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Michael Heine Hansjörg Herr

The Resurgence of Inflation

Lessons from History and Policy Recommendations



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The Resurgence of Inflation

Lessons from History and Policy Recommendations



Michael Heine University of Applied Sciences Hochschule für Technik und Wirtschaft Berlin Berlin, Germany Hansjörg Herr Department of Economics Berlin School of Economics and Law Berlin, Germany

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Preface

This book is based on the study "Energy Prices, Inflation and Stagflation—Lessons from the Oil Price Shock and the Inflation Wave of the 1970s", which we prepared for the Macroeconomic Policy Institute (IMK), a part of the Hans Böckler Foundation. For the present publication, the study has been extended to include an extra chapter on the period of German hyperinflation in 1923. On behalf of all those who were involved at the Macroeconomic Policy Institute, we would like to thank Sebastian Dullien for his support in the preparation of the study and for agreeing to publish this book.

Our study deals with the experience of inflationary processes in developed industrial nations and, apart from marginal notes, leaves out the disastrous periods of inflation experienced in numerous countries of the Global South and Russia after the collapse of the Soviet Union. This restriction seems sensible to us because these countries were, and still are, confronted with different problems than, for example, the USA or the members of the Eurozone. For example, Global South countries have extremely high debt in foreign currencies and are confronted with far greater mistrust of their own currencies.

In western industrialised nations, inflation seemed to be a phenomenon of the past until 2021, as it had not played a significant role in developed industrialised countries since the 1980s. However, with the war in Ukraine and the accompanying sharp rise in energy costs in particular, the phenomenon is back. An exogenous price level shock, resulting from a rapid rise in oil prices, was also the trigger or amplifier for inflationary distortions in the USA and Western Europe in the 1970s. These inflationary processes decisively paved the way for neoliberalism. As a result, the hitherto prevailing model of a more or less regulated capitalism was "reformed" through far-reaching liberalisations. As shown by the recurrently emerging financial market crises, the growing inequality of income and wealth distribution and the subdued economic growth, the neoliberal reform promises made could not be kept.

Against this background, the question arises as to what went wrong at the time. This publication attempts to provide answers to this question. To this end, country studies were written on Germany, the USA, the UK and Italy from the end of the 1960s to the mid-1980s, as well as on hyperinflation, which peaked in Germany in 1923. For all the empirical differences between the countries in detail, it is evident that the developments of the 1970s were associated with wage-price spirals. In many countries, these spirals were combined with devaluations, which in turn drove inflation massively. What is desirable, therefore, are increases in the level of nominal wages in line with the wage norm, that means the medium-term increase in the level of productivity plus the target inflation rate as set by central banks today.

The empirical findings presented in this book are fully consistent with the inflation theory based on elaborations by John Maynard Keynes (1930). The theoretical basis of the book is presented in the concluding chapter of this book, as it were, to make the text easier to understand for non-economists.

Admittedly, from a trade union perspective, adherence to the wage norm is anything but trivial in the event of a severe exogenous price shock, as this lowers real incomes. This obviously poses a dilemma for the trade unions: insofar as they agree to adhere to the wage norm, members and especially the lower bargaining groups are threatened with severe real income losses. This balancing act is discussed in Chap. 6.

Aleksander Ryszard Mixtacki supported us considerably in the preparation for the publication, not only by researching data, preparing tables and figures, but also by carrying out independent calculations. We were supported in the preparation of the final version by Philip Blees and in the English version in particular by Anne Martin. We would like to express our sincere thanks for this.

Berlin, Germany Autumn 2023 Michael Heine Hansjörg Herr

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Contents

1	Intr Refe	oduction	1 3
2	The	German Hyperinflation of 1923	5
	Refe	erences	16
3	Mac	croeconomic Development from the Late-1960s	
	to tl	he Mid-1980s	19
	Refe	erences	32
1	Infle	ation and Macroeconomic Management in Selected	
Τ.		intries from the Late-1960s to the Mid-1980s	33
	4 1	The Federal Republic of Germany—Confrontation Between	55
		Wage Development and Monetary Policy	33
	4.2	US—Inflation and the Erosion of the International Role	00
		of the US Dollar	44
	4.3	The United Kingdom—Dysfunctional Trade Union Structure,	
		Wages and Inflation	53
	4.4	Italy—An Example of Dangerous Muddling Through During	
		Periods of Economic and Political Turbulence	61
	4.5	Comparison of Developments in the Different Countries	70
		4.5.1 GDP Growth and Employment	70
		4.5.2 Development of Wages and Prices	71
		4.5.3 Monetary Policy	74
		4.5.4 Fiscal Policy	77
	4.6	Summary	79
	Refe	erences	81
5	Def	ationary Tendencies After the 2008 Financial Crisis.	
	the	Covid-19 Pandemic and Stagflation After the Energy Shock	85
	5.1	Low Inflation and Deflationary Tendencies After the 2008	
		Financial Crisis	86
	5.2	The Euro Crisis Starting in 2010	94

	5.3 The Covid-19 Pandemic Starting in 2020	99
	5.4 Energy Price Shock and Stagflation After 2022	106
	References	113
6	Conclusions and Recommendations	117
	6.1 Macroeconomic Management After Price Shocks	117
	6.2 Longer-Term Economic Policy Recommendations	124
	References	132
7	Theoretical Explanations for Price Level Changes	135
	7.1 The Keynesian Approach to Explaining Inflation	135
	7.2 Extreme Price Level Developments—Hyperinflation	
	and Deflation	145
	7.3 The Failure of the Quantity Theory of Money	148
	7.4 The Nominal Wage Anchor and Exchange Rate Anchor	
	as Central Stabilisers	155
	7.5 Market Power, Price Level Development and Distribution	162
	7.6 Oil Prices, Price Level and Economic Development	179
	References	184

Abbreviations

AIG	American International Group Inc.				
AMLF	Asset-backed Commercial Paper Money Market Mutual Fund				
	Liquidity Facility				
APP	Asset Purchase Program				
BoE	Bank of England				
BoJ	Bank of Japan				
CBI	Confederation of British Industry				
CDU	Christian Democratic Union (Christlich Demokratische Union				
	Deutschlands)				
CFMA	Commodity Futures Modernization Act				
CGIL	Italian General Confederation of Labour (Confederazione Italiana				
	Generale del Lavoro)				
CISL	Italian Confederation of Workers' Unions (Confederazione Italiana				
	Sindacati Lavoratori)				
CPFF	Commercial Paper Funding Facility				
DC	Christian Democracy (Democrazia Cristiana)				
DSSI	Debt Service Suspension Initiative				
ECB	European Central Bank				
ECU	European Currency Unit				
EEC	European Economic Community				
EFSF	European Financial Stability Facility				
EMS	European Monetary System				
EMU	European Monetary Union				
ESM	European Stability Mechanism				
FDIC	Federal Deposit Insurance Corporation				
FDP	Liberal Democratic Party (Freie Demokratische Partei)				
Fed	Federal Reserve System				
FIMA	Foreign and International Monetary Authorities				
FOMC	Federal Open Market Committee				
FRED	Federal Reserve Economic Data				
GDP	Gross Domestic Product				

GNI	Gross National Income				
IMF	International Monetary Fund				
IMK	The Macroeconomic Policy Institute (Institut für Makroökonomie und				
	Konjunkturforschung)				
IPCC	Intergovernmental Panel on Climate Change				
KfW	Credit Institute for Reconstruction (Kreditanstalt für Wiederaufbau)				
MLF	Municipal Liquidity Facility				
MMIFF	Money Market Investor Funding Facility				
MMT	Modern Monetary Theory				
MTFS	Medium Term Financial Strategy				
NAFTA	North American Free Trade Agreement				
NDP	Net Domestic Product				
NGEU	NextGenerationEU				
OECD	Organization for Economic Cooperation and Development				
OMT	Outright Monetary Transactions				
OPEC	Organization of the Petroleum Exporting Countries				
ÖTV	Public Services, Transport and Traffic Union				
PCI	Italian Communist Party (Partito Comunista Italiano)				
PDCF	Primary Dealer Credit Facility				
PEPP	Pandemic Emergency Purchase Program				
PMCCF	Primary Market Corporate Credit Facility				
PPP	Purchasing Power Parity				
PSPP	Public Sector Purchase Program				
SGP	Stability and Growth Pact				
SPD	Social Democratic Party of Germany (Sozialdemokratische Partei				
	Deutschlands)				
SURE	Support to Mitigate Unemployment Risks in an Emergency				
TAF	Term Auction Facility				
TALF	Term Asset-Backed Loan Facility				
TARP	Troubled Asset Relief Program				
TPI	Transmission Protection Instrument				
TPP	Trans-Pacific Partnership				
TSLF	Term Securities Lending Facility				
TUC	Trades Union Congress				
TWh	Terawatt hours				
UIL	Italian Labour Union (Unione Italiena del Lavoro)				
ULC	Unit-Labour Costs				
USMCA	United States-Mexico-Canada Agreement				
Ver.di	United Services Union (Vereinte Dienstleistungsgewerkschaft)				
ZIP	Programme for Future Investments				

List of Figures

Fig. 3.1	Exchange rates of the Deutsche Mark, the British Pound	
	and the Italian Lira to the US Dollar, annual rates	
	of change, 1966–1986. Note Price of the national currency	
	per 1 US dollar, falling values mean appreciation against	
	the US dollar. <i>Source</i> OECD (2023), own calculations	22
Fig. 3.2	Current account balance as a percentage of GDP	
	in Germany, the US, the United Kingdom and Italy,	
	1970–1986. Source World Bank (2023b)	25
Fig. 3.3	Consumer price index in Germany, the US, the United	
	Kingdom and Italy, annual rates of change, 1966–1986.	
	<i>Source</i> OECD (2023)	26
Fig. 3.4	Price of crude oil in US dollars, 1966–1986. Note We show	
	here the price for Dubai crude oil and the average oil price.	
	Other crude oils prices differ only marginally from Dubai	
	crude. Source World Bank (2023a)	27
Fig. 3.5	Index of commodity prices in US dollars, energy	
	and non-energy, and individual commodities, 1966–1986,	
	$1966 = 100. Source World Bank (2023a) \dots$	28
Fig. 3.6	Price of crude oil in D-Mark, 1966–1986. Source World	
	Bank (2023a), Bank of Italy (2022), own calculations	29
Fig. 3.7	Gross wages in manufacturing in Germany, the US,	
	the United Kingdom and Italy, annual rates of change,	
	1966–1986. Source OECD, Economic Outlook, different	
	years (2023)	30
Fig. 3.8	Annual real GDP growth rates in Germany, the US,	
	the United Kingdom and Italy, 1966–1986. Source OECD	
	(2023); for Germany, Deutsche Bundesbank (2022)	30

Fig. 3.9	Unemployment rates in Germany, the US, the United Kingdom and Italy, 1966–1986. <i>Source</i> US Bureau	
	of Labor Statistics (2022) [US], Bank of England (2017)	
	[UK], Ameco (2023) [Italy], Deutsche Bundesbank (2022)	
	[Germany]	31
Fig. 4.1	Annual rate of change in average gross monthly wages*	
	in West Germany in the manufacturing and services	
	sectors, 1967–1986. *Without special bonuses Source	
	Statistisches Bundesamt (2022a), own calculations	36
Fig. 4.2	Price level (GDP deflator), gross wages and unit-labour	
-	costs per hour in West Germany, annual rates of change,	
	1971–1986. Source Statistisches Bundesamt (2023), World	
	Bank (2023), own calculations	37
Fig. 4.3	Money market interest rates in West Germany and the US,	
C	January 1966–December 1986. Source OECD (2023)	38
Fig. 4.4	Index of the nominal and real effective exchange rate	
C	of the D-Mark, 1966–1986, 1966 = 100. Note Increase	
	means appreciation. Source Bank for International	
	Settlements (2022), own calculations	41
Fig. 4.5	Net lending/borrowing of general government and gross	
C	public debt as a percentage of GDP in West Germany,	
	1970–1986. Note Net lending/borrowing on the left, debt	
	stocks on the right. Source Deutsche Bundesbank (2022b),	
	Sachverständigenrat (1970)	42
Fig. 4.6	Net lending/borrowing of general government and gross	
C	public debt as a percentage of GDP in the United States,	
	1966–1986. Note Net lending/borrowing on the left, debt	
	stocks on the right. Source OECD (2023), FRED (2023)	47
Fig. 4.7	Price level (GDP deflator), gross wages and unit-labour	
-	costs per hour in the US, annual rates of change,	
	1971–1986. Source Sachverständigenrat (1987), US	
	Bureau of Labour Statistics Economic Analysis (2022a,	
	b), World Bank (2023), own calculations	48
Fig. 4.8	Short-term money market interest rate in the US,	
	1966–1986. <i>Source</i> OECD (2023)	50
Fig. 4.9	Index of the nominal and real effective exchange rate	
-	of the US Dollar, 1970–1986, 1970 = 100. <i>Note</i> Increase	
	means appreciation. Source Bank for International	
	Settlements (2022), own calculations	51
Fig. 4.10	Price level (GDP deflator), gross wages and unit-labour	
Ŭ	costs per hour in the United Kingdom, annual rates	
	of change, 1971–1986. Source Sachverständigenrat (1987).	
	Statistisches Bundesamt (2022a), World Bank (2023), own	
	calculations	55

