

Online appendix

Does politics drive conflict in central banks' committees?

Lifting the veil on the ECB consensus

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Annex 1: Validation of topic model results and topics' interpretation

Figure 1
Deveaud Score for different LDA models

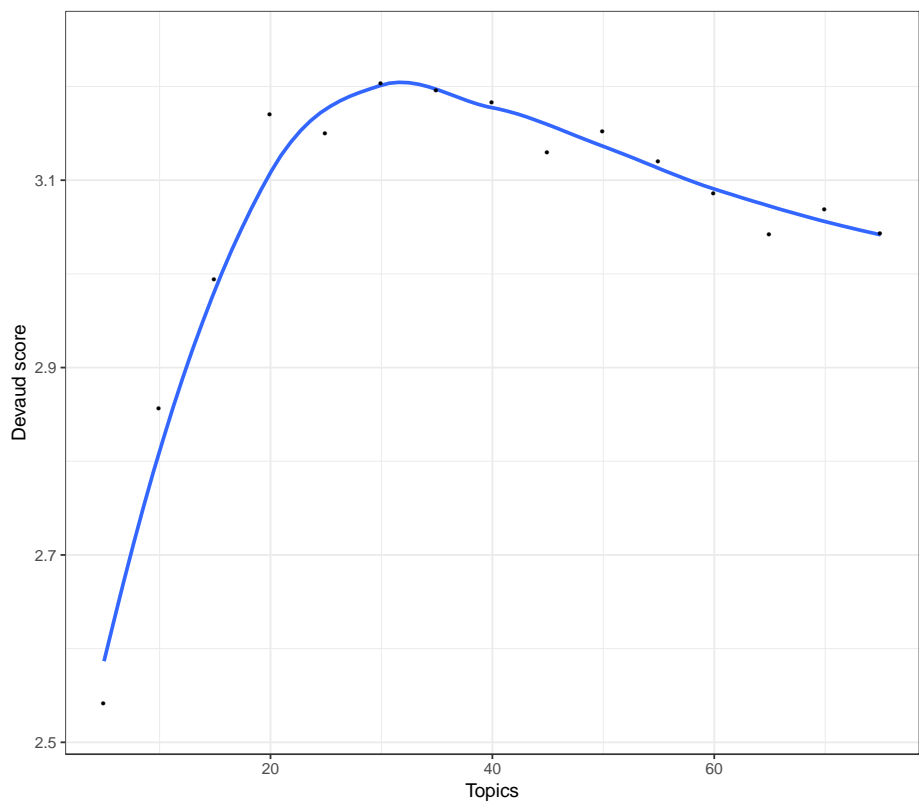


Table 1
Topics in central bankers' communication and most representative words*

Domains	Category	Topic label	Representative words
Monetary Policy	Mandate	<i>Eurosystem mandate</i>	polici, monetari, stabil, central, price, object, maintain, independ, credibl, achiev, mandat, clear, eurosystem, respons, ecb, contribut, decis, term, primari, strategi, ensur, medium, econom, stanc, conduct, policymak, framework, stabl, transmiss, success
	Policy Tools	<i>Interest rate policy</i>	rate, inflat, price, interest, low, expect, level, lower, effect, term, target, increas, real, higher, rise, period, pressur, longterm, oil, averag, point, consum, nomin, wage, past, fall, high, persist, volatil, shortterm
	Operational Framework	<i>Inflation forecasts</i>	price, growth, remain, econom, continu, area, develop, expect, euro, medium, risk, annual, rate, monetari, outlook, term, increas, inflat, recent, quarter, stabil, support, project, assess, confirm, moder, analysi, pressur, line, activ
Liquidity Assistance	Standard Liquidity Operations	<i>Liquidity provision</i>	bank, market, liquid, oper, central, measur, money, rate, eurosystem, provid, time, interest, refinanc, ecb, proof, first, matur, collater, confid, period, function, action, sinc, reserv, condit, normal, main, fund, facil, support
	Non-standard Liquidity Operations	<i>Balance sheet and non-standard liquidity operations</i>	invest, loan, credit, asset, sector, financ, household, purchas, condit, firm, balanc, privat, speech, corpor, improv, lend, measur, banker, support, recoveri, programm, busi, sheet, real, reduc, economi, bis, adjust, remain, effect
Financial Market Regulation	Microprudential Regulation	<i>Bank capital requirements</i>	risk, basel, framework, committe, standard, supervisor, manag, capit, bank, requir, work, regulatori, implement, supervisor, approach, regul, practic, intern, rule, account, review, supervis, measur, principl, consist, assess, improv, need, industri, promot

