Information Rents, Economic Growth, and Inequality: An Empirical Study of the United States

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Objectives of the Paper

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Rethink **Marxist theory**

Rethink **value theory** from Classical Political Economy

Why?

Fast expansion of the **knowledge economy**

Widespread **commodification of knowledge and information**

Empirical study:

Impact of information commodification on **growth and distribution** in the USA 1947-2011

How does the commodification of knowledge and information affect growth, labor productivity, and economic inequality?

Theoretical Framework

Theoretical Framework

The paper expands Marxist value theory to the domain of **commodified knowledge and information**, or *knowledge-commodities*

Reproduction time, not the original production time, determines the value of a commodity

Reproduction time = direct and indirect labor time socially necessary to reproduce the commodity

Knowledge-commodities are produced for profit but have **zero value**

Productive activities (PA) = originate new value added

Unproductive activities (UA) = do not originate new value added

The incomes of UA are value added drawn from PA

Producing a commodity for profit is a **necessary but not a sufficient condition** for the activity to be productive of value added

Theoretical Framework

Knowledge and information require huge amounts of labor time to be produced

But virtually no labor time to be further **reproduced** once produced

Knowledge and information can be easily copied

Commodified information has zero value, **zero value added**, and zero surplus value

Profits derived from knowledge-commodities are:

Value added reallocated from other activities (PA or UA, but ultimately PA)

Knowledge rents or **information rents**

Theoretical Framework

Examples of **knowledge-commodities**:

Drug formulas
Software, data, computer code
Books, journals, scientific publications
Movies and recorded concerts
Recorded music, music scores, compositions

Do not confuse the knowledge-commodity (like a drug formula) with the **material artifact** (chemical powder) that stores it

The material artifact that stores the knowledge-commodity has value added

The knowledge-commodity does **not** have value added

Theoretical Framework

Better to decompose the economy into **activities** rather than **sectors** or **industries**

The same **company** can perform a mix of PA and UA

The same **worker** can perform a mix of PA and UA

Only in a few cases is a company or worker completely productive or completely unproductive

The BEA's **modified** input-output matrices allow for a better measurement of activities rather than sectors

Theoretical Framework

The classification between PA and UA refers only to the **direct** effect:

PA **directly** produces new value added

UA does not **directly** produce new value added

But the **indirect** effects might be larger than the **direct** effects

UA might **indirectly** increase labor productivity or boost demand in PA

UA can either **crowd out** or **crowd in** PA

UA and PA can be either complementary or substitutes

Estimates should compute the **net effects**

And should differentiate between the **short- and long-run effects**

A small short-run effect might be superseded by a larger long-run effect

Empirical Approach

Empirical Approach

United States 1947-2011

Transform the BEA **modified input-output matrices**, NIPA accounts, and BLS series into Marxist categories

Calculate **knowledge rents** by aggregating the industry-level data from input-output matrices

Compute several measures of PA and UA

Flow measures: aggregate flows of income (net and gross of inputs)

Stock measures: stocks of fixed assets (net of depreciation)

Stock of fixed assets = cumulative investment expenditures in fixed assets, minus a nonlinear depreciation rate

Table 1: Description of Variables for the United States (1947-2011)

Productive Activity (PA)	
Total value (TV)	Real total value created in productive activities (gross of intermediate inputs and depreciation)
Value added (VA)	Real value added created in productive activities (net of intermediate inputs and depreciation)
Surplus value (S)	Real value added minus the total compensation of productive workers in productive activities
Rate of exploitation (s)	Surplus value over the total compensation of productive workers in productive activities
K_{PA}	Real stock of non-residential fixed assets in productive activities (at replacement cost)
Unproductive Activity (UA)	
GI_{UA}	Real gross income of unproductive activities (gross of intermediate inputs and depreciation)
NI_{UA}	Real net income of unproductive activities (net of intermediate inputs and depreciation)
IR in NI_{UA}	Share of information rents (IR) in NI_{UA}
FI+IR in NI_{UA}	Share of financial income (FI) and information rents (IR) in NI_{UA}
NI_{UA} / VA	Net income of unproductive activities over the value added created in productive activities
K_{UA}	Real stock of non-residential fixed assets in unproductive activities (at replacement cost)
IR in K_{UA}	Share of K_{UA} in activities whose main sources of revenues are information rents
FI+IR in K_{UA}	Share of K_{UA} in activities whose main sources of revenue are finance and information rents
K_{UA} / K_{PA}	Stock of fixed assets in unproductive relative to productive activities
Whole Economy	
Top 1%	Income share of the top 1% earners, with capital gains included
Top 0.1%	Income share of the top 0.1% earners, with capital gains included
Labor productivity	Real GDP per total working hours (index 2005 = 100)

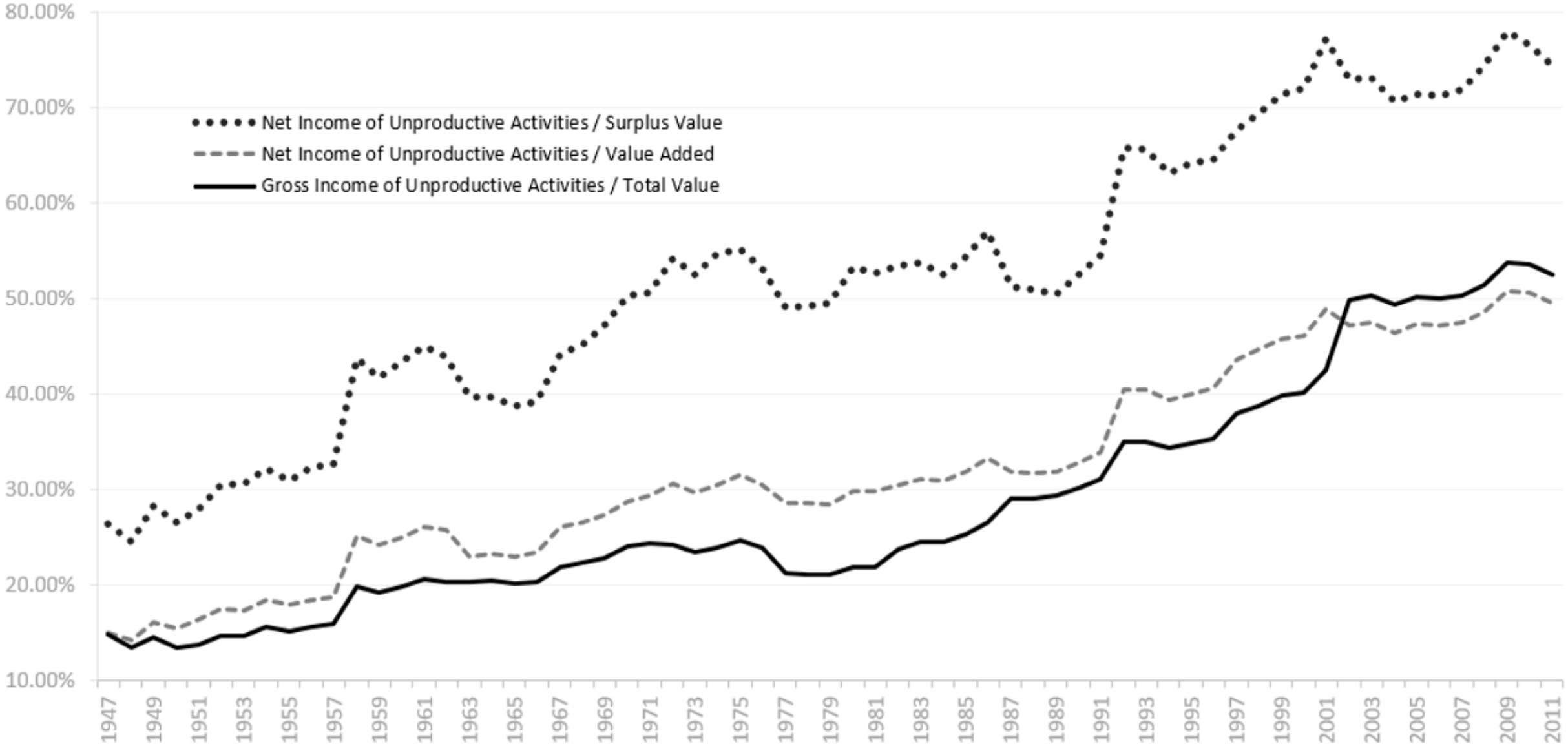
Sources: Measures of productive and unproductive activity computed from the modified benchmark BEA input-output matrices, national income and product accounts, fixed assets accounts, and from the BLS series on compensation and employment. Estimation techniques from Rotta (2018). Real values in 2005 dollars. Top income shares from Piketty (2014). Labor productivity index is the nonfarm business sector real output per hour of all persons from the BLS, rebased to 2005. See Table A.2 in appendix 3 for the complete classification of productive and unproductive activities.

