

# Kalecki and the Determinants of the Profit Rate in the United States

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## Abstract

The Weisskopfian approach has dominated empirical studies of the US rate of profit for the last thirty-five years. Forty-five years earlier, Michal Kalecki developed a different frame suitable for empirical profit rate studies, which had the potential to give different, but complementary, insight into the profit rate analysis based on the Weisskopfian approach. This paper first presents a development of the Kaleckian frame. It then applies this frame to the US economy and presents some preliminary empirical results.

**JEL Classification:** E11, E32, E01

## Keywords

US profit rate, Kalecki, business cycles, dissaving

## 1. Introduction

Arguably the dominant (though definitely not exclusive) frame over the last thirty-five years for doing empirical studies on the US rate of profit, both secular and on its cycles, has been (with many modifications) that introduced by Weisskopf (1978, 1979).<sup>1</sup> Long prior to Weisskopf's work, Michal Kalecki had developed a frame that had the potential to be used for empirical work on the dynamics (secular and cyclical) of the rate of profit (Kalecki 1971: chapter 7). Starting in the late 1920s when National Accounts were still in the process of being developed, by the mid-1930s, Kalecki had developed a framework for considering “the determinants of profits,” and hence, its dynamics (Brennan 2014; Levy 2001). His frame rested on the National Accounts bookkeeping, and hence was, by construction, suited for empirical work. Nevertheless, while a number of papers by Kalecki himself and others reproduced that general frame over the next

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<sup>1</sup>While not offered as a comprehensive list of studies of the US rate of profit using this approach, the following enumeration supports the claim of this approach's dominance: Bakir and Campbell (2006, 2013), Basu and Vasudevan (2013), Brenner (2002), Cámara Izquierdo (2014), Devine (1994), Duménil, Glick, and Rangel (1987), Duménil and Lévy (2002, 2011), Glyn (2006), Kotz (2015), Michl (1988), and Wolff (2003).

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eighty years, it was very seldom applied empirically to profit dynamics, in a way comparable<sup>2</sup> with what was done with the later Weisskopfian frame.<sup>3</sup> A recent work by Brennan (2014) is important not only as an addition to the sparse Kaleckian empirical profit studies, but beyond that, for the increasingly detailed treatment it gives to the national accounts data used. It has strong methodological similarities to the frame that is developed and presented here, though the particular questions he was interrogating were very different.

We assert that a well-developed empirical framework starting from Kalecki's basic approach permits different, but complementary, insights into the dynamics of the rate of profit from those insights that have been achieved with the Weisskopfian framework. Section 2 of this short paper conceptually presents the Kaleckian frame that is used.

Given the goal of developing a complementary alternative empirical approach to Weisskopf's for studying profit rate dynamics, our detailed section 3, linking the economic concepts involved to the specific data used to represent them, is considered a centrally important section of this paper. It is not thought of as simply a mathematical derivation that could be assigned to an appendix. Rather, on one hand, the derivation details the exact empirical content of the economic concepts indicated by such names as after-tax profits, government deficit, and personal dissaving. On the other hand, the derivation reproduces the origin of the Kaleckian frame.<sup>4</sup>

Section 4 proceeds to present five preliminary "Kaleckian results" from empirically applying the model developed.

## 2. The Origin and Conceptual Structure of Kalecki's Profit Rate Equation

Kalecki began the derivation (Kalecki 1971: chapter 7) of his profit equation by considering the Gross National Product (GNP). Considering how the GNP is distributed as incomes and operating with a class point of view, he saw that part went to workers as wages and salaries, and the rest went to the capitalists as gross profits. Its sources, similar to what is presented in introductory textbooks today, were gross investment, consumption (which he divided into capitalists' consumption and workers' consumption), export surplus, and budget deficit. Equating these two expressions for the GNP and moving the wages and salaries from the left- to the right-hand side gave his profit equation as follows:

$$\begin{aligned} \text{gross profit net of taxes} = & \text{gross investment} + \text{export surplus} + \text{budget deficit} \\ & - \text{workers' saving} + \text{capitalist consumption}. \end{aligned} \quad (1)$$

A simplified version of this equation, under the assumptions that exports and the budget were balanced and workers had to spend all they received, allowed him to more easily raise an economic issue about the direction of causation involved in what had been derived as an accounting identity.

$$\text{gross profit net of taxes} = \text{gross investment} + \text{capitalist consumption}. \quad (2)$$

Addressing this equation, Kalecki (1971: 78–79) then asked, "What is the significance of this equation? Does it mean that profits in a given period determine capitalists' consumption and

<sup>2</sup>Kalecki and the works referred to here in his tradition considered profits, while Weisskopf directly considered the profit rate. The conceptual difference of dividing by the capital stock is straightforward.