	Microprudential Regulation	<i>Bank capital requirements</i>	risk, basel, framework, committe, standard, supervisor, manag, capit, bank, requir, work, regulatori, implement, supervisor, approach, regul, practic, intern, rule, account, review, supervis, measur, principl, consist, assess, improv, need, industri, promot
	Microprudential Regulation	<i>Bank supervision</i>	bank, institut, author, central, nation, supervisor, manag, respons, supervis, law, group, involv, task, control, public, function, legal, legisl, itali, ensur, board, oper, system, cooper, action, includ, direct, rule, establish, plan
	Macroprudential Regulation	<i>Macroprudential regulation</i>	financi, system, crisi, institut, stabil, regul, global, sector, need, macroprudenti, import, intern, supervis, author, level, respons, role, challeng, resili, lesson, address, risk, coordin, crise, play, regulatori, prevent, key, nation, framework
	Macroprudential Regulation	<i>Systemic risks</i>	risk, financi, market, credit, asset, manag, increas, fund, investor, liquid, •, excess, innov, particip, instrument, deriv, institut, complex, system, volatil, consequ, financ, behaviour, high, structur, review, bubbl, result, incent, product
	Macroprudential Regulation	<i>Financial market infrastructure</i>	market, financi, integr, european, secur, system, effici, payment, bond, crossbord, servic, process, develop, singl, infrastructur, increas, settlement, initi, benefit, contribut, transact, activ, provid, particip, sector, direct, equiti, import, competit, foster
Member Countries' Economic Policy	Government Finances	<i>Fiscal policy</i>	reform, fiscal, structur, growth, need, public, sustain, econom, implement, govern, polici, countri, consolid, deficit, financ, adjust, pact, ensur, confid, sound, budget, necessari, support, macroeconom, order, improv, strengthen, progress, effort, budgetari
	Government Finances	<i>Sovereign debt</i>	crisi, debt, countri, sovereign, govern, speech, banker, greec, fiscal, bis, bond, public, greek, problem, howev, financ, central, market, risk, programm, prevent, rule, germani, euroarea, liabil, privat, caus, consequ, current, sever
	Structural Reforms	<i>Structural reforms</i>	product, labour, growth, competit, increas, market, employ, cost, unemploy, reform, social, wage, sector, invest, age, job, high, pension, higher, economi, educ, benefit, improv, popul, work, flexibl, technolog, structur, servic, level
	Assessment Macroeconomic Situation	<i>Growth outlook</i>	economi, spanish, spain, situat, recent, continu, signific, proof, banco, particular, posit, extern, level, result, correct, chang, effect, set, face, year,

			activ, adjust, factor, process, increas, certain, high, made, adopt, main
	Assessment Macroeconomic Situation	<i>Growth outlook</i>	growth, economi, year, demand, econom, domest, continu, recoveri, weak, strong, recent, prospect, last, past, output, fall, overal, extern, sector, busi, now, uncertainti, sustain, sinc, remain, slow, unemploy, whole, quarter, confid
	Regulatory Interventions	<i>Housing Financing</i>	servic, proof, central, insur, firm, busi, provid, protect, payment, custom, consum, bank, ireland, financ, need, includ, mortgag, lender, irish, relat, borrow, innov, case, import, work, speech, issu, compani, technolog, make
European Integration Process	Single Currency Adoption	<i>Euro adoption</i>	euro, area, countri, currenc, state, sinc, year, unit, singl, across, ecb, introduct, nation, banknot, growth, econom, whole, signific, first, million, changeov, compar, coin, januari, success, averag, diverg, emu, cash, now
	Single Currency Adoption	<i>Exchange rate convergence</i>	countri, exchang, rate, econom, member, currenc, converg, access, malta, adopt, •, review, join, state, economi, particip, process, challeng, finland, year, import, howev, criteria, success, time, region, bis, membership, emu, alreadi
	Institutional Framework	<i>European integration institution-building</i>	european, union, europ, econom, nation, state, singl, member, polit, integr, common, institut, treati, rule, need, level, toward, achiev, establish, step, currenc, emu, creat, make, complet, today, mechan, commiss, respons, success
Professional Culture	Global Economy	<i>Global economy</i>	economi, intern, global, countri, world, trade, emerg, exchang, import, account, develop, market, foreign, econom, imf, capit, current, larg, globalis, flow, imbal, domest, increas, export, good, role, share, invest, major, dollar
	Academic Debates	<i>Macroeconomic Research</i>	econom, differ, polici, shock, see, effect, research, chang, paper, suggest, impact, exampl, evid, output, work, studi, less, point, howev, recent, case, becom, bis, potenti, show, structur, cycl, channel, time, discuss
	Academic Debates	<i>Decision making procedures</i>	govern, ecb, council, decis, meet, member, taken, decid, regard, report, view, last, european, first, issu, time, take, review, present, bis, particular, nation, month, eurosystem, parliament, call, press, respect, commiss, consid
	Academic Debates	<i>Statistics</i>	inform, develop, data, use, strategi, analysi, statist, indic, communic, forecast, model, assess,