Table 2: Cumulative Growth Rates in the United States (1947-2011)

	1947-1980	1980-2011	1947-2011
Productive Activity (PA)			
Total value (TV)	184%	82%	416%
Value added (VA)	179%	115%	499%
Surplus value (S)	177%	155%	607%
Rate of exploitation (s)	-2%	56%	54%
Capital stock (K_{PA})	298%	95%	677%
VA / K_{PA}	-30%	16%	-19%
Unproductive Activity (UA)			
Gross income (GI_{UA})	322%	335%	1734%
Net income (NI_{UA})	461%	256%	1896%
Share of information rents in NI_{UA}	25%	76%	120%
Share of financial income and information rents in NI_{UA}	20%	54%	85%
NI_{UA} / VA	102%	40%	182%
Capital stock, with government assets (K_{UA})	194%	161%	667%
Capital stock, no government assets (K_{UA}*)	449%	266%	1909%
Share of information rents in K_{UA}	171%	126%	514%
Share of financial income and information rents in K_{UA}	208%	96%	502%
K_{UA} / K_{PA}	-26%	34%	-1%
NI_{UA} / K_{UA}	89%	44%	173%
Whole Economy			
Top 1% income share (with capital gains)	-16%	96%	64%
Top 0.1% income share (with capital gains)	-13%	172%	136%
Labor productivity	121%	91%	322%

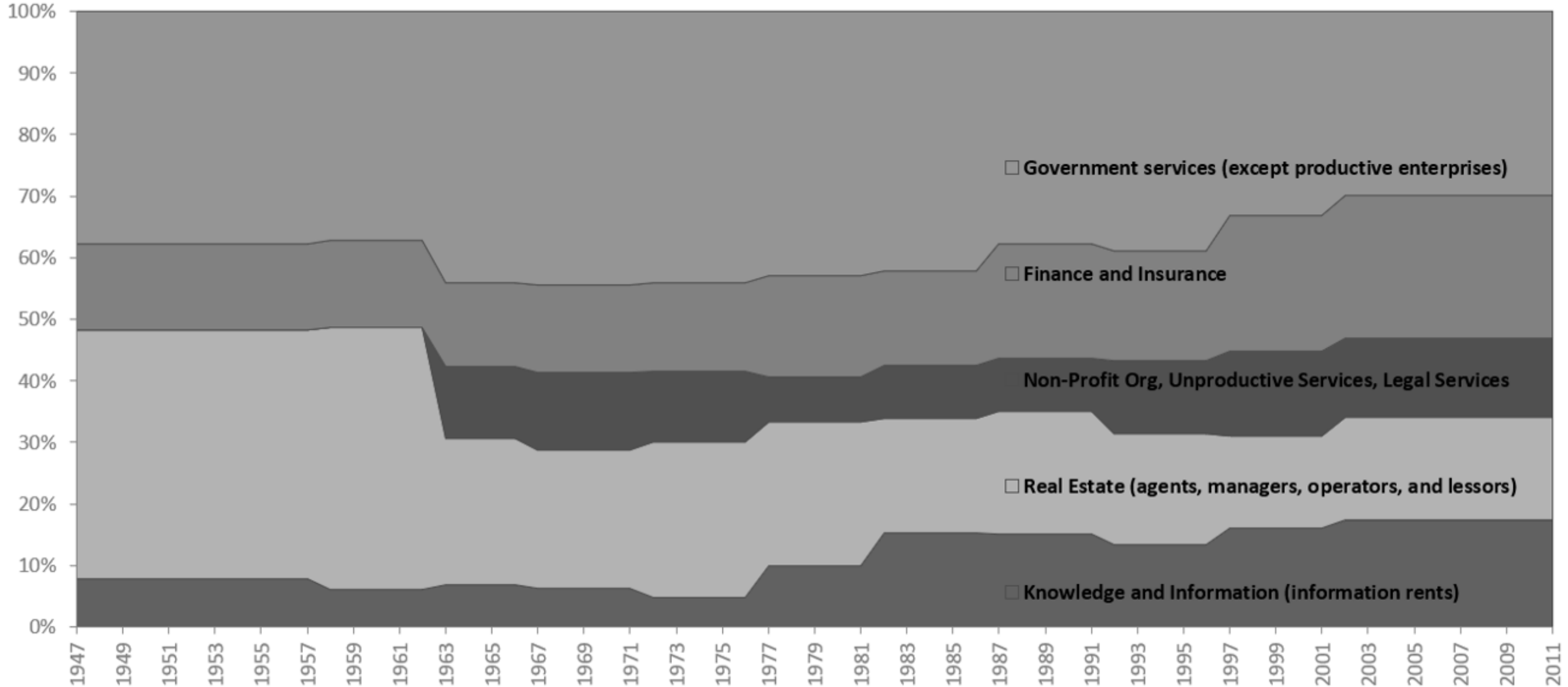
Sources: Author's calculations. Real growth rates in 2005 dollars. Variables described in Table 1. See Table A.2 in appendix 3 for the complete classification of productive and unproductive activities.

Figure 1: Unproductive Activity Relative to Productive Activity – Aggregate Flows (1947-2011)



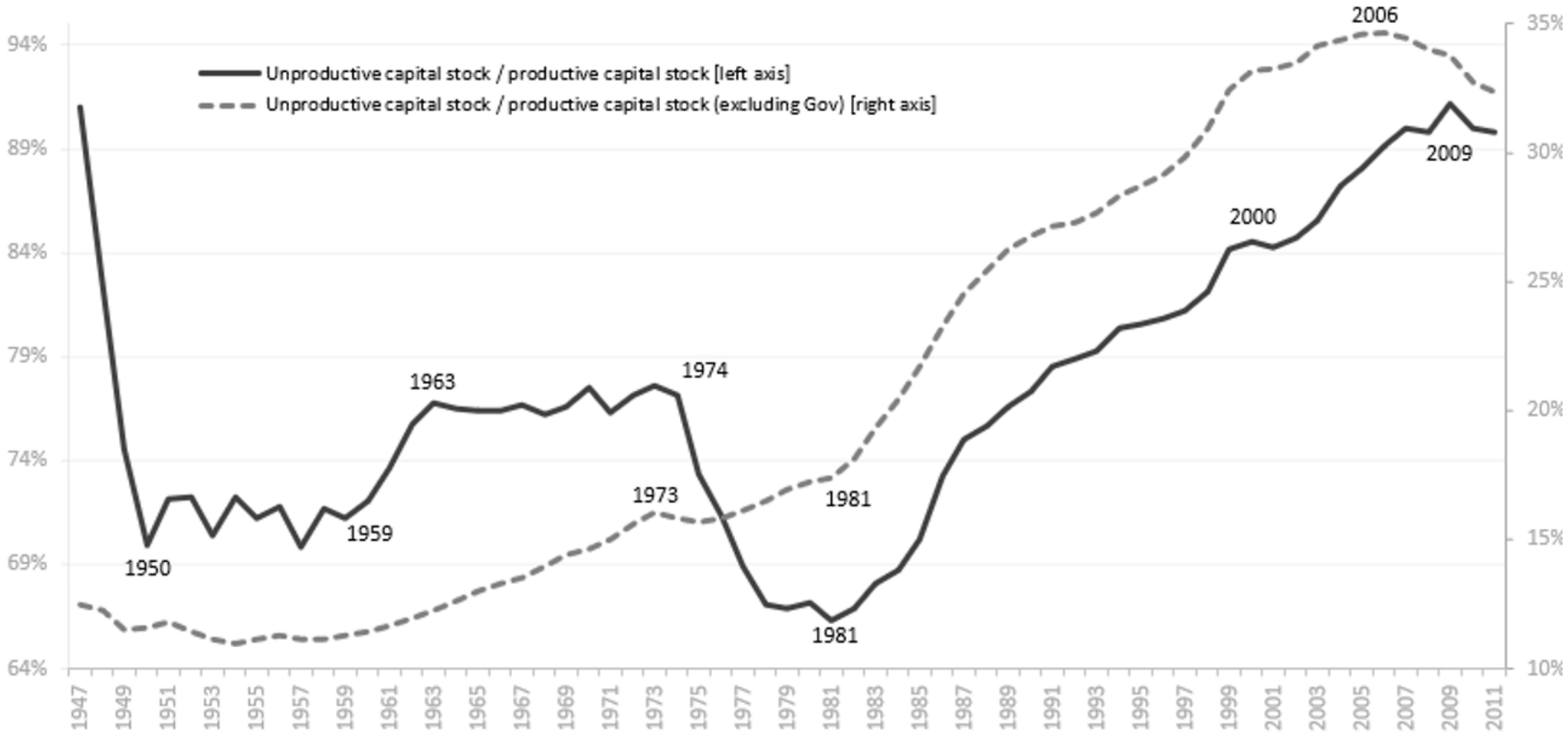
Source: Author's own calculations. Raw data from BEA and BLS.

