statistically significant. Figure C illustrates that the findings of the triple interaction model also indicate that the 'best' outcomes are achieved with high coordination and low inequality.

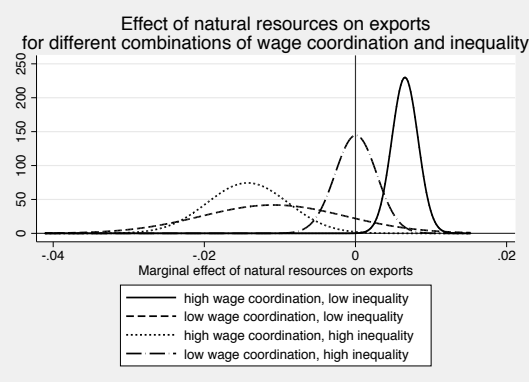
However, interpreting the marginal effects of triple interactions directly from the table is challenging. A triple interaction of the form $\hat{Y} = \beta_0 + \beta_1 X + \beta_2 Z + \beta_3 W + \beta_4 XZ + \beta_5 XW + \beta_6 ZW + \beta_7 XZW$ implies that the marginal effect is calculated with $\frac{\partial Y}{\partial X} = \beta_1 + \beta_4 Z + \beta_5 W + \beta_7 ZW$. Figure C facilitates the interpretation of the models presented

in Table X. It displays the marginal effect of natural resources on exports for different combinations of high or low wage bargaining coordination and high or low inequality across three dependent variables. The results are striking: Natural resources have a positive and statistically significant effect only in countries with a high degree of wage bargaining and low inequality. In contrast, natural resources have a decidedly less favorable effect on exports in countries characterized by any of the other three possible combinations. The results are robust across all three operationalizations of the dependent variable. In summary, despite being correlated, wage coordination and inequality have an independent effect on the severity of the Dutch Disease.

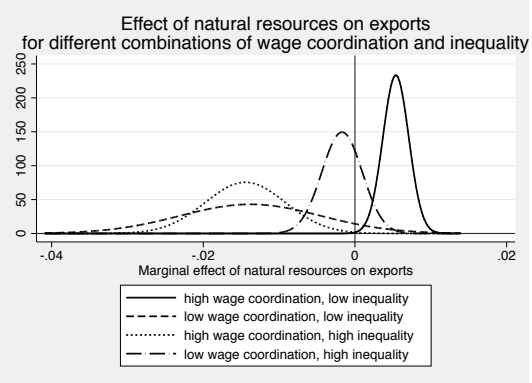
	(1) Exports minus Oil exports (% of GDP)	(2) Exports minus Natural Resource exports (% of GDP)	(3) Manufacture exports (% merch. exports)
Resource Rents per capita	-0.050	-0.056*	-0.007
	(0.034)	(0.033)	(0.047)
Wage Coordination	131.479***	128.699***	152.958***
	(48.236)	(46.996)	(44.348)
Gini	70.224	68.567	122.904***
	(48.713)	(47.454)	(42.540)
Wage Coordination × Resource Rents	0.170***	0.175***	0.092
	(0.056)	(0.055)	(0.084)
Gini × Resource Rents	0.156	0.166*	-0.003
	(0.102)	(0.100)	(0.142)
Wage Coordination × Gini	-401.696***	-393.636***	-485.225***
	(151.707)	(147.366)	(139.104)
Wage Coordination × Gini × Resource Rents	-0.589***	-0.593***	-0.328
	(0.168)	(0.164)	(0.259)
GDP per capita growth	0.199*	0.170	-0.030
	(0.107)	(0.104)	(0.085)
De facto crawling peg	-0.315	-0.384	-0.878
	(0.726)	(0.718)	(0.640)
Managed floating	-0.859	-0.783	-2.174
	(1.471)	(1.468)	(1.682)
Freely floating	0.312	0.472	1.727
	(0.857)	(0.841)	(1.221)
Unemployment Rate	-0.334***	-0.348***	-0.264***
	(0.112)	(0.111)	(0.099)
Mean income of wage employees	0.233	0.236	0.365**
	(0.178)	(0.178)	(0.152)
Labor Productivity Index	0.398***	0.396***	0.094
	(0.081)	(0.081)	(0.063)
Nominal Exchange Rate	-0.218***	-0.212***	-0.031
	(0.020)	(0.019)	(0.019)
Constant	-25.653	-27.130	-17.997
	(16.841)	(16.531)	(13.799)
N	239	239	237

