

Not-for-Publication Appendix to:  
Oil News Shocks and the U.S. Stock Market

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**Abstract**

We study the effect of oil news shocks on U.S. aggregate and industry-level stock returns. Using a Proxy-VAR and a sample from January 1973 to December 2019, we find no significant effect on aggregate stock price index on impact, but a persistent and significant drop at longer horizons. An important degree of heterogeneity is found in the industry-level responses: stock returns for precious metals, coal, petroleum and natural gas, and utilities increase significantly and persistently after the shock, whereas consumer goods, rubber and plastic, automobiles, and trucks fall shortly. Moreover, our estimates indicate that oil news shocks pose a risk for IT sectors whose returns exhibit losses. When we extend the sample to December 2022, we uncover a crucial change in the dynamics of the oil surprise measure: it is contaminated by lags of the oil price. We illustrate how using the oil surprise as an instrumental variable in the extended sample produces puzzling responses of industry-level stock returns, whereas a purged measure of the oil surprise leads to more stable estimates.

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*Keywords:* Oil prices, U.S. stock returns, OPEC, proxy-VAR.

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## A Tables and Figures

Table A.1: Industry Portfolios

Industry	SIC code	Description
1 Agric	Agriculture 0100-0199 0200-0299 0700-0799 0910-0919 2048-2048	Agricultural production - crops Agricultural production - livestock Agricultural services Commercial fishing Prepared feeds for animals
2 Food	Food Products 2000-2009 2010-2019 2020-2029 2030-2039 2040-2046 2050-2059 2060-2063 2070-2079 2090-2092 2095-2095 2098-2099	Food and kindred products Meat products Dairy products Canned & preserved fruits & vegetables Flour and other grain mill products Bakery products Sugar and confectionery products Fats and oils Misc food preparations and kindred products Roasted coffee Misc food preparations
3 Soda	Candy & Soda 2064-2068 2086-2086 2087-2087 2096-2096 2097-2097	Candy and other confectionery Bottled-canned soft drinks Flavoring syrup Potato chips Manufactured ice
4 Beer	Beer & Liquor 2080-2080 2082-2082 2083-2083 2084-2084 2085-2085	Beverages Malt beverages Malt Wine Distilled and blended liquors
5 Smoke	Tobacco Products 2100-2199	Tobacco products
6 Toys	Recreation 0920-0999 3650-3651 3652-3652 3732-3732 3930-3931 3940-3949	Fishing, hunting & trapping Household audio visual equipment Phonograph records Boat building and repairing Musical instruments Toys
7 Fun	Entertainment 7800-7829 7830-7833 7840-7841 7900-7900 7910-7911 7920-7929 7930-7933 7940-7949 7980-7980 7990-7999	Services - motion picture production and distribution Services - motion picture theaters Services - video rental Services - amusement and recreation Services - dance studios Services - bands, entertainers Services - bowling centers Services - professional sports Amusement and recreation services Services - Misc entertainment
8 Books	Printing and Publishing 2700-2709 2710-2719 2720-2729 2730-2739	Printing publishing and allied Newspapers: publishing-printing Periodicals: publishing-printing Books: publishing-printing

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Industry	SIC code	Description
	2740-2749 2770-2771 2780-2789 2790-2799	Misc publishing Greeting card Bookbinding Service industries for the print trade
9 Hshld	Consumer Goods 2047-2047 2391-2392 2510-2519 2590-2599 2840-2843 2844-2844 3160-3161 3170-3171 3172-3172 3190-3199 3229-3229 3260-3260 3262-3263 3269-3269 3230-3231 3630-3639 3750-3751 3800-3800 3860-3861 3870-3873 3910-3911 3914-3914 3915-3915 3960-3962 3991-3991 3995-3995	Dog and cat food Curtains, home furnishings Household furniture Misc furniture and fixtures Soap & other detergents Perfumes, cosmetics and other toilet preparations Luggage Handbags and purses Personal leather goods, except handbags and purses Leather goods Pressed and blown glass Pottery and related products China and earthenware table articles Pottery products Glass products Household appliances Motorcycles, bicycles and parts (Harley & Huffy) Misc instruments, photo goods & watches Photographic equipment (Kodak etc, but also Xerox) Watches, clocks and parts Jewelry, precious metals Silverware Jewelers' findings and materials Costume jewelry and novelties Brooms and brushes Burial caskets
10 Clths	Apparel 2300-2390 3020-3021 3100-3111 3130-3131 3140-3149 3150-3151 3963-3965	Apparel and other finished products Rubber and plastics footwear Leather tanning and finishing Boot & shoe cut stock & findings Footwear, except rubber Leather gloves and mittens Fasteners, buttons, needles, pins
11 Hlth	Healthcare 8000-8099	Services - health
12 MedEq	Medical Equipment 3693-3693 3840-3849 3850-3851	X-ray, electromedical app Surgical, medical, and dental instruments and supplies Ophthalmic goods
13 Drugs	Pharmaceutical Products 2830-2830 2831-2831 2833-2833 2834-2834 2835-2835 2836-2836	Drugs Biological products Medicinal chemicals Pharmaceutical preparations In vitro, in vivo diagnostic substances Biological products, except diagnostic substances
14 Chems	Chemicals 2800-2809 2810-2819 2820-2829 2850-2859 2860-2869 2870-2879	Chemicals and allied products Industrial inorganic chemicals Plastic material & synthetic resin/rubber Paints Industrial organic chemicals Agriculture chemicals

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Table A.1 – *Continued from previous page*

Industry	SIC code	Description
	2890-2899	Misc chemical products
15 Rubbr	Rubber and Plastic Products 3031-3031 3041-3041 3050-3053 3060-3069 3070-3079 3080-3089 3090-3099	Reclaimed rubber Rubber & plastic hose & belting Gaskets, hoses, etc Fabricated rubber products Misc rubber products Misc plastic products Misc rubber and plastic products
16 Txtls	Textiles 2200-2269 2270-2279 2280-2284 2290-2295 2297-2297 2298-2298 2299-2299 2393-2395 2397-2399	Textile mill products Floor covering mills Yarn and thread mills Misc textile goods Non-woven fabrics Cordage and twine Misc textile products Textile bags, canvas products Misc textile products
17 BldMt	Construction Materials 0800-0899 2400-2439 2450-2459 2490-2499 2660-2661 2950-2952 3200-3200 3210-3211 3240-3241 3250-3259 3261-3261 3264-3264 3270-3275 3280-3281 3290-3293 3295-3299 3420-3429 3430-3433 3440-3441 3442-3442 3446-3446 3448-3448 3449-3449 3450-3451 3452-3452 3490-3499 3996-3996	Forestry Lumber and wood products Wood buildings & mobile homes Misc wood products Building paper and board mills Paving & roofing materials Stone, clay, glass, concrete, etc Flat glass Cement, hydraulic Structural clay products Vitreous china plumbing fixtures Porcelain electrical supplies Concrete, gypsum & plaster products Cut stone and stone products Abrasive and asbestos products Misc nonmetallic mineral products Cutlery, hand tools and general hardware Heating equipment & plumbing fixtures Fabricated structural metal products Metal doors, frames Architectural or ornamental metal work Prefabricated metal buildings and components Misc structural metal work Screw machine products Bolts, nuts, screws, rivets and washers Misc fabricated metal products Hard surface floor coverings
18 Cnstr	Construction 1500-1511 1520-1529 1530-1539 1540-1549 1600-1699 1700-1799	Build construction - general contractors General building contractors - residential Operative builders General building contractors - non-residential Heavy construction - not building contractors Construction - special contractors
19 Steel	Steel Works Etc 3300-3300 3310-3317 3320-3325 3330-3339 3340-3341	Primary metal industries Blast furnaces & steel works Iron & steel foundries Primary smelting & refining of nonferrous metals Secondary smelting & refining of nonferrous metals

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Industry	SIC code	Description
	3350-3357 3360-3369 3370-3379 3390-3399	Rolling, drawing & extruding of nonferrous metals Nonferrous foundries and casting Steel works etc Misc primary metal products
20 FabPr	Fabricate Products 3400-3400 3443-3443 3444-3444 3460-3469 3470-3479	Fabricated metal, except machinery and trans eq Fabricated plate work Sheet metal work Metal forgings and stampings Coating, engraving and allied services
21 Mach	Machinery 3510-3519 3520-3529 3530-3530  3531-3531 3532-3532 3533-3533 3534-3534 3535-3535 3536-3536 3538-3538 3540-3549 3550-3559 3560-3569 3580-3580 3581-3581 3582-3582 3585-3585 3586-3586 3589-3589 3590-3599	Engines & turbines Farm and garden machinery and equipment Construction, mining & material handling machinery & equipment Construction machinery & equipment Mining machinery & equipment, except oil field Oil & gas field machinery & equipment Elevators & moving stairways Conveyors & conveying equipment Cranes, hoists and monorail systems Machinery Metalworking machinery & equipment Special industry machinery General industrial machinery & equipment Refrigeration & service industry machinery Automatic vending machines Commercial laundry and dry cleaning machines Air conditioning, warm air heating and refrigeration equipment Measuring and dispensing pumps Service industry machinery Misc industrial and commercial equipment and machinery
22 ElcEq	Electrical Equipment 3600-3600 3610-3613 3620-3621 3623-3629 3640-3644 3645-3645 3646-3646 3648-3649 3660-3660 3690-3690 3691-3692 3699-3699	Electronic & other electrical equipment Electric transmission and distribution equipment Electrical industrial apparatus Electrical industrial apparatus Electric lighting & wiring equipment Residential electric lighting fixtures Commercial, industrial and institutional electric lighting fixtures Misc lighting equipment Communications equipment Misc electrical machinery and equipment Storage batteries Misc electrical machinery, equipment and supplies
23 Autos	Automobiles and Trucks 2296-2296 2396-2396 3010-3011 3537-3537 3647-3647 3694-3694 3700-3700 3710-3710 3711-3711 3713-3713 3714-3714 3715-3715 3716-3716 3792-3792 3790-3791	Tire cord and fabric Automotive trimmings, apparel findings & related products Tires and inner tubes Industrial trucks, tractors, trailers & stackers Vehicular lighting equipment Electrical equipment for internal combustion engines Transportation equipment Motor vehicles and motor vehicle equipment Motor vehicles & passenger car bodies Truck & bus bodies Motor vehicle parts & accessories Truck trailers Motor homes Travel trailers and campers Misc transportation equipment

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Industry	SIC code	Description
	3799-3799	Misc transportation equipment
24 Aero	Aircraft 3720-3720 3721-3721 3723-3724 3725-3725 3728-3729	Aircraft & parts Aircraft Aircraft engines & engine parts Aircraft parts Misc aircraft parts & auxiliary equipment
25 Ships	Shipbuilding, Railroad Equipment 3730-3731 3740-3743	Shipbuilding and repairing Railroad Equipment
26 Guns	Defense 3760-3769 3795-3795 3480-3489	Guided missiles and space vehicles and parts Tanks and tank components Ordnance & accessories
27 Gold & Precious Metals	1040-1049	Gold & silver ores
28 Mines	Non-Metallic and Industrial Metal Mining 1000-1009 1010-1019 1020-1029 1030-1039 1050-1059 1060-1069 1070-1079 1080-1089 1090-1099 1100-1119 1400-1499	Metal mining Iron ores Copper ores Lead and zinc ores Bauxite and other aluminum ores Ferroalloy ores Mining Metal mining services Misc metal ores Anthracite mining Mining and quarrying nonmetallic minerals
29 Coal	Coal 1200-1299	Bituminous coal and lignite mining
30 Oil	Petroleum and Natural Gas 1300-1300 1310-1319 1320-1329 1330-1339 1370-1379 1380-1380 1381-1381 1382-1382 1389-1389 2900-2912 2990-2999	Oil and gas extraction Crude petroleum & natural gas Natural gas liquids Petroleum and natural gas Petroleum and natural gas Oil and gas field services Drilling oil & gas wells Oil & gas field exploration services Misc oil & gas field services Petroleum refining Misc products of petroleum & coal
31 Util	Utilities 4900-4900 4910-4911 4920-4922 4923-4923 4924-4925 4930-4931 4932-4932 4939-4939 4940-4942	Electric, gas & sanitary services Electric services Natural gas transmission Natural gas transmission & distribution Natural gas distribution Electric and other services combined Gas and other services combined Misc combination utilities Water supply
32 Telcm	Communication 4800-4800 4810-4813 4820-4822 4830-4839	Communications Telephone communications Telegraph and other message communication Radio & TV broadcasters