<sup>3</sup>Two examples of valuable basic empirical applications of the Kaleckian approach to profits are Asimakopulos (1983) and Toporowski (1993).

<sup>4</sup>It does so in a way fully analogous to Kalecki's original work, but here involving the much more complicated details of today's National Income and Product Accounts that need to be used for the empirical work.

investment, or the reverse of this? The answer to this question depends on which of these items is directly subject to the decisions of capitalists. Now, it is clear that capitalists may decide to consume and to invest more in a given period than in the preceding one, but they cannot decide to earn more. It is, therefore, their investment and consumption decisions which determine profits, and not vice versa.”

“This accords with Kalecki’s famous epigram: The workers spend what they get, the capitalists get what they spend” (Bhaduri and Robinson 1980: 109).

Of course, the causation between profits and capitalist spending (investment and capitalist consumption) runs both ways. It was obvious and long known that profits caused capitalist spending both as a push (the source) and as a pull (expectations). What Kalecki made clear was that causation also ran the other way, capitalist spending caused profits.<sup>5</sup> This then allows us to consider causes of changes in the rate of profit from changes in its determinants, here different determinants than in the Weisskopfian frame. In line with today’s data that we work with, a profit rate form of the Kaleckian equation (compared with equation 1) is:

$$\frac{\text{after-tax profit}}{\text{net private fixed assets}} = \frac{\text{personal dissaving}}{\text{net private fixed assets}} + \frac{\text{net private investment}}{\text{net private fixed assets}} + \frac{\text{government deficit}}{\text{net private fixed assets}} + \frac{\text{net export}}{\text{net private fixed assets}} + \frac{\text{remainder}}{\text{net private fixed assets}} \quad (3)$$

Section 3 not only derives this in terms of today’s data sources, but it also makes clear how the concepts connected to various terms are related to, but vary slightly from, those in Kalecki’s original basic theoretical derivation.

### 3. Derivation of Empirical Kaleckian Profit Equation with Detailed Indication of Data Sources

Given the empirical intentions of this work, the following conventions are used. All data from a single line in a NIPA table use the label in that table, followed by the line number of that data (e.g., domestic business saving [5.1:4] is the data on line 4 of National Income and Product Accounts [NIPA] Table 5.1). To save space and pointless notation, we indicate “net” expressions that are not named in the tables by the two data lines they involve, preceded by an indicative name that we create (e.g., net private investment [5.1:22 – 5.1:14]).

We start with a net saving equals net investment identity:

$$\left[ \begin{array}{l} \text{domestic business saving}^6 (5.1:4) + \text{households and institutions saving}^7 (5.1:8) \\ + \text{net government saving} (5.1:10) - \text{balance on current account, NIPAs} (4.1:33) \\ + \text{statistical discrepancy} (5.1:42) \end{array} \right] = \left[ \begin{array}{l} \text{net private investment} (5.1:22 - 5.1:14) \\ + \text{net government investment} (5.1:25 - 5.1:17) \end{array} \right] \quad (4)$$

<sup>5</sup>This is of course related to Keynes’ work at about the same time that investment can drive output, though one immediately sees the presence of a class analysis in Kalecki and its absence in Keynes.

<sup>6</sup>This is corporate undistributed profit with inventory valuation adjustment (IVA) and capital consumption adjustment (CCAdj), as one can see from Table 5.1.

<sup>7</sup>This is the same as personal saving (5.1:9).

We next expand the first four terms on the left of equation 4 using Tables 5.1 and 4.1, where those four terms are from, plus NIPA Tables 2.1, 3.1, 1.12, 1.13, and 1.14, for further expansions. We then move terms in this expanded equation to the side they are on in equation 5 below and remove cancelling terms, and we obtain the following identity for the after-tax profit<sup>8</sup>:

$$\begin{aligned} & \left[ \begin{array}{l} \text{corporate undistributed profits with IVA and CCAAdj (1.14:15) + net interest payments} \\ \text{+ net dividend payments + proprietor's income (2.1:9) + rental income (2.1:12)} \end{array} \right] \\ = & \left[ \begin{array}{l} \text{personal dissaving + net private investment (5.1:22 - 5.1:14) + government deficit} \\ \text{+ net export (4.1:2 - 4.1:18) + remainder} \end{array} \right], \end{aligned} \quad (5)$$

where we introduce the following definitions:

- Net interest payments = net personal interest payments (2.1:14 - 2.1:30) + net government interest payments (3.1:11 - 3.1:27) - net interest payments from the Rest of the World (ROW)<sup>9</sup> (1.13:63)
- Net dividend payments = personal dividend income (2.1:15) + government dividend income (3.1:14) - net dividend income from the ROW (1.12:16 - 1.14:14)
- Personal dissaving = personal consumption expenditure (2.1:29) - (compensation of employees, national (2.1:2) - net wage and salary receipts from the ROW (4.1:8 - 4.1:24))
- Government deficit<sup>10</sup> = government expenditure - government revenue

where

- Government expenditure = government consumption expenditures (3.1:21) + net government investment (5.1:25 - 5.1:17) + government subsidies (3.1:30)
- Government revenue = taxes on production and imports (3.1:4) + taxes on corporate income (3.1:5) + current surplus of government enterprises (3.1:19)
- Remainder = -statistical discrepancy (5.1:42) + net taxes/transfers from ROW to business (4.1:15 - 4.1:32) - current transfers receipts from business to person and government (2.1:24 + 3.1:16) - error term due to the net income receipts on assets from the ROW.<sup>11</sup>

Finally, we obtain equation 3 above by dividing equation 5 by net private-fixed assets, which we obtained from NIPA fixed asset Table 3.1 Equipment, Structures, and Intellectual Property Products (ESI), after subtracting the real estate from private fixed assets.<sup>12</sup>

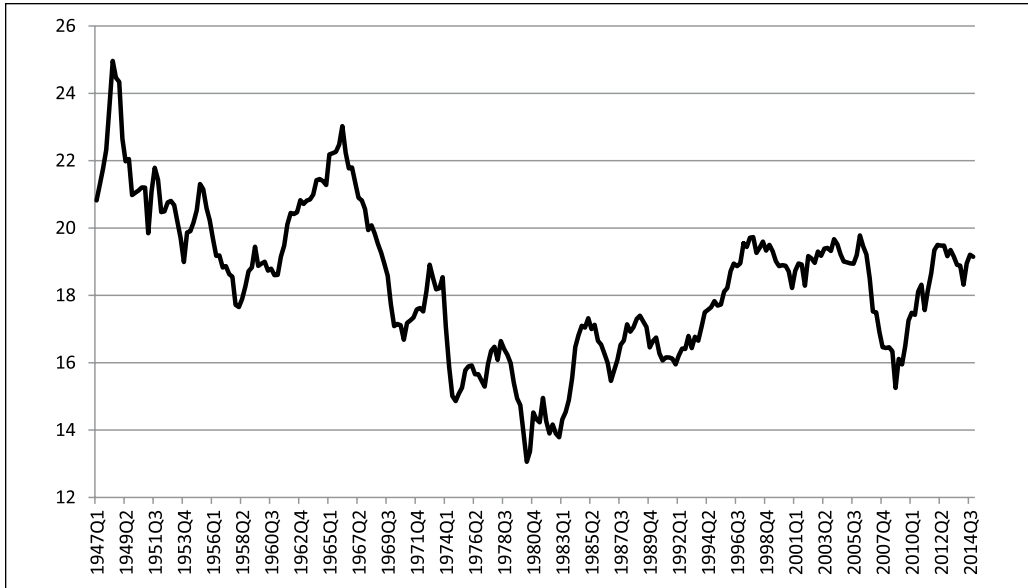
<sup>8</sup>The left-hand side of the identity gives the components of the after-tax profit for the private domestic sector.

<sup>9</sup>Same annual figures were used for each quarter as this is not available quarterly.

<sup>10</sup>In the few places where we have defined a name that is also used in the NIPA tables, like "government deficit" (Table 3.1) or even "personal dissaving" (Table 2.1 has "personal saving"), the name has the meaning of our definition in our work, not its NIPA meaning.

<sup>11</sup>The sum of the individual components of net income receipts on assets from the ROW is the net interest payments from the ROW (1.13:63) + net dividend income from the ROW (1.12:16 - 1.14:14) + net reinvested earnings on US direct investment abroad (1.12:17 - 1.14:15). The error term refers to the difference between the net income receipts on assets from the ROW calculated this way and the one obtained from the foreign transaction accounts in NIPA (4.1:9 - 4.1:25). This error term must be subtracted from the right-hand side for the identity to hold.