Figure 2: Decomposition of the Net Income of Unproductive Activity (1947-2011)



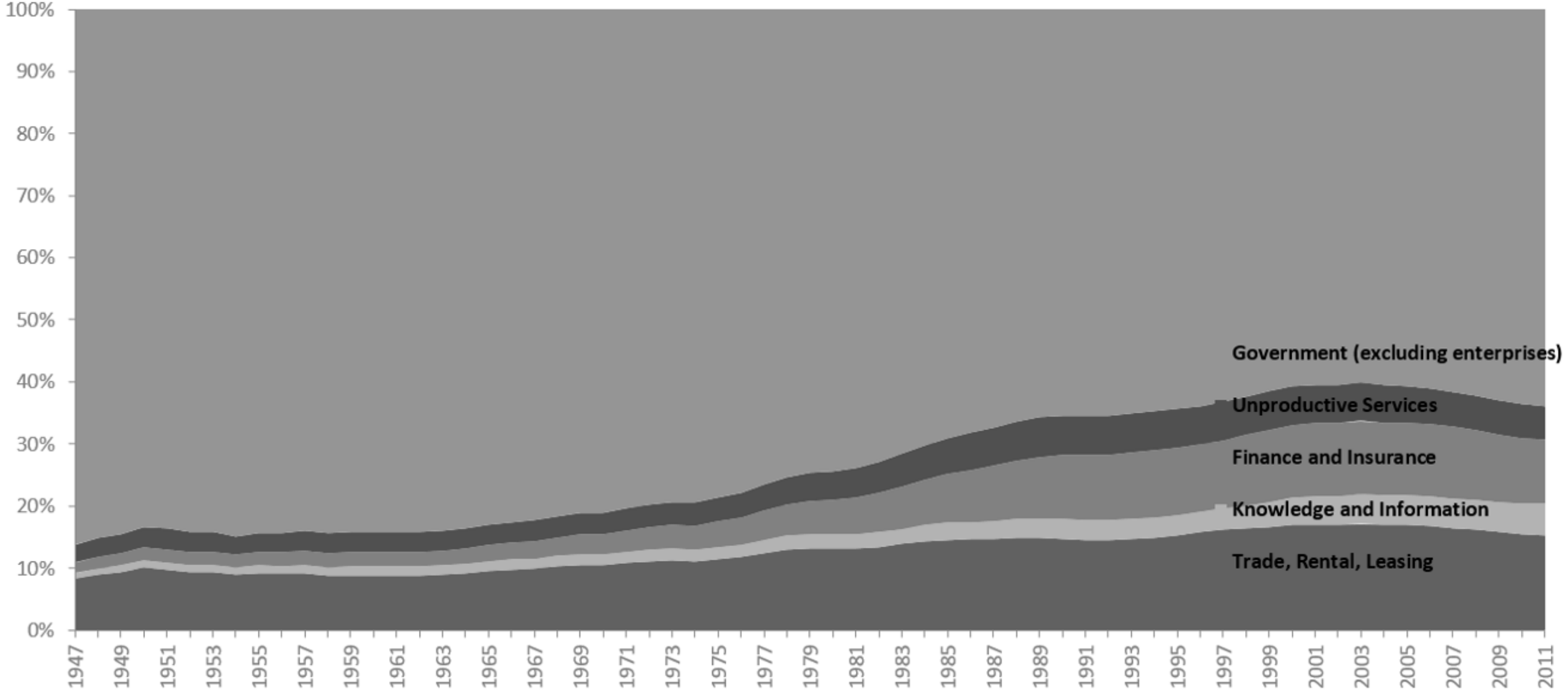
Source: Author's own calculations. Raw data from BEA and BLS.

Figure 3: Ratio of Unproductive to Productive Capital Stock, with and without Government Fixed Assets (1947-2011)



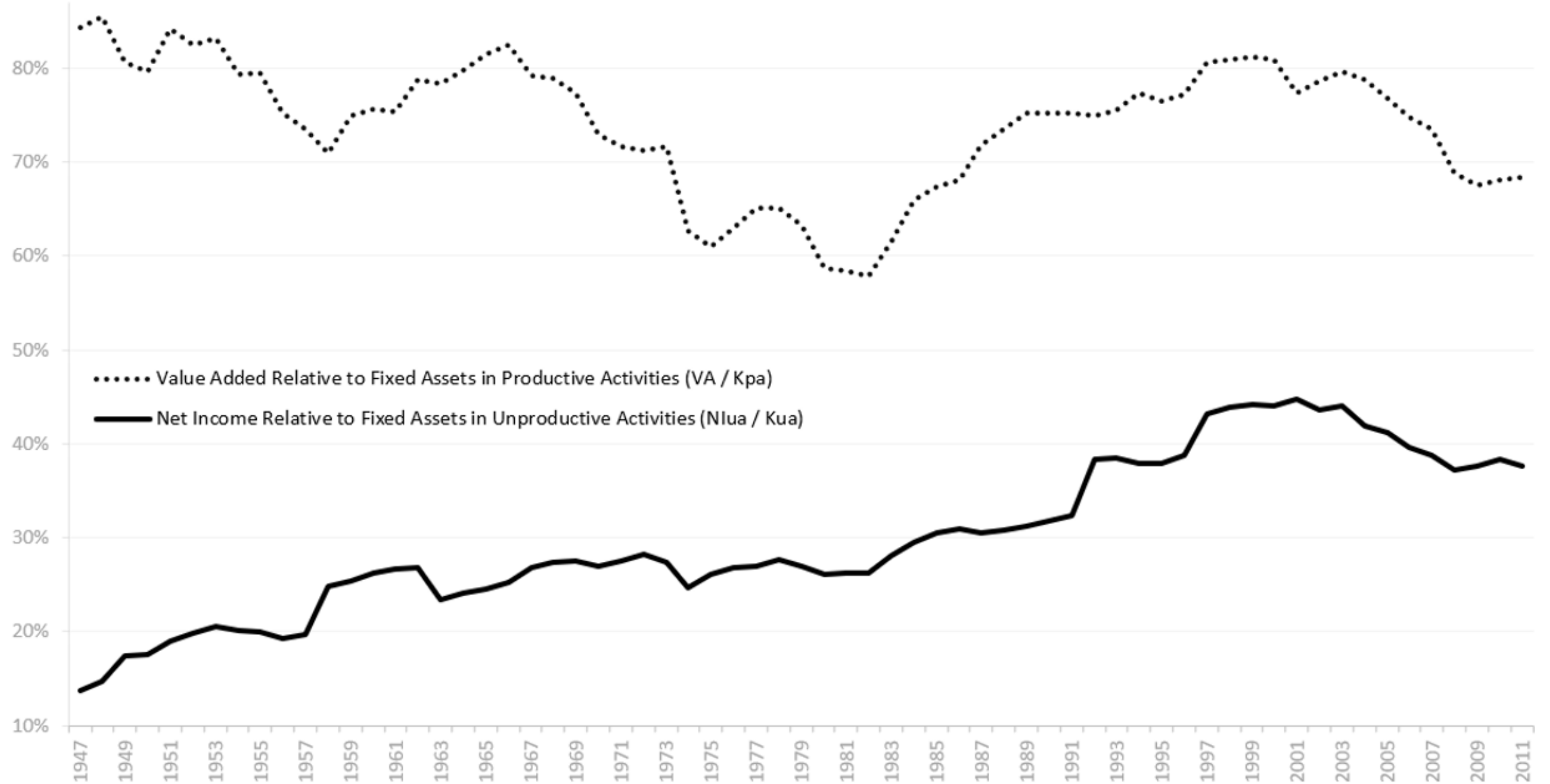
Sources: Author's own calculations. Raw data from BEA and BLS.