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Industry	SIC code	Description
	4840-4841 4880-4889 4890-4890 4891-4891 4892-4892 4899-4899	Cable and other pay TV services Communications Communication services (Comsat) Cable TV operators Telephone interconnect Misc communication services
33 PerSv	Personal Services 7020-7021 7030-7033 7200-7200 7210-7212 7214-7214 7215-7216 7217-7217 7219-7219 7220-7221 7230-7231 7240-7241 7250-7251 7260-7269 7270-7290 7291-7291 7292-7299 7395-7395 7500-7500 7520-7529 7530-7539 7540-7549 7600-7600 7620-7620 7622-7622 7623-7623  7629-7629 7630-7631 7640-7641 7690-7699 8100-8199 8200-8299 8300-8399 8400-8499  8600-8699 8800-8899 7510-7515	Rooming and boarding houses Camps and recreational vehicle parks Services - personal Services - laundry, cleaning & garment services Services - diaper service Services - coin-operated cleaners, dry cleaners Services - carpet & upholstery cleaning Services - Misc laundry & garment services Services - photographic studios, portrait Services - beauty shops Services - barber shops Services - shoe repair shops & shoeshine parlors Services - funeral service & crematories Services - Misc Services - tax return Services - Misc Services - photofinishing labs (School pictures) Services - auto repair, services & parking Services - automobile parking Services - automotive repair shops Services - automotive services, except repair (car washes) Services - Electrical repair shops Services - Radio and TV repair shops Services - Refrigeration and air conditioning service & repair shops Services - Electrical & electronic repair shops Services - Watch, clock and jewelry repair Services - Reupholster & furniture repair Services - Misc repair shops & related services Services - legal Services - educational Services - social services Services - museums, art galleries, botanical and zoological gardens Services - membership organizations Services - private households Services - truck & auto rental and leasing
34 BusSv	Business Services 2750-2759 3993-3993 7218-7218 7300-7300 7310-7319 7320-7329 7330-7339 7340-7342 7349-7349 7350-7351 7352-7352 7353-7353 7359-7359 7360-7369 7374-7374	Commercial printing Signs & advertising specialties Services - industrial launderers Services - business services Services - advertising Services - consumer credit reporting agencies, collection services Services - mailing, reproduction, commercial art & photography Services - services to dwellings & other buildings Services - building cleaning & maintenance Services - Misc equipment rental and leasing Services - medical equipment rental and leasing Services - heavy construction equipment rental and leasing Services - equipment rental and leasing Services - personnel supply services Services - computer processing, data preparation and processing

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Table A.1 – *Continued from previous page*

Industry	SIC code	Description
	7376-7376	Services - computer facilities management service
	7377-7377	Services - computer rental and leasing
	7378-7378	Services - computer maintenance and repair
	7379-7379	Services - computer related services
	7380-7380	Services - Misc business services
	7381-7382	Services - security
	7383-7383	Services - news syndicates
	7384-7384	Services - photofinishing labs
	7385-7385	Services - telephone interconnect systems
	7389-7390	Services - Misc business services
	7391-7391	Services - R&D labs
	7392-7392	Services - management consulting & P.R.
	7393-7393	Services - detective and protective (ADT)
	7394-7394	Services - equipment rental & leasing
	7396-7396	Services - trading stamp services
	7397-7397	Services - commercial testing labs
	7399-7399	Services - business services
	7519-7519	Services - utility trailer & recreational vehicle rental
	8700-8700	Services - engineering, accounting, research, management
	8710-8713	Services - engineering, accounting, surveying
	8720-8721	Services - accounting, auditing, bookkeeping
	8730-8734	Services - research, development, testing labs
	8740-8748	Services - management, public relations, consulting
	8900-8910	Services - Misc
	8911-8911	Services - Misc engineering & architect
	8920-8999	Services - Misc
	4220-4229	Public warehousing and storage
35 Hardw	Computers	
	3570-3579	Computer & office equipment
	3680-3680	Computers
	3681-3681	Computers - mini
	3682-3682	Computers - mainframe
	3683-3683	Computers - terminals
	3684-3684	Computers - disk & tape drives
	3685-3685	Computers - optical scanners
	3686-3686	Computers - graphics
	3687-3687	Computers - office automation systems
	3688-3688	Computers - peripherals
	3689-3689	Computers - equipment
	3695-3695	Magnetic and optical recording media
36 Softw	Computer	Software
	7370-7372	Services - computer programming and data processing
	7375-7375	Services - information retrieval services
	7373-7373	Computer integrated systems design
37 Chips	Electronic Equipment	
	3622-3622	Industrial controls
	3661-3661	Telephone and telegraph apparatus
	3662-3662	Communications equipment
	3663-3663	Radio & TV broadcasting & communications equipment
	3664-3664	Search, navigation, guidance systems
	3665-3665	Training equipment & simulators
	3666-3666	Alarm & signaling products
	3669-3669	Communication equipment
	3670-3679	Electronic components & accessories
	3810-3810	Search, detection, navigation, guidance, aeronautical & nautical systems, instruments & equipment
	3812-3812	Search, detection, navigation, guidance, aeronautical & nautical systems & instruments
38 LabEq	Measuring and Control Equipment	
	3811-3811	Engr laboratory and research equipment
	3820-3820	Measuring and controlling equipment

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Industry	SIC code	Description
	3821-3821 3822-3822  3823-3823 3824-3824 3825-3825  3826-3826 3827-3827 3829-3829 3830-3839	Laboratory apparatus and furniture Automatic controls for regulating residential & commercial environments & appliances Industrial measurement instruments & related products Totalizing fluid meters & counting devices Instruments for measuring & testing of electricity & electrical instruments Lab analytical instruments Optical instruments and lenses Misc measuring and controlling devices Optical instruments and lenses
39 Paper	Business Supplies 2520-2549 2600-2639 2670-2699 2760-2761 3950-3955	Office furniture and fixtures Paper and allied products Paper and allied products Manifold business forms Pens, pencils & other artists' supplies
40 Boxes	Shipping Containers 2440-2449 2640-2659 3220-3221 3410-3412	Wood containers Paperboard containers, boxes, drums, tubs Glass containers Metal cans and shipping containers
41 Trans	Transportation 4000-4013 4040-4049 4100-4100  4110-4119 4120-4121 4130-4131 4140-4142 4150-4151 4170-4173 4190-4199 4200-4200 4210-4219 4230-4231 4240-4249 4400-4499 4500-4599 4600-4699 4700-4700 4710-4712 4720-4729 4730-4739 4740-4749 4780-4780 4782-4782 4783-4783 4784-4784 4785-4785 4789-4789	Railroads, line-haul operating Railway express service Local & suburban transit & interurban highway passenger transportation Local & suburban passenger transportation Taxicabs Intercity & rural bus transportation (Greyhound) Bus charter service School buses Motor vehicle terminals & service facilities Misc transit and passenger transportation Trucking & warehousing Trucking & courier services, except air Terminal & joint terminal maintenance Transportation Water transport Air transportation Pipelines, except natural gas Transportation services Freight forwarding Arrangement of passenger transportation Arrangement of transportation of freight and cargo Rental of railroad cars Misc services incidental to transportation Inspection and weighing services Packing and crating Misc fixed facilities for vehicles Motor vehicle inspection Misc transportation services
42 Whlsl	Wholesale 5000-5000 5010-5015 5020-5023 5030-5039 5040-5042 5043-5043 5044-5044 5045-5045	Wholesale - durable goods Wholesale - automotive vehicles & automotive parts & supplies Wholesale - furniture and home furnishings Wholesale - lumber and construction materials Wholesale - professional and commercial equipment and supplies Wholesale - photographic equipment & supplies Wholesale - office equipment Wholesale - computers & peripheral equipment & software

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Table A.1 – *Continued from previous page*

Industry	SIC code	Description
	5046-5046	Wholesale - commercial equipment
	5047-5047	Wholesale - medical, dental & hospital equipment
	5048-5048	Wholesale - ophthalmic goods
	5049-5049	Wholesale - professional equipment and supplies
	5050-5059	Wholesale - metals and minerals, except petroleum
	5060-5060	Wholesale - electrical goods
	5063-5063	Wholesale - electrical apparatus and equipment
	5064-5064	Wholesale - electrical appliance, TV and radio sets
	5065-5065	Wholesale - electronic parts & equipment
	5070-5078	Wholesale - hardware, plumbing & heating equipment
	5080-5080	Wholesale - machinery, equipment & supplies
	5081-5081	Wholesale - machinery & equipment
	5082-5082	Wholesale - construction and mining machinery&equipment
	5083-5083	Wholesale - farm and garden machinery& equipment
	5084-5084	Wholesale - industrial machinery & equipment
	5085-5085	Wholesale - industrial supplies
	5086-5087	Wholesale - service establishment machinery & equipment
	5088-5088	Wholesale - transportation equipment, except motor vehicles
	5090-5090	Wholesale - Misc durable goods
	5091-5092	Wholesale - sporting goods & toys
	5093-5093	Wholesale - scrap and waste materials
	5094-5094	Wholesale - jewelry, watches, precious stones & metals
	5099-5099	Wholesale - durable goods
	5100-5100	Wholesale - nondurable goods
	5110-5113	Wholesale - paper and paper products
	5120-5122	Wholesale - drugs & drug proprietaries
	5130-5139	Wholesale - apparel, piece goods & notions
	5140-5149	Wholesale - groceries & related products
	5150-5159	Wholesale - farm product raw materials
	5160-5169	Wholesale - chemicals & allied products
	5170-5172	Wholesale - petroleum and petroleum products
	5180-5182	Wholesale - beer, wine & distilled alcoholic beverages
	5190-5199	Wholesale - Misc nondurable goods
43 Rtail	Retail	
	5200-5200	Retail - retail-building materials, hardware, garden supply
	5210-5219	Retail - lumber & other building materials
	5220-5229	Retail
	5230-5231	Retail - paint, glass & wallpaper stores
	5250-5251	Retail - hardware stores
	5260-5261	Retail - nurseries, lawn & garden supply stores
	5270-5271	Retail - mobile home dealers
	5300-5300	Retail - general merchandise stores
	5310-5311	Retail - department stores
	5320-5320	Retail - general merchandise stores
	5330-5331	Retail - variety stores
	5334-5334	Retail - catalog showroom
	5340-5349	Retail
	5390-5399	Retail - Misc general merchandise stores
	5400-5400	Retail - food stores
	5410-5411	Retail - grocery stores
	5412-5412	Retail - convenience stores
	5420-5429	Retail - meat & fish markets
	5430-5439	Retail - fruit and vegetable markets
	5440-5449	Retail - candy, nut & confectionary stores
	5450-5459	Retail - dairy products stores
	5460-5469	Retail - bakeries
	5490-5499	Retail - Misc food stores
	5500-5500	Retail - automotive dealers and gas stations
	5510-5529	Retail - automotive dealers
	5530-5539	Retail - automotive and home supply stores
	5540-5549	Retail - gasoline service stations

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Table A.1 – *Continued from previous page*