<sup>12</sup>We used linear interpolation to get quarterly values from the annual values.



**Figure 1.** After-Tax Rate of Profit in the US Domestic Private Sector (%).

Source: All sources given in section 3.

## 4. Five Preliminary Results

Preliminary to giving the five results, it is useful to look at the performance of the profit rate that the results consider (see Figure 1). One can observe three broad trends from this figure in terms of the periodization of the post-World War II (WWII) US economy: first, the regulated capitalism of the 1950s and 1960s when the profit rate was high and relatively stable; second, the transitions period of the 1970s when the profit rate declined significantly; third, the neoliberal period that started in the early 1980s. Under neoliberalism, the profit rate started to recover beginning in the early 1980s and continued its recovery until mid-1990s. After that it stabilized, except for the sharp decline in the profit rate during the Great Recession of 2007–2009 and equally sharp recovery in the following two years.

### 4.1. Result 1

The values in Table 1, averaged over the regulated (cycles I–IV), transitional (cycles V–VI), and neoliberal (cycles VII–X) periods,<sup>13</sup> immediately tell us two things. The first is the relative importance of the various determinants of the rate of profit over the full period. Personal dissaving, net private domestic investment, and government deficit contributed more or less equally. We see, however, that net export makes a much less important contribution (and it is negative). The remainder term is relatively small as desired, given it represents data we have not given economic meaning to.

The second thing one sees from Table 1 is an indication of some important changes between the regulated and the neoliberal periods. Net private domestic investment and personal dissaving switch as the strongest determinant.<sup>14</sup> Government deficit, notwithstanding the ideology and

<sup>13</sup>For well-known reasons, analyses of this type should generally range over full cycles. Hence, we here consider the ten full cycles from 1949Q4 to 2009Q2 in the available data.

<sup>14</sup>The net private domestic investment was transitional between the regulated and neoliberal period, though the personal dissaving dropped from the regulated period before achieving its extremely high value under neoliberalism.

**Table 1.** Averages of After-Tax Profit Rate and Its Components: Post-World War II Periods.

	Profit Rate (%)	As % of Private Fixed Assets				
		Personal Dissaving	Net Private Domestic Investment	Government Deficit	Net Export	Remainder
Full period						
1949Q4–2009Q2	18.1	6.5	6.6	7.0	-1.0	-1.0
Cycle I–IV						
1949Q4–1970Q4	20.0	5.1	7.9	7.2	0.4	-0.6
Cycle V–VI						
1970Q4–1980Q3	16.3	3.5	7.2	7.0	-0.2	-1.3
Cycle VII–X						
1980Q3–2009Q2	17.4	8.5	5.4	6.8	-2.3	-1.2

especially propaganda of neoliberalism, dropped only minimally from regulated to neoliberalism, and continued to be one of the main determinants of the profit rate. Net export, which had played a negligible role under the regulated and transitional periods, did come to play a small but significant negative role under the worsening trade deficits of US neoliberalism.

#### 4.2. Result 2

In Table 2, we look at the averages over each cycle as opposed to over the three post-WWII periods. What we find mostly are trends within the periods that reinforce the conclusions we drew from Table 1 about changes between periods. Personal dissaving, which rose to become the strongest contributor to the rate of profit under neoliberalism, grew continually stronger and stronger over the neoliberal period. Likewise, the decline in the contribution from net private domestic investments was almost<sup>15</sup> continuous through the transition and neoliberal periods. The secondary but significant negative contribution to the rate of profit from the trade deficit moved up in two jumps, one in the 1980s and another in the 2000s.

#### 4.3. Result 3

In Table 3, we change from looking at the rate of profit and its components over whole cycles to just looking at them in each of the post-WWII expansion phases. The most striking result in Table 3 is how much the behavior of the determinants in the expansion phases match their behavior over the whole cycles, given in Table 2. Although there is a bit more volatility, personal dissaving and net private domestic investment make nearly the same switch, government deficit is relatively stable (and important), and net export plays an insignificant role until it grows rapidly to a significant but secondary one under neoliberalism.

This table also includes the cycle XI that we are currently in,<sup>16</sup> which provides some insights into the nature of the recovery after the Great Recession of 2007–2009. Specially, this expansion

<sup>15</sup>The very large fall after the world interest rate explosions following the Volcker Shock took it below the trend line of the decline, which it returned to by 1982.