Table X: Estimation results for the effect of natural resource rents on three measures of exports, conditional on the three-way interaction of wage coordination, inequality, and natural resources. Standard Errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Exports minus Oil exports (% of GDP)



Exports minus Natural Resource exports (% of GDP)



Manufacturing exports (% of merchandise exports)

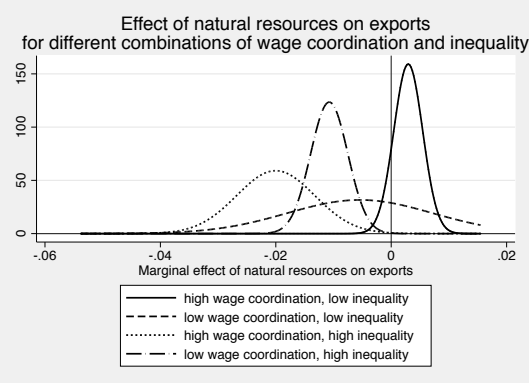


Figure C: Impact of natural resources on exports when accounting for triple interaction between wage coordination, inequality, and natural resource rents. The figure illustrates the marginal effect ($\frac{\partial Y}{\partial X}$) of natural resources on exports for particular combinations of (high/low degree of) wage coordination and (high/low) inequality. Effects based on Table X.

10 Multicollinearity

Wage bargaining coordination and and equality are correlated with a host of other coordinating institutions. For example, coordinated wage bargaining tends to occur in countries with proportional representation (as opposed to majoritarian) electoral system with a higher mean district magnitude. Furthermore, parliamentary (versus presidential) political systems in which candidate selection occurs via closed (versus open) list are more likely to feature wage coordination. At the same time, more equal societies tend to be characterized by the same set of institutions. Considering the apparent complementarities between different institutions that promote coordination, we face the problem of collinearity: We do not know whether wage coordination is the causal driver, or if the electoral system is in reality the more important independent variable. Therefore, it is important to examine the relative impact of complementary institutions.

For this reason, I estimate a 'least absolute shrinkage and selection operator' (Lasso) regression (Tibshirani, 1996). This technique is designed to reduce the number of predictors in a regression model by identifying the important independent variables and discarding redundant ones. The core idea of the Lasso regression is to initially include all potential independent variables in the model, and subsequently introduce a penalty term. As the penalty term increases, uninformative independent variables are reduced to zero while those with much explanatory value can withstand higher penalties. This is why the penalty is also terms Shrinkage Factor. In lay terms, the Lasso regression is a 'cage match' between independent variables, determining which variables can hold on the longest.

More formally, the Lasso method is defined as

$$\min_{\beta_0,\beta} \left(\frac{1}{2N} \sum_{i=1}^{N} \left(y_i - \beta_0 - x_i^T \beta \right)^2 + \lambda \sum_{j=1}^{p} |\beta_j| \right)$$

The first term of this expression corresponds to the OLS regression. λ is the penalty term, which is the 1-norm of the regression coefficient β. The procedure minimizes the square error under the condition that only a limited 'budget' it available for allocation to the vector β. For this reason, the minimization will choose the independent variables with the highest explanatory values to be included in the model, while the coefficients of less important variables are discounted. As the penalty λ is increased, the coefficients of unimportant variables is driven to zero, while those with more explanatory value are able to withstand the penalty longer.

The Lasso can differentiate among several multi-collinear variables and identify the subset of variables most important for explaining the outcome. I obtain data from Keefer (2013) on several institutions that tend to cluster with coordinated wage bargaining systems and low inequality. Using the Lasso regression, I compare the relative explanatory value of coordinated wage bargaining and inequality to complementary institutions such as electoral system (PR versus Majoritarian), political system (presidential versus parliamentary), mean district magnitude, checks and balances, and party candidate system (closed versus open list).

Figure D graphically displays the process of the Lasso regression. The Figure is to be read from the right to the left, as the Shrinkage Factor s (i.e., the penalty) is increased. The results indicate that the measures for the electoral system, the political system, mean district magnitude, checks and balances and closed versus open lists are reduced to zero quite quickly. In contrast, the variables non-tax revenue, wage coordination, and inequality are able to withstand higher penalties, indicating that their explanatory value surpasses those of variables reduced to zero quickly.