Figure 4: Decomposition of the Capital Stock of Unproductive Activity (1947-2011)



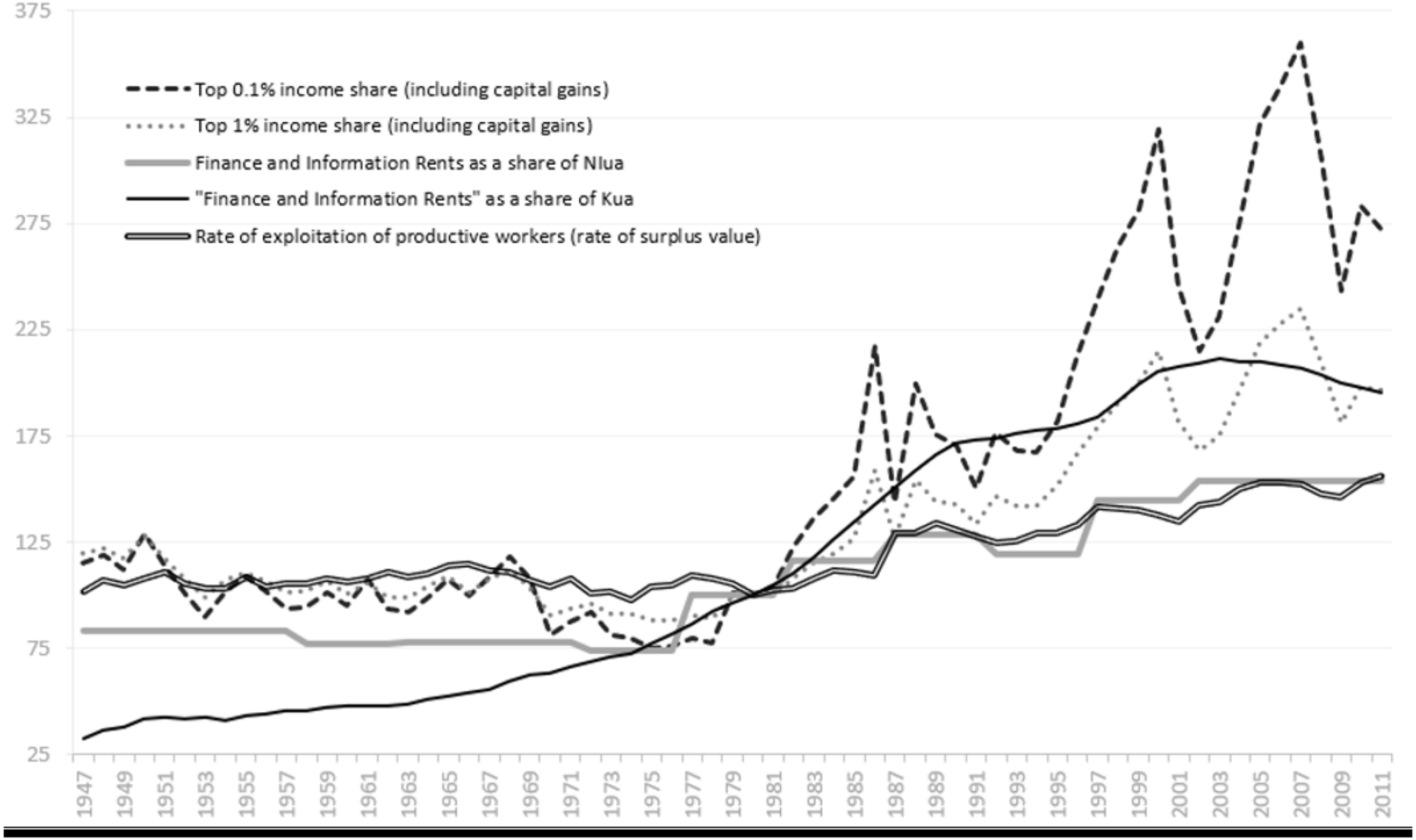
Sources: Author's own calculations. Raw data from BEA and BLS.

Figure 5: Aggregate Income Relative to Fixed Assets
in Productive and Unproductive Activities (1947-2011)



Sources: Author's own calculations. Raw data from BEA and BLS.

Figure 6: Top 0.1%, Top 1%, Financial Income and Information Rents, and the Rate of Exploitation – Index Numbers (1980 = 100)



Sources: Author's own calculations. Raw data from BEA and BLS. Top income shares from Piketty (2014).

Contributions to the Literature

Contributions to the Literature

Most of the empirical literature focuses on the effects of **finance** and **financial assets** on growth and economic inequality

The usual division is between **financial** and **non-financial corporations**

Most of the literature uses **panel datasets** that **begin in 1980 or after**

But this misses the transition from the Regulated (pre-1980) to the Neoliberal (post-1980) phase of Western capitalism

Panel datasets at the firm level focus mostly on **listed companies** or on the **manufacturing sector**

Contributions to the Literature

My econometric estimates control for **financial incomes** and investment expenditures in fixed assets in **financial activities**

But the focus is on the effects of activities that receive **knowledge rents**

Annual time series from 1947 to 2011

The data cover the **pre- and post-1980** institutional regimes

Input-output data at the industry level

Which are then aggregated into measures of PA and UA at the national level

Contributions to the Literature

The paper develops a consistent approach to the Marxist theory of value

Reproduction time determines commodities' **values**

If zero labor time is required for reproduction:

commodity has zero value, zero value added, zero surplus value

unproductive activity (UA)

profits in UA are value added reallocated from PA

Results

Econometric Results

ARDL model in error correction form :

$$\Delta Y_t = \alpha + \left[\beta Y_{t-1} + \sum_{j=1}^{k} \beta_j X_{j,t-1}\right] + \left[\sum_{i=1}^{p} \gamma_i \Delta Y_{t-i} + \sum_{h=1}^{m} \sum_{i=1}^{p} \gamma_{h,i} \Delta X_{h,t-i}\right] + \varepsilon_t$$

PSS bounds test to determine the statistical significance of the long-run relationship

Impulse-response functions to simulate:

Temporary **short-run** effects = lagged differences

Permanent **long-run** effects = lagged levels

Econometric Results

Variables in natural logs, all lagged

Check for the statistical significance

And then compute:

long-run elasticities

1947-2011 cumulative change

economic effect = long-run elasticities * 1947-2011 cumulative change

Plot the impulse-response functions using the 1947-2011 cumulative change as the **impulse**

Responses converge to the long-run economic effect

Table 3: ARDL Models for the United States (1947-2011)

	Model 1a	Model 1b	Model 2a	Model 2b	Model 3a	Model 3b	Model 4a	Model 4b
Dependent variable (all in first differences)	**Value Added**	**Value Added**	**Labor Productivity**	**Labor Productivity**	**Top 0.1%**	**Top 0.1%**	**Top 1%**	**Top 1%**
Dependent variable								
Lagged level	-0.429**	-0.310*	-0.059***	-0.126***	-0.515***	-0.560***	-0.455***	-0.498***
First lagged difference	-0.257	-0.355*	0.112	0.105	0.014	0.035	0.023	0.041
Rate of exploitation								
Lagged level					0.467	0.741	0.329	0.491*
First lagged difference	0.277*	0.830**	-0.010	-0.056	1.202**	0.976*	0.722**	0.590
Labor productivity								
Lagged level	0.303	0.244						
First lagged difference	0.718**	0.335***						
Share of finance and information rents in NI_{UA}								
Lagged level	-0.139**	-0.260***			0.628***	0.439*	0.316***	0.233
First lagged difference	0.259***	0.335***	0.082**	0.117***	-0.504	-0.387	-0.263	-0.205
NI_{UA} / Value Added								
Lagged level			0.046**	0.082***		-0.057		-0.046
First lagged difference	0.079	0.087	0.014	-0.042	0.280	0.270	0.154	0.152
Share of finance and information rents in K_{UA}								
Lagged level	0.228***	0.148**						
First lagged difference	0.072	-0.200	-0.071	-0.145	-0.318	-0.396	-0.407	-0.449
K_{UA} / K_{PA}								
Lagged level			0.133***	0.188***				
First lagged difference	0.530	0.224	0.033	-0.030	-0.301	-0.444	-0.415	-0.466
Neoliberal dummy		0.083**		0.023***		0.110		0.053
Intercept	5.299**	4.232**	-0.493***	-0.619***	-3.605**	-4.104**	-1.521	-1.796*
Lagged differences (p)	3	3	2	3	1	1	1	1
Observations (n)	65	65	65	65	65	65	65	65
Ind. regressors in levels (k)	3	3	2	3	2	4	2	4
R^2	0.663	0.719	0.422	0.568	0.388	0.403	0.368	0.381
Adjusted R^2	0.422	0.505	0.233	0.319	0.284	0.275	0.261	0.248
Log-likelihood	157.545	163.15	190.392	200.032	51.557	52.372	82.6	83.279
Bayes IC	-204.096	-211.195	-310.622	-301.403	-57.539	-50.883	-119.625	-112.698
Breusch-Godfrey (p-value)	0.70	0.916	0.75	0.65	0.98	0.89	0.513	0.61
Breusch-Pagan (p-value)	0.68	0.54	0.86	0.94	0.12	0.14	0.23	0.23
Shapiro-Wilk (p-value)	0.25	0.015	0.28	0.74	0.38	0.43	0.106	0.18
Jarque-Bera (p-value)	0.40	0.15	0.18	0.51	0.34	0.34	0.06	0.07
PSS bounds F-statistic	6.095**	7.064***	6.58***	5.53***	7.225***	4.548**	6.706**	4.179*
PSS bounds F-test case	case 3	case 3	case 2	case 2	case 3	case 3	case 3	case 3

Note: Significance levels: 10% (*), 5% (**), and 1% (***). Variables in logs, as described in Table 1. ARDL models in error correction form: dependent variable in first difference. The PSS bounds F-test (for the k independent regressors in lagged levels) is from Pesaran, Shin, and Smith (2001), using small sample critical values for n=65 from Narayan (2005). Only the coefficients for the first lagged differences are shown. Model 1b uses robust HAC standard errors.