List of Figures

Fig. 4.11	Index of the nominal and real effective exchange rate of the pound sterling, $1970-1986$, $1970 = 100$. <i>Note</i>	
	Increase means appreciation. Source Bank for International	
F: 4.10	Settlements (2022), own calculations	57
F1g. 4.12	Net lending/borrowing of general government and gross	
	public debt as a percentage of GDP in the United Kingdom,	
	1900–1980. <i>Note</i> Net lending/oon/owing left-hand side,	
	(2017) DAE (2022h) sum selsulations	50
E. 412	(2017), INIF (2022b), own calculations	39
F1g. 4.13	Short-term money market interest rate in the United	(0)
F ' 4.1.4	Kingdom, 1966–1986. Source Bank of England (2017)	60
F1g. 4.14	Price level (GDP deflator), gross wages and unit-labour	
	costs in Italy, annual rates of change, 19/1–1986. Source	
	Sachverstandigenrat (1987), Istat (2022), World Bank	
D : 4.15	(2023), own calculations	63
F1g. 4.15	Index of the nominal and real effective exchange rate	
	of the lira, 19/0–1986. <i>Note</i> Increase means appreciation.	
	Source Bank for International Settlements (2022), own	
-	calculations	64
F1g. 4.16	Net lending/borrowing of general government and gross	
	public debt as a percentage of GDP in Italy, 1966–1986.	
	Note Net lending/borrowing on the left, debt stocks	
	on the right. Source Galli and Padavano (2008), own	
	presentation	66
Fig. 4.17	Short-term money market interest rate in Italy, 1966–1986.	
F ' 4.10	Source Ameco (2023); Deleidi and Meloni (2014)	67
F1g. 4.18	Real interest rates for ten-year Italian government bonds,	
	nominal interest rate minus change in consumer price	60
T (10	index, 1966–1986. <i>Source</i> Ameco (2023)	68
Fig. 4.19	Index of real GDP development for West Germany, the US,	
	the United Kingdom and Italy, $1966-1986$, $1966 = 100$.	
	<i>Source</i> FRED (2023)	71
Fig. 4.20	Percentage change in unit-labour costs per hour in West	
	Germany, the US, the United Kingdom and Italy,	
	19/1–1986. Source OECD (2023)	72
Fig. 4.21	Short-term real interest rates in West Germany, the US,	
	the United Kingdom and Italy, 1966–1986. <i>Note</i> Nominal	
	short-term interest rates minus inflation rate (GDP	
	deflator). Ameco (2023) Source	76
Fig. 4.22	Index of the nominal effective exchange rate	
	of the Deutsche Mark, the US dollar, the British Pound	
	and the Italian Lira, $1970-1986$, $1970 = 100$. <i>Note</i>	
	Increase means appreciation. Source Bank for International	
	Settlements (2022), own calculations	- 77

Fig. 4.23	Net lending/borrowing as a percentage of GDP for West Germany, the US, the United Kingdom and Italy, 1970–1986. <i>Source</i> Deutsche Bundesbank (2022b), Galli	
	and Padovano (2008), OECD (2023), Bank of England (2017)	78
Fig. 4.24	General government debt as a percentage of GDP	70
1 18. 1.2 1	in West Germany, the US, the United Kingdom and Italy.	
	1966–1986. Source Sachverständigenrat (1987), Galli	
	and Padovano (2008), Bank of England (2017), US Office	
	of Management and Budget (2022)	79
Fig. 5.1	Annual growth rates of real GDP in Germany, the US,	
	the United Kingdom and Italy, 2005–2023. Source OECD	
	(2023a, b)	89
Fig. 5.2	General government deficit as a percentage of GDP	
	in Germany, the US, the United Kingdom and Italy,	
	2005–2023. 2023 first half of the year. <i>Source</i> OECD	
	(2023a, b), Trading Economics (2023)	90
Fig. 5.3	Three-month money market interest rates in the EMU,	
	US and United Kingdom, 2005–July 2023. Source OECD	00
E'. 5 4	(2023a, b)	92
F1g. 5.4	set CDP 2005, 2022, Service Fed (2022), Bank of England	
	of GDP, $2005-2022$. Source Fed (2023), Bank of England (2022), ECP (2022a), OECD (2023a, b), own coloulations	02
Fig 5.5	(2025), ECB (2025C), OECD (2025a, b), own calculations	95
rig. 5.5	the US the UK and Italy 2005–July 2023 Source OECD	
	(2003)	98
Fig. 5.6	Annual change of nominal gross wages per hour worked	20
1.8.0.0	in Germany, the US, the United Kingdom and Italy.	
	2005–2023. Source OECD (2023a, b), Trading Economics	
	(2023), Statista (2023)	99
Fig. 5.7	Development of prices for energy and food, 2005–July	
	2023. Note Monthly prices in nominal US dollars; energy	
	prices include coal, crude oil, natural gas and liquified	
	natural gas. Source World Bank (2023b), Trading	
	Economics (2023), author's calculations	107
Fig. 7.1	Annual rates of change in M3 and the price level (consumer	
	price index) in the EMU, 2000–2023. HICP: Harmonized	
	index of consumer prices of the ECB. <i>Source</i> ECB (2023),	
D : Z A	own calculations	154
F1g. 7.2	Profit maximisation under the assumption of perfect	165
$\mathbf{E} = 7 2$	Long term equilibrium under the accumption of failing	105
гıg. /.3	constant returns of scale and the same cost ourses for all	
	firms	166
	1111110	100

List of Figures

Fig. 7.4	Long-term equilibrium under the assumption of falling		
	economies of scale and different cost curves	167	
Fig. 7.5	Monopsony in the labour market	170	
Fig. 7.6	Profit maximisation and distribution assuming a monopoly	171	
Fig. 7.7	Adjusted wage share, labour compensation to GDP,		
	in Germany, the US, the UK and Italy, 1970–2022. Source		
	Ameco (2023)	176	
Fig. 7.8	Development of oil price per barrel, adjusted for inflation,		
	1946–2023. <i>Source</i> FRED (2023)	180	
Fig. 7.9	Oil rents as a percentage of GDP in Iran, Angola		
	and the Arab World, 1970–2021. Note Oil rents are defined		
	as the difference between the price of a commodity		
	and the average cost of producing it. Source World Bank		
	(2023)	183	
Fig. 7.10	Total natural resource rents as a percentage of GDP		
	in China, Chile and Russia, 1970–2021. Note Total natural		
	resources rents are the sum of oil rents, natural gas rents,		
	coal rents (hard and soft), mineral rents, and forest rents.		
	Source World Bank (2023)	183	

List of Tables

Table 2.1	Debt development of the public sector in the German Reich	6
Table 2.2	Price development and dollar exchange rates from 1918	
	to 1923	8
Table 2.3	Development of the money supply from 1918 to 1923	14
Table 5.1	Covid-19 crisis measures adopted from March 2020	
	to October 2021 as a percentage of GDP in 2020	100
Table 5.2	Average real wages in the Germany, the US, the United	
	Kingdom and Italy, in constant dollars*, 2007–2023	108
Table 6.1	Per cent of world GDP, purchasing power parity, constant	
	2017 international dollar	127
Table 6.2	Gross debt in per cent of GDP	129

Chapter 1 Introduction



For years it seemed as if inflation was a thing of the past. Until recently, the most important international central banks, such as the European Central Bank (ECB), the Federal Reserve System (Fed), the Bank of England (BoE) and the Bank of Japan (BoJ), were faced with the task of combating deflationary dangers, but in 2022 they were confronted with significant price increases, especially in terms of energy and food. For example, in the fourth quarter of 2020, the annual inflation rate as measured by the consumer price index, was -0.5% in Germany, 1.2% in the US, 0.8% in the United Kingdom and -0.2% in Italy and increased through the fourth quarter of 2022 to 8.6% in Germany, 7.1% in the US, 9.4% in the United Kingdom and 11.7% in Italy (OECD 2023). The spike can be explained by the war in Ukraine which started in early 2020 and triggered a sharp increase in natural resource and food prices. When the inflation rate will return to 2%, the target value of most industrialised nations' central banks, is subject to high uncertainties, as are the economic costs that the reduction of the inflation rate entails.

In consideration of the return of inflationary dangers, central banks around the world abandoned their focus on ultra-expansive monetary policy, which began during the Corona crisis in the spring of 2020 and had also been adopted after the financial crisis in 2008 and the Great Recession in 2009 (Heine and Herr 2021). For example, the Fed in the US or the BoE in the United Kingdom have continuously raised their key interest rates since the beginning of 2022. Although the ECB remained hesitant at first, it eventually tightened its monetary policy stance by mid-2022. Without a doubt, the considerable depreciation of the euro against the US dollar at that time played an important role in the ECB's decision-making process as it created a further price-increasing impulse by making imported goods more expensive. At the same time, as in other comparable economies, the net purchases of securities within the framework of quantitative easing were ended (ECB 2023a, b).

The tightening of monetary policy does not match the international economic situation. The slump in real gross domestic product (GDP) during the Corona crisis was massive. Although there was a strong recovery afterwards, it came to a standstill

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again in 2022 and gave way to very low growth rates or, in some instances, even recessions. In many countries, there is a danger of stagflation with stagnating or even shrinking real GDP and still comparatively high inflation rates.

Parallels can be drawn between the dangers facing large parts of the world economy today and the economic developments of the 1970s and early 1980s. At that time, too, large parts of the world economy were affected by drastic price increases in the energy sector as well as inflationary developments. The economic policy responses of the various countries to price level shocks varied greatly depending on the macroeconomic policy regime.¹ However, regardless of the specific differences in crisis responses, all economies ended up with the need to fight against the inflationary development and most experienced severe economic crises in the mid-1970s and early 1980s.

The crises of the 1970s did not only lead to recessions, but they also fundamentally changed economies and societies as a whole. The neoliberal revolution, which accelerated with the election of Margaret Thatcher in 1979 in the United Kingdom and Ronald Reagan in 1980 in the US, replaced the post-World War II type of capitalism and ushered in a phase of neoliberal liberalisation worldwide (Harvey 2005).

These extraordinary macroeconomic challenges were not unique to the 1970s. Indeed, a particularly drastic period in Germany's recent history was the economic and political situation after the First World War, which then resulted in a period of hyperinflation in 1923. The consequences of this event were so catastrophic that it has become embedded, as it were, in the DNA of large parts of the German population, in that they react very sensitively to any potential threat of inflation (Haffert 2023). At the same time, hyperinflation illustrates that flawed fiscal, monetary and wage policies can create conditions that promote (instead of reduce) inflationary processes. Hyperinflation, with its fundamental distributional effects, also at least paved the way for the German fascism that followed. This raises the question of whether hyperinflation could occur again and if so, whether similar social developments might also be repeated in the present.

It is true that historical development phases differ from each other and consequently one should be careful with historical comparisons and conclusions. Nevertheless, we assume that an analysis of hyperinflation and the economic and political developments from the end of the 1960s to the beginning of the 1980s provide valuable conclusions for the current situation. This makes it possible to understand the patterns of the crisis-processes following price level shocks as well as to depict functional and dysfunctional economic policy reactions for macroeconomic development. Such an analysis can help in avoiding mistakes and in developing optimal macroeconomic strategies in general.

This sets the roadmap for the chapters to come. Following this introduction, the second chapter looks at the German hyperinflation of 1923 and analyses the decisive driving forces of this catastrophe. In the third chapter we provide an initial overview of the economic framework conditions and the resulting developments from the end of the 1960s to the beginning of the 1980s. This seems necessary to us because

¹ On the macroeconomic regime concept, cf. Heine et al. (2006) and Herr and Kazandziska (2011).

the collapse of the Bretton Woods system in the early 1970s and the transition to a system of flexible exchange rates created a new constellation that had considerable consequences for economic development during this period. In the fourth chapter we outline the economic developments in the Federal Republic of Germany, the US, the United Kingdom and Italy for the period from the end of the 1960s to the mid-1980s, with special reference to price and wage developments and the subsequent fiscal and monetary policy reactions. These four countries were chosen because they exemplify typical constellations of the situation at that time, which could also be found in other industrial nations. In all the countries studied, faulty interactions of the macroeconomic authorities are evident, resulting in high economic and political costs. Of course, it is not only inflation that threatens to destroy the functioning of capitalist economies. This is equally true for deflation. Therefore, the fifth chapter provides an analysis of the deflationary dangers in countries in the Global North after the financial crisis of 2008/09 and during the Corona crisis from 2020 onwards. The start of the war between Russia and Ukraine then marks the transition to inflationary dangers. The sixth chapter contains the conclusions from the preceding analyses and shows which macroeconomic reactions of monetary, fiscal and wage policy are desirable in the event of strong exogenous price level shocks such as a sharp rise in energy prices. We propose an ideal economic policy path, as it were, for how to deal with inflationary dangers triggered, for instance, by energy price increases. The theoretical foundations of this book can be found in particular in the Treatise on Money by John Maynard Keynes (1930). In the interest of better readability, a formal and updated theory of inflation, or price level changes in general, is not included in the historical chapters; it is presented in Chap. 7. In Chap. 7 we also discuss alternative interpretations of inflationary processes, as provided above all by monetarism. Finally, in Chap. 7 we address the particularities of specific market forms, such as monopolistically or oligopolistically structured markets, and analyse how changes in nominal wages affect prices and distribution in such constellations. It is shown that specific market forms can modify the concrete course of inflationary processes, but they are not capable of overriding the fundamental laws which determine the price level and inflationary and deflationary processes.²

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Chapter 2 The German Hyperinflation of 1923



The year 2023 marks the centenary of the German hyperinflation. At the time, this event represented an economic and socio-political catastrophe in every respect. The question arises as to how this development came about and whether such processes could be repeated today.

The phenomenon of hyperinflation cannot be understood without first considering the events of the First World War (28 July 1914 to 11 November 1918). As early as 31 July 1914, the German Reichsbank stopped redeeming its banknotes in gold. This marked the end of the classical gold standard for Germany. On 4 August 1914, several wartime laws were enacted that simplified the issue of pure paper money. The cover requirements for banknotes, which had been fixed until then, were effectively abolished. This opened up the possibility of a monetary policy strategy by the Reichsbank that accommodated fiscal policy (Pfleiderer 1976, p. 157). After all, the decisive factor for economic development after the First World War was initially the indebtedness of the public sector.

Table 2.1 shows the development of public debt from 1913 onwards. At that time, a distinction was made between so-called floating debt, consisting of securities such as treasury bills or medium-term notes with short- to medium-term maturities, and funded debt, i.e. long-term debt, particularly in the form of long-term securities. At first, the warfare fed the growing national debt, because military expenditures were hardly financed through taxes. Although public households managed to place a considerable volume of debt securities with the private sector during the war period, and funded debt increased significantly until 1918, financing by the Reichsbank also increased significantly in the last two years of the war. According to Feldman (1993), public debt in November 1918 was about 150 billion marks, higher than the level of national income in 1919, estimated at 142 billion marks. The debt ratio thus amounted to about 106% of national income and to about 85% of the 1919 GDP.¹

¹ We have assumed that national income is about 80% of GDP.