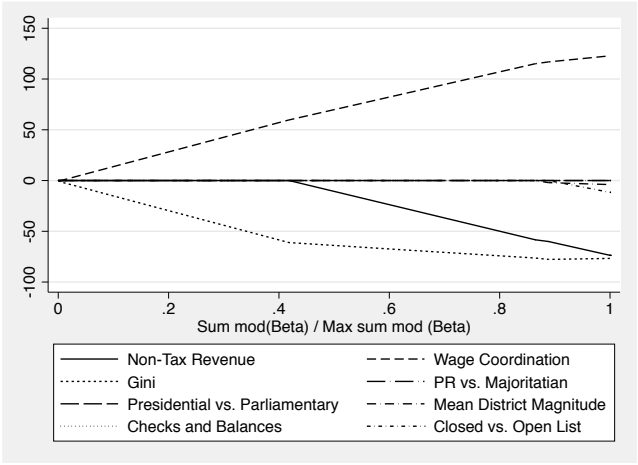
While the graphical interpretation is informative, it does not provide clear guidance regarding which variables to include. For this reason, the information gained from the Lasso regression can be used for cross validation to identify the set of independent variables

with the smallest validation error. This identifies which variables should be included in subsequent models. Table Y presents the results of this exercise. For each dependent variable, I ran two separate Lasso regressions: The first only included non-tax revenues, wage coordination, and inequality plus the various additional institutions that may be complementary; The second adds the set of control variables used in the main article. A 'Yes' indicates that the respective variable should be included in the model, while a 'No' suggests that this particular variable does not add much explanatory value and should be excluded. The findings indicate that — irrespective of the dependent variable and the sets of control variables — non-tax revenues, wage coordination, and inequality remain in the model. Their explanatory value therefore surpasses that of collinear variables.

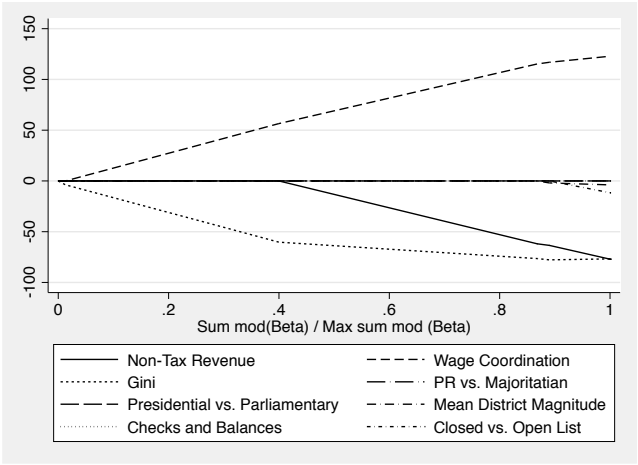
	Exports minus Oil exports		Exports minus Natural Resource Exports		Manufacture exports	
	without controls	with controls	without controls	with controls	without controls	with controls
Non-tax revenues	yes	yes	yes	yes	yes	yes
Wage Coordination	yes	yes	yes	yes	yes	yes
Gini	yes	yes	yes	yes	yes	yes
PR vs. Majoritatian System	no	no	no	no	no	no
Presidential vs. Parliamentary system	no	no	no	no	no	no
Mean District Magnitude	no	no	no	no	yes	yes
Checks and Balances	no	yes	no	yes	yes	yes
Closed vs. Open List	no	no	no	no	no	yes
Exchange rate regime		yes		yes		yes
GDP growth per capita		yes		yes		yes
Unemployment rate		yes		yes		yes
Mean income of wage employees		yes		yes		yes
Labor productivity index		no		no		yes
Nominal exchange rate		yes		yes		yes

Table Y: Summary of Lasso Regressions. The table indicates which variables provide the most explanatory value and therefore should be included in the analysis.

Dependent Variable: Exports minus Oil exports (% of GDP)



Dependent Variable: Exports minus Natural Resource exports (% of GDP)



Dependent Variable: Manufacture Exports (% of Merchandise exports)

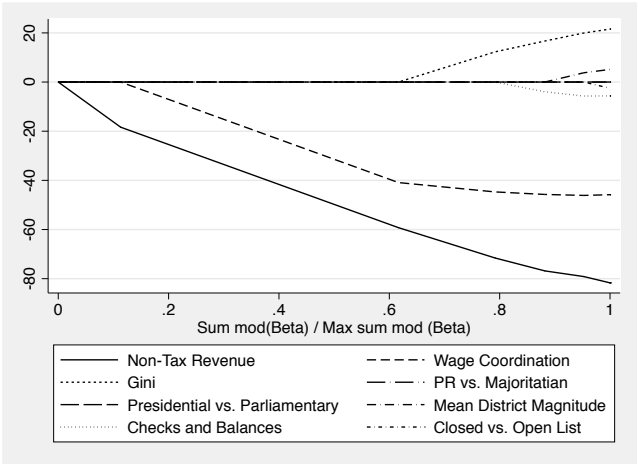


Figure D: Visual representation of the Lasso Regressions.