Table 4: Modified ARDL Models for the United States (1947-2011)

	Model 1c	Model 2c	Model 3c	Model 4c
Dependent variable (all in first differences)	**Value Added**	**Labor Productivity**	**Top 0.1%**	**Top 1%**
Dependent variable				
Lagged level	-0.085	-0.100***	-0.574***	-0.501***
First lagged difference	-0.368*	-0.053	0.015	0.005
Rate of exploitation				
Lagged level			0.981**	0.629***
First lagged difference	0.445***	-0.001	0.700*	0.434
Labor productivity				
Lagged level				
First lagged difference	0.648			
Share of information rents in NI_{UA}				
Lagged level	-0.075		0.318***	0.151***
First lagged difference	0.087	0.117***	-0.243	-0.126
NI_{UA} / Value Added				
Lagged level	0.095	0.071***		
First lagged difference	0.073	-0.007	0.255	0.173
Share of information rents in K_{UA}				
Lagged level				
First lagged difference	0.025	-0.070	0.164	0.091
K_{UA} / K_{PA}				
Lagged level		0.166***		
First lagged difference	0.369	-0.061	-0.150	-0.250
Neoliberal dummy	0.090***	0.015*		
Intercept	1.032*	-0.575***	-4.759**	-2.230**
Total lagged differences (p)	3	2	1	1
Total observations (n)	65	65	65	65
Ind. regressors in levels (k)	3	3	2	2
R^2	0.641	0.49	0.399	0.374
Adjusted R^2	0.384	0.31	0.297	0.267
Log-likelihood	155.61	194.281	52.16	82.884
Bayes IC	-200.226	-314.273	-58.745	-120.194
Breusch-Godfrey (p-value)	0.07	0.26	0.54	0.84
Breusch-Pagan (p-value)	0.41	0.90	0.073	0.12
Shapiro-Wilk (p-value)	0.86	0.81	0.86	0.64
Jarque-Bera (p-value)	0.93	0.80	0.92	0.65
PSS bounds F-statistic	5.203**	8.19***	7.613***	6.908***
PSS bounds F-test case	case 3	case 2	case 3	case 3

Note: Significance levels: 10% (*), 5% (**), and 1% (***). Variables in logs, as described in Table 1. ARDL models in error correction form: dependent variable in first difference. The PSS bounds F-test (for the k independent regressors in lagged levels) is from Pesaran, Shin, and Smith (2001), using small sample critical values for n=65 from Narayan (2005). Only the coefficients for the first lagged differences are shown. Model 3c uses robust HAC standard errors.

Table 5: Economic Effects and Long-Run Elasticities (1947-2011)

Dependent variable	Model 1a **Value Added**	Model 1b **Value Added**	Model 2a **Labor Productivity**	Model 2b **Labor Productivity**	Model 3a **Top 0.1%**	Model 3b **Top 0.1%**	Model 4a **Top 1%**	Model 4b **Top 1%**
Dependent Variable								
Cumulative change	1.79	1.79	1.44	1.44	0.86	0.86	0.50	0.50
Rate of exploitation								
Cumulative change	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
Long-run elasticity	--	--	--	--	0.91	1.32	0.72	0.99
Economic effect	--	--	--	--	0.39	0.57	0.31	0.42
Labor productivity								
Cumulative change	1.44	1.44						
Long-run elasticity	0.71	0.79						
Economic effect	1.02	1.13						
Share of finance and information rents in NI_{UA}								
Cumulative change	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Long-run elasticity	-0.32	-0.83	--	--	1.22	0.78	0.69	0.47
Economic effect	-0.20	-0.51	--	--	0.75	0.48	0.43	0.29
NI_{UA} / Value Added								
Cumulative change	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Long-run elasticity	--	--	0.77	0.65	--	-0.10	--	-0.09
Economic effect	--	--	0.80	0.68	--	-0.11	--	-0.10
Share of finance and information rents in K_{UA}								
Cumulative change	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79
Long-run elasticity	0.53	0.48	--	--	--	--	--	--
Economic effect	0.95	0.86	--	--	--	--	--	--
K_{UA} / K_{PA}								
Cumulative change	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Long-run elasticity	--	--	2.23	1.49	--	--	--	--
Economic effect	--	--	-0.03	-0.02	--	--	--	--
Neoliberal dummy								
Cumulative change		1.00		1.00		1.00		1.00
Long-run elasticity		0.27		0.18		0.20		0.11
Economic effect		0.27		0.18		0.20		0.11

Note: Variables in logs, as described in Table 1. Cumulative change is the last value minus the initial value, in logs. The long-run ARDL multiplier (elasticity) is the coefficient of the lagged level of the regressor divided by the negative value of the coefficient of the dependent variable in lagged level. The economic effect is the cumulative change times the long-run multiplier. Only variables in lagged levels have long-run multipliers. Variables in lagged differences (indicated with '--') have a short-run temporary effect only.

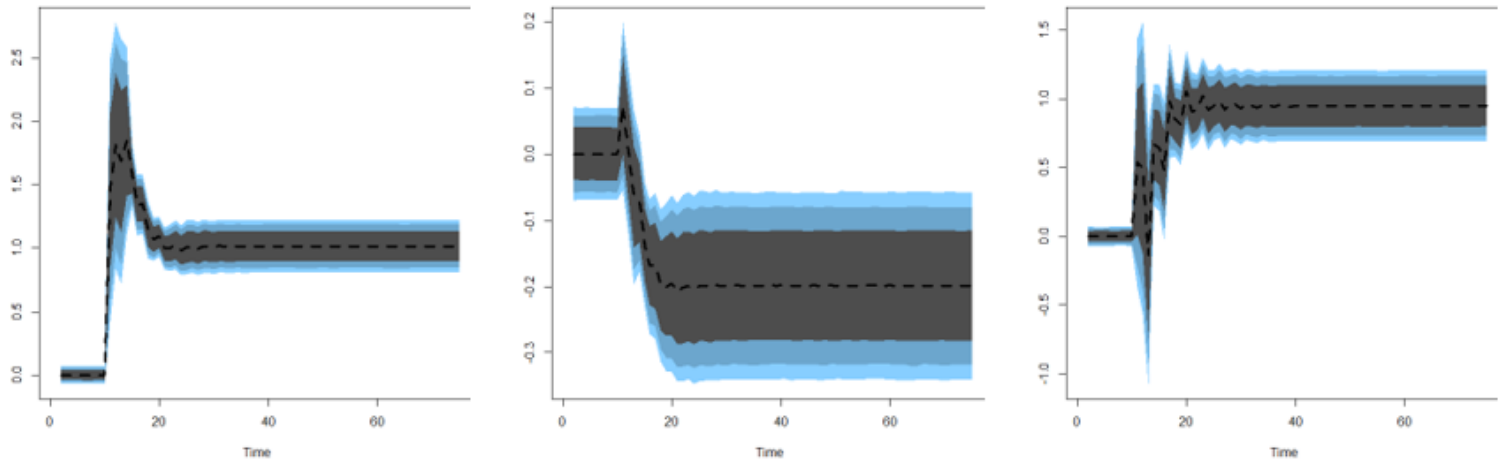
Table 6: Economic Effects and Long-Run Elasticities (1947-2011)

	Model 1c	Model 2c	Model 3c	Model 4c
Dependent variable	**Value Added**	**Labor Productivity**	**Top 0.1%**	**Top 1%**
Dependent Variable				
Cumulative change	1.79	1.44	0.86	0.50
Rate of exploitation				
Cumulative change	0.43	0.43	0.43	0.43
Long-run elasticity	--	--	1.71	1.26
Economic effect	--	--	0.73	0.54
Labor productivity				
Cumulative change	1.44			
Long-run elasticity	--			
Economic effect	--			
Share of information rents in NI_{UA}				
Cumulative change	0.79	0.79	0.79	0.79
Long-run elasticity	-0.88	--	0.55	0.30
Economic effect	-0.69	--	0.44	0.24
NI_{UA} / Value Added				
Cumulative change	1.04	1.04	1.04	1.04
Long-run elasticity	1.12	0.71	--	--
Economic effect	1.16	0.73	--	--
Share of information rents in K_{UA}				
Cumulative change	1.81	1.81	1.81	1.81
Long-run elasticity	--	--	--	--
Economic effect	--	--	--	--
K_{UA} / K_{PA}				
Cumulative change	-0.01	-0.01	-0.01	-0.01
Long-run elasticity	--	1.65	--	--
Economic effect	--	-0.02	--	--
Neoliberal dummy				
Cumulative change	1.00	1.00		
Long-run elasticity	1.06	0.15		
Economic effect	1.06	0.15		

Note: Variables in logs, as described in Table 1. Cumulative change is the last value minus the initial value, in logs. The long-run ARDL multiplier (elasticity) is the coefficient of the lagged level of the regressor divided by the negative value of the coefficient of the dependent variable in lagged level. The economic effect is the cumulative change times the long-run multiplier. Only variables in lagged levels have long-run multipliers. Variables in lagged differences (indicated with '--') have a short-run temporary effect only.