Industry	SIC code	Description
	5550-5559	Retail - boat dealers
	5560-5569	Retail - recreation vehicle dealers
	5570-5579	Retail - motorcycle dealers
	5590-5599	Retail - automotive dealers
	5600-5699	Retail - apparel & accessory stores
	5700-5700	Retail - home furniture and equipment stores
	5710-5719	Retail - home furnishings stores
	5720-5722	Retail - household appliance stores
	5730-5733	Retail - radio, TV and consumer electronic stores
	5734-5734	Retail - computer and computer software stores
	5735-5735	Retail - record and tape stores
	5736-5736	Retail - musical instrument stores
	5750-5799	Retail
	5900-5900	Retail - Misc
	5910-5912	Retail - drug & proprietary stores
	5920-5929	Retail - liquor stores
	5930-5932	Retail - used merchandise stores
	5940-5940	Retail - Misc
	5941-5941	Retail - sporting goods stores & bike shops
	5942-5942	Retail - book stores
	5943-5943	Retail - stationery stores
	5944-5944	Retail - jewelry stores
	5945-5945	Retail - hobby, toy and game shops
	5946-5946	Retail - camera and photographic supply stores
	5947-5947	Retail - gift, novelty & souvenir shops
	5948-5948	Retail - luggage & leather goods stores
	5949-5949	Retail - sewing & needlework stores
	5950-5959	Retail
	5960-5969	Retail - non-store retailers (catalogs, etc)
	5970-5979	Retail
	5980-5989	Retail - fuel dealers & ice stores (Penn Central Co)
	5990-5990	Retail - Misc retail stores
	5992-5992	Retail - florists
	5993-5993	Retail - tobacco stores and stands
	5994-5994	Retail - newsdealers and news stands
	5995-5995	Retail - optical goods stores
	5999-5999	Misc retail stores
44 Meals	Restaurants, Hotels, Motels	
	5800-5819	Retail - eating places
	5820-5829	Restaurants, hotels, motels
	5890-5899	Eating and drinking places
	7000-7000	Hotels & other lodging places
	7010-7019	Hotels & motels
	7040-7049	Membership hotels and lodging houses
	7213-7213	Services - linen supply
45 Banks	Banking	
	6000-6000	Depository institutions
	6010-6019	Federal reserve banks
	6020-6020	Commercial banks
	6021-6021	National commercial banks
	6022-6022	State commercial banks - Fed Res System
	6023-6024	State commercial banks - not Fed Res System
	6025-6025	National commercial banks - Fed Res System
	6026-6026	National commercial banks - not Fed Res System
	6027-6027	National commercial banks, not FDIC
	6028-6029	Misc commercial banks
	6030-6036	Savings institutions
	6040-6059	Banks
	6060-6062	Credit unions
	6080-6082	Foreign banks
	6090-6099	Functions related to depository banking

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Industry	SIC code	Description
	6100-6100 6110-6111 6112-6113 6120-6129 6130-6139 6140-6149 6150-6159 6160-6169 6170-6179 6190-6199	Non-depository credit institutions Federal credit agencies FNMA S&Ls Agricultural credit institutions Personal credit institutions (Beneficial) Business credit institutions Mortgage bankers and brokers Finance lessors Financial services
46 Insur	Insurance 6300-6300 6310-6319 6320-6329 6330-6331 6350-6351 6360-6361 6370-6379 6390-6399 6400-6411	Insurance Life insurance Accident and health insurance Fire, marine & casualty insurance Surety insurance Title insurance Pension, health & welfare funds Misc insurance carriers Insurance agents, brokers & service
47 REst	Real Estate 6500-6500 6510-6510 6512-6512 6513-6513 6514-6514 6515-6515 6517-6519 6520-6529 6530-6531 6532-6532 6540-6541 6550-6553 6590-6599 6610-6611	Real estate Real estate operators and lessors Operators - non-resident buildings Operators - apartment buildings Operators - other than apartment Operators - residential mobile home Lessors of railroad & real property Real estate Real estate agents and managers Real estate dealers Title abstract offices Land subdividers & developers Real estate Combined real estate, insurance, etc
48 Fin	Trading 6200-6299 6700-6700 6710-6719 6720-6722 6723-6723 6724-6724 6725-6725 6726-6726 6730-6733 6740-6779 6790-6791 6792-6792 6793-6793 6794-6794 6795-6795 6798-6798 6799-6799	Security and commodity brokers, dealers, exchanges & services Holding & other investment offices Holding offices Management investment offices, open-end Management investment offices, closed-end Unit investment trusts Face-amount certificate offices Unit investment trusts, closed-end Trusts Investment offices Misc investing Oil royalty traders Commodity traders Patent owners & lessors Mineral royalty traders REIT Investors, NEC
49 Other	Almost Nothing 4950-4959 4960-4961 4970-4971 4990-4991	Sanitary services Steam & air conditioning supplies Irrigation systems Cogeneration - SM power producer

Table A.2: OPEC Announcements.

OPEC announce- ment day	Trading day	Meeting type
7/19/83	7/19/83	68 Meeting
12/9/83	12/9/83	69 Meeting
7/11/84	7/11/84	70 Meeting
10/31/84	10/31/84	71 Meeting (extraordinary)
12/29/84	1/2/85	72 Meeting
1/30/85	1/30/85	73 Meeting (extraordinary)
7/7/85	7/8/85	Consultative Meeting
7/25/85	7/25/85	74 Meeting
10/4/85	10/4/85	75 Meeting (extraordinary)
12/9/85	12/9/85	76 Meeting
4/21/86	4/21/86	77 Meeting (extraordinary)
8/5/86	8/5/86	78 Meeting
10/22/86	10/22/86	79 Meeting (extraordinary)
12/20/86	12/22/86	80 Meeting
6/27/87	6/29/87	81 Meeting
12/14/87	12/14/87	82 Meeting
6/14/88	6/14/88	83 Meeting
11/28/88	11/28/88	84 Meeting
6/7/89	6/7/89	85 Meeting
9/27/89	9/27/89	3 Meeting of the 8 Minister Monitoring Committee
11/28/89	11/28/89	86 Meeting
7/27/90	7/27/90	87 Meeting
12/13/90	12/13/90	88 Meeting
3/12/91	3/12/91	3 Meeting of the Ministerial Monitoring Committee
6/4/91	6/4/91	89 Meeting
9/25/91	9/25/91	4 Meeting of the Ministerial Monitoring Committee
11/27/91	11/27/91	90 Meeting
2/15/92	2/18/92	6 Meeting of the Ministerial Monitoring Committee
5/22/92	5/26/92	91 Meeting
9/17/92	9/17/92	9 Meeting of the Ministerial Monitoring Committee
11/27/92	11/30/92	92 Meeting
2/16/93	2/17/93	10 Meeting of the Ministerial Monitoring Committee
6/10/93	6/10/93	93 Meeting
9/29/93	9/30/93	94 Meeting (extraordinary)
11/24/93	11/29/93	95 Meeting
3/26/94	3/28/94	12 Meeting of the Ministerial Monitoring Committee
6/16/94	6/16/94	96 Meeting
11/22/94	11/22/94	97 Meeting
6/20/95	6/20/95	98 Meeting
11/22/95	11/22/95	99 Meeting
6/7/96	6/7/96	100 Meeting
11/28/96	12/2/96	101 Meeting
6/26/97	6/26/97	102 Meeting
12/1/97	12/1/97	103 Meeting
3/30/98	3/30/98	104 Meeting (extraordinary)
6/24/98	6/24/98	105 Meeting
11/26/98	11/30/98	106 Meeting
3/23/99	3/23/99	107 Meeting
9/22/99	9/22/99	108 Meeting
3/29/00	3/29/00	109 Meeting
6/21/00	6/21/00	110 Meeting (extraordinary)
9/11/00	9/11/00	111 Meeting
11/13/00	11/13/00	112 Meeting (extraordinary)
1/17/01	1/17/01	113 Meeting (extraordinary)
3/17/01	3/19/01	114 Meeting
6/5/01	6/5/01	115 Meeting (extraordinary)
7/3/01	7/3/01	116 Meeting (extraordinary)
7/25/01	7/25/01	OPEC Conference

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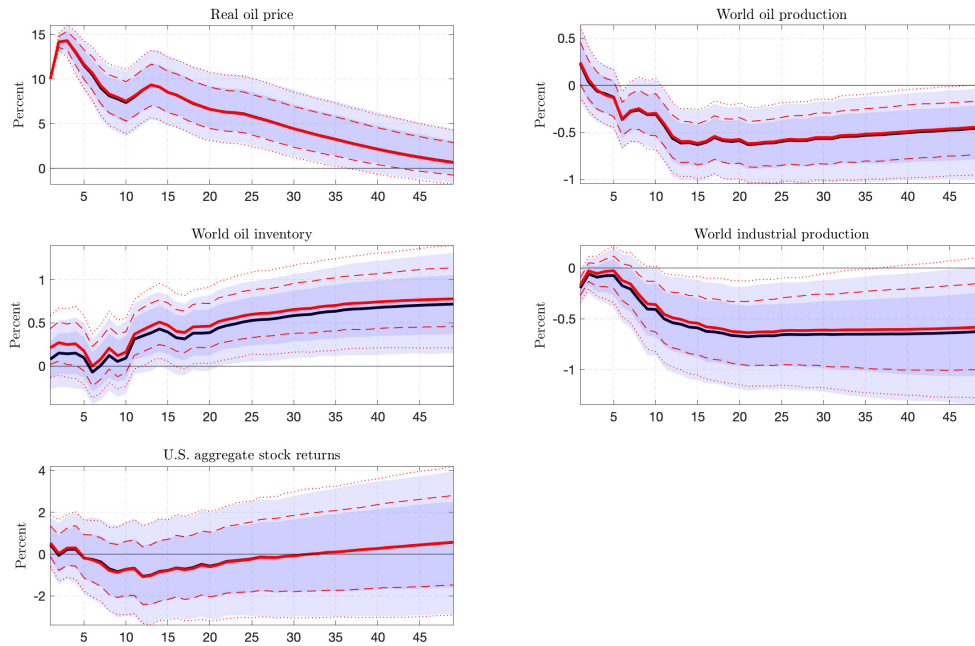
OPEC announce- ment day	Trading day	Meeting type
9/27/01	9/27/01	117 Meeting
11/14/01	11/14/01	118 Meeting (extraordinary)
12/28/01	12/28/01	Consultative Meeting
3/15/02	3/15/02	119 Meeting
6/26/02	6/26/02	120 Meeting (extraordinary)
9/19/02	9/19/02	121 Meeting
12/12/02	12/12/02	122 Meeting (extraordinary)
1/12/03	1/13/03	123 Meeting (extraordinary)
3/11/03	3/11/03	124 Meeting
4/24/03	4/24/03	Consultative Meeting
6/11/03	6/11/03	125 Meeting (extraordinary)
7/31/03	7/31/03	126 Meeting (extraordinary)
9/24/03	9/24/03	127 Meeting
12/4/03	12/4/03	128 Meeting (extraordinary)
2/10/04	2/10/04	129 Meeting (extraordinary)
3/31/04	3/31/04	130 Meeting
6/3/04	6/3/04	131 Meeting (extraordinary)
9/15/04	9/15/04	132 Meeting
12/10/04	12/10/04	133 Meeting (extraordinary)
1/30/05	1/31/05	134 Meeting (extraordinary)
3/16/05	3/16/05	135 Meeting
6/15/05	6/15/05	136 Meeting
9/20/05	9/20/05	137 Meeting
12/12/05	12/12/05	138 Meeting (extraordinary)
1/31/06	1/31/06	139 Meeting (extraordinary)
3/8/06	3/8/06	140 Meeting
6/1/06	6/1/06	141 Meeting (extraordinary)
9/11/06	9/11/06	142 Meeting
10/20/06	10/20/06	Consultative Meeting
12/14/06	12/14/06	143 Meeting (extraordinary)
3/15/07	3/15/07	144 Meeting
9/11/07	9/11/07	145 Meeting
12/5/07	12/5/07	146 Meeting (extraordinary)
2/1/08	2/1/08	147 Meeting (extraordinary)
3/5/08	3/5/08	148 Meeting
9/10/08	9/10/08	149 Meeting
10/24/08	10/24/08	150 Meeting (extraordinary)
12/17/08	12/17/08	151 Meeting (extraordinary)
3/15/09	3/16/09	152 Meeting
5/28/09	5/28/09	153 Meeting (extraordinary)
9/10/09	9/10/09	154 Meeting
12/22/09	12/22/09	155 Meeting (extraordinary)
3/17/10	3/17/10	156 Meeting
10/14/10	10/14/10	157 Meeting
12/11/10	12/13/10	158 Meeting (extraordinary)
6/8/11	6/8/11	159 Meeting
12/14/11	12/14/11	160 Meeting
6/14/12	6/14/12	161 Meeting
12/12/12	12/12/12	162 Meeting
5/31/13	5/31/13	163 Meeting
12/4/13	12/4/13	164 Meeting
6/11/14	6/11/14	165 Meeting
11/27/14	11/28/14	166 Meeting
6/5/15	6/5/15	167 Meeting
12/4/15	12/4/15	168 Meeting
6/2/16	6/2/16	169 Meeting
9/28/16	9/29/16	170 Meeting (extraordinary)
11/30/16	11/30/16	171 Meeting
12/10/16	12/12/16	OPEC and non-OPEC Ministerial Meeting
5/25/17	5/25/17	172 Meeting