11 Endogeneity

Thelen (2001) shows that the degree of wage bargaining coordination exhibits within-country variation across time. It is therefore possible that the degree of wage bargaining coordination is not independent of increases in non-tax revenues. For example, in the context of sluggish growth, the newly elected Social Democratic government re-centralized wage-bargaining in 1987 by instituting maximum wage increases (Calmfors, 1989; Iversen, 1996). Similarly, facing deteriorating macroeconomic conditions, unions and employer associations negotiated the Wassenaar Agreement in 1982 to restrain wage growth in return for full employment policies (Visser, 1998, p. 274). The timing of these changes in the degree of wage bargaining centralization does coincide with increases in natural resource receipts. It is therefore possible that wage bargaining — and inequality, for that matter — are endogenous to non-tax revenues. However, is wage bargaining centralization is *causally related* to natural resources within these countries or is the timing coincidental? Further, even if this tendency exists within some countries, the question remains whether natural resource have a systematic impact on the degree of wage bargaining centralization across countries.

Instrumental variable regressions are a common approach to concerns over endogeneity. However, applying instrumental variables to the study at hand is challenging as the research design involves interactions. Recall the model estimated in the article:

$$Y_{i,t} = \alpha + \beta_1 X_{i,t} + \beta_2 Z_{i,t} + \beta_3 X Z_{i,t} + \beta_c Controls_{i,t} + \beta_d \gamma_i + \epsilon_{i,t}$$

where $Y_{i,t}$ are dependent variables representing exports, wages, or the real exchange rate, respectively, $X_{i,t}$ are the natural resource rents, and $Z_{i,t}$ represents either the degree of wage coordination or inequality. If $X_{i,t}$ were to affect $Z_{i,t}$ through their negative effect on $Y_{i,t}$, then Equation 11 would be characterized by two (not one) endogenous variables:

$Z_{i,t}$ and $XZ_{i,t}$. Finding two instruments that meet the exclusion restrictions under these conditions is extremely challenging. In fact, Wooldridge (2010, pp. 236-7) calls this the "forbidden regression." In addition, conceptually, instrumental variable regressions treat endogeneity as a nuisance. However, should endogeneity exist between non-tax revenues and wage coordination as well as inequality, it would be of substantive interest to examine the direction of the relationship between these variables. Instrumental variable regression, however, cannot provide such insights.

For this reason, I resort to a methodologically and conceptually more appropriate alternative: Panel Vector Autoregression. This approach does not make any a priori assumptions regarding the direction of causality. Instead, it endogenizes all variables in the system so that variable $y1$ can affect $y2$, and vice versa. The idea is to simulate how a shock in one variable cascades throughout the system of variables in the model over time. For example, a panel VAR approach would allow to analyze the effect of a sudden one standard deviation increase in non-tax revenues on wage coordination in periods 1, 2, . . . , n. The resulting impulse response functions display the granger causal effect of $y1$ on $y2$ as well as of $y2$ on $y1$.

I implement the panel VAR model described in Love and Zicchino (2006) as it allows for the incorporation of fixed effects γ_i just like the regression reported in the article. In its simplest form, the model is given by

$$y_{it} = \beta_0 + \beta_1 y_{it-1} + \beta_2 \gamma_i + \beta_3 d_{i,t} + e_t$$

where γ_i are fixed effects and $d_{c,t}$ are country-specific time dummies. I report the results for 4 lags in the panel VAR, but the findings are not dependent on the number of lags included. In addition, the choice in variable order should be guided by theory in decreasing order of assumed exogeneity. For example, assume that $y1$, $y2$, and $y3$ are the three variables in the system. If theory suggests that $y3$ is relatively more exogenous than

$y1$, and $y1$ is relatively more exogenous than $y2$ but less exogenous than $y3$, then the Choleski factor should represent the variables in the order $[y3, y1, y2]$. I therefore assume that non-tax revenues enter the system first, followed by wage coordination, and lastly inequality. However, the results are robust to changing the relative order of the variables. The findings with different lags and variable orderings are available from the author upon request.