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Status as of 31.3	Funded debt	Floating debt		
		Total	Credit from Reichsbank	
1913	4.8	-	-	
1914	4.9	-	-	
1915	9.5	7.2	6.0	
1916	30.2	9.3	7.3	
1917	50.3	18.5	13.1	
1918	71.9	33.0	15.7	
1919	92.4	63.7	29.9	
1920	93.0	91.5	42.7	
1921	82.2	166.3	64.5	
1922	65.7	271.9	146.5	
1923	59.6	6 601.1	4 552.0	
1923	60.5*	6.91 Trill.**	6.58 Trill.**	
1923		191.6 Trill.*** 189.8 Trill.***		
*As of 30.09 **As	of 31 10 ***As of	15 11	·	

Table 2.1 Debt development of the public sector in the German Reich

Note In billion marks unless otherwise stated *Source* Haller (1976), p. 154

With the end of the war, the financial situation of the country came to a head. It became apparent that the German Reich had entered the war completely unprepared. At the beginning of the war, people were under the illusion that it would be a short and successful campaign (Ahamed 2009; Haller 1976, p. 115). But after war was lost, Germany was confronted with unexpected challenges. The Weimar Republic, founded on 9 November 1918, was unable to manage the high public debt stock and the ongoing net new debt. By 1922, Germany experienced a particularly devastating dynamic of increasing budget deficits and debt growth.

An alternative fiscal policy strategy was also ruled out as revolutionary developments were in the air. Numerous social concessions were made in an attempt to cope with the political situation. Health, accident and pension insurance had already been introduced at the end of the nineteenth century under Chancellor Otto von Bismarck, but since 1918 it was now the responsibility of the municipalities to take care of the unemployed.² In addition, war invalids, widows and orphans and impoverished households had to be supported and the deficits of public enterprises such as the post office and the railways had to be financed. Other reforms consisted of introducing the eight-hour workday and making collective agreements binding. The country's precarious financial situation was overshadowed by the threat of reparations payments to wartime enemies, which began in 1921 and were no doubt completely excessive

 $^{^2}$ Official unemployment insurance was introduced in 1927, but from 1923 on workers already had to pay contributions to support the unemployed.

(Keynes 1920; Ahamed 2009). In 1921, reparations payments amounted to 32.4%, and in 1922 to 35.7%, of all government expenditure (James 1998, p. 47). From Germany's point of view, these were exogenously set figures since they were ultimately determined unilaterally by the victorious powers. Furthermore, in 1923 the Ruhr region was occupied by French and Belgian troops as part of the conflict over reparations payments. As part of the passive German resistance, the state took over wage and operating costs for affected workforces and companies.

In view of all of these challenges and the threat of revolution, the government saw no other option as to take credit and accept high budget deficits. Financing through tax revenues would have required confiscatory levels that were politically unfeasible. For this reason, at least during the First World War, all other states involved in the war had also relied on budget deficits to finance the war. However, while the victorious powers were then able to cope with the social and political consequences of the war, in Germany the budget deficits and the national debt escalated.

Inflationary dynamics had already developed during the First World War. Measured against the index value of wholesale prices in 1913 of 1, the price level had more than doubled to a value of 2.45 by the end of 1918. Based on December values, the inflation rate was 26% in 1917 and 21% in 1918 (Holtfrerich 1980, p. 15). However, this inflationary process was accelerated after the end of the First World War at a previously unimaginable pace.

In order to further analyse the processes that contributed to hyperinflation, an equation can be used which can be derived on the basis of national accounts and which Keynes developed in his Treatise on Money (cf. Keynes 1930). With the equation, the factors for the determination of, and changes in, the price level can be determined in more detail. We provide a formal derivation of the equation in Chap. 7. Here we present a simplified variant of Eq. 7.1.5 from Chap. 7 for the cost elements of the price level. The dynamic factors explaining cumulative inflationary processes are taken out from Eq. 7.1.5. It reads:

$$P = \frac{W}{NDPr} + \frac{e \cdot Im}{NDPr} + \frac{Excess demand}{NDPr}$$
(2.1)

In this equation, P stands for the price level, W for the national wage bill and NDPr for the volume of production (understood here as real net domestic product), so that the first element reflects unit labour costs. Furthermore, the changes in the exchange rate are particularly important for the objective pursued here. According to the import ratio Im/NDPr where Im stands for a country's imports, devaluations imply a rising exchange rate (e), with the consequence of domestic cost increases and a corresponding price level push. The import ratio after 1918 was around 17% (Lampe and Wolf 2015, p. 282). If we take, as an example, the devaluation of the mark according to the exchange rate index in Table 2.2 from December 1921 to December 1922, this results in a devaluation of 3800% rounded off and, corresponding to the import ratio, a price level thrust of around 650%.

In addition to the two cost factors, price level dynamics can be influenced by an imbalance between demand and supply on the goods markets (cf. Sect. 7.1). If the

Monthly average	Prices		Exchange rates	
	Cost of living index (1913 = 1)	Wholesale price index (1913 = 1)	Exchange rate index for all currencies (1913 = 1)	Marks per US dollar (1913 = 4.20)
Dec. 1918	-	2.5	2	8.25
Dec. 1919	-	8	11	48
Dec. 1920	12	14	17	73
Dec. 1921	19	35	46	192
Dec. 1922	685	1 480	1 810	7 590
Jun. 1923	7 650	19 400	26 200	110 000
Jul. 1923	37 650	74 800	84 200	349 999
Aug. 1923	586 000	944 000	1 100 000	4 620 000
Sep. 1923	15 000 000	23 900 000	23 500 000	99 000 000
	Billion	Billion	Billion	Billion
Oct. 1923	3,7	7,1	6,0	25
Nov. 1923	657	726	522	2 160
Dec. 1923	1 247	1 262	1 000	4 200

 Table 2.2
 Price development and dollar exchange rates from 1918 to 1923

Source Wholesale price index and marks per US dollar from Holtfrerich (1980, p. 15); cost of living and exchange rate index from Veit (1969, p. 525) and Sprenger (1995, p. 213)

sum of investment, consumption, government expenditure and net foreign demand is greater than supply and the latter cannot be expanded quickly, demand inflation occurs. In the opposite case, demand deflation happens. In Eq. 2.1 this effect is expressed by excess demand in relation to net domestic product.

Let us return to the increasing public debt. Together with the other demand components, it generated additional demand, which, however, was met with limited supply. At the end of the war, Germany was confronted with the problem that the country's production potential could not meet the new demands. Large parts of industry were geared to war production and could only be converted with a time lag. In addition, there was a lack of replacement investment due to the war, as well as damage to the capital stock and infrastructure. Finally, the victorious powers also forced "natural" reparations (Haller 1976, p. 137).

After 1918, the German government was thus faced with the dilemma of whether to stop inflation and trigger the revolution or to accept the danger of further inflationary processes (Ahamed 2009). The decision was made in favour of the second path, although from 1920 onwards a short-term, albeit unsuccessful, attempt was made to stabilise state finances. In the context of galloping national debt, treasury bills were now increasingly discounted directly by the Reichsbank, as other forms of placement were no longer possible due to a loss of confidence in the state's financial and monetary policy (cf. Table 2.1).

The inflationary process was already emerging during the war, as shown above. In order to keep the rise in the cost of living under control, a policy of maximum price decrees was implemented during this period which initially succeeded in holding back inflation. These decrees were gradually withdrawn after 1918. At the same time, as emphasised above, the state stabilised aggregate demand through its expansionary fiscal policy. The result was initially "demand inflation" in fairly pure form" (Pfleiderer 1976, p. 162). Firms raised prices and realised market situation profits. At the same time, inflation devalued real debt. Credit-financed investments were thus spurred and borrowing, and corporate investment accelerated. At the end of November 1923, the Reichsbank carried bill credits for almost 40 trillion marks in its portfolio, which corresponded to about one-fifth of discounted Treasury bills (Haller 1976, p. 154). It was by no means the case that only the state authorities were living "on credit." As expressed in Eq. 2.1, after the First World War the inflationary dynamics came primarily from the third element on the right side of the equation.

After the First World War, the inflation rate lagged substantially behind the devaluation of the mark (see Table 2.2), so that Germany offered a relatively low-price level from the perspective of foreign countries (Holtfrerich 1980, p. 17). However, this could not change the situation that Germany experienced considerable current account deficits in the years from 1919 to 1922. According to estimates, up to 10% of national income was paid in reparations during this period due to the Treaty of Versailles (Holtfrerich 1980, p. 148). These negative items in the current account were offset by only small surpluses in other balances such as travel. Moreover, from the German point of view, the devaluations of the mark encouraged considerable capital imports (Holtfrerich 1980, p. 281). These were speculative and owed to the extremely low prices in Germany for foreigners. This fact was hidden behind the slogan of the "clearance sale of Germany."³

Since the Reichsbank was neither legally nor politically in a position to fight inflation via restrictive monetary policy without support from the government, it satisfied the constantly rising demand for credit from both the state and the private sector while also keeping the discount rate low. The latter remained constant at 5% (and the Lombard rate at 6%) until mid-1922 and was then raised in cautious steps. Real refinancing interest rates were thus extremely negative (cf. on price level dynamics Table 2.2). Of course, the money supply also increased, if only to be able to carry out necessary economic transactions. This increase was the consequence, but not the cause of the inflationary processes (cf. Sect. 7.3).

The Reichsbank justified its monetary policy by pointing out that the government's demand for credit was not sensitive to interest rates and that it was only responding to the increasing demand for credit (James 1998, p. 50). Moreover, interest rate increases would only lead to further financing problems for the public sector and increase the government deficit. This was probably true in view of the various political and

³ Ahamed (2009, Chapter 7) provides very illustrative examples of this. In Berlin, a flat that was worth 10,000 US dollars before the war could be bought for 500 US dollars after the war. For 100 US dollars, a Texan booked the Berlin Philharmonic Orchestra for a private concert evening.

social challenges the country was experiencing.⁴ Regardless, it remains open what an adequate monetary policy could have looked like in that historical situation. Apart from the fact that the Reichsbank was not legally independent until 1922, it could only have stopped the price level increase through a massive stabilisation crisis. It would have had to stop financing the state, which would have led to extreme economic and political turmoil—policemen would no longer have been paid, schools would have had to close and the unemployed would have become homeless, to name just a few examples. And a refusal to supply credit to the private sector and refinance the banks would have meant the collapse of many banks and companies.⁵ Germany was confronted with a historical constellation that left no easy way out.

After First World War the German government, as mentioned, tried to control budget deficits. After all, in 1919, the government improved the tax base with some success (Haller 1976, p. 144; Holtfrerich 1980, p. 67). "Now it was by no means the case that the Reich let things drift and conveniently solved all financing problems with the help of credit. No, as soon as it was in a position to do so, almost heroic efforts were made to obtain additional tax revenues and to put a stop to the 'pump economy'. These efforts are full of tragedy insofar as it was simply impossible to turn the tide with their help" (Haller 1976, p. 144). As "once the intensified inflation of demand was set in motion", "taxation always came ... too late, and its effect had to 'fizzle out' because it could not succeed in catching up with the runaway state expenditure" (Haller 1976, p. 147; see also Holtfrerich 1980, p. 66). The lagging of real tax revenues in the context of a strong inflation process entered the literature as the Tanzi effect (Tanzi 1977). This effect is based on the fact that taxes are always paid after economic activity, for example in the case of income or sales taxes, whereby in cases of high inflation, government expenditure has then already nominally risen again.

While it was initially excess demand that drove inflation, it was soon replaced by wage increases and unprecedented currency devaluations.

Let us first turn our attention to the exchange rate. Especially after the First World War, the mark depreciated dramatically in general, and in particular against the US dollar, which had established itself as the leading international currency on the foreign exchange market. The exchange rate rose from 4.20 marks per one US dollar in 1913 to 8.25 marks per one US dollar in 1918. One year later, 48 marks had to be paid per one US dollar, and in 1921, the exchange rate was 192 marks per one

⁴ Added to this was the Reichsbank's ludicrous insinuation that good trade bills do not cause inflation. The then president of the Reichsbank, Rudolf Havenstein, claimed that "the granting of loans by a central bank increases the amount of paper in circulation, ... but insofar as it gives economically justified and necessary loans that serve production and the turnover of goods, the central bank does not create artificial purchasing power" (Havenstein 1923, quoted after James 1998, p. 51). Accordingly, he theoretically represented the "real bill doctrine" of the Banking School, which assumes that lending for productive purposes cannot trigger inflation. The Reichsbank was subject to yet another misjudgment. It assumed that credit expansion of the banks, which creates demand deposits, would not pose any danger to the stability of the price level (cf. on the Reichsbank position also Pfleiderer 1976, p. 165).

⁵ In this case, the central bank would not have fulfilled its role as lender of last resort.

US dollar. From the middle of 1922, all confidence in the mark collapsed, driving the flight into foreign exchange and real assets with brute force. In December, the exchange rate was 7,590 marks per one US dollar, and by June 1923 it had already reached 110,000 marks per one US dollar. It took three more months for it to rise to 99,000,000 marks per one US dollar. In December 1923, the exchange rate of the mark was one trillionth of its 1914 value (cf. Table 2.2).

These dramatic currency devaluations created extreme cost pressures and pushed up price levels. The US dollar became the standard of value, even if people paid in marks. Housewives going shopping knew the hourly exchange rate between the mark and the dollar and the corresponding price in marks (Ahamed 2009, Chap. 7). Currency devaluations became the driving force for the cumulative inflationary process leading to hyperinflation (see Eq. 2.1).