Figure A1: Economic Effect on Value Added (Model 1a)

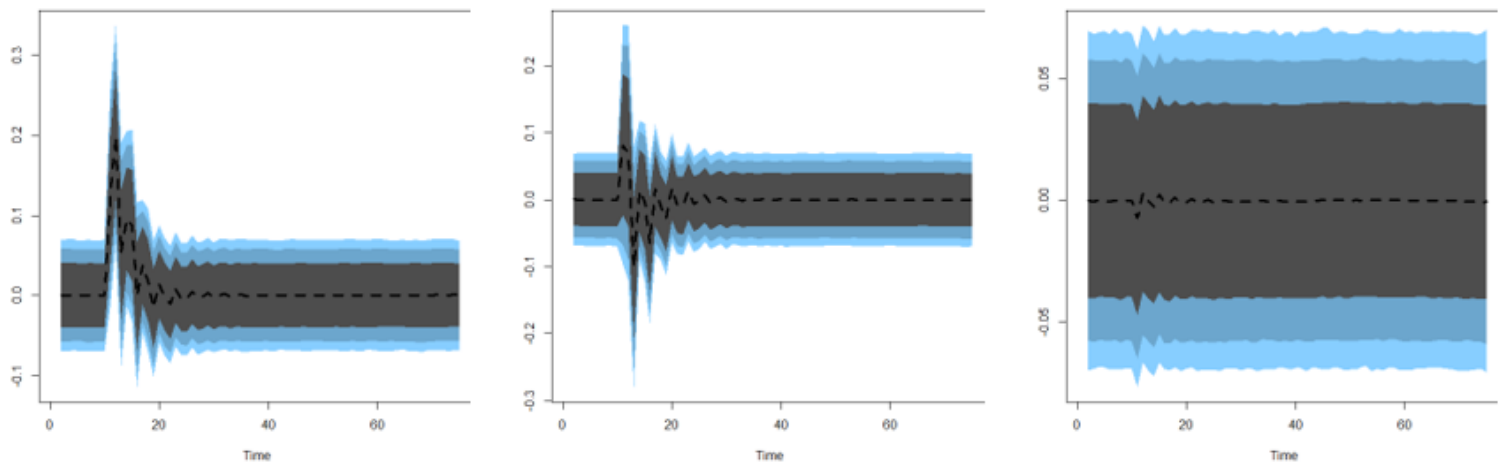
Cumulative change in the **value added** of productive activities from the actual cumulative change in:



(a) Labor productivity

(b) Share of finance and information rents in NI_{UA}

(c) Share of finance and information rents in K_{UA}



(d) Rate of exploitation

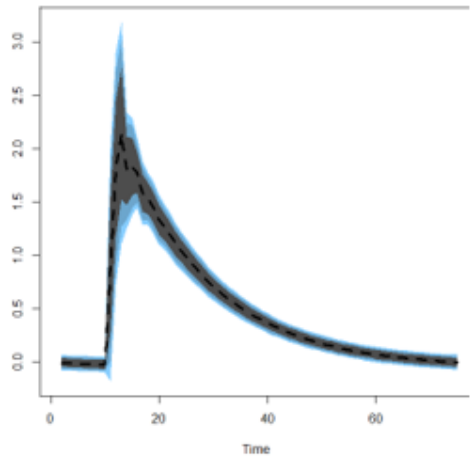
(e) NI_{UA} / Value Added

(f) K_{UA} / K_{PA}

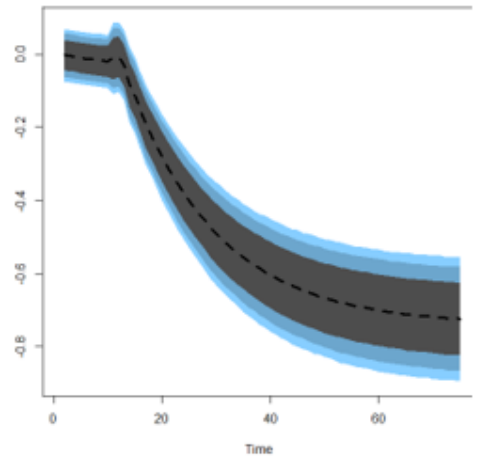
Note: ARDL model from Table 3. Shaded areas around the dotted line represent the 75%, 90%, and 95% bootstrapped intervals with 20,000 simulations. The economic effect is the dependent variable's response to an impulse equal to the actual cumulative change in each regressor from 1947 to 2011, plotted over the entire time frame of 65 years. All variables in logs.

Figure A3: Economic Effect on Value Added (Model 1c)

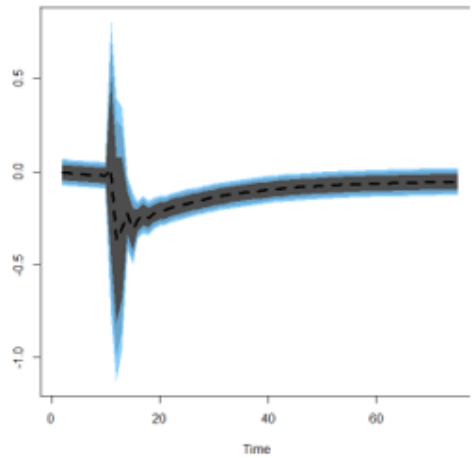
Cumulative change in the **value added** of productive activities from the actual cumulative change in:



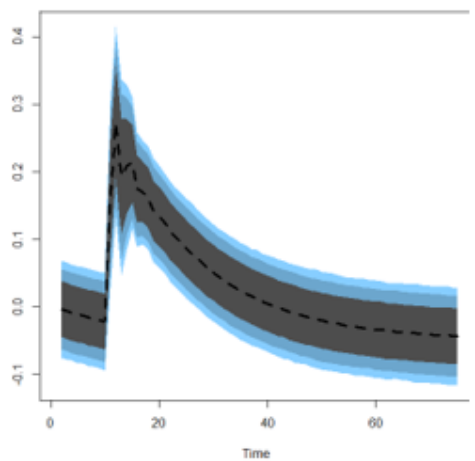
(a) Labor productivity



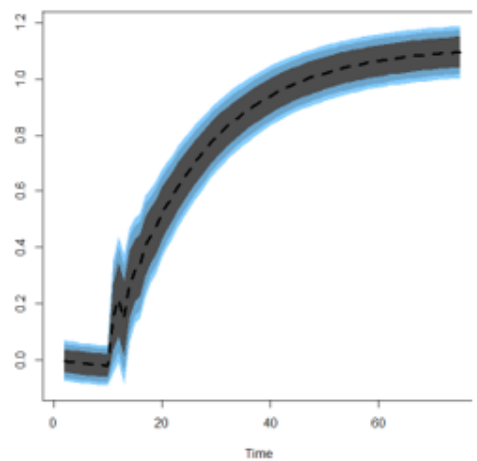
(b) Share of information rents in NI_{UA}



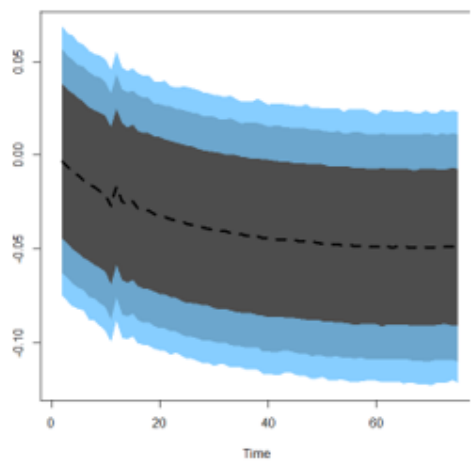
(c) Share of information rents in K_{UA}



(d) Rate of exploitation



(e) NI_{UA} / Value Added

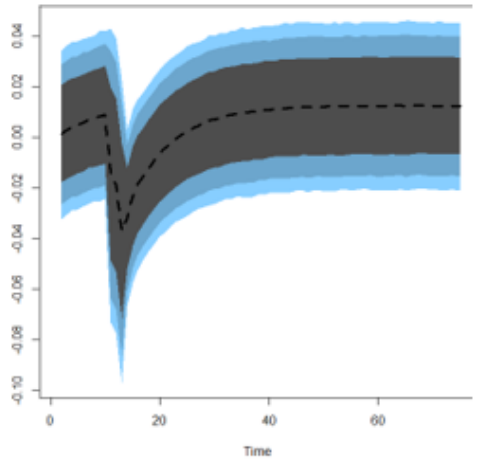


(f) K_{UA} / K_{PA}

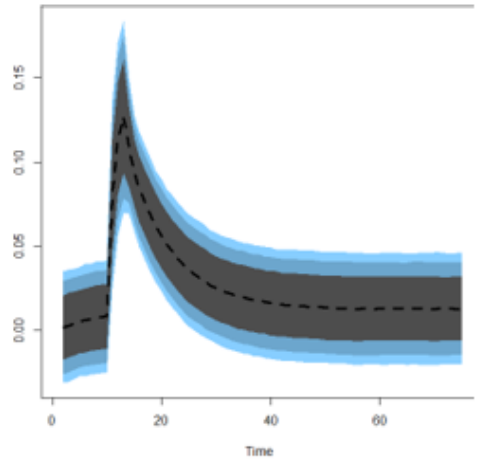
Note: ARDL model from Table 4. Shaded areas around the dotted line represent the 75%, 90%, and 95% bootstrapped intervals with 20,000 simulations. The economic effect is the dependent variable's response to an impulse equal to the actual cumulative change in each regressor from 1947 to 2011, plotted over the entire time frame of 65 years. All variables in logs.