<sup>16</sup>There is no need for complete cycles here as before, since this table only considers the expansion phase (though this is preliminary in that the expansion phase has not yet ended).

**Table 2.** Averages of After-Tax Profit Rate and Its Components: Post-World War II Cycles.

	Profit Rate (%)	As % of Private Fixed Assets				
		Personal Dissaving	Net Private Domestic Investment	Government Deficit	Net Export	Remainder
Cycle 1						
1949Q4–1954Q2	20.6	6.9	8.3	6.1	0.3	-1.1
Cycle 2						
1954Q2–1958Q2	19.4	5.5	7.2	6.7	0.4	-0.4
Cycle 3						
1958Q2–1961Q1	18.7	5.5	6.3	6.8	0.4	-0.3
Cycle 4						
1961Q1–1970Q4	20.3	4.0	8.2	8.2	0.6	-0.6
Cycle 5						
1970Q4–1975Q1	17.2	2.7	7.8	7.6	0.1	-1.0
Cycle 6						
1975Q1–1980Q3	15.5	4.1	6.7	6.5	-0.4	-1.5
Cycle 7						
1980Q3–1982Q4	14.1	3.9	5.0	6.7	-0.3	-1.1
Cycle 8						
1982Q4–1991Q1	16.4	6.7	5.7	7.5	-1.8	-1.6
Cycle 9						
1991Q1–2001Q4	18.1	9.0	5.7	6.3	-1.6	-1.2
Cycle 10						
2001Q4–2009Q2	18.3	11.4	4.7	7.0	-4.3	-0.6

phase has had higher dissaving and lower net private domestic investment than any expansion or complete cycle prior to it. An important indication from the data investigated in Table 3 is that the “neoliberalization” of the rate of profit, and in particular, the drop in importance of net private domestic investment in favor of profit supported by personal dissaving, appears to be continuing to intensify in the aftermath of the Great Recession.

#### 4.4. Result 4

In Table 4, we complete the process of looking at the Kaleckian determinants over the business cycles by looking at them in the post-WWII recession phases. We observe the same switch from the regulated to the neoliberal period of personal dissaving for net private domestic investment as the strongest profit determinant. Government deficit again stays relatively constant, and net export goes from negligible to becoming a secondary (negative) contributor.

#### 4.5. Result 5

A final result from this empirical investigation concerns the important policy question: if one is in a recession, what needs to be changed to contain and reverse it? Using a Kaleckian framework, Minsky (1982: 43) posed this question of stabilization policy during recessions:

**Table 3.** Averages of After-Tax Profit Rate and Its Components: Expansions in Post-World War II Cycles.

	Profit Rate (%)	As % of Private Fixed Assets				
		Personal Dissaving	Net Private Domestic Investment	Government Deficit	Net Export	Remainder
Cycle 1						
1949Q4–1953Q2	20.9	7.4	8.8	5.3	0.4	-1.0
Cycle 2						
1954Q2–1957Q3	19.8	5.5	7.8	6.5	0.4	-0.5
Cycle 3						
1958Q2–1960Q1	18.7	5.6	6.5	6.9	0.1	-0.4
Cycle 4						
1961Q1–1969Q4	20.7	4.2	8.4	8.1	0.6	-0.6
Cycle 5						
1970Q4–1973Q4	17.8	2.7	8.3	7.8	0.0	-1.0
Cycle 6						
1975Q1–1980Q1	15.7	4.2	6.8	6.5	-0.4	-1.5
Cycle 7						
1980Q3–1981Q3	14.3	3.8	5.8	6.3	-0.2	-1.4
Cycle 8						
1982Q4–1990Q3	16.4	6.6	5.8	7.5	-1.9	-1.6
Cycle 9						
1991Q1–2001Q1	18.1	8.9	5.8	6.2	-1.5	-1.3
Cycle 10						
2001Q4–2007Q4	18.8	11.4	5.4	6.8	-4.5	-0.4
Cycle 11						
2009Q2–2014Q4	18.4	13.0	1.9	6.8	-2.8	-0.4

Much has been written of stabilization policy. The question that needs to be addressed is ‘What is it that needs to be stabilized if a threat of a recession/depression is to be contained and if a cumulative decline is to be halted?’ The proposition that follows from the argument is that profits have to be stabilized in the sense that the downside variability of profits must be constrained. Big government and the deficits which can occur in an economy with big government are important in stabilizing the economy because they stabilize profit flows.