These devaluations and the associated rise in the price level naturally lowered real wages. The trade unions, which had gained strength in the Weimar Republic, tried to compensate for the real wage losses by raising nominal wages.⁶ In the face of serious real wage reductions, there was no realistic alternative to this. The trade union policy to defend the level of real wages was supported by the low unemployment rate of less than one per cent in 1918 and overall low unemployment rates in the following years as well. The unemployment rate fluctuated between 0.6% and 2.6% in the period from mid-1921 to the end of 1922 (Holtfrerich 1980, p. 194).⁷ In view of this labour market constellation, trade unions were able to regularly push through nominal wage increases. Nominal wages were "directed upwards in the long term and adjusted to a greater or lesser extent to the various phases of price development in the shorter term" (Holtfrerich 1980, p. 228). The rapid adjustment of nominal wages to price level developments was due not least to the Stinnes-Legien Agreement⁸ of November 1918, which, among other things, introduced collective bargaining and its binding nature as well as the establishment of works councils (Holtfrerich 1980, p. 224). In the final phase of hyperinflation, index clauses largely prevailed, so that wages were automatically adjusted to price increases. This institutionalised the devaluation-price-wage-price spiral (Pfleiderer 1976, p. 180). Overall the cumulative inflation process was mainly driven by currency devaluations which triggered wage increases, both stimulated inflation and led to further devaluations (see Eq. 2.1).

The extent to which there were real wage losses after 1918 is difficult to assess due to a lack of data. However, some data suggest that although real wages fell after the First World War compared to 1914 (Holtfrerich 1980, p. 230)⁹, these losses were limited. Ahamed (2009, Chap. 7) concludes that after the First World War, the

⁶ Unfortunately, the empirical data on nominal wage developments in the period between 1918 and 1923 are extremely deficient, so that no complete picture can be drawn (Holtfrerich 1980, p. 224).

 $^{^{7}}$ Unemployment only jumped to around 20% when the currency stabilised after the end of the hyperinflation.

⁸ The Stinnes–Legien Agreement was an accord concluded by German trade unions and industrialists on 15 November 1918, named after both parties' negotiators in chief, the industrialist Hugo Stinnes and the union leader Carl Legien.

⁹ The problem exists that statistics showed "practically minimum wages from which effective wages could deviate considerably upwards" (Holtfrerich 1980, p. 226).

real wages of workers, especially the unionised ones, were surprisingly stable and nominal wages kept pace with inflation. Not all employees could defend their real wages. Higher-paid workers and civil servants in particular could not adjust wages to price increases.

Joan Robinson (1938) forcefully drew attention to the connection between currency devaluation and the wage-price spiral in her interpretation of the German hyperinflation. She made it clear that the real wage effects of currency devaluations were so massive that a rise in nominal wages could not be prevented. It is worthwhile to quote her excellent analysis: "With the collapse of the mark in 1921, import prices rose abruptly, dragging home prices after them. The sudden rise in the cost of living led to urgent demands for higher wages. Unemployment was low ... profits were rising with prices and the German workers were faced with starvation. Wage rises had to be granted. Rising wages, increasing both home costs and home incomes, counteracted the effect of exchange depreciation in stimulating exports and restricting imports. Each rise in wages, therefore, precipitated a further fall in the exchange rate, and each fall in the exchange rate called forth a further rise in wages. This process became automatic when wages began to be paid on a cost-of-living basis" (Robinson 1938, p. 510). Her findings can be generalised.

Currency devaluations play a central role in all hyperinflations, as they decisively drive domestic inflation depending on the import ratio and promote wage-price spirals. At some point during the inflation process, confidence in the national currency collapses completely. Any increase in domestic financial assets, for example through budget deficits financed by the central bank, immediately leads to an exchange into hard currencies on the foreign exchange market. Empirically, this was shown, among other things, by the dizzying increase in the velocity of money in circulation from 1921 onwards, which expressed a minimisation of real money holding in domestic currency (Pfleiderer 1976, p. 173 and 181).¹⁰

The devastating role of dramatic currency devaluations in cumulative inflation processes is consequently not only evident in the German hyperinflation. Fischer et al. (2002) recorded the causes of extreme inflation rates in 25 countries in 45 events. Their central finding is that devaluations fuel the cumulative inflation process, whereby devaluations can have various underlying causes. Central banks typically accommodate the process, which increases the money supply endogenously. "Our basic finding is that, more often than not, causation … runs from exchange-rate changes and inflation to money growth. We interpret this result, however, as saying that once inflation has been triggered, monetary policy has typically been accommodative, thus allowing inflation to be driven by temporary shocks and by its own dynamics" (Fischer et al. 2002, p. 846).

With regard to government budget deficits they state that high budget deficits and inflation processes do not always correlate. "The expected positive relationship between fiscal deficits and inflation cannot always be detected in the data. We find no

¹⁰ The velocity of money indicates the ratio of the nominal transaction volume (such as GDP) in relation to the money supply.

significant long-run (cross-section) relationship between fiscal deficits and inflation" (Fischer et al. 2002, p. 846).

It obviously depends on whether the budget deficits are financed via the printing press, which massively increases domestic monetary assets and destroys confidence in the national currency. The point at which budget deficits and government debt lead to a comprehensive exchange into foreign currencies obviously depends on the overall constellation of the economy and the political situation.

Table 2.2 shows the unimaginable speed at which inflation developed in Germany, especially from mid-1922 onwards. Until then, even foreign investors had bought German government bonds, as they assumed that the economic development in Germany would stabilise. However, their confidence collapsed completely in the course of 1922 (Holtfrerich 1980, p. 124) and undermined even the last elements of confidence among German investors. One trigger was the assassination of the German Foreign Minister Walter Rathenau, as it signalled the further destabilisation of the political order. Domestic and foreign owners of German debt securities dumped their paper, and a devastating capital flight in stable foreign currencies (and also into real assets) began. The result was a rapid devaluation of the mark, as shown in Table 2.2.

One consequence of this development was an explosion in the nominal money supply (coins and paper money) (cf. Table 2.3). It increased with unprecedented speed from mid-1922 onwards. In fact, the figures do not even reflect the full extent of the growth in the money supply, since no reliable figures are available on the volume of bank deposits for the period observed here.¹¹ Since the Reichsbank was not independent until 1922, it passively financed government expenditure and refinanced the banking system. However, it did so even after its formal independence from 1922, which came under pressure from the victorious powers at the time. The German hyperinflation clearly shows that, contrary to the ideas of monetarism, monetary policy was by no means the causal, active force for the inflationary process, but rather it passively met the ever-increasing demand for money.

Robinson (1938) as well as Pfleiderer (1976, p. 181) emphasised that the inflation process gradually undermined the functions of money in Germany. First, its function as a means of storing value was destroyed, since holding money led to increasing real losses. Therefore, people switched to stable-value foreign exchange or even tangible assets. Then, from 1922, the mark lost its function as a standard of value. It was effectively replaced by the US dollar. In addition, credit contracts were no longer denominated in marks. Finally, the mark became less and less accepted as a means of payment, not even for the payment of wages. Companies held back their supply of goods and the black-market business flourished. The national monetary system finally collapsed completely.

¹¹ No comprehensive figures are available on the volume of bank deposits for the period 1918 to 1923. However, according to Holtfrerich (1980, p. 49), the deposits of the major Berlin banks alone developed as follows (year-end figures in each case): 1918: 20 billion marks, 1919: 39 billion marks, 1920: 63 billion marks, 1921: 116 billion marks, 1923: 1 089 000 000 billion marks.

End of year or month	Money supply*	
	Coins	Paper money
	Billion	Billion
1918	0.170	32.937
1919	0.108	50.065
1920	0.2241	81.387
1921	0.466	122.496
1922	-	1 295.288
Jun. 1923	52.350	17 340.500
	Trillion	Trillion
Jul. 1923	0.079	43.814
Aug. 1923	0.095***	668.703
Sept. 1923	-	28 244.409
Oct. 1923	-	2 504 955.700
Nov. 1923**	-	400 338 326.400

Table 2.3 Development ofthe money supply from 1918to 1923

*Without holdings of banknotes of the Reichsbank and private banknotes issued by commercial banks held by the Reichsbank, commercial banks and public households; so called emergency money is not covered

Without a kind of emergency currency (Rentenmarkscheine) issued from mid-November 1923 by a newly established bank besides the Reichsbank. *Afterwards no longer played a quantitative role

Note Unless otherwise noted, calculated at the end of December and rounded

Source Holtfrerich (1980, p. 51)

Then, in October 1923 the Deutsche Rentenbank was founded under the control of the government and central bank.¹² From November 1923 on, this bank issued new money, the Rentenmark, in addition to the existing inflationary central bank money. The Rentenmark immediately substituted the inflationary mark. In 1924 the German central bank then issued the new Reichsmark with a conversion ratio with the Rentenmark of one to one. The new currency was stable as it was linked with a consolidation of public finances and cautious credit expansion. After a brief slump, positive growth rates were achieved in the following years, albeit under the "sword of Damocles" of high foreign debts. The brief period of prosperity came to an end with the outbreak of the Great Depression in the early 1930s (Ahamed 2009, Chap. 10).

During the hyperinflation, holders of financial assets had lost everything, and a considerable proportion of the middle class was impoverished in terms of asset

¹² For the benefit of the Deutsche Rentenbank, real estate of agriculture, industry and commerce was compulsorily mortgaged and encumbered with land charges. The purpose was to create confidence in the new Rentenmark. However, the mortgages had only symbolic effects, but increased confidence in the new money.

holdings. As a result, large parts of the population were deeply disappointed by the Weimar Republic. One certainly does not go too far in claiming that hyperinflation, as an accelerator of political radicalisation, paved the way for fascism. The winners were the holders of real assets, i.e. real estate or shares.

With the help of the equation introduced at the beginning of this chapter, the course of the German hyperinflation in 1923 can now be explained conclusively. First, demand inflation occurred after the end of the war ($\uparrow \frac{\text{Excessdemand}}{NDP_r}$). Wages followed suit, and nominal wages rose much faster than labour productivity. As a result, unit labour costs increased ($\uparrow \frac{W}{NDP_r}$). However, companies were able to pass these cost increases on to prices and defend their profit margins. The result was a wage-price spiral triggered by demand inflation, typical of inflationary processes.

In anticipation of Chap. 7, we can already show at this point what a functional wage policy looks like. As long as nominal wages are increased at the same rate as labour productivity, there are no rising costs for firms. Prices remain stable when external factors are left aside. However, all central banks in the world are geared towards a low positive inflation rate to prevent dangers of deflation. The ECB and the Fed, for example, target an inflation rate of two per cent in the medium-term. Accordingly, wages should rise in line with medium-term productivity advances plus the central bank's target inflation rate.

However, it was not nominal wage increases which fuelled the inflation process, rather it was primarily the strong devaluation of the mark, which began during the First World War, which then led to the explosive collapse of the external value of the mark in 1922 due to the particular economic and political constellation at the time ($\uparrow \frac{e \cdot Im}{NDPr}$). Imported goods became more expensive and led to extreme price increases. Without subsequent nominal wage increases, real wages would have plummeted. Consequently, nominal wages adjusted to the rate of inflation. A cumulative devaluation-wage-price-spiral developed. This in turn led to a gradual erosion of the functions of the mark which were taken over mainly by the US dollar. As a consequence, there was an unprecedented flight into stable currencies, but also into real assets. The Reichsbank, for its part, accommodated this disastrous process. Although lending to the private sector also played a role, the escalating budget deficits financed by the printing press were decisive. This continuously created new monetary assets in marks, which were then immediately exchanged for foreign currencies. Since there was no supply of foreign currencies, the value of the mark plummeted. Of course, at least theoretically, the Reichsbank could have initiated a stabilisation crisis. But then the state and parts of the private sector would have collapsed in a situation that was politically unstable anyway.

The German hyperinflation is not an isolated case; hyperinflations have occurred time and again up to the recent past. If one takes the definition of Cagan (1956), who defines hyperinflation as a monthly inflation rate of over 50%, then the inflation development in Zimbabwe in 2007/2008 was the last spectacular hyperinflation. It led to the complete collapse of the monetary system. Monthly inflation rates above 50% occurred in a number of countries after the Second World War, for example in Brazil and Argentina (1989–90), Peru (1990), Yugoslavia (1990–1994), Ukraine and

Russia (1992), Georgia and Armenia (1992–1993), Angola (1994) and are currently happening in Venezuela (2023) (Hanke and Kwok 2009; Trading Economics 2023).

When analysing hyperinflations or phases of very high inflation that occurred after the Second World War, two characteristics stand out. First, such phases are usually associated with political turbulence in the countries. Second, countries of the Global South are more affected than those of the Global North. This empirical finding reflects the fact that the currencies of the countries of the Global South are very low in the currency hierarchy, at the top of which is the US dollar, followed by the euro. Low confidence in a currency is evident at various points. For example, dollarisation is very high in many countries of the Global South. This means that a high share of financial assets is also held domestically in foreign currency. For this reason, these countries have little scope to increase financial assets in the domestic currency and thus initiate domestic credit expansion. The reason is, that a large proportion of newly created domestic monetary wealth is exchanged in foreign currency, inside the country or by transfers to foreign countries. If there are no compensating foreign loans or sufficient capital inflows in other forms, a central bank has to curb domestic credit expansion. Therefore, to get credit, public and private households as well as the corporate sector are often indebted in foreign currencies whereas foreign credits are denominated in foreign currency. But foreign indebtedness in foreign currency is dangerous. If, for whatever reason, capital imports stop or capital flight begins, this leads to sharp currency devaluations that fuel inflation and further undermine confidence in domestic money. At the same time, the devaluation increases real foreign debt in foreign currency. Without foreign help a country in such a position can slip into a situation which leads, as in Germany after First World War, to hyperinflation (Herr and Nettekoven 2021, 2022).

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Chapter 3 Macroeconomic Development from the Late-1960s to the Mid-1980s



As already indicated, historical phases do not repeat themselves in the same pattern. This also applies when comparing economic developments after the late-1960s and the oil price shocks in the 1970s with the price level shock from 2021 onwards. One major difference that fundamentally shaped economic developments in the 1970s was the collapse of the Bretton Woods monetary system which was a stability anchor after the Second World War. The Bretton Woods system was an arrangement characterised by fixed exchange rates. In the case of fundamental imbalances, exchange rate adjustments could be carried out within the framework of the system on the basis of political decisions. When the Bretton Woods system European countries. This change was accompanied by considerable economic distortions.