Figure A5: Economic Effect on Labor Productivity (Model 2b)

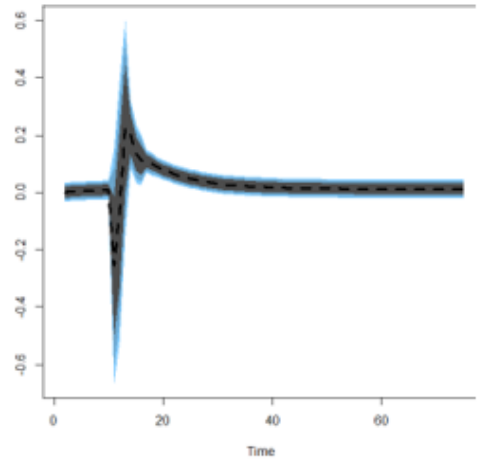
Cumulative change in the economy-wide **labor productivity** from the actual cumulative change in:



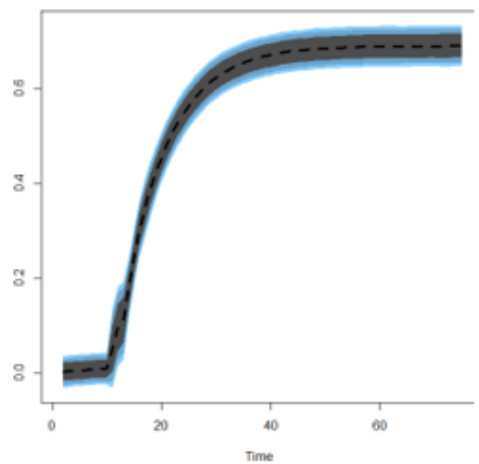
(a) Rate of exploitation



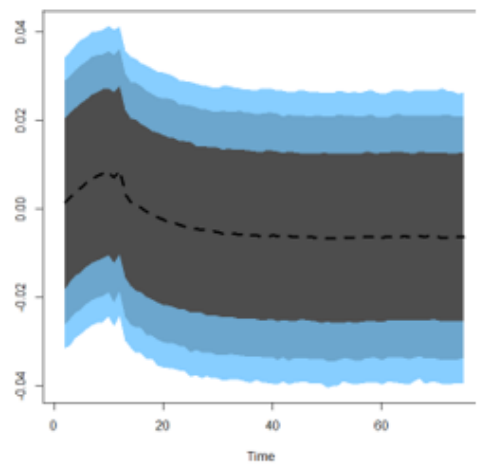
(b) Share of finance and information rents in NI_{UA}



(c) Share of finance and information rents in K_{UA}



(d) NI_{UA} / Value Added

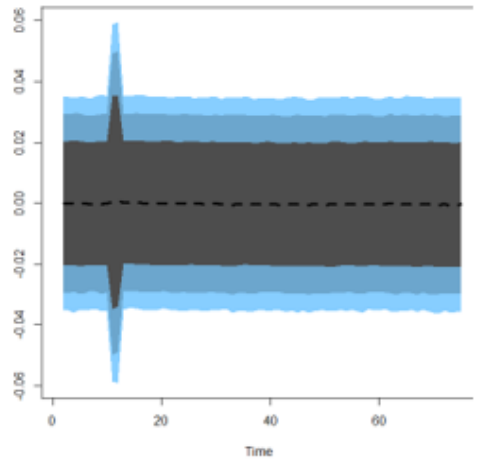


(e) K_{UA} / K_{PA}

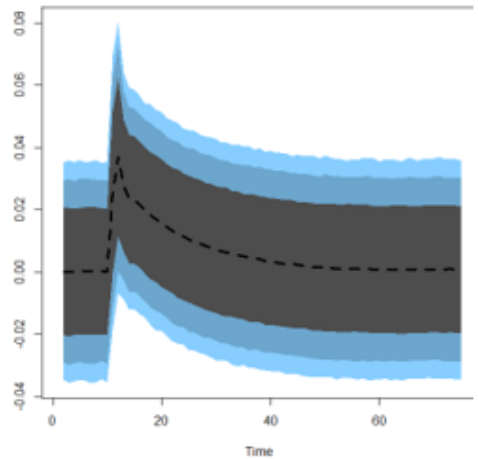
Note: ARDL model from Table 3. Shaded areas around the dotted line represent the 75%, 90%, and 95% bootstrapped intervals with 20,000 simulations. The economic effect is the dependent variable's response to an impulse equal to the actual cumulative change in each regressor from 1947 to 2011, plotted over the entire time frame of 65 years. All variables in logs.

Figure A6: Economic Effect on Labor Productivity (Model 2c)

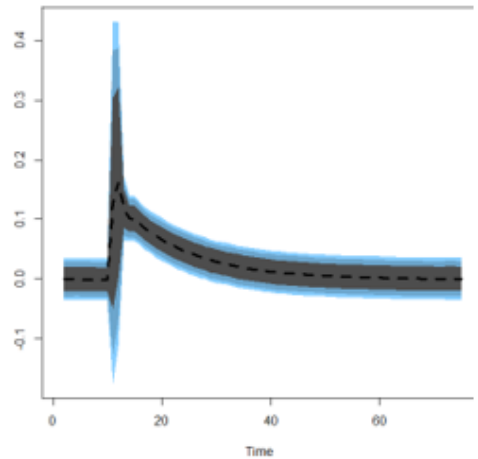
Cumulative change in the economy-wide **labor productivity** from the actual cumulative change in:



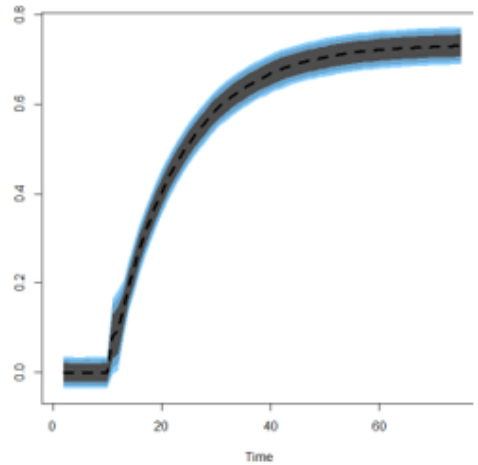
(a) Rate of exploitation



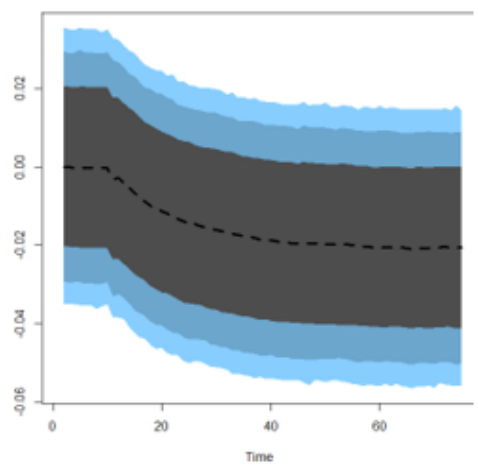
(b) Share of information rents in NI_{UA}



(c) Share of information rents in K_{UA}



(d) NI_{UA} / Value Added

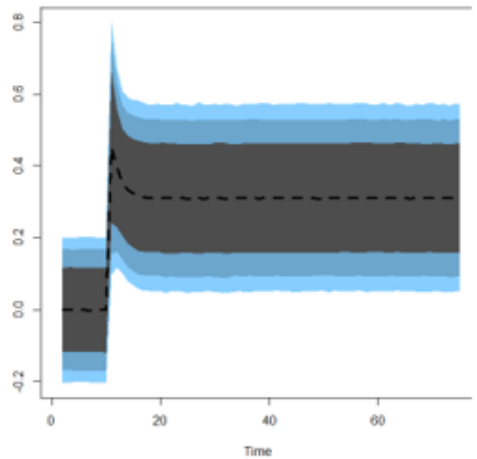


(e) K_{UA} / K_{PA}

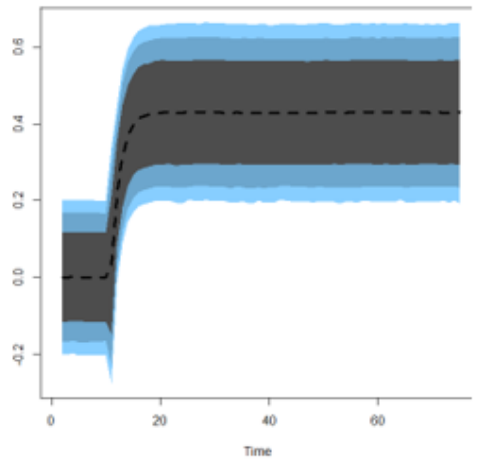
Note: ARDL model from Table 4. Shaded areas around the dotted line represent the 75%, 90%, and 95% bootstrapped intervals with 20,000 simulations. The economic effect is the dependent variable's response to an impulse equal to the actual cumulative change in each regressor from 1947 to 2011, plotted over the entire time frame of 65 years. All variables in logs.