*Continued on next page*

Table A.2 – *Continued from previous page*

OPEC announce- ment day	Trading day	Meeting type
11/30/17	11/30/17	173 Meeting
6/23/18	6/25/18	OPEC and non-OPEC Ministerial Meeting
12/7/18	12/7/18	175 Meeting
7/2/19	7/2/19	176 Meeting
12/6/19	12/6/19	177 Meeting
3/6/20	3/6/20	178 Meeting (extraordinary)
4/9/20	4/9/20	OPEC and non-OPEC Ministerial Meeting (extraordinary)
4/12/20	4/13/20	OPEC and non-OPEC Ministerial Meeting (extraordinary)
6/6/20	6/8/20	179 Meeting
12/3/20	12/3/20	OPEC and non-OPEC Ministerial Meeting
1/5/21	1/5/21	OPEC and non-OPEC Ministerial Meeting
3/4/21	3/4/21	OPEC and non-OPEC Ministerial Meeting
4/1/21	4/1/21	OPEC and non-OPEC Ministerial Meeting
4/27/21	4/27/21	OPEC and non-OPEC Ministerial Meeting
6/1/21	6/1/21	OPEC and non-OPEC Ministerial Meeting
7/5/21	7/6/21	OPEC and non-OPEC Ministerial Meeting
7/18/21	7/19/21	OPEC and non-OPEC Ministerial Meeting
9/1/21	9/1/21	OPEC and non-OPEC Ministerial Meeting
10/4/21	10/4/21	OPEC and non-OPEC Ministerial Meeting
11/4/21	11/4/21	OPEC and non-OPEC Ministerial Meeting
12/2/21	12/2/21	OPEC and non-OPEC Ministerial Meeting
1/4/22	1/4/22	OPEC and non-OPEC Ministerial Meeting
2/2/22	2/2/22	OPEC and non-OPEC Ministerial Meeting
3/2/22	3/2/22	OPEC and non-OPEC Ministerial Meeting
3/31/22	3/31/22	183 Meeting (extraordinary)
5/5/22	5/5/22	OPEC and non-OPEC Ministerial Meeting
6/2/22	6/2/22	OPEC and non-OPEC Ministerial Meeting
6/30/22	6/30/22	OPEC and non-OPEC Ministerial Meeting
8/3/22	8/3/22	OPEC and non-OPEC Ministerial Meeting
9/1/22	9/1/22	OPEC and non-OPEC Ministerial Meeting
10/5/22	10/5/22	OPEC and non-OPEC Ministerial Meeting
12/4/22	12/5/22	OPEC and non-OPEC Ministerial Meeting

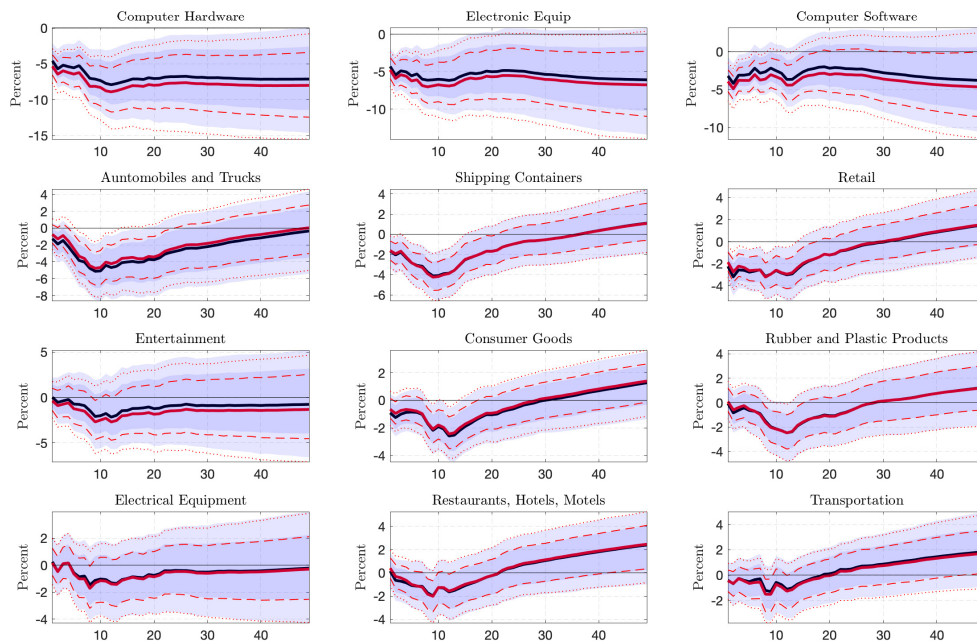
Figure A.1: Response to an oil news shock using an alternative instrumental variable, pre-COVID-19 sample



*Note:* This figure reports the impulse responses for the aggregate variables to an oil news shock normalized to increase the real price of oil by 10 percent on impact. The solid black line denotes estimates obtained using a proxy-VAR where the instrument is computed using changes in the six-month oil futures price around OPEC meetings. The solid red line denotes estimates from baseline specification using a pre-COVID-19 sample. All responses are reported in percentages. The dark and light-shaded regions indicate 68% and 90% confidence intervals, respectively.

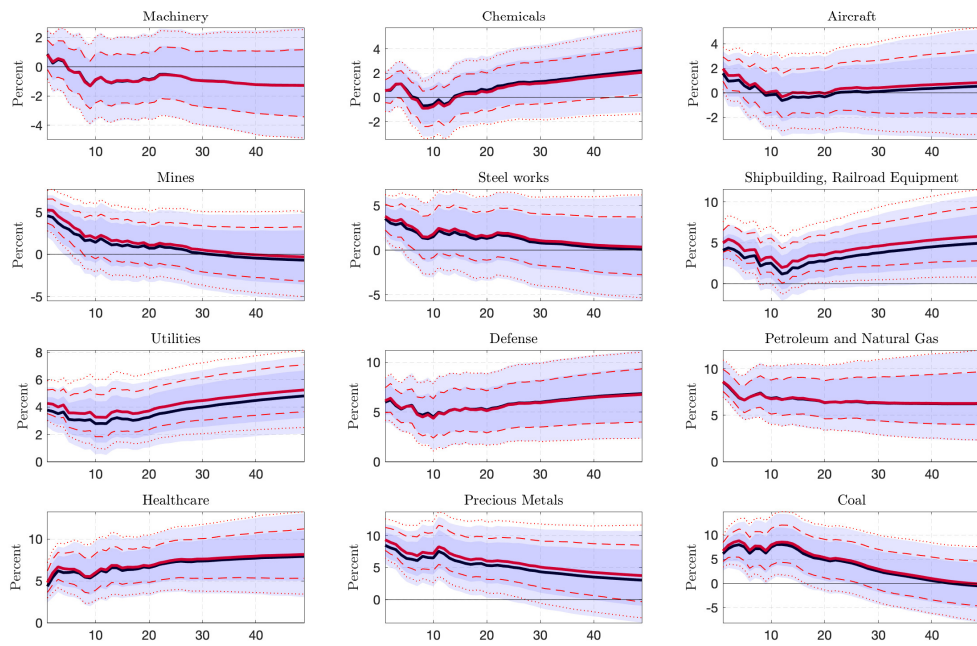


Figure A.2: Response to an oil news shock using an alternative instrumental variable, pre-COVID-19 sample



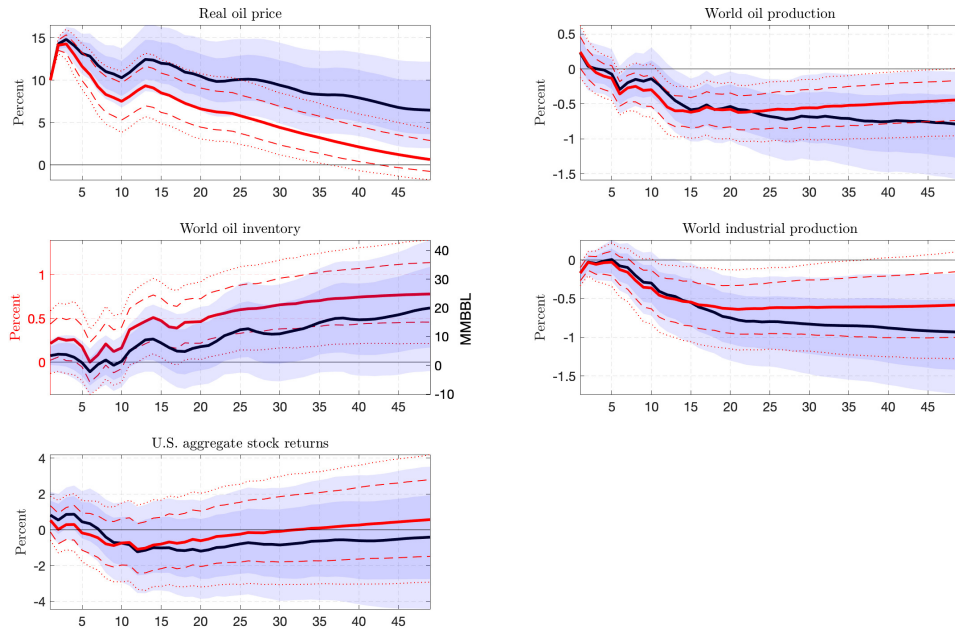
*Note:* This figure reports the impulse responses for the industry portfolio variables to an oil news shock normalized to increase the real price of oil by 10 percent on impact. The solid black line denotes estimates obtained using a proxy-VAR where the instrument is computed using changes in the six-month oil futures price around OPEC meetings. The solid red line denotes estimates from baseline specification using a pre-COVID-19 sample. All responses are reported in percentages. The dark and light shaded regions indicate 68% and 90% confidence intervals, respectively.

Figure A.3: Response to an oil news shock using an alternative instrumental variable, pre-COVID-19 sample



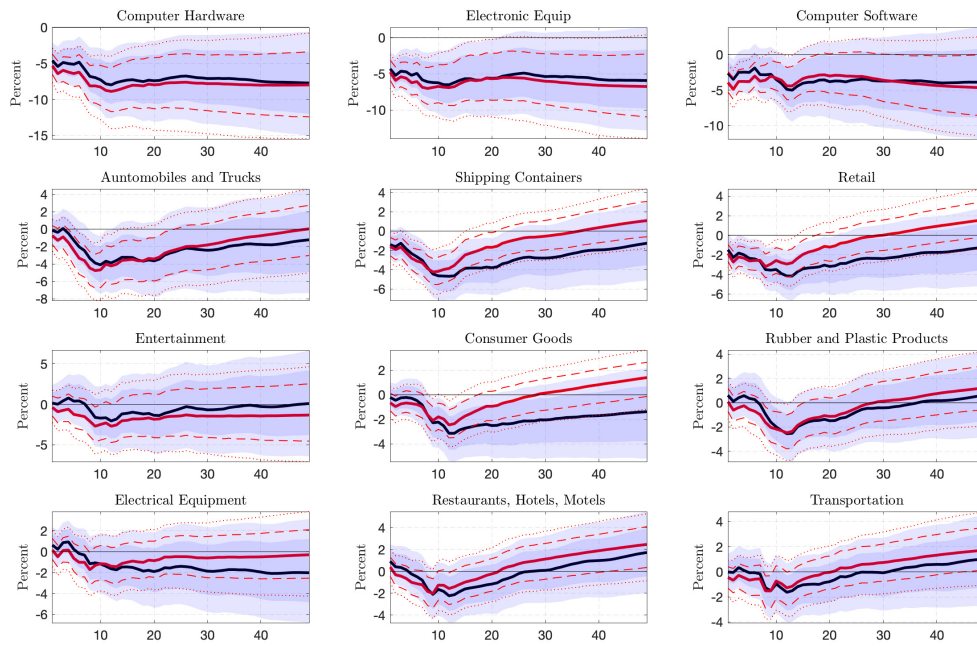
*Note:* This figure reports the impulse responses for the industry portfolio variables to an oil news shock normalized to increase the real price of oil by 10 percent on impact. The solid black line denotes estimates obtained using a proxy-VAR where the instrument is computed using changes in the six-month oil futures price around OPEC meetings. The solid red line denotes estimates from baseline specification using a pre-COVID-19 sample. All responses are reported in percentages. The dark and light shaded regions indicate 68% and 90% confidence intervals, respectively.