Through the end of the 1960s, the US dollar took on the role of the undisputed world currency. It was used to hold the liquidity of internationally active asset owners, to invoice important internationally traded goods and to contract international debt. It was the centre of the Bretton Woods system, which was decided in 1944 and was established after the Second World War. All participating countries in the system had to defend their exchange rate to the US dollar within the agreed bands whereas the US could be completely passive and did not have to do anything in particular to defend the agreed exchange rates.

However, a gradual erosion of the absolute dominance of the US dollar began as early as the 1960s. One factor explaining this development was that the real economic dominance of the US in the world economy slowly declined. In the 1950s, the share of US GDP of world GDP, measured in international US dollars,¹ was 27.3%; in 1973 it was still 22.0%. By 1998 it still constituted nearly the same value of 21.9% (OECD 2006). The World Bank, also calculating in international US dollars, arrives at a similar value for 1998 (20.6%), but finds that by 2021 the value stood at only 14.2% (World Bank 2023b).

¹ International US dollars imply a calculation based on purchasing power parities.

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Far more important, however, was that in the 1960s the US pursued an economic policy of national interests which violated the functions of the US dollar as a world money. On the one hand, the Vietnam War escalated and on the other, social unrest at home made welfare state spending necessary. The inflation rate in the US rose from 1.6% in 1965 to 5.8% in 1970 and eventually exceeded 10% in the 1970s (OECD 2023). This development was coupled with an increasing crisis of confidence in the US dollar, which was expressed by substantial capital outflows at the end of the 1960s. Moreover, the US current account, which had been slightly positive after World War II, dwindled to zero in 1969 and became slightly negative in 1971 and 1972, at levels of 0.12% and 0.45% of GDP, respectively (OECD 2023). These are very small values by today's standards. However, they were interpreted as relevant and negative at the time. Despite these developments, the Fed was reluctant to defend the US dollar exchange rate on its own through restrictive monetary policy. This task was, based on the rules of the system, left to the other countries in the Bretton Woods system. Consequently, a crisis of confidence in the stability of the US dollar came to a head in the late 1960s (Herr 1992; Sects. 5.3 and 5.4).

The Federal Republic of Germany was particularly affected by capital outflows from the US and appreciation pressures of the D-Mark. As a result, the German Bundesbank had to intervene massively in foreign exchange markets in accordance with the rules of the Bretton Woods system. For a long time, beginning in the 1950s, the Bundesbank had tried to reconcile low inflation rates, fixed exchange rates and resulting current account surpluses. Surpluses in the current account were not met by sufficient capital exports. In fact, the opposite was the case, West Germany frequently experienced capital imports. The Bundesbank intervened in the foreign exchange market to prevent an appreciation of the D-Mark and neutralised the increase in money supply caused by the necessary foreign exchange purchases by making corresponding cuts in money issuance in its traditional business operations with the commercial banks. It also issued its own securities to reduce the stock of central bank money in circulation. However, this so-called sterilisation policy did not change the growing pressure from appreciation. Given high German current account surpluses in 1961 a revaluation of the D-Mark was inevitable. While the Deutsche Bundesbank had nothing in principle against a revaluation of the D-Mark as part of a politically agreed discretionary adjustment process in the Bretton Woods system, the German government was sceptical. It feared a loss of competitiveness and reductions of trade surpluses. This conflict between the independent Bundesbank, which was modelled after the Fed after the Second World War, and the government pervaded West German economic policy throughout the period of fixed exchange rates and repeatedly led to disputes between the Ministry of Economics and the Deutsche Bundesbank (Emminger 1986; Chap. 5).

Foreign exchange purchases, particularly by the German Bundesbank, became increasingly difficult from the end of the 1960s due to the high capital inflows. The D-Mark increasingly became an alternative for investors due to a crisis of confidence in the US dollar. The Swiss franc and the Japanese yen became other primary investment currencies. Then, on 15 August 1971, US President Nixon unilaterally lifted the obligation to exchange US dollar reserves of central banks outside the US for gold
at the rate of 35 US dollars per troy ounce. The Bretton Woods system collapsed in the same year, exchange rates became flexible, and the US dollar depreciated. The promise to exchange central bank reserves for gold had been made voluntarily by the US in addition to the rules of the Bretton Woods system. Apart from the French central bank, central banks did not take up this option, but the abandonment of the promise nevertheless acted as an implicit admission by the US that it could no longer guarantee the security of international assets in US dollars. Although attempts were made to save the Bretton Woods system, for example, in December 1971 through the Smithsonian Agreement with new parities and wider bands, the system could not be saved. In 1973, the Bretton Woods system finally collapsed. The world monetary system developed to a certain extent in the direction of a multi-currency standard. There is no doubt that the US dollar still holds a dominant position in the world currency system, but it is no longer unrivalled (Herr and Nettekoven 2021).

The German Bundesbank in particular followed the gradual collapse of the fixed exchange rate system with a certain amount of goodwill. For now it was, as its former president Otmar Emminger put it, "master in its own house" again (Emminger 1986, p. 258). In general, the change to the regime of flexible exchange rates was judged as a good and necessary step. Milton Friedman (1953) outlined typical arguments in favour of flexible exchange rates. He had argued for a long time that flexible exchange rates would create room for more national autonomy in economic policy making, especially in the realm of monetary policy. Each country, according to his argument, could follow its own monetary policy which would lead to country specific inflation rates and the exchange rates would smoothly guarantee external equilibrium.

Thus, the now flexible exchange rates temporarily created the illusion that countries were able to escape external economic restrictions in favour of internal economic policy objectives. The numerous devaluation crises of many countries in the 1970s, including Italy and the United Kingdom among others, as well as the debt crises in developing and emerging countries have thoroughly dispelled this illusion and led to a relatively narrow orientation of economic policy to external economic requirements even with flexible exchange rates.

Nevertheless, the collapse of the Bretton Woods system ushered in a new, clearly more liberal type of capitalism with more deregulated international capital flows. Especially in the initial phase of the Bretton Woods system, there were still intensive regulations of international capital movements. These were dismantled in a stepwise fashion even under the system of Bretton Woods and made the defence of fixed exchange rates more difficult. The deregulation of international capital flows continued throughout the 1970s. However, a major step towards the deregulation of financial systems including domestic and international markets came with the neoliberal revolution which started at the end of the 1970s.

The end of the Bretton Woods system led to inflation rates, currency turbulences and currency crises, recessions and rising unemployment figures which were unheard of in countries of the Global North following the Second World—as the country studies in Chap. 4 will show. An overview is given here.

Figure 3.1 shows strong currency fluctuations after the end of the Bretton Woods system. The US dollar had already depreciated against the D-Mark in the final



Fig. 3.1 Exchange rates of the Deutsche Mark, the British Pound and the Italian Lira to the US Dollar, annual rates of change, 1966–1986. *Note* Price of the national currency per 1 US dollar, falling values mean appreciation against the US dollar. *Source* OECD (2023), own calculations

phase of the Bretton Woods system. After an initial revaluation of the D-Mark in 1961, further revaluations followed in 1969 and 1971. With the transition to flexible exchange rates in 1973, the strong appreciation of the D-Mark vis-à-vis the US dollar continued until the end of the 1970s. The Italian lira was stable against the US dollar in the final phase of the Bretton Woods system, while the British pound depreciated as early as 1967. Then, from the mid-1970s onwards, there were significant depreciations, especially of the lira, but also of the pound, against the US dollar. In 1976 the British pound and the Italian lira fell more than 20% against the US dollar. Consequently, from the end of the 1960s, the pound and the lira lost even more value against the D-Mark. The situation changed drastically in 1979. From the end of the 1970s onwards, the US dollar, before the US dollar again lost considerable value from 1985 onwards.

These enormous exchange rate turbulences disturbed the functioning of the then European Economic Community (EEC). As a result, as early as 1972, in the final phase of the Bretton Woods system, the so-called European Currency Snake was founded. In this currency arrangement, the members of the EEC and various other European countries, such as Austria, pegged their currencies to the D-Mark, which was the strongest and most significant European currency on the foreign exchange markets during this phase. The Snake was not very stable. Its members changed frequently. And more importantly, there were no mandatory intervention obligations on the part of the central banks of the countries joining the Snake, and there was no joint stabilisation mechanism.

The international economic constellation remained unstable in the 1970s. Among other things, confidence in the US dollar remained battered even after the collapse of

the Bretton Woods system and the depreciation of the US dollar. In this constellation, the D-Mark developed into a "small" international reserve currency alongside the US dollar. It repeatedly served as a safe haven for capital flight from the US dollar. The Bundesbank as well as the German government were extremely dissatisfied with this constellation. They had an interest in a stable and strong US dollar and at best aspired to a role for the D-Mark as a regional reserve currency that did not have to struggle with periodically high capital inflows. After the collapse of the Bretton Woods system, West Germany preferred to follow the undervaluation strategy of the 1950s and 1960s with low inflation and permanent current account surpluses which were not destroyed by strong appreciations.

The Bundesbank's fears came true, as the US dollar became extremely weak in 1978 and then even more so in 1979. On 29 September 1979, the so-called Hamburg meeting took place. The head of the Fed, Paul Volcker, who had been newly appointed by US President Carter, came to the Bundesbank with a delegation to negotiate joint monetary policy strategies, including interventions in the foreign exchange market to stabilise the weak US dollar. The Bundesbank turned a cold shoulder to the US delegation's requests and refused any relevant cooperation. Otmar Emminger, then President of the Bundesbank, assessed this as follows: "We rejected any commitment regarding future dollar interventions. We had made it unambiguously clear that a strengthening of the dollar depended exclusively on corresponding American efforts. This outcome was clearly seen by the American side as a failure of their efforts to get greater German involvement" (Emminger 1986, p. 396). Spahn (1989, p. 18) rightly characterised this episode as regicide with unforeseen consequences.

Indeed, only a few days later, on 6 October 1979, there was a radical about-turn in US monetary policy. The Fed recognised high inflation risks and acknowledged that the international role of the US dollar was in danger. Emminger (1986, p. 397) summarised the results of these decisions as follows: "This decision of 6 October 1979 made economic history, not only for the United States itself, but for the whole world: for with it began the *American disinflationary policy* that turned the whole world economy upside down."

In fact, the US reacted in 1979 with extremely restrictive monetary policy (cf. Sect. 4.1.3) which plunged the world economy into a global crisis. Not only was a sharp economic crisis initiated in the Western industrialised nations, but many countries of the Global South ran into external over-indebtedness problems as their exports shrank and interest rates on their foreign debts rose. Thus, all of Latin America slid into a "lost decade" of radical neoliberal reforms under the emerging "Washington Consensus."

The Bundesbank was now forced to make a course correction. It had to follow the volatile but rabid monetary policy of the US with its own monetary policy decisions in order to limit the devaluation of the D-Mark against the US dollar. This was also necessary against the background of the second oil price shock, which triggered a further global price level push. The discount rate of the Bundesbank rose from 3% in January 1979 to 7.5% in May 1980, then remained at this level and was reduced to 7% in 1982. Only in 1983 did it fall to much lower levels (Deutsche Bundesbank 1986). The result of these developments was a severe economic crisis

in West Germany as well. Another factor contributing to the slowdown in growth was that West Germany's export surpluses deteriorated, which led to a surprising and significant deficit in the current account in 1980. In 1979 other European central banks were also forced to follow the sharp increase of interest rates in the US. Most of these countries experienced recessions as well.

The Bundesbank found itself in a difficult situation after the pivot of US monetary policy in 1979. Between October 1979 and April 1980, it lost almost a quarter of its currency reserves as it tried to slow down the depreciation of the D-Mark against the US dollar. Obviously, capital during the phase of the weak US dollar flowing to West Germany was now flowing back. As if that were not enough, in the summer of 1980 the D-Mark also began to fall against other currencies, such as the French franc. The Bundesbank did not opt for a moderate general devaluation of the D-Mark and consequently did not exploit the possibility of interest rate cuts or less increases. Such a policy could have averted or at least weakened a recession. The Bundesbank followed its usual strategy of a hard currency policy, not least in order to defend the leading role of the D-Mark in Europe.

The instability of exchange rates between EEC countries was considered to be harmful for the project of European integration and the Currency Snake was too weak to create more exchange rate stability. In 1979, at the insistence of the Federal Republic of Germany and France in particular, the European Monetary System (EMS) was created. It subsequently created more exchange rate stability in the EEC. Initially, the six founding members of the EEC, as well as Denmark and Ireland, participated in this system, which later admitted further members. The EMS established intervention obligations of the central banks participating in the system to defend the exchange rates of the participating countries. The exchange rates were linked to a basket of currencies of the EMS member countries, the European Currency Unit (ECU), with permitted narrow bands of exchange rate fluctuations. Exchange rate adjustments were possible in this system within the framework of political decisions and were then frequently practised. In contrast to the Bretton Woods system, there was no country whose exchange rate had to be kept stable by all other participating countries. The leading currency in the EMS always had to be "earned" (Heine and Herr 2021; Herr and Hübner 2005).

West Germany "earned" the D-Mark's role as a reserve currency and the leading currency in the EMS through its "strategy of stability-oriented undervaluation", which it had followed consistently since the 1950s (Spahn 1988; Herr 1990; Herr and Spahn 1989). The aim of this strategy was to achieve permanent current account surpluses by keeping domestic price level increases below those of the rest of the world and avoid exchange rate adjustments which would compensate the increasing price competitiveness. The foundation of this strategy was relatively low increases of nominal unit labour costs by low nominal wage increases and high productivity increases. In this way, a real undervaluation could be built up and defended. In West Germany the maintenance of export and current account surpluses as a motor of domestic demand and development in general was supported by all relevant social groups and institutions in the economic sphere, from the Bundesbank and the government to employers' associations and trade unions.