Figure A10: Economic Effect on Inequality (Model 4a)

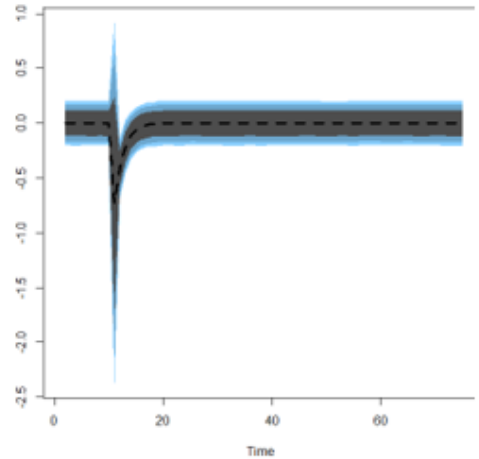
Cumulative change in the **income share of the top 1%** from the actual cumulative change in:



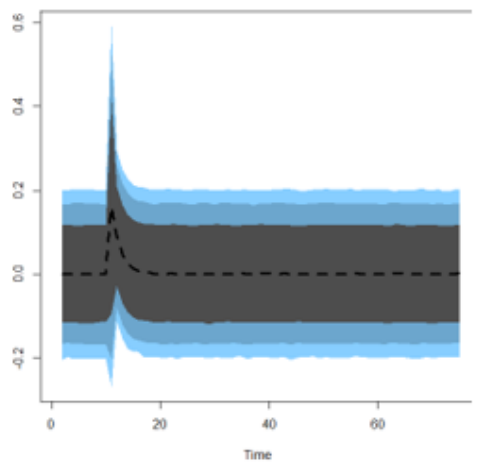
(a) Rate of exploitation



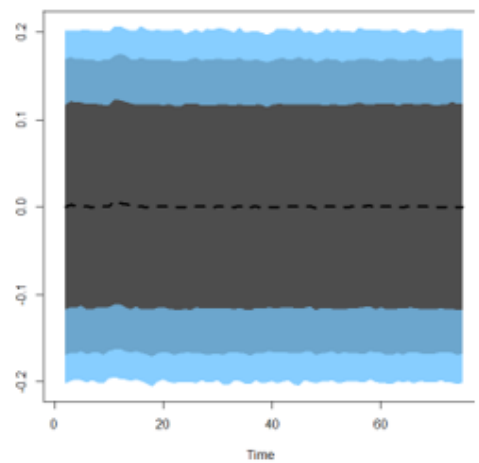
(b) Share of finance and information rents in NI_{UA}



(c) Share of finance and information rents in K_{UA}



(d) NI_{UA} / Value Added

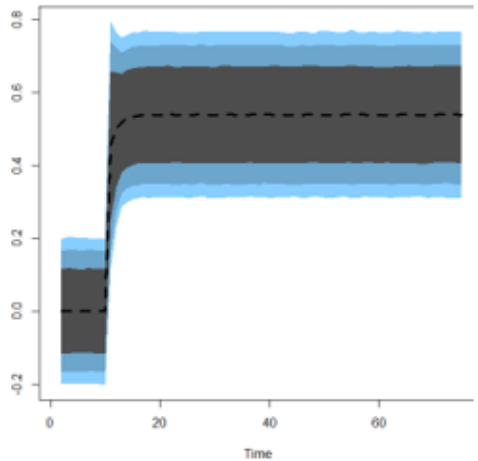


(e) K_{UA} / K_{PA}

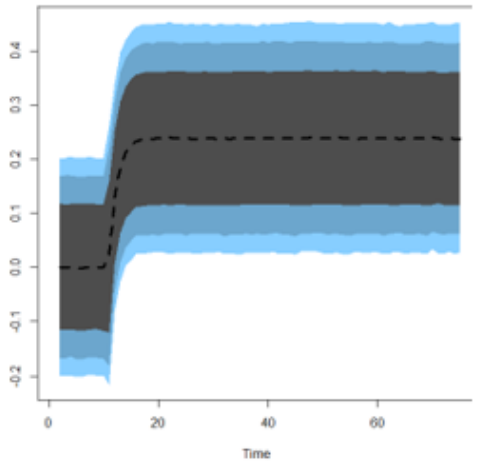
Note: ARDL model from Table 3. Shaded areas around the dotted line represent the 75%, 90%, and 95% bootstrapped intervals with 20,000 simulations. The economic effect is the dependent variable's response to an impulse equal to the actual cumulative change in each regressor from 1947 to 2011, plotted over the entire time frame of 65 years. All variables in logs.

Figure A12: Economic Effect on Inequality (Model 4c)

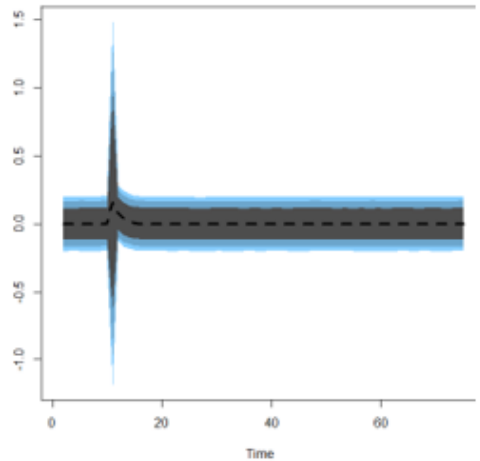
Cumulative change in the **income share of the top 1%** from the actual cumulative change in:



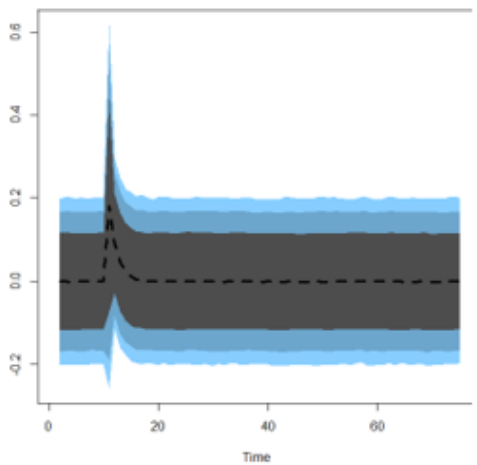
(a) Rate of exploitation



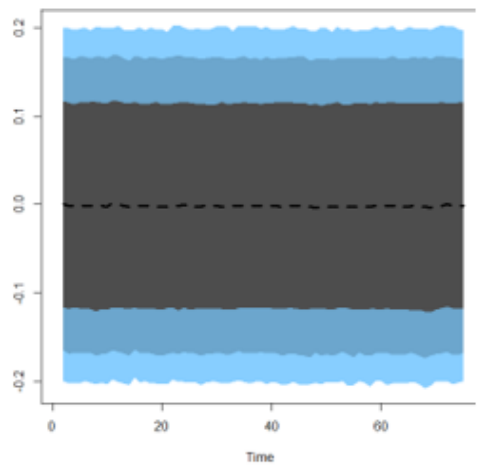
(b) Share of information rents in NI_{UA}



(c) Share of information rents in K_{UA}



(d) NI_{UA} / Value Added



(e) K_{UA} / K_{PA}

Note: ARDL model from Table 4. Shaded areas around the dotted line represent the 75%, 90%, and 95% bootstrapped intervals with 20,000 simulations. The economic effect is the dependent variable's response to an impulse equal to the actual cumulative change in each regressor from 1947 to 2011, plotted over the entire time frame of 65 years. All variables in logs.

Final Remarks

Final Remarks

Marxist theory has a theory of value and a consistent approach to PA and UA that Keynesian and Kaleckian theories do not have

Marxist theory can be expanded to the growing domain of commodified knowledge and information

The recent literature has focused on the roles of **finance** and **financial assets** in the determination of growth and distribution

Knowledge-rents should be given equal attention in the determination of growth and distribution

Knowledge-rents in the USA have increased labor productivity, but at the price of reducing value-added growth and increasing economic inequality

Thank You

Slides available at

tomasrotta.wordpress.com