			import, futur, econom, time, public, uncertainti, account, provid, refer, valu, transpar, base, role, decis, aggreg, avail, project, take
Language ¹	Language	<i>Language - 1</i>	year, gdp, cent, increas, point, billion, itali, last, first, averag, ratio, total, compar, tax, percentag, end, estim, italian, declin, amount, current, half, public, figur, almost, account, project, debt, measu
	Language	<i>Language - 2</i>	say, much, question, think, time, said, know, now, germani, need, take, mean, peopl, thing, well, see, certain, cours, mani, whether, make, want, clear, german, reason, answer, good, better, right, look
	Language	<i>Language - 3</i>	bis, review, first, howev, chang, current, time, import, challeng, take, process, second, particular, effect, clear, make, develop, two, part, year, ratxtrtext, well, becom, major, increas, therefor, now, futur, point, main
	Language	<i>Language - 4</i>	central, today, proof, confer, bank, thank, ladi, gentlemen, discuss, great, franc, first, year, welcom, banker, bundesbank, presid, particular, remark, topic, now, two, governor, speech, opportun, french, pleasur, invit, issu, bis
	Language	<i>Language - 5</i>	proof, attent, die, der, und, des, les, ich, commiss, dialogu, situat, par, sur, ist, que, dan, , ein, monétair, plus, swift, auf, den, une, madam, place, pour, économiqu
	Language	<i>Language - 6</i>	year, gdp, cent, increas, point, billion, €, itali, last, first, averag, ratio, total, compar, tax, percentag, end, estim, italian, declin, amount, current, half, public, figur, almost, account, project, debt, measur

* The most representative words indicate the words that mostly associate a segment of text to a specific topic.

¹ The extrapolation of the topics in this domain, which includes topics that pertain to rhetorical expressions, is further confirmation of the goodness of fit of the model because it indicates that the model appropriately distinguishes substantive from non-substantive issues. If this were not the case, the non-substantive topics would have appeared in other substantive topics, thus biasing the salience and interpretation of each of them. Given the lack of substantive meaning, however, the 'language' topics have not been included in the empirical analysis.