Fig. 3.2 Current account balance as a percentage of GDP in Germany, the US, the United Kingdom and Italy, 1970–1986. *Source* World Bank (2023b)

This strategic orientation was successfully implemented in West Germany in the early-1950s. From 1951 until 1979 except in the years 1962, 1964 and 1965 West Germany realised current account surpluses (Deutsche Bundesbank 1970). The reason for the deficits in the 1960s were the revaluation of the D-Mark in 1961 and strong economic growth in the 1960s. The deficit quickly gave way to a high surplus again at the end of the 1960s and it was not until the end of the 1970s that West Germany realised a current account deficit again (Fig. 3.2). After three years of deficit, West Germany realised high current account surpluses in per cent of GDP until German unification in 1990.

The US slipped from small surpluses and an almost balanced current account at the end of the 1960s into a slight deficit. In 1973, the current account turned positive again, only to fall back into the red at the end of the 1970s. After 1982, the US built up high current account deficits at levels that were previously unimaginable.

The United Kingdom experienced current account deficits in the second half of the 1960s (in 1964 and from 1965 until 1968). In the mid-1970s current account deficits in the United Kingdom were relatively high again, at 3.8% of GDP. Periods of deficit in the United Kingdom were always associated with crisis developments (see Sect. 4.4). In the 1950s, Italy had almost balanced current accounts, however Italy then realised increasing deficits towards the end of the 1960s which were reduced, but increased sharply again in the mid-1970s, this also led to a currency crisis.

Overall, the 1970s were characterised by a transition in current account developments. In the 1950s and 1960s, current accounts as a per cent of GDP were relatively small—reflecting that capital controls existed and exchange rate adjustments under the Bretton Woods system could be used to reduce so-called fundamental



Fig. 3.3 Consumer price index in Germany, the US, the United Kingdom and Italy, annual rates of change, 1966–1986. *Source* OECD (2023)

imbalances. From the 1970s on, current account imbalances as a per cent of GDP started to increase, reflecting the development of a new type of capitalism with increasing international capital flows and flexible exchange rates, but also of foreign over-indebtedness and frequent currency crises.

A key feature of the 1970s were the violent inflationary waves that gripped the world economy. Figure 3.3 shows a first inflationary wave that started in the late 1960s, then weakened somewhat during the mid-1970s. A second wave developed in the late 1970s, which finally petered out during the first half of the 1980s. Very high inflation rates of over 20% were measured in Italy and the United Kingdom. Similarly, in the US annual inflation rates reached double digit values, which is a particular burden for a country with a leading international currency. In the OECD as a whole, between 1974 and 1983 the inflation rate was only below 10% for a period of two years (OECD 2023). It is striking that the waves of inflation in West Germany were significantly lower than in almost all other countries. Given this, there must be specific domestic factors which explain the different inflation rates in different countries (see Chap. 4).

The high inflation rates of the 1970s are associated with the two oil price shocks, one in 1973 and one in 1979, which indeed explain the peaks in inflationary developments. The price of crude oil and commodities in general was, and still is, priced and traded worldwide in US dollars. The price of crude oil was around \$1.60 per barrel in 1960, then fell somewhat and eventually rose to around \$1.80 in 1972. In October 1973, it jumped to \$4.10 and settled at around \$10 in 1974. At the end of



Fig. 3.4 Price of crude oil in US dollars, 1966–1986. *Note* We show here the price for Dubai crude oil and the average oil price. Other crude oils prices differ only marginally from Dubai crude. *Source* World Bank (2023a)

the decade, it rose to over \$35, only to slowly decline and finally crash in 1986 to almost the level before the first oil price shock (see Fig. 3.4).²

The first oil price shock was triggered by the Yom Kippur War between Arab countries, especially Egypt and Syria, and Israel from 6 to 25 October 1973. In connection with the war, the OPEC cartel (Organization of the Petroleum Exporting Countries), which had been founded in 1960 by Saudi Arabia, Iran, Iraq, Kuwait and Venezuela, and which was later joined by other countries, used the price of oil as a political weapon against Western countries, which generally sided with Israel. The second oil price shock took place against a backdrop of uncertainty in the global crude oil market due to the victory of the Islamic Revolution in Iran in 1979 and the war between Iran and Iraq that lasted from 1980 to 1988. In addition, the US dollar was weak, and inflation was relatively high during this phase and OPEC wanted to stabilise its real revenues.

Important for the price level is not only the price of crude oil, but the price of commodities in general. These are divided into two major groups: *energy* (crude oil 84.6%, coal 4.7%, natural gas 10.8%) and *non-energy* (metals 31.6%, agriculture, 64.9%, fertilisers 3.4%). Figure 3.5 shows the index of commodity price development in US dollars for the two main groups and for two subgroups. The index of energy prices was dominated by exploding crude oil prices. In addition to the price of oil, the price of natural gas also increased, but to a much lesser extent. Non-energy prices increased only moderately, with only the price of fertilisers increasing noticeably

² Measured in 2010 US dollars (i.e. adjusted for price), the average price rose from \$6.8 per barrel in 1972 to \$29.2 in 1975 and \$56.5 in 1981, before falling to \$20.9 in 1986 (World Bank 2023a).



Fig. 3.5 Index of commodity prices in US dollars, energy and non-energy, and individual commodities, 1966–1986, 1966 = 100. *Source* World Bank (2023a)

together with the oil price for about two years in 1974 (World Bank 2023a, for the development of oil prices also see Sect. 7.6).

In order to show the relevance of the exchange rate for inflationary impulses at home, the development in West Germany is selected as an example. Increases in the national currency are relevant to the additional costs of increasing oil prices. Figure 3.6 shows the development of the D-Mark price for crude oil. In the 1970s the increase was substantially dampened by the weakness of the US dollar against the D-Mark. By the late 1970s, increasing US dollar prices of crude oil plus the appreciation of the US dollar created a huge price shock for West Germany in D-Mark and kept oil prices at a high level due to the strong US dollar. Then, in 1985, the D-Mark price of crude oil crashed due to the combination of the falling value of the US dollar and falling oil prices in US dollar terms. This also shows that devaluing countries such as the United Kingdom or Italy were harder hit by oil price shocks due to exchange rate developments than West Germany or the US.

The two oil price shocks undoubtedly fuelled the inflation dynamics of the 1970s, which is clearly visible in Fig. 3.3 from the two inflation peaks which occurred shortly after the price shocks. However, the inflation trend cannot be explained by the development of commodity prices alone. This can already be seen from the fact that inflation rates in the different countries developed differently, although the energy prices in US dollars were the same for all countries. Moreover, the inflation wave was already developing at the end of the 1960s, i.e. before the first energy price shock. Exchange rate developments undoubtedly played a role for the different inflationary dynamics and explain part of the lower inflation rate in West Germany in the 1970s compared with the United Kingdom or Italy.



Fig. 3.6 Price of crude oil in D-Mark, 1966–1986. *Source* World Bank (2023a), Bank of Italy (2022), own calculations

However, in addition to these exchange rate developments, national wage development plays a central role in explaining each country's unique inflation dynamic (cf. Sect. 7.1), which was very uneven. Figure 3.7 shows that in the United Kingdom and Italy, nominal gross wages in the manufacturing sector rose much more strongly than in the Federal Republic of Germany and the US. High nominal wage increases can be observed at the end of the 1960s particularly in Italy, but also in the United Kingdom and the US. After the first oil price shock, wage increases in West Germany were very moderate compared to the other countries. The following case studies in Chap. 4 examine these developments in detail.

The 1970s brought not only a wave of inflation but also an end to the almostunbroken economic boom in the industrialised countries after the Second World War. The 1970s and early-1980s saw deep economic slumps (cf. Fig. 3.8) that had not been experienced in this form during the 1950s and 1960s. Furthermore, it becomes clear that the economic cycle in the western industrialised countries largely synchronised from the 1970s onwards. Finally, the figure shows that Germany, the US, the United Kingdom and Italy were all affected by recessions in the mid-1970s. In the late-1970s/early-1980s these countries were all affected by a substantial reduction of GDP growth, but only Italy avoided a recession. This makes Italy an interesting case (cf. Sect. 4.4). The four countries shown in Fig. 3.8 were among those with the most severe economic downturns of the then industrialised countries (OECD 2023).

The economic turbulence of the 1970s and the resulting weak GDP growth which included recessions left deep traces on the labour market. Figure 3.9 shows that, in the selected countries, unemployment rose sharply during the period shown. In West



Fig. 3.7 Gross wages in manufacturing in Germany, the US, the United Kingdom and Italy, annual rates of change, 1966–1986. *Source* OECD, Economic Outlook, different years (2023)



Fig. 3.8 Annual real GDP growth rates in Germany, the US, the United Kingdom and Italy, 1966–1986. *Source* OECD (2023); for Germany, Deutsche Bundesbank (2022)



Fig. 3.9 Unemployment rates in Germany, the US, the United Kingdom and Italy, 1966–1986. *Source* US Bureau of Labor Statistics (2022) [US], Bank of England (2017) [UK], Ameco (2023) [Italy], Deutsche Bundesbank (2022) [Germany]

Germany, the development was gradual. Starting with initially very low unemployment rates, during the 1975 recession the unemployment rate rose to around 4%, then remained at this level, and rose in the recession of the early-1980s to a level of 8% and remained at that level for a long time. The United Kingdom also started with low unemployment in the late-1960s, then unemployment rose continuously to very high levels, nearly 12%, in the early-1980s. Unemployment rates also rose steadily in Italy starting in the early-1970s. However, the increase was moderate, as unemployment was already relatively high at the end of the 1960s. In the US unemployment rates increased substantially, having started with an unemployment rate of 4% in the late-1960s, which eventually reached close to 10% in the early-1980s. The US however, managed to reduce unemployment by the mid-1980s and then had the lowest rate of the four countries.

Overall, the 1970s show a serious structural break from the preceding, generally calm and satisfactory economic developments in the countries selected here. Inflation, or rather the failure to sufficiently control inflationary developments, together with poor economic growth and in some years recessions as well es substantially increasing unemployment laid the foundations for the neoliberal revolution (Harvey 2005). The latter then gradually substituted the relatively highly regulated type of capitalism in the tradition of the New Deal and restructured the compromises between capital and labour which were developed after the Second World War in all countries of the Global North and established a more deregulated and finance driven type of capitalism. The crises in the 1970s and 1980s were not based in deeper structural problems of capitalism as for example a falling profit rate or the theory of underconsumption (for an overview see Clarke 1990). The explanation can be found in

inadequate macroeconomic management strategies in a political constellation which did not allow a coherent macroeconomic policy. This led to the inability of many countries to keep nominal wages and the exchange rate as nominal anchors for the price level. We discuss this in the next chapter.

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Chapter 4 Inflation and Macroeconomic Management in Selected Countries from the Late-1960s to the Mid-1980s

In this chapter we discuss, in detail, developments in the Federal Republic of Germany, until the unification in 1990 also known as West Germany, the US, the United Kingdom and Italy from the end of the 1960s to the mid-1980s. In particular, we analyse the macroeconomic policy regimes (Heine et al. 2006; Herr and Kazandziska 2011) of these countries and their capacity to cope with the crises of the 1970s. In the last subchapter we compere the four countries.

4.1 The Federal Republic of Germany—Confrontation Between Wage Development and Monetary Policy

Chapter 3 argued that starting in the late-1960s, an inflationary wave developed in almost all Western countries, including West Germany, which was then further exacerbated by the sharp rise in energy prices in 1973. As already shown in Chap. 3, the inflationary dynamics cannot be explained by the development of energy prices alone, because the inflationary process had already started before the oil price shock. Indeed, wage developments also played a central role.

The inflation rate in West Germany rose from 2.3% in 1964 to 3.2% in 1965 and to 3.5% one year later (OECD 2023). The current account deficits in 1962, 1964 and 1965 after the revaluation of the D-Mark in 1961 within the Bretton Woods system was a warning signal for the current account surplus-oriented macroeconomic strategy of the German Bundesbank and other decision-makers. It prompted the Bundesbank, following its strategy of stability-oriented undervaluation (cf. Chap. 3), to raise the discount rate in January 1965 to 3.5%.¹ Prior to this, the discount rate had remained fixed at 3% since May 1961. In August 1965 it was raised to 4% and finally

¹ The discount rate was the interest rate for the Bundesbank's main refinancing operations at the time. It determined the money market interest rate.

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to 6% in May 1966 (Deutsche Bundesbank 1986). The result of this monetary policy was a slowdown of GDP growth, which then quickly led to current account surpluses again in 1966. Monetary policy was relaxed again in 1966. Together with a booming global economy, growth also rose sharply in West Germany in the following years. At the same time, unemployment rates fell to historically low levels of about 1% (cf. Fig. 3.9). These conditions moved the West German economy towards demand inflation driven by strong growth and full capacity utilisation with high profits, and this constellation created the potential threat that a wage-price spiral could develop.

Politically, in 1966 the Grand Coalition came into existence and heralded significant change. It was established between the conservative Christian Democratic Union (CDU)—which had consistently been in the government since the Second World War and until 1969 had always provided the Federal Chancellor—and the Social Democratic Party of Germany (SPD)—which, for the first time since the Second World War, became part of the federal government. After the election in 1969, the social democrat Willy Brandt became Chancellor in a social-democratic-liberal coalition with the Liberal Democratic Party (FDP).

Karl Schiller, a studied Keynesian economist and member of the SPD, became the Minister of Economics and Finance. Under him, the *Act to Promote Economic Stability and Growth* was introduced in 1967. This Act was based on the Keynesian spirit of the time and aimed to establish an active macroeconomic management strategy. The Act was implemented to achieve the goals of the so-called "magic square of economic policy", according to which steady and adequate economic growth, price level stability, a high level of employment and balanced trade could be realised simultaneously. In the same year and following the same basic idea, the Concerted Action was launched. Its aim was to bring together trade unions, employers' associations, the government and the Bundesbank. Later, other groups such as farmers were included. The intention was, among other things, to establish the macroeconomic coordination of economic policy including desirable wage development and active fiscal policy. In 1967, the trade unions agreed, much to Karl Schiller's liking, to a moderate wage development in collective bargaining, which largely corresponded to macroeconomic requirements.