The results are displayed in Figure E. The left-most column shows the relevant results for the endogeneity concerns noted above. In the sample analyzed in the article, a one-standard deviation shock in natural resources has no effect on the degree of wage coordination: The zero is included in the confidence intervals for all seven time periods following a shock. Similarly, non-tax revenues in OECD countries are not associated with inequality: The effect of a one-standard deviation shock in non-tax revenues on inequality is not statistically significant in any of the time periods following a shock. In sum, these results demonstrate that the endogeneity concerns described above are unfounded.

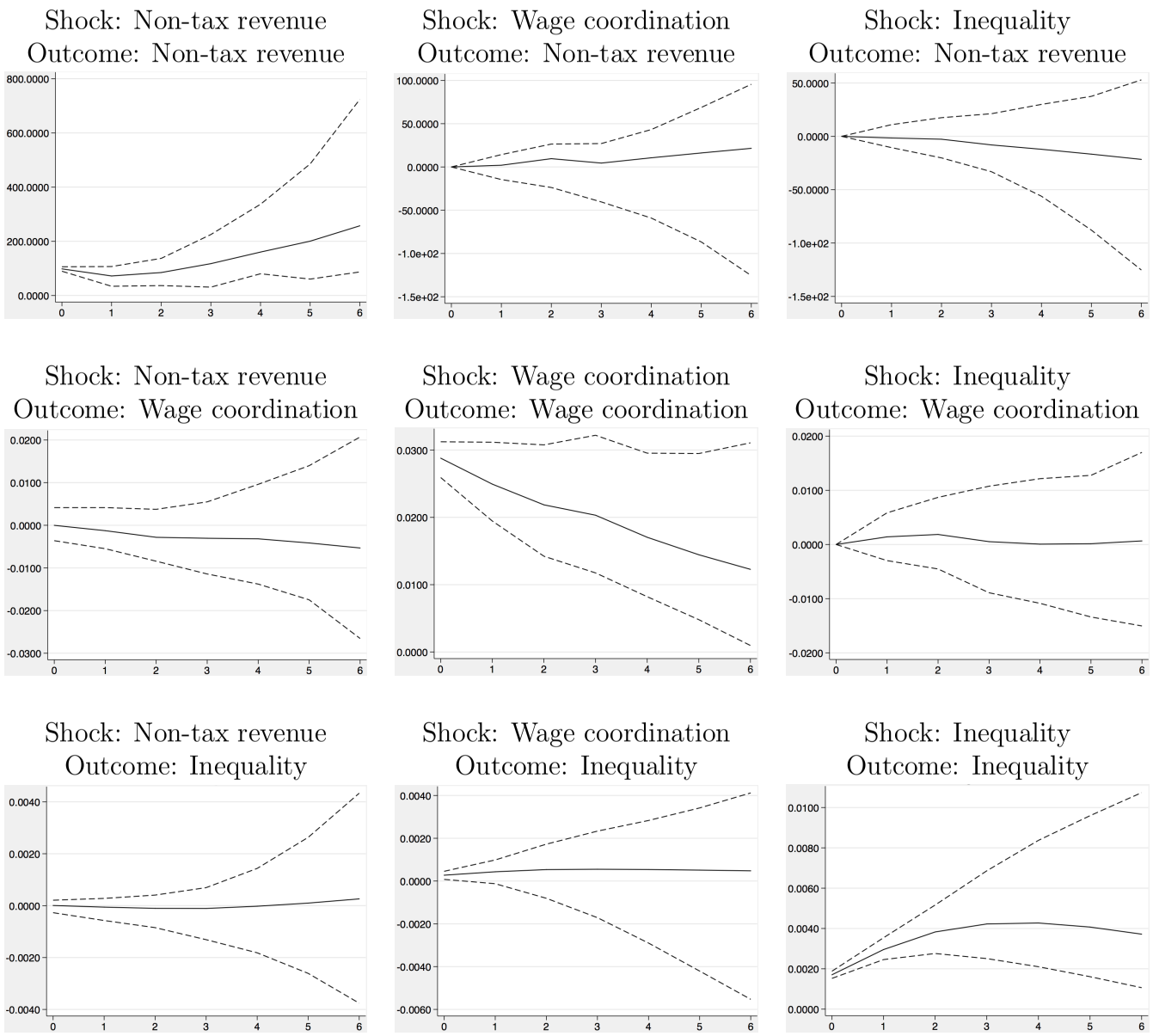


Figure E: Impulse responses for 4-lag panel VAR of Natural Resources, Inequality, and Wage Coordination.

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