Figure A.4: Response to an oil news shock using proxy VAR specification with growth rates, pre-COVID-19 sample



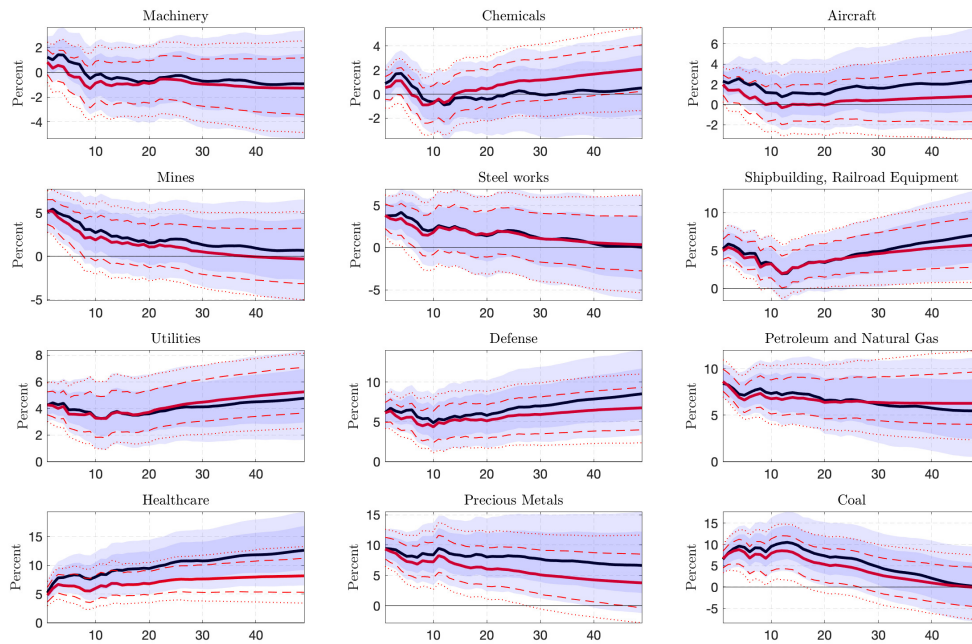
*Note:* This figure reports the impulse responses for the aggregate variables to an oil news shock normalized to increase the real price of oil by 10 percent on impact. The solid black line denotes estimates obtained using a proxy-VAR model specified in rates of growth. The solid red line denotes estimates from baseline specification using a pre-COVID-19 sample. All responses are reported in percentages. The dark and light shaded regions indicate 68% and 90% confidence intervals, respectively.

Figure A.5: Response to an oil news shock using proxy VAR specification with growth rates, pre-COVID-19 sample



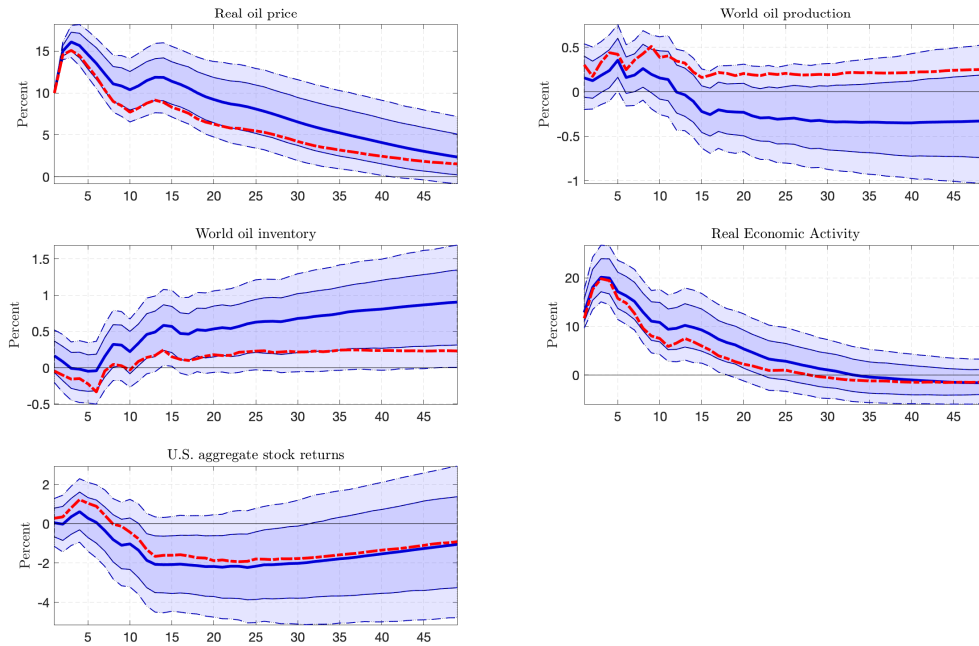
*Note:* This figure reports the impulse responses for the industry portfolio variables to an oil news shock normalized to increase the real price of oil by 10 percent on impact. The solid black line denotes estimates obtained using a proxy-VAR model specified in rates of growth. The solid red line denotes estimates from baseline specification using a pre-COVID-19 sample. All responses are reported in percentages. The dark and light shaded regions indicate 68% and 90% confidence intervals, respectively.

Figure A.6: Response to an oil news shock using proxy VAR specification with growth rates, pre-COVID-19 sample



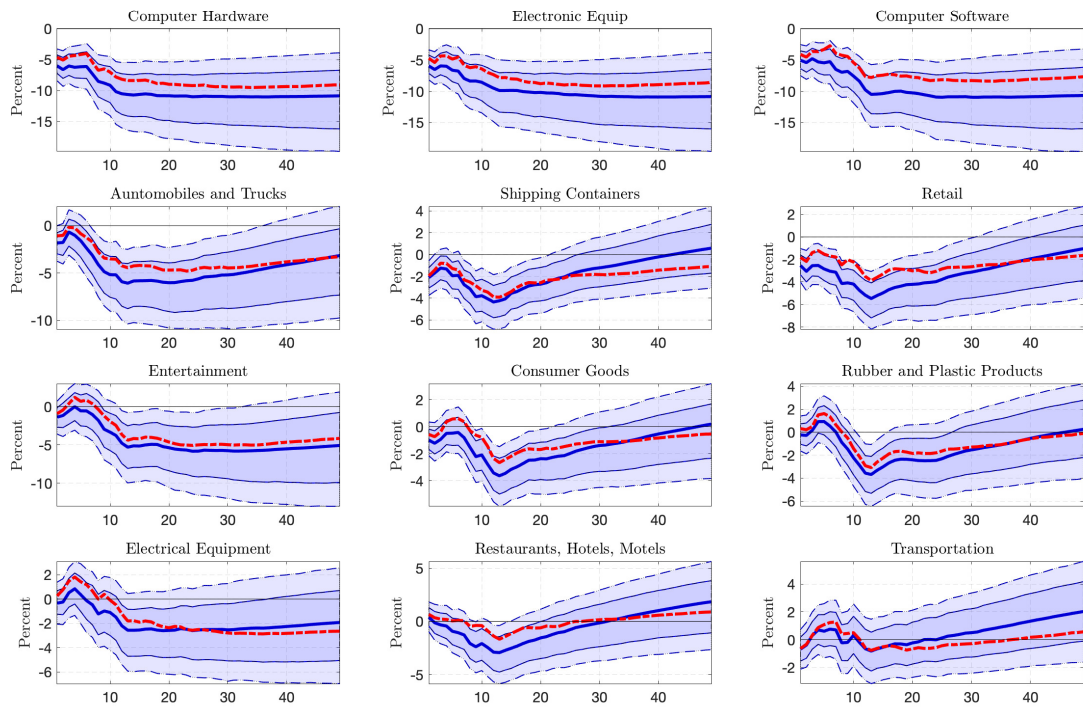
*Note:* This figure reports the impulse responses for the industry portfolio variables to an oil news shock normalized to increase the real price of oil by 10 percent on impact. The solid black line denotes estimates obtained using a proxy-VAR model specified in rates of growth. The solid red line denotes estimates from baseline specification using a pre-COVID-19 sample. All responses are reported in percentages. The dark and light shaded regions indicate 68% and 90% confidence intervals, respectively.

Figure A.7: Response to an oil news shock using Kilian's real economic activity index, pre-COVID-19 sample



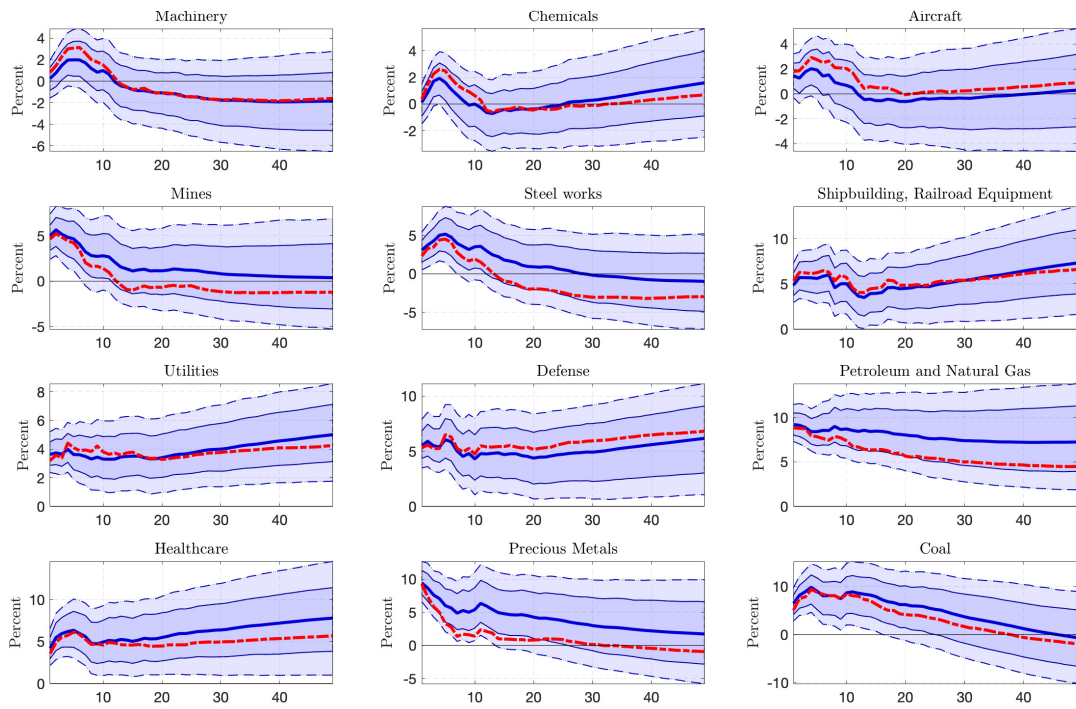
*Note:* This figure reports the impulse responses for the aggregate variables to an oil news shock normalized to increase the real price of oil by 10 percent on impact. The solid blue line indicates estimates obtained using the baseline Proxy-VAR with Kilian's economic activity index instead of the world IP. All responses are reported in percentages. The solid red line indicates the response estimated using a VARX on the 1983:4-2019:12 sample. The dark and light shaded regions indicate 68% and 90% confidence intervals, respectively.