However, in 1967, a series wildcat strikes in various industries began and continued in the following years. The strikes led to redistribution demands between wages and profits as well as higher wage increases than recommended and negotiated by trade union leaders. The wildcat strikes occurred for several reasons. First, unemployment rates were very low, profits increased because of demand inflation and real wage increases were considered to be too low. Secondly, a spirit of social change developed throughout society. Among other things, the student movement developed and forced the reform of universities. Theoretical debates, for example, in the tradition of Karl Marx, spread. Debates about investment control and a different kind of capitalism developed. Great hopes were pinned on Willy Brandt and the Social Democrats, who, starting in 1966, pushed through massive reforms and modernizations related to West German society. These developments were not confined to West Germany; in fact, they affected all Western industrialised countries in various forms.

Such strikes were unheard of in the period following the Second World War. This is because in West Germany, collective bargaining and strikes were, and still are, highly regulated. Such regulations usually do not exist in other countries. For example, conciliation negotiations and ballots had to be passed before official strikes could begin. In addition, a Works Constitution Act existed, and still exists, which establishes works councils and co-determination rights in firms. The extent of these rights depends on the management area. These rights are of a higher level of significance in personnel management and lower in terms of the investment decisions of firms. Additionally, there is the Co-Determination Act, which in stock corporations guarantees unions seats on the supervisory boards that elect the management boards. In short, traditionally, there is a cooperative relationship between unions and company management, a stakeholder corporate management system. Collective bargaining rounds in West Germany traditionally began with wage negotiations in the metal industry, including the influential automobile industry. The results achieved there were then more or less automatically transferred to the economy as a whole, with only minor modifications. The decisive factor in this dynamic was that IG-Metall, the powerful metal sector trade union, considered the general macroeconomic situation, and in particular the competitive situation of West German industry, in its negotiations. As early as the 1950s, the productivity development of the economy as a whole was established as one of the central guidelines for wage development (Agartz 1953). Within West German trade unions, a formula emerged that articulated that wages should rise in line with the productivity development of society as a whole plus price level changes plus a so-called redistribution component. In the 1950s through the end of the 1960s, this formula, considering the low inflation rate and an insignificant redistribution component, led to a wage policy that was characterised by the macroeconomic productivity development plus an inflation surcharge corresponding to the relatively low inflation rate (Schulten 2002).²

Strikes in many industries, which occurred against the will of the unions' leaders, at the end of the 1960s made it possible to push through significant wage increases, which were considerably higher than the rates of increase in previous years. Figure 4.1 shows this development. These wildcat strikes and high wage increases put union leaders on the spot. In response, trade union leaders also demanded higher wages and wage policy was seen as a tool to increase the wage share. The time of wage moderation within the framework of the Concerted Action was over.

With this significant increase in gross wages, unit-labour costs and the inflation rate also increased sharply in the early 1970s (cf. Fig. 4.1).³ Figure 4.1 shows how

 $^{^{2}}$ However, the wage formula that had become popular in West Germany in the 1950s had a catch. If it is actually followed, then a wage-price spiral is unleashed in the event of a price level shock. Attempts at redistribution via wage policy are also only possible to a very limited extent. A policy in this direction also leads to wage-price spirals (cf. Chap. 7).

³ In this figure and later in the corresponding figures for the US, the United Kingdom and for Italy, the GDP deflator has been chosen as the basket of goods rather than the consumer price index. The differences between the two indices are mostly small, but the GDP deflator is the broader index and more meaningful for our purposes. For example, the GDP deflator is much less affected by real estate bubbles and higher prices for land.



Fig. 4.1 Annual rate of change in average gross monthly wages* in West Germany in the manufacturing and services sectors, 1967–1986. *Without special bonuses *Source* Statistisches Bundesamt (2022a), own calculations

close the relationship is between wage increases, unit-labour cost increases and the price level in the medium-term. The correlation between the change in the GDP deflator and nominal gross wages for West Germany and then after German unification yields a high value of 0.85 for the period from 1971 to 2020 (authors' own calculation based on data from the Federal Statistical Office (Statistisches Bundesamt 2023)). And Germany is no exception, in a study of 20 countries (covering all major industrialised countries) from 1970 to 2016, a correlation of 0.92 was found between the average annual change in unit labour costs and the average annual change in the GDP deflator (Senner and Sornette 2018).

From the mid-1960s onwards, wage development in no way followed the wage norm that is central to macroeconomically stable development, according to which nominal wage increases should be in line with the medium-term productivity development of the economy as a whole plus a target inflation rate. For if wages rise in accordance with the wage norm, then in the medium-term wage dynamics result in an inflation rate in accordance with the target inflation rate and a real wage increase in accordance with the trend in productivity (cf. Chap. 7).

In 1969, real GDP growth for West Germany was 7.5%, a very high figure, and at the same time wages were rising sharply, which rightly caused the German Bundesbank to fear an overheating of the economy, especially of the labour market. In the Monthly Report for December 1969 it wrote: "Particularly on the labour market, overheating is increasing from month to month … It is obvious that under these cyclical conditions the scope for price pass-through has grown again" (Deutsche

Bundesbank 1969, p. 7). The discount rate rose from 3% in March 1969 to 6% in September of the same year and then to 7.5% in March 1970, after which it gradually fell to 3.1% by February 1972 (Deutsche Bundesbank 1986). Growth had eased, falling to 5.9% in 1970 and 3.1% in 1971 (OECD 2023). Obviously, the Bundesbank hoped that with the weakening of growth, inflationary pressures would also ease.

GDP growth increased again in the following years. In 1972 it rose by 4.3% and in 1973 by 4.8%. Wage increases in 1973 were very high (see Fig. 4.2). The Deutsche Bundesbank (1974, p. 34) assessed wage developments in 1973 as a "marked escalation in collectively agreed rates of increase." Consequently, the inflation rate rose from 5.2% in 1971 to 5.5% and 7.0% in the following two years. At the end of 1972, long before the first oil price shock in autumn 1973, the Bundesbank started tightening the monetary reins (Emminger 1986, p. 258). The discount rate rose from 3.5% in October 1972 to 5% in January 1973 and 7% later that same year (Deutsche Bundesbank 1986).

In 1974, the situation came to a head. The major oil price shock in autumn 1973 further fuelled price increases and raised inflation expectations. At the same time, in 1974 the ÖTV (Public Services, Transport and Traffic Union), which later became one of the founding unions of the still-existing United Services Union (ver.di) in 2001, took over wage leadership and not, as in almost all other years since the Second World War, IG Metall. The ÖTV had long set out to compensate for the lower wages in the public sector compared to the private sector. The then ÖTV union leader, Heinz Kluncker, went into the 1974 wage negotiations with the demand of a 15% wage increase, with a minimum increase of at least 185 D-Mark. After tough negotiations and three days of strike action, an agreement was reached on wage increases of 11%,



Fig. 4.2 Price level (GDP deflator), gross wages and unit-labour costs per hour in West Germany, annual rates of change, 1971–1986. *Source* Statistisches Bundesamt (2023), World Bank (2023), own calculations

with a minimum of 170 D-Mark. This very ambitious agreement was pushed through despite warnings from the federal government and the Deutsche Bundesbank at the time (Verdi 2022). Wage increases in the public sector had signalling effects and other sectors followed suit with relatively high wage increases. Some were able to achieve even higher wage increases.

For the Bundesbank, the high wage increases came once again at an inopportune time. In its monthly report from June 1974 it complained about the wage settlements in the first half of the year, writing that "once again extraordinarily high collectively agreed pay increases are in no way compatible with the stabilization efforts" (Deutsche Bundesbank 1974, p. 34). Despite a sharp cooling of the economy headed towards recession, the Bundesbank did not loosen monetary policy. It was not until October 1974 that the discount rate was lowered to 6.5% and then to 6% in December (Deutsche Bundesbank 1986, Fig. 4.3). What happened in 1974? According to Fritz Scharpf (1987, p. 173), the "world view of the trade unions in the spring of 1974 was thus still completely dominated by the distribution policy offensive begun in 1970 ... Monetary policy and wage policy were thus moving on a head-on collision course in 1974: From the trade union point of view, the Bundesbank's warnings lacked credibility and its admonitions were motivated not by macroeconomic considerations but at best by distribution policy, while the Bank was no longer prepared to allow cost increases to be passed on to prices after what it saw as a disastrous wage round in 1974." We agree with this judgement.

Monetary policy thus exacerbated the recession which developed in 1974. In 1975, the economy slid into its deepest recession since the Second World War and the unemployment rate rose sharply. Private demand was shrinking. Real consumption demand



Fig. 4.3 Money market interest rates in West Germany and the US, January 1966–December 1986. Source OECD (2023)

suffered because of high natural resource prices which transferred purchasing power to countries exporting natural resources. Additionally, restrictive monetary policy starting in 1972 reduced investment demand and private demand in general.

From 1975 onwards, annual nominal wage increases were again moderate, ranging between 5 and 6% until the end of the decade. The relatively strong increase in unitlabour costs in 1980 as well as in the following years (cf. Fig. 4.2) is due to the statistical effect of the sharp decline in GDP growth, from 3.9% in 1979 to 1.4% in 1980 and to 0.5% and -0.4% in the following years (OECD 2023).⁴ The German trade unions had learned the lesson taught by the Bundesbank in 1973 and 1974, according to which a wage policy that deviated significantly from the wage norm would be consistently fought even at the price of a deeper economic crisis.

Consequently, the inflation rate in West Germany—despite the second oil price shock in 1979—developed moderately and was significantly lower than in most other countries. Compared to the phase of restrictive monetary policy in the first half of the 1970s, the Bundesbank's very strict restrictive course from the end of the 1970s onwards (cf. Fig. 4.3) was not due to a macroeconomically dysfunctional wage development, but to concerns about the D-Mark devaluing too much against the US dollar and even other European countries.

Although the collectively agreed wages in the economy as a whole rose to 6.7% in 1980, after moderate increases of 5.7% and 4.9% in 1978 and 1979 (Deutsche Bundesbank 1987, p. 73*), the danger of a wage-price spiral was not the main concern of the Bundesbank. Rather, the main concern in particular was the weakness of the D-Mark against other European currencies which created a scenario that, in the eyes of the Bundesbank, made very restrictive monetary policy necessary. A more employment-friendly monetary policy, with the acceptance of a limited devaluation of the D-Mark, would have been possible. It would have most likely resulted in better employment development not only in West Germany but for many European countries as well.

Then, during the first half of the 1980s, the growth rates of wages, unit-labour costs and the price level fell to very low levels, reflecting the high unemployment levels in West Germany and the return of trade unions' strategy to take macroeconomic developments into account in wage bargaining. Commodity prices also started to fall, ultimately crashing in 1985, which added to the reduction of inflation rates.

The adjusted wage share, which reflects the national wage bill as a percentage of GDP, fell in West Germany from 71% in the early 1970s to a level of about 66% in the mid-1980s (Dünhaupt 2011). In our opinion, this reflects the beginning of a change in West Germany's economic regime and more generally in the type of capitalism as a whole, a phenomenon that is often referred to as financialisation. This regime change initially took place in the UK and the US in particular and is closely associated with the names of Margaret Thatcher, elected in the United Kingdom in 1979, and Ronald Reagan, elected in the US in 1980. Among other things, financial and labour markets

⁴ In periods of economic weakness, the volume of production falls faster than employment. This leads to statistically rising unit-labour costs. The opposite effect is found in the first phase of upswings.

were deregulated, and in many cases, management followed the shareholder value principle, i.e. the strategy of short-term profit maximisation enforced by all means. At the same time, trade unions lost influence and the market power of companies in the context of supply and demand oligopolies continued to increase (cf. Chap. 7.5 and Herr 2020).

As already explained in Chap. 3, the German Bundesbank managed the collapse of the Bretton Woods system in 1973 with some benevolence, as this ended its obligation to intervene in the foreign exchange markets to stabilise the exchange rate against the US dollar. As the "master in its own house", it reacted in 1973 and 1974 with a monetary policy that was rigorous by international standards. It raised the money market interest rate before the US and to a more significant extent. In doing so, it decisively intensified the recession that was already developing due to falling real demand as a result of the price increases for commodities (cf. Fig. 4.3). As the recession ran its course in 1974 and 1975, money market interest rates were finally lowered by the Bundesbank and remained low until early 1979. The fact that the US dollar remained weak during this phase and that the trade unions had returned to moderate wage policies certainly contributed to this.

At the same time, this hard monetary policy led to strong appreciation of the D-Mark against the US dollar as well as against other currencies. Figure 4.4 shows the development of the nominal and real effective exchange rate of the D-Mark.⁵ It shows that from the end of the 1960s until 1986 the D-Mark appreciated more or less permanently in nominal terms. In the case of the real effective exchange rate, no appreciation of the D-Mark can be seen in the long-term. In 1986, the real effective exchange rate was at the same level as it was at the end of the 1960s. The figure vividly shows the constellation of stability-oriented undervaluation that was pursued in West Germany.

In principle, real appreciation reduces a country's international price competitiveness and can lead to current account deficits. The Bundesbank and all other relevant macroeconomic actors in West Germany wanted to avoid this at all costs. After all, current account surpluses had been one of the central goals of German economic policy since the 1950s and characterised the West German economic miracle. Against this backdrop, the Bundesbank pursued a strategy of limiting nominal appreciations of the D-Mark through relatively low interest rates and foreign exchange market interventions. These measures were flanked by an overall—and compared with other industrial countries—moderate wage policy, with the exception of the early 1970s. The increases in unit-labour costs, and consequently in inflation rates, were below those in competitor countries. This guaranteed West Germany's international price competitiveness.

How did fiscal policy react to the crisis-like processes of the 1970s? Basically, fiscal policy is called upon after a strong price level shock such as the rapid rise in

⁵ In the effective exchange rate index, bilateral exchange rates are weighted according to a country's trade integration. In the real effective exchange rate, price level changes at home and abroad are removed. Thus, the real effective exchange rate shows the development of a country's price competitiveness.