Figure 2
Topics' salience over time

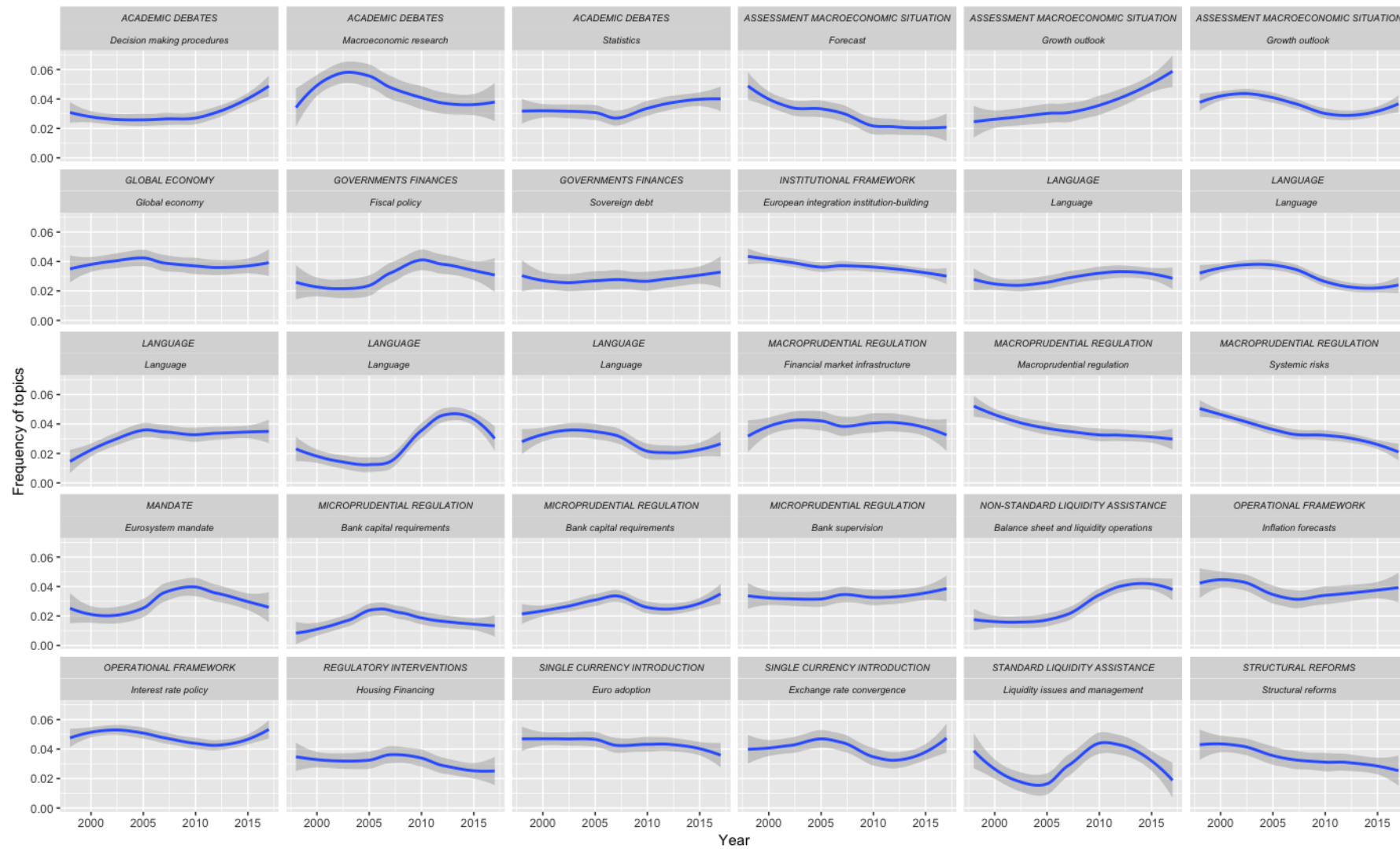


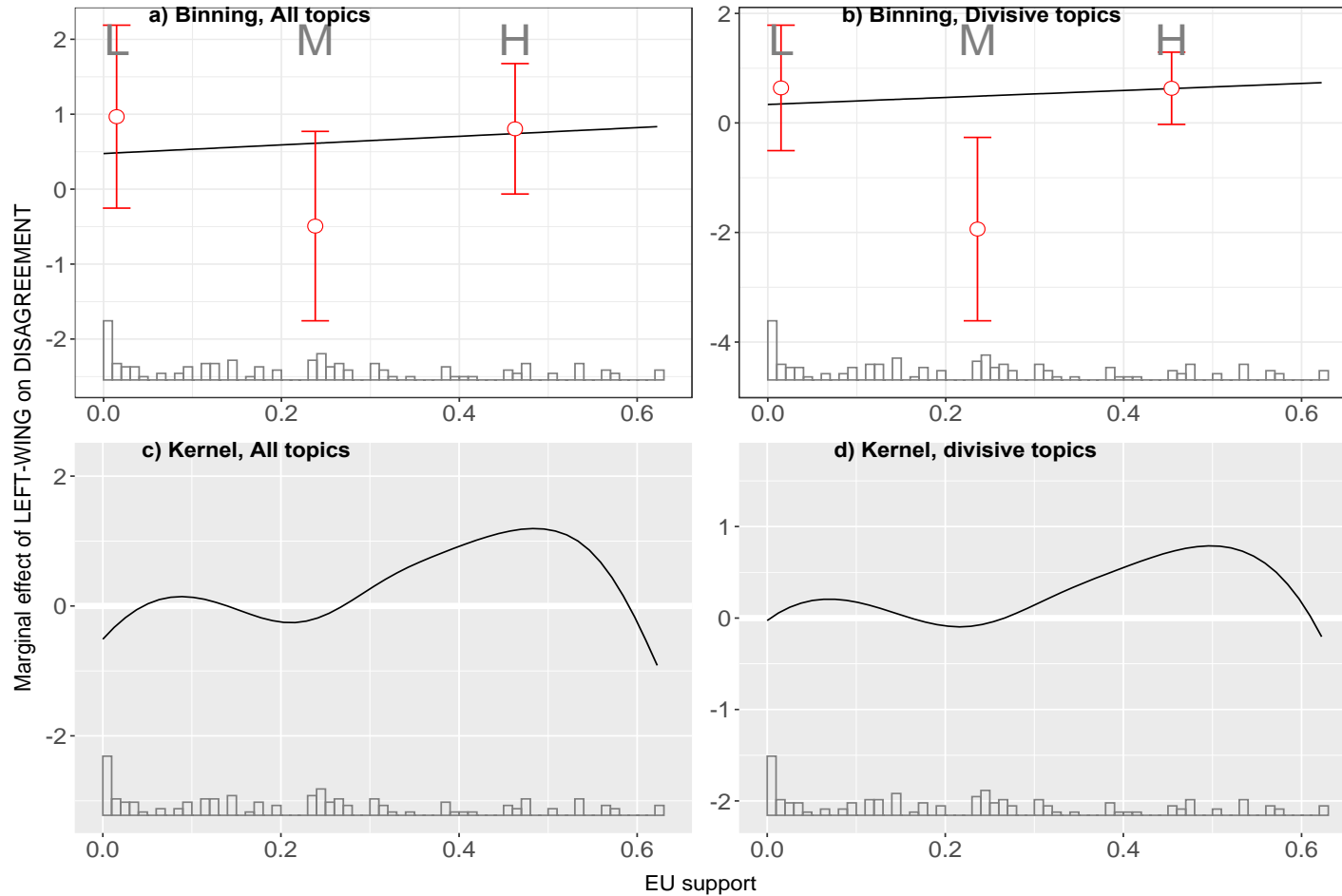
Table 2
Cosine similarity between topics in different extractions