Figure A.8: Response to an oil news shock using Kilian's real economic activity index, pre-COVID-19 sample



*Note:* This figure reports the impulse responses of industry-level portfolios to an oil news shock, normalized to increase the real price of oil by 10 percent on impact. The solid blue line indicates estimates obtained using the baseline Proxy-VAR with Kilian's economic activity index instead of the world IP. The solid red line indicates the response estimated using a VARX on the 1983:4-2019:12 sample. All responses are reported in percentages. The dark and light shaded regions indicate 68% and 90% confidence intervals, respectively.

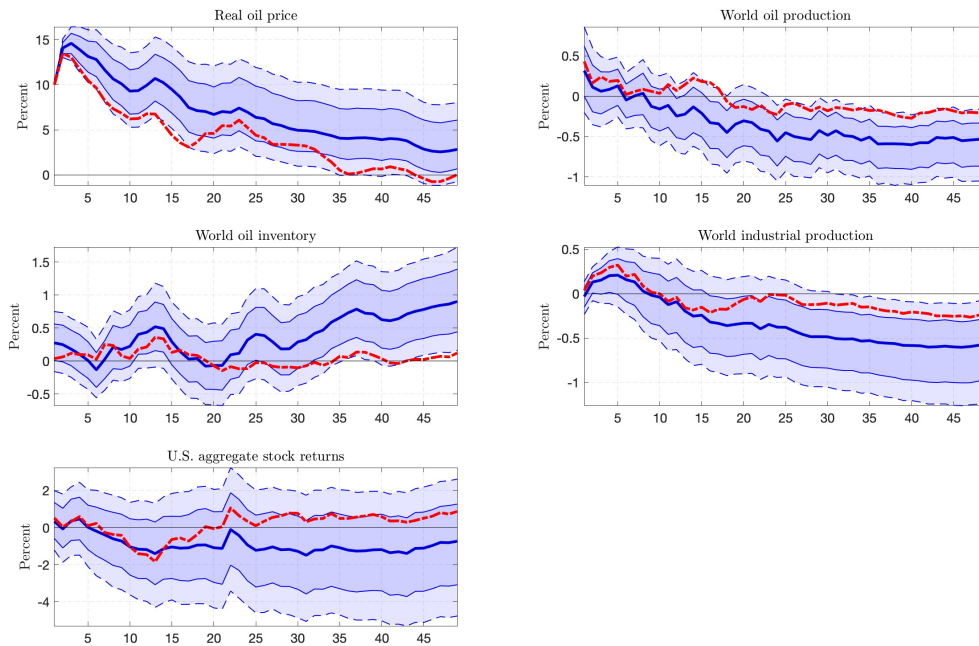
Figure A.9: Response to an oil news shock using Kilian's real economic activity index, pre-COVID-19 sample



*Note:* This figure reports the impulse responses of industry-level portfolios to an oil news shock, normalized to increase the real price of oil by 10 percent on impact. The solid blue line indicates estimates obtained using the baseline Proxy-VAR with Kilian's economic activity index instead of the world IP. The solid red line indicates the response estimated using a VARX on the 1983:4-2019:12 sample. All responses are reported in percentages. The dark and light shaded regions indicate 68% and 90% confidence intervals, respectively.

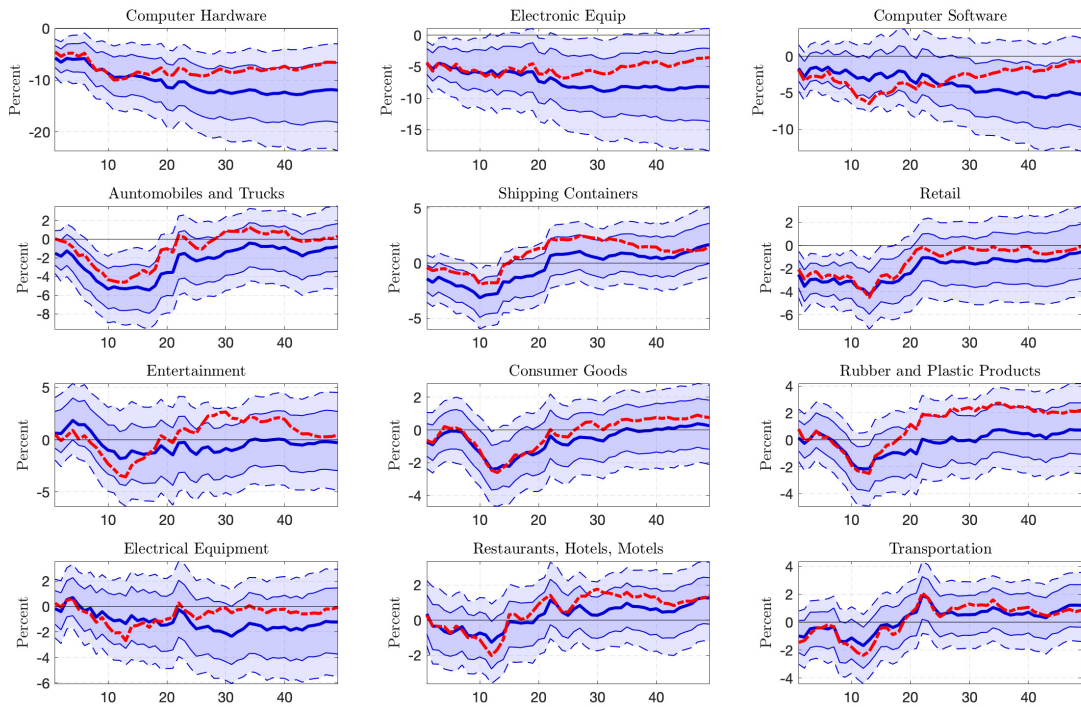


Figure A.10: Response to an oil news shock with longer lag length, pre-COVID-19 sample



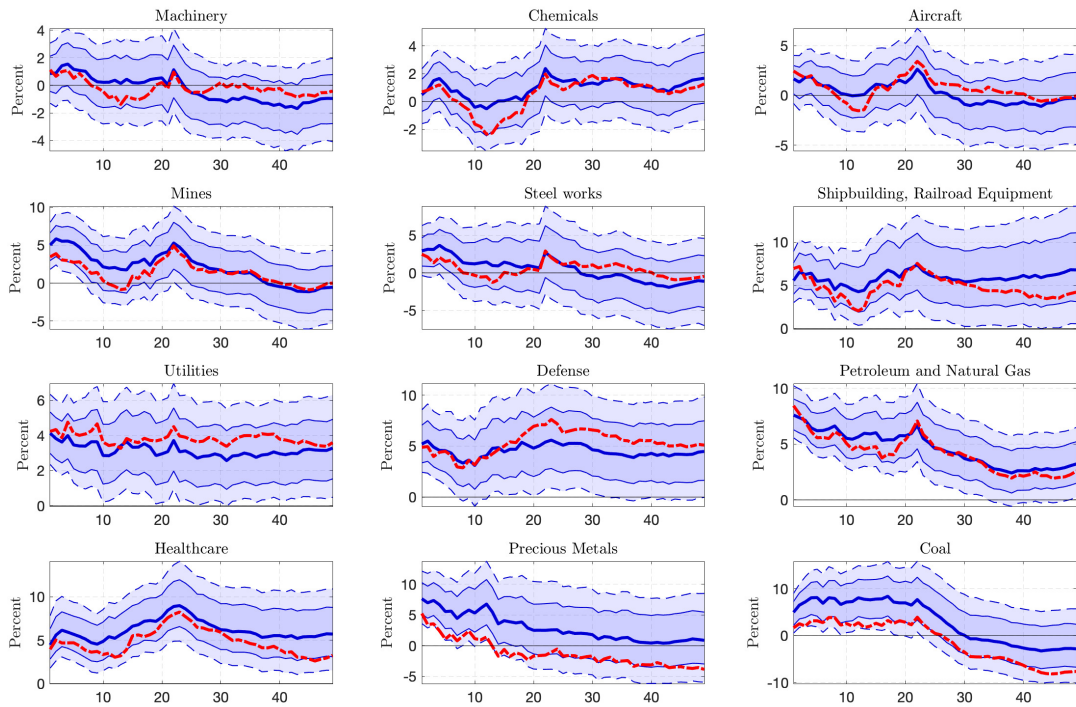
*Note:* This figure reports the impulse responses of aggregate variables to an oil news shock, normalized to increase the real price of oil by 10 percent on impact. The solid blue line indicates estimates obtained using the baseline Proxy-VAR with 24 instead of 12 lags. The red dash-dotted line indicates the response estimated using a VARX on the 1983:4-2019:12 sample. All responses are reported in percentages. The dark and light shaded regions indicate 68% and 90% confidence intervals, respectively.

Figure A.11: Response to an oil news shock with longer lag length, pre-COVID-19 sample



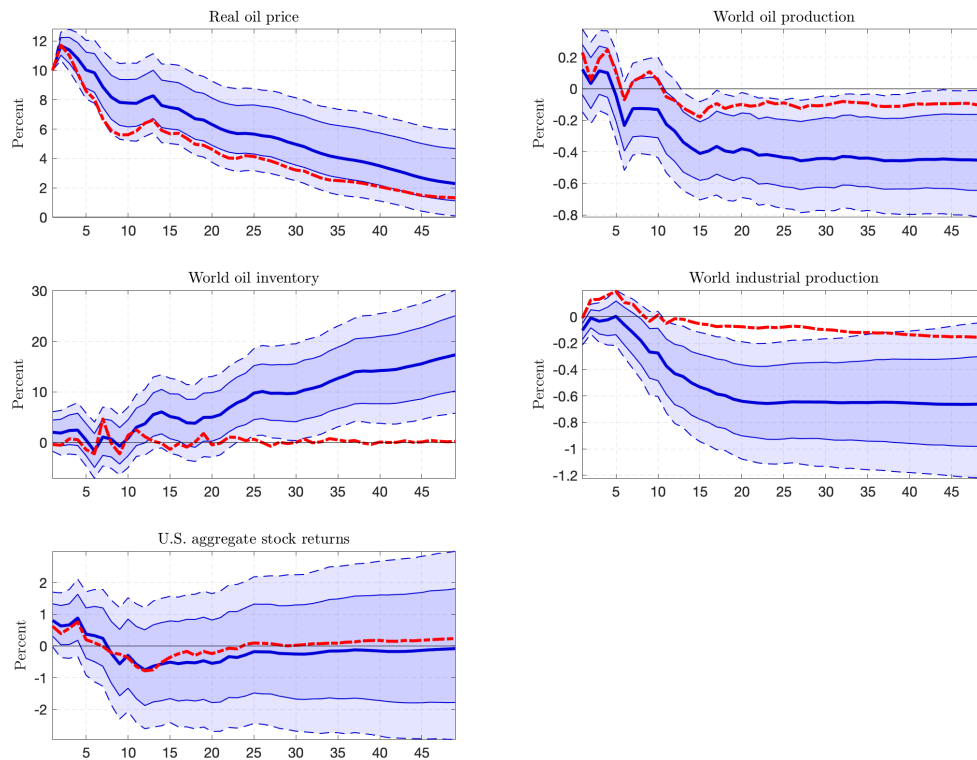
*Note:* This figure reports the impulse responses of industry-level portfolios to an oil news shock, normalized to increase the real price of oil by 10 percent on impact. The solid blue line indicates estimates obtained using the baseline Proxy-VAR with 24 instead of 12 lags. The red dash-dotted line indicates the response estimated using a VARX on the 1983:4-2019:12 sample. All responses are reported in percentages. The dark and light shaded regions indicate 68% and 90% confidence intervals, respectively.