Table 5 gives some insight into this crucial question, considering what was necessary to exit from the four neoliberal period recessions into the following expansions. In three of the four cases, a total increase of about two percentage points in the rate of profit was involved in the exit. The table shows immediately that in three of the four cases, the large majority of that increase came from the contribution from personal dissaving.<sup>17</sup> The Kaleckian decomposition of the rate

<sup>17</sup>This is true also of the one cycle with minimal profit rate improvement; a large improvement from personal dissaving in this case was almost completely offset by the other categories. The recovery after the cycle 8 recession included the “non-typical neoliberal” period of the late 1990s that had growth, wage increases, and strong investment; this is why the net private domestic investment made the large contribution to this recovery.



**Table 4.** Averages of After-Tax Profit Rate and Its Components: Recessions in Post-World War II Cycles.

	Profit Rate (%)	As % of Private Fixed Assets				
		Personal Dissaving	Net Private Domestic Investment	Government Deficit	Net Export	Remainder
Cycle 1						
1953Q2–1954Q2	19.7	5.0	6.7	9.3	-0.1	-1.1
Cycle 2						
1957Q3–1958Q2	18.0	5.4	5.1	7.4	0.4	-0.4
Cycle 3						
1960Q1–1961Q1	18.7	5.3	6.4	6.3	0.8	-0.1
Cycle 4						
1969Q4–1970Q4	17.2	1.9	6.9	8.8	0.4	-0.8
Cycle 5						
1973Q4–1975Q1	16.1	2.6	7.0	7.2	0.2	-0.9
Cycle 6						
1980Q1–1980Q3	13.4	3.6	5.7	6.6	-0.5	-2.0
Cycle 7						
1981Q3–1982Q4	14.2	3.9	4.6	6.9	-0.4	-0.8
Cycle 8						
1990Q3–1991Q1	16.2	7.4	3.8	7.7	-1.0	-1.8
Cycle 9						
2001Q1–2001Q4	18.7	9.3	5.4	7.2	-3.3	0.1
Cycle 10						
2007Q4–2009Q2	16.1	11.3	2.2	7.8	-3.6	-1.5

of profit indicates that personal dissaving, and in particular not investment, not only has become the major determinant of the rate of profit, but also its changes are the major factor in exiting from recessions.

## 5. Conclusion

Empirical work in a Kaleckian framework has the potential to address some issues about the secular and cyclical dynamics of the profit rate, complementary to the established empirical work in the Weisskopfian frame. In this short paper, we carried out a construction of a Kaleckian profit rate equation in line with the concepts he originally indicated, and with a detailed treatment of today's US national income and product accounts.

A number of results about the Kaleckian determinants of the rate of profit resulted from a preliminary application of this approach to the US domestic private sector. A first is that consistent with general beliefs about the change in the US economy between the immediate post-WWII and neoliberal periods, net private domestic investment has significantly declined, and personal dissaving has significantly increased in importance, as determinants of the rate of profit. Second, contrary to neoliberal ideology and propaganda, the government and, in particular, its deficit has played a role roughly equivalent to those of the two previously mentioned determinants over the

**Table 5.** Changes in After-Tax Profit Rate and Its Components: Recession to Following Expansion.

	Profit Rate (%)	As % of Private Fixed Assets				
		Personal Dissaving	Net Private Domestic Investment	Government Deficit	Net Export	Remainder
Cycle 7 Recession to Cycle 8 Expansion	2.2	2.7	1.2	0.6	-1.5	-0.8
Cycle 8 Recession to Cycle 9 Expansion	1.9	1.5	2.0	-1.5	-0.5	0.5
Cycle 9 Recession to Cycle 10 Expansion	0.1	2.1	0.0	-0.4	-1.2	-0.5
Cycle 10 Recession to Cycle 11 Expansion	2.3	1.7	-0.3	-1.0	0.8	1.1

whole post-WWII period. Third, again contrary to neoliberal ideology and propaganda, net exports has played a nearly insignificant role over most of the post-WWII period, only growing to a secondary and negative role under the large trade deficits of US neoliberalism. And finally, this approach indicates something regarding the permanent question of what to do to contain and reverse a recession. Our empirical results indicate that under the current economic structure, not only has personal dissaving become the major contributing factor to the rate of profit, but further, increases in this are key to exiting from a neoliberal recession.

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