Domains	10 topics	Cosine simil.	15 topics	Cosine simil.	20 topics	Cosine simil.	25 topics	Cosine simil.	30 topics
Monetary Policy							Inflation forecasts	0.33	Inflation forecasts
									Interest rate policy
							Eurosystem mandate	0.53	Eurosystem mandate
Liquidity Assistance					Balance sheet and liquidity operations	0.77	Balance sheet and liquidity operations	0.73	Balance sheet and liquidity operations
									Liquidity issues and management
							Bank capital requirements	0.70	Bank capital requirements
Financial Market Regulation	Bank capital requirements	0.9	Bank capital requirements	0.67	Bank capital requirements	0.83	Bank capital requirements	0.80	Bank capital requirements
									Bank supervision
	Macroprudential regulation	0.63	Macroprudential regulation	0.67	Macroprudential regulation	0.77	Macroprudential regulation	0.67	Macroprudential regulation
			Systemic risks	0.63	Systemic risks	0.87	Systemic risks	0.87	Systemic risks
	Financial market infrastructure	0.87	Financial market infrastructure	0.9	Financial market infrastructure	0.90	Financial market infrastructure	0.60	Financial market infrastructure
Member Countries' Economic Policy					Structural reforms	0.87	Structural reforms	0.80	Structural reforms
	Fiscal policy	0.7	Fiscal policy	0.83	Fiscal policy	0.87	Fiscal policy	0.80	Fiscal policy

									Sovereign debt
			Growth outlook	0.85	Growth outlook	0.83	Growth outlook	0.90	Growth outlook
					Forecast	0.60	Forecast	0.60	Forecast
									Housing finances
European Integration Process	Euro adoption	0.8	Euro adoption	0.73	Euro adoption	0.90	Euro adoption	0.83	Euro adoption
					European integration institution-building	0.7	European integration institution-building	0.87	European integration institution-building
			Exchange rate convergence	0.47	Exchange rate convergence	0.63	Exchange rate convergence	0.87	Exchange rate convergence
Professional Culture							Global economy	0.63	Global economy
	Macroeconomic Research	0.83	Macroeconomic Research	0.70	Macroeconomic Research	0.83	Macroeconomic Research	0.27	Macroeconomic Research
							Decision making procedures	0.73	Decision making procedures
	Statistics								
Language					Language - 1	0.77	Language - 1	0.7	Language - 1
				Language - 2	0.6	Language - 2	0.87	Language - 2	0.87
	Language - 3	0.83	Language - 3	0.87	Language - 3	0.8	Language - 3	0.9	Language - 3
	Language - 3	0.63	Language - 4	0.7	Language - 4	0.8	Language - 4	0.67	Language - 4
							Language - 5	0.7	Language - 5
	Language - 6								

Annex 2

Binning and kernel estimators for the conditional effect of left-right positioning across values of governments' support for the EU



Note: Plots a) and b) show the estimated marginal effects using both the conventional linear interaction model (black line) and the binning estimator (red dots) for all topics (models 1 and 2) and divisive topics (models 3 and 4) respectively. Plots b) and c) show the estimated marginal effects using the kernel estimator in order to take into account nonlinear interaction effects. For more details on the binning and kernel estimators see Hainmueller et al (2019). The histograms at the bottom of the figures display the distribution of EU support.