Figure A.12: Response to an oil news shock with longer lag length, pre-COVID-19 sample



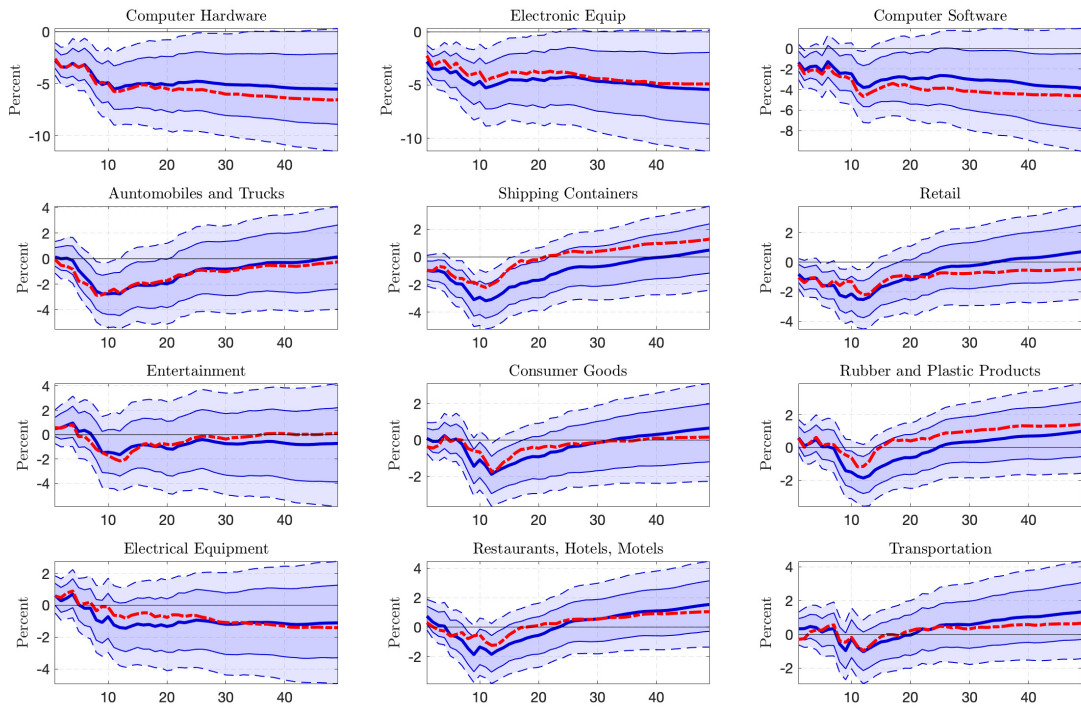
*Note:* This figure reports the impulse responses of industry-level portfolios to an oil news shock, normalized to increase the real price of oil by 10 percent on impact. The solid blue line indicates estimates obtained using the baseline Proxy-VAR with 24 instead of 12 lags. The red dash-dotted line indicates the response estimated using a VARX on the 1983:4-2019:12 sample. All responses are reported in percentages. The dark and light shaded regions indicate 68% and 90% confidence intervals, respectively.

Figure A.13: Response to an oil news shock with alternative inventory measure, pre-COVID-19 sample



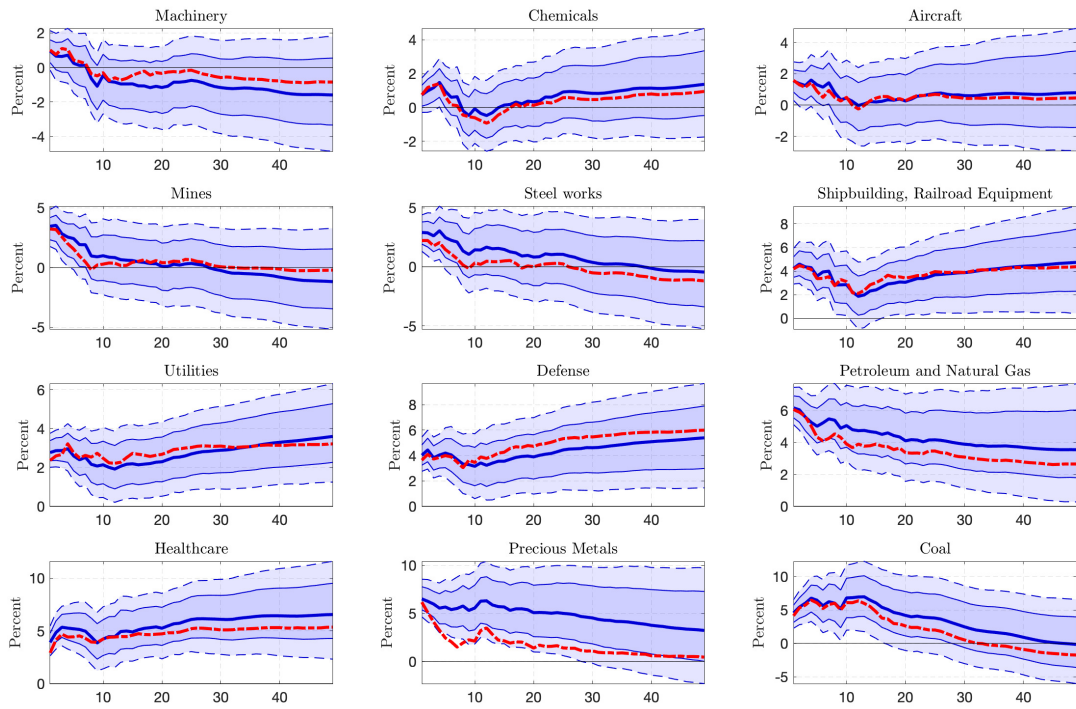
*Note:* This figure reports the impulse responses of the aggregate variables to an oil news shock, normalized to increase the real price of oil by 10 percent on impact. The solid blue line indicates estimates obtained using the baseline Proxy-VAR with inventories measured in first differences instead of levels. The red dash-dotted line indicates the response estimated using a VARX on the 1983:4-2019:12 sample. All responses are reported in percentages. The dark and light shaded regions indicate 68% and 90% confidence intervals, respectively.

Figure A.14: Response to an oil news shock with alternative inventory measure, pre-COVID-19 sample



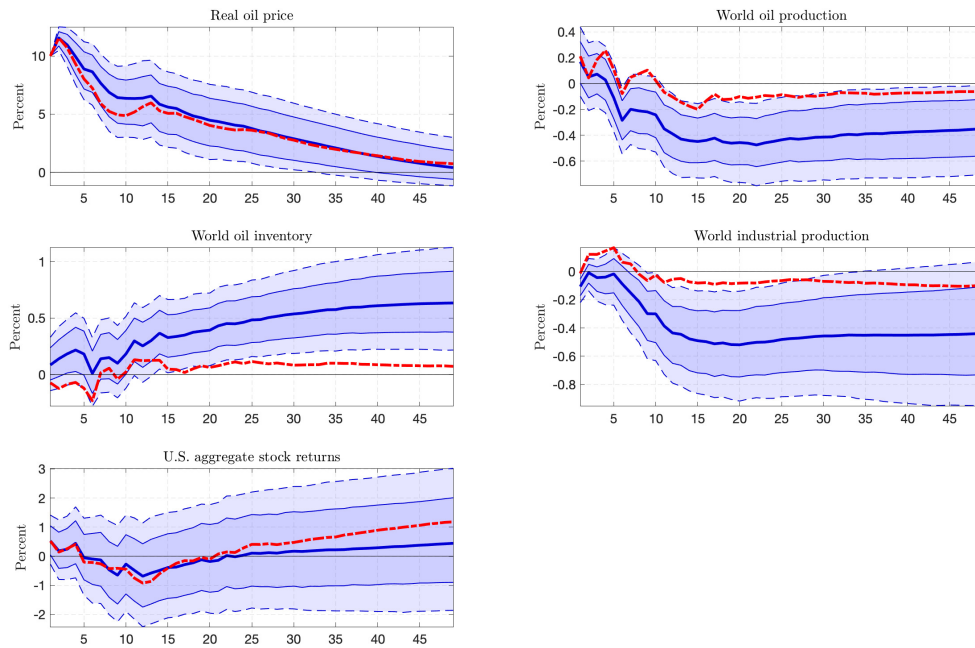
*Note:* This figure reports the impulse responses of industry-level portfolios to an oil news shock, normalized to increase the real price of oil by 10 percent on impact. The solid blue line indicates estimates obtained using the baseline Proxy-VAR with inventories measured in first differences instead of levels. The red dash-dotted line indicates the response estimated using a VARX on the 1983:4-2019:12 sample. All responses are reported in percentages. The dark and light shaded regions indicate 68% and 90% confidence intervals, respectively.

Figure A.15: Response to an oil news shock with alternative inventory measure, pre-COVID-19 sample



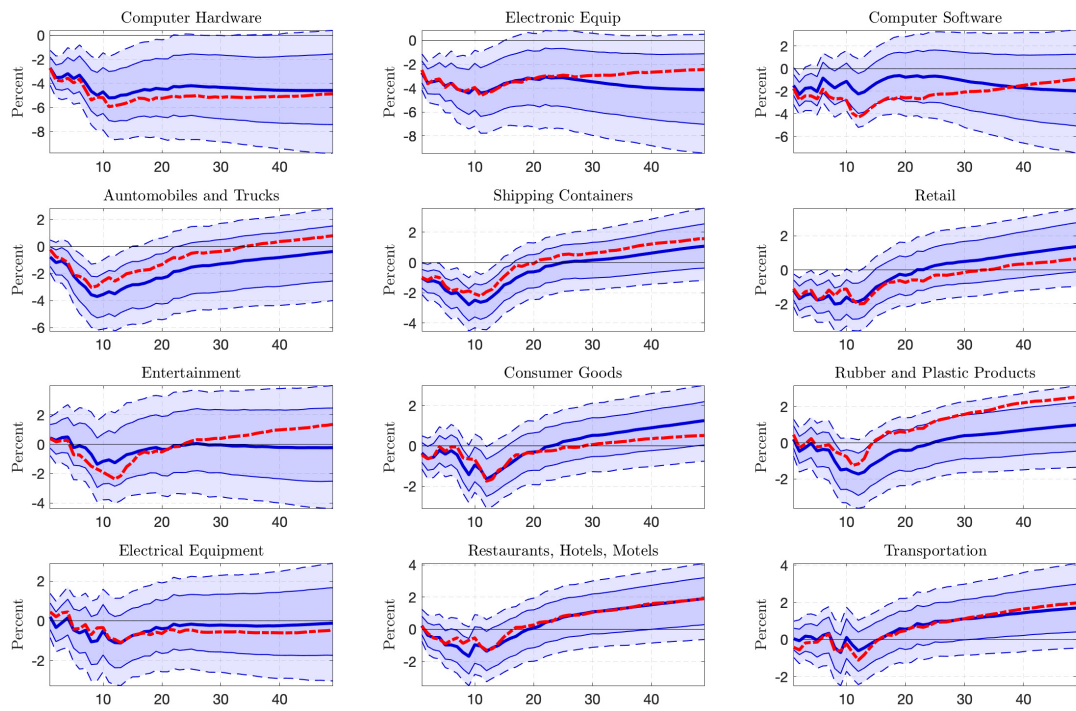
*Note:* This figure reports the impulse responses of industry-level portfolios to an oil news shock, normalized to increase the real price of oil by 10 percent on impact. The solid blue line indicates estimates obtained using the baseline Proxy-VAR with inventories measured in first differences instead of levels. The red dash-dotted line indicates the response estimated using a VARX on the 1983:4-2019:12 sample. The dark and light shaded regions indicate 68% and 90% confidence intervals, respectively.

Figure A.16: Response to an oil news shock using alternative oil price measure, pre-COVID-19 sample



*Note:* This figure reports impulse responses for the aggregate variables to an oil news shock, normalized to increase the real price of oil by 10 percent on impact. The solid blue line indicates estimates obtained using the baseline Proxy-VAR with West Texas Intermediate (WTI) instead as the Refiners Acquisition Cost(RAC) instead. The red dash-dotted line indicates the response estimated using a VARX on the 1983:4-2019:12 sample. All responses are reported in percentages. The shaded regions indicate 68% and 90% confidence intervals.

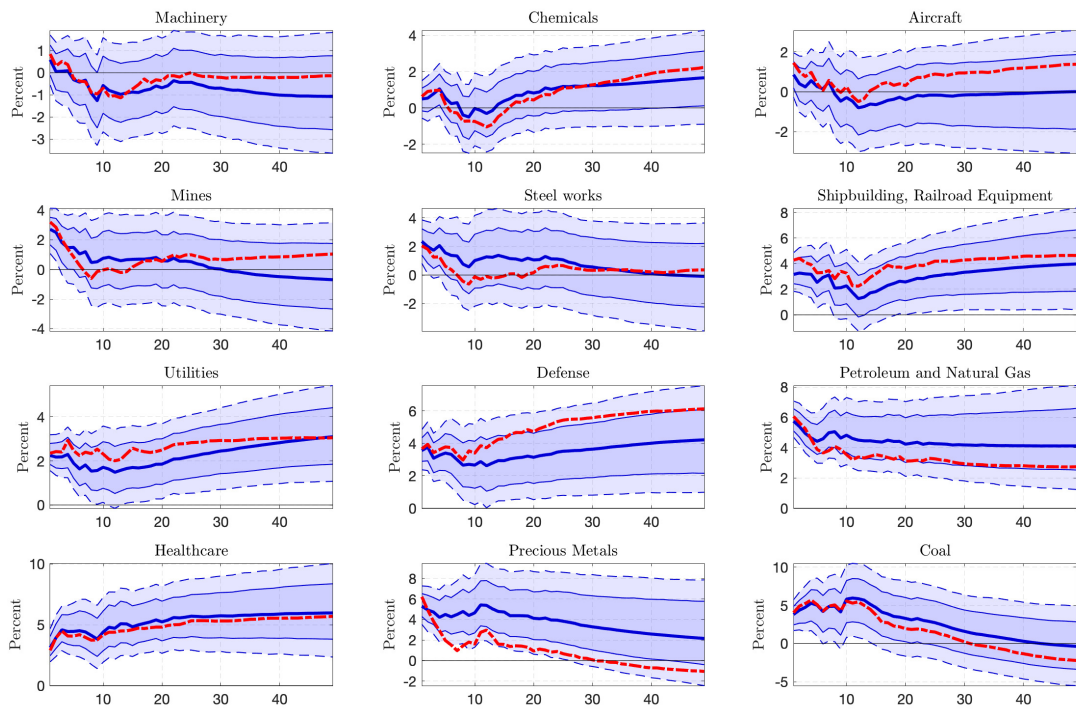
Figure A.17: Response to an oil news shock using alternative oil price measure, pre-COVID-19 sample



*Note:* This figure reports impulse responses for the aggregate variables to an oil news shock, normalized to increase the real price of oil by 10 percent on impact. The solid blue line indicates estimates obtained using the baseline Proxy-VAR with Intermediate (WTI) instead as the Refiners Acquisition Cost(RAC) instead. The red dash-dotted line indicates the response estimated using a VARX on the 1983:4-2019:12 sample. All responses are reported in percentages. The shaded regions indicate 68% and 90% confidence intervals.

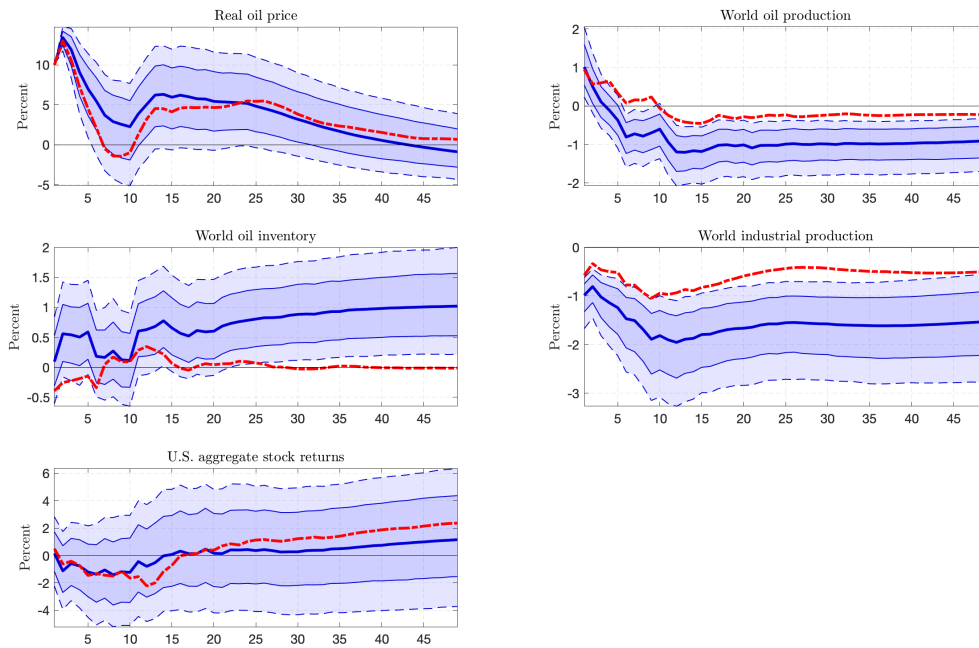


Figure A.18: Response to an oil news shock using alternative oil price measure, pre-COVID-19 sample



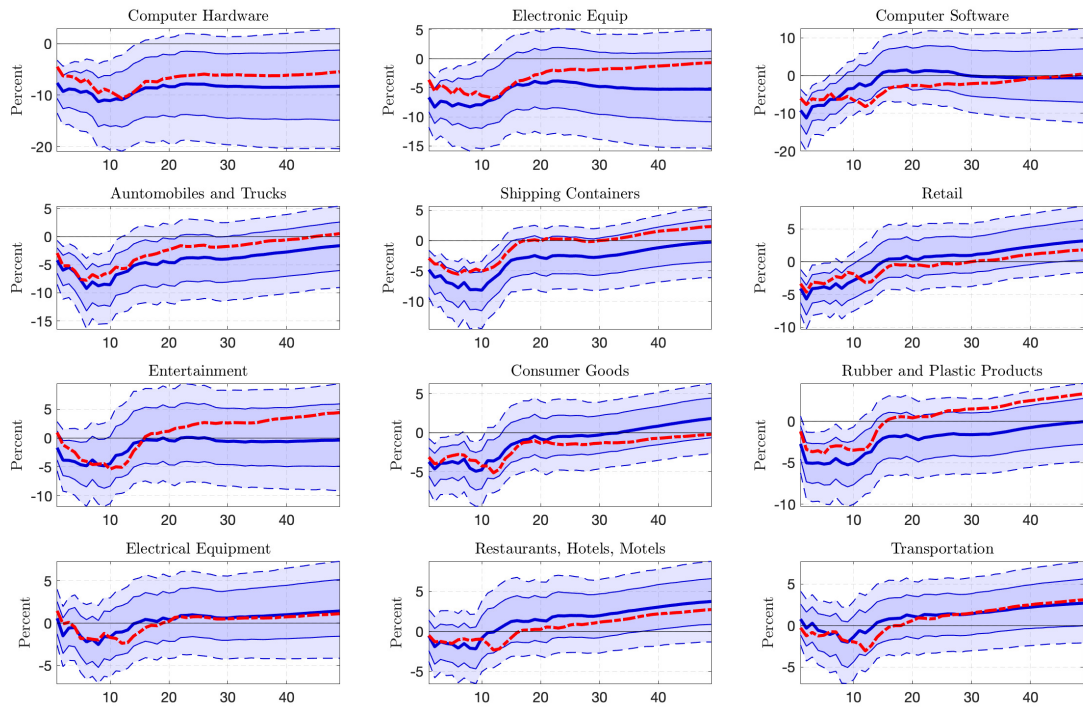
*Note:* This figure reports impulse responses for the aggregate variables to an oil news shock, normalized to increase the real price of oil by 10 percent on impact. The solid blue line indicates estimates obtained using the baseline Proxy-VAR with Intermediate (WTI) instead as the Refiners Acquisition Cost(RAC) instead. The red dash-dotted line indicates the response estimated using a VARX on the 1983:4-2019:12 sample. All responses are reported in percentages. The shaded regions indicate 68% and 90% confidence intervals.

Figure A.19: Response of macroeconomic variables to an OPEC ordinary announcement using pre-COVID-19 sample



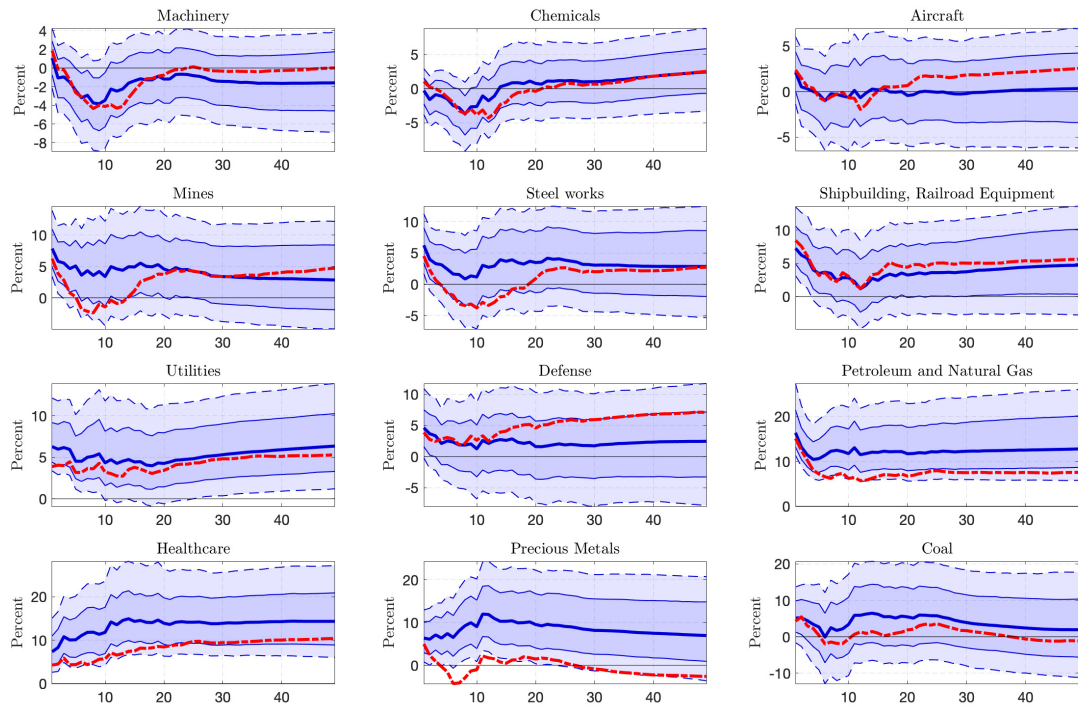
*Note:* This figure reports impulse responses for the aggregate variables to an oil news shock, normalized to increase the real price of oil by 10 percent on impact. All responses are reported in percentages. The solid blue line is the response estimated via the proxy-VAR on the 1973:1-2019:12 sample with the IV spanning from 1984:4-2019:12. The shaded regions indicate 68% and 90% confidence intervals. The dash-dotted line indicates the response estimated using a VARX on the 1983:4-2019:12 sample.

Figure A.20: Response of industry portfolios to an OPEC ordinary announcement using pre-COVID-19 sample



*Note:* This figure reports impulse responses for the industry portfolios to an oil news shock, normalized to increase the real price of oil by 10 percent on impact. All responses are reported in percentages. The solid blue line is the response estimated via the proxy-VAR on the 1973:1-2019:12 sample with the IV spanning from 1984:4-2019:12. The shaded regions indicate 68% and 90% confidence intervals. The dash-dotted line indicates the response estimated using a VARX on the 1983:4-2019:12 sample.

Figure A.21: Response of industry portfolios to an OPEC ordinary announcement using pre-COVID-19 sample



*Note:* This figure reports impulse responses for the industry portfolios to an oil news shock, normalized to increase the real price of oil by 10 percent on impact. All responses are reported in percentages. The solid blue line is the response estimated via the proxy-VAR on the 1973:1-2019:12 sample with the IV spanning from 1984:4-2019:12. The shaded regions indicate 68% and 90% confidence intervals. The dash-dotted line indicates the response estimated using a VARX on the 1983:4-2019:12 sample.