Fig. 4.4 Index of the nominal and real effective exchange rate of the D-Mark, 1966–1986, 1966 = 100. *Note* Increase means appreciation. *Source* Bank for International Settlements (2022), own calculations

energy prices in 1973. This is because such a price increase causes real consumer demand to fall, which, if not compensated for, leads to a recession. Let's take the oil price shock of 1973. At that time, the rising oil price diverted purchasing power from West Germany to the OPEC countries, and consequently it was lacking at home. The OPEC countries, in turn, did not convert their additional income into imports to a relevant extent, which would have sufficiently stimulated exports in West Germany. In the 1970s, the so-called euro-dollar market exploded, as investors, not least from Arab countries, preferred to hold their investments in offshore markets rather than in the national territory of the money-issuing countries for tax and political reasons (Herr 1987).⁶

A rough estimate of the real loss of demand results in the following calculation: the price index for energy in D-Mark rose in West Germany from 104.6 in September 1973 to a value of 353.1 in December 1974. Therefore, energy costs increased by 237.6% during that period. The share of energy in the consumer basket at that time was 6.4%. It follows that, other things being equal, real purchasing power fell by about 15.2% due to the energy effect. This created a huge drop in consumer demand, especially since households with relatively low incomes have a higher propensity to consume and can only finance such price jumps to a limited extent, or not at all, from savings. Nominal wage increases did not help as companies rolled these over to prices.

⁶ The euro-dollar market emerged early after the Second World War, as the Soviet Union did not want to hold its dollar assets in the US for political reasons, preferring instead to hold them in London.



Fig. 4.5 Net lending/borrowing of general government and gross public debt as a percentage of GDP in West Germany, 1970–1986. *Note* Net lending/borrowing on the left, debt stocks on the right. *Source* Deutsche Bundesbank (2022b), Sachverständigenrat (1970)

The situation was aggravated by restrictive monetary policy, which curbed interestdependent demand, particularly in terms of investment but also consumption demand. As a result, West Germany slipped into a recession in 1975 with real GDP dropping 0.9%, after growth had already fallen to 0.9% in 1974 (Deutsche Bundesbank 2022b).

Such a demand shortfall can be compensated by expansionary fiscal policy. Figure 4.5 shows the fiscal balance as a percentage of GDP, which expresses the orientation of fiscal policy. According to this, there were partial budget surpluses at the beginning of the 1970s. This was due, on the one hand, to good economic development and high tax revenues and, on the other hand, to the *Act to Promote Economic Stability and Growth* which provided the basis for an active fiscal policy. Within this Act it was possible for the federal government to enforce so-called, "economic equalisation reserves", which mandated that the federal government and state governments maintain surpluses in booming economic periods. This possibility was accessed in 1969 and 1971, and, together with (partly) voluntary government savings budget surpluses, could be realised amounting to several billion Deutschmarks. The frozen funds were then used in the 1974 and 1975 crises. After that, there were never any further economic equalisation reserves (Wirtschaftslexikon24.com 2022).

From a surplus of 1.1% of GDP for public households in 1973, a deficit of 5.6% of GDP had developed by 1975. Budget deficits⁷ existed also in the following years. They were mostly below 3%, but in 1976, 1982 and 1983 they were between three and four per cent of GDP (Deutsche Bundesbank 2022b).

⁷ Budget deficit and net borrowing respectively budget surplus and net lending should express the same thing.

The comparatively high budget deficit in 1975 was largely due to automatic stabilisers and was not the result of additional fiscal programmes (see Herr and Spahn 1989 for details). Thus, more active fiscal policy in 1974 and 1975 would have been desirable. After 1975, the consolidation of public budgets was initiated. The value-added tax was raised from 11 to 13% and several consumption taxes were increased. The contribution rate as a percentage of gross wages to unemployment insurance also rose by 1%. However, in March 1977, a *Programme for Future Investments* (ZIP), amounting to 13.8 billion D-Mark or 1.4% of the GDP 1977, was adopted for the next four years, which slightly increased public investment.

In this phase, West Germany's current account surpluses increased significantly. At the same time, as discussed in Chap. 3, a new period of US dollar weakness began in 1978. At the Bonn Economic Summit in July 1978, attended by the heads of government of Canada, France, West Germany, Italy, Japan, the United Kingdom, and the US, the German government committed itself to more expansionary fiscal measures of 1% of GDP. This was done within the framework of the "locomotive strategy" of the time, in which the US administration urged West Germany and Japan in particular, as countries with large current account surpluses, to pursue expansionary fiscal policies. Corresponding programmes were then adopted by the social-liberal coalition under Helmut Schmidt, who became Chancellor after the resignation of Willy Brandt in 1974. When growth collapsed again worldwide as well as in West Germany from 1979 onwards, budget deficits increased moderately—in 1981 to almost 4%.

In terms of fiscal policy, there was no significant course correction in the 1980s, as it was in the interest of limiting budget deficits that no economic stimulus packages were implemented. The relatively passive fiscal policy during the recession in the early 1980s also had to do with the social-liberal coalition. Within this coalition, the SPD advocated for further stimulus programs, while the FDP argued for spending cuts. The conflict escalated and the coalition broke up in 1982. The FDP entered into a coalition with the CDU under Chancellor Helmut Kohl who remained head of government until 1998.

In the early 1970s, public debt in West Germany was around 20% of GDP and then rose to about 40% in the early 1980s. Thereafter, the increase slowed so that the government debt to GDP ratio grew only minimally until the unification of Germany in the early 1990s (Statistisches Bundesamt 2022a).

Overall, fiscal policy in the 1970s contributed to economic stabilisation in the 1974 and 1975 crises due to the effectiveness of the endogenous stabilisers and budget surpluses from previous years. But fiscal policy could only partially compensate for the loss of demand caused by the sharp rise in commodity prices and the associated reduction in real incomes as well as the effects of restrictive monetary policy. An even more active fiscal policy would have been desirable. In the economic crisis at the beginning of the 1980s, the expansionary impulses were weaker than in 1975. Particularly at that time, a more active fiscal policy would have made sense.

4.2 US—Inflation and the Erosion of the International Role of the US Dollar

It was not only in West Germany that a wage-price spiral and the tension between wage and monetary policy occurred during the 1970s. Indeed, in some countries inflationary developments as well as the political consequences were far more dramatic than in West Germany. In this subchapter we look at the case of the United States.

Since the Second World War, the US has had the privilege of offering the US dollar as the dominant reserve currency in the world monetary system. This gives them far more room for manoeuvre in terms of economic policy than the other countries of the world (cf. Chap. 3). However, when confidence in a currency at the top of the currency pyramid erodes, external restrictions can become binding including for countries like the US. This was the case in the 1970s.

The country providing the internationally leading currency has several privileges, although it shares some of these with other countries at the upper part of the currency hierarchy. First, it is able to borrow abroad in its own currency. This means that it is not vulnerable to external debt crises, since in an emergency its own central bank can step in as lender of last resort and stabilise the financial system. Countries of the Global South do not have the privilege to take foreign debt denominated in domestic currency. In instances of depreciation, the real debt burden of foreign debt for these countries increases and the national central banks cannot take over the function of lender of last resort. Second, the central bank of a stable reserve currency indirectly determines the monetary policy of other central banks. For example, an interest rate increase by the central bank of the reserve currency country usually leads to capital inflows into the reserve currency country. In order to prevent a destabilising devaluation, the other countries are forced to raise their interest rate as well. This was the case in the late 1970s (cf. Sect. 4.1). Third, international liquidity is held in the leading currency for the purpose of carrying out international transactions and in case of unforeseen events. Assets in the country issuing the leading currency are also held to transfer wealth in a safe way from today into the future. Especially in global crisis phases, money flows into the reserve currency country, as it is seen as a "safe haven." Thus, reserve currency countries experience permanent capital inflows by internationally active firms, financial institutions, private wealth owners, governments and central banks. In addition, in many countries of the Global South, national money only performs rudimentary monetary functions. The associated dollarisation increases the demand for the reserve currency, even in the form of US dollar notes.⁸ Due to high capital inflows the currency at the top of the currency hierarchy has a low interest rate when compared with other countries.

However, this permanent influx of capital is both a blessing and a curse. It enables the country to take on a role as an international bank and investor, as the capital inflows simultaneously allow for high capital outflows in the form of loans and foreign direct investment. However, the high capital inflows can also result in an overvaluation of

⁸ This advantage is usually referred to as seigniorage gain.

the country's own currency, thus creating a permanent and high current account deficit. This constellation is good for consumers in the reserve currency country, but at the same time is bad for the development of the industrial sector, growth and employment. Due to this effect, from the early 1980s on, the US realised very high current account deficits which were harmful for domestic industrial development, at least in terms of advanced industries and production in global value chains.

A wide range of factors determines the respective position of a currency in the currency hierarchy. For a reserve currency, the inflation rate must be relatively low, and the money and capital markets must be large and differentiated. In addition, there must be no capital controls and the invested assets must be safe from very high taxes or confiscation. Finally, the country issuing the leading currency must be internationally influential and militarily strong. One can see that the US with the US dollar fulfil these criteria. To a certain extent, the euro can compete with the US dollar, but the European Monetary Union (and previously West Germany and the D-Mark) lack the global influence and political and military power for a country at the top of the currency hierarchy. Other countries issuing a stable currency in the Global North, for example Switzerland, are too small. The Chinese renminbi is also not a candidate for an internationally leading role as the Chinese financial system and existing capital controls do not allow this. Thus, we have a situation where the US dollar has competitors, but none of them are able to compete with the US dollar on the same level (Herr and Nettekoven 2021). This became clear for the first time in the 1970s and is still the case today (Herr and Kazandziska 2011).

Let us look at the situation of the US in the 1960s. Internally, the US was under pressure to expand the welfare state, in particular because of racial unrest in the 1960s. In the mid-1960s massive protests began against discrimination, particularly against the black population, which reached a climax with the assassination of the civil rights activist Martin Luther King Jr. in 1968 (Stute 2014). Under US President Lyndon B. Johnson from the Democratic Party, a programme called "The Great Society" had already been implemented in 1964 to create a more equal society. At the same time, the Vietnam War was escalating. In spring 1965, the smouldering civil war in Vietnam became an open American-Vietnamese war starting with the systematic bombing of North Vietnam as part of Operation Thunder. In the same year, 3500 US Marines landed in South Vietnam. By 1968, 550,000 US troops were fighting in Vietnam. The war dragged on until 1975 and ended with the withdrawal of the US and the unification of both parts of Vietnam (Steininger 2020).

At the end of the 1960s, partially due to the expansion of the welfare state and the war in Vietnam, the US economy overheated. The inflation rate rose to over 4% in 1968 and the consumer price index reached 5.8% in 1970. This period of high growth combined with fixed exchange rates strained the current account. At the beginning of the 1970s, it also turned slightly negative (cf. Fig. 3.2). These economic and political developments weakened confidence in the US dollar and led to capital flight away from the US dollar. In this historical constellation the breakdown of the Bretton Woods system became a real possibility. For the US, since the Second World War, it had been possible to pursue a nationally oriented economic policy without regard to foreign economic requirements. At the end of the 1960s there was no willingness

to sacrifice domestic growth and employment opportunities at home to stabilise the international monetary system. Instead, in August 1971, the US unilaterally cancelled the obligation to exchange central banks' US dollar foreign exchange reserves for gold. This announcement deepened mistrust in the US dollar and led to the temporary collapse of the Bretton Woods system in 1971. The following rescue attempts failed, and the system finally fully collapsed in 1973 (cf. Chap. 3). Economic policy under President Richard Nixon (1969–1974), coming from the Republican Party, relied on a devaluation of the US dollar and there was no interest in defending the Bretton Woods system (Calleo 1981). Capital flight, heavy interventions in the foreign exchange market by other members of the Bretton Woods system and devaluation of the US dollar were passively accepted.

Consumer price inflation rates remained relatively high in the early 1970s. In 1973 they amounted to 6.3% and then shot up to 11.0% in 1974 and 9.5% in 1975. Thereafter, the inflation wave subsided somewhat, but reached 7.6% again in 1978 and rose to 11.3% in 1979 and 13.5% in 1980 (OECD 2023).

Real GDP growth was volatile in the US throughout the 1970s (see Fig. 3.8). It was relatively high in the late 1960s, but in the early 1970s, the US went through a downturn with growth rates only just above zero. In the 1973 boom, growth was around 6%. The mid-1970s saw the first recession in the US since the end of World War II with a contraction of GDP of 0.5%. The crisis was followed by relatively stable growth from 1977 to 1979, only to give way to a double recession with real GDP shrinking 0.3% in 1980 and 1.8% in 1982. GDP growth stabilised until the next recession in 1991. By international standards, the unemployment rate was high in the US throughout the 1970s, peaking at 8.5% in 1975. In 1982 unemployment increased to 9.7% and then slowly decreased to 5.3% in 1989 (OECD 2023; Fig. 3. 9).

Let us turn to fiscal policy. During the 1960s, budget deficits at the federal level were small and at times there were even budget surpluses. The budget deficits of the central government remained below 2% during this decade (Amadeo 2022). This should be considered in the context of high growth rates in the US. Although active Keynesian fiscal policy was propagated by the US government, there was very limited need to resort to it during this period. This changed in the 1970s as relatively strong expansionary and contractionary fiscal phases alternated (Fig. 4.6; Herr and Spahn 1989, p. 148). In 1971 the US had a budget deficit of 5.3% of GDP. In the following years it was reduced, only to rise to 7.3% in 1975 due to the severe economic downturn. In the 1982/83 crisis, similarly high budget deficits were realised, ultimately reaching 6.1% of GDP in 1983. Government debt as a share of GDP declined from around 40% at the end of the 1960s to about 30% during the 1970s. Relatively high nominal growth rates and comparatively low nominal interest rates supported this development. Due to high budget deficits government debt to GDP increased substantially throughout the 1980s (OECD 2023).

It is important to consider current account developments when seeking to understand US economic policy. After small deficits in the early 1970s the US current account became positive but deteriorated again in the second half of the 1970s. In 1977 and 1978 it became negative (Fig. 3.2). In this situation, the US tried to persuade



Fig. 4.6 Net lending/borrowing of general government and gross public debt as a percentage of GDP in the United States, 1966–1986. *Note* Net lending/borrowing on the left, debt stocks on the right. *Source* OECD (2023), FRED (2023)

West Germany and Japan to adopt more expansionary policies, as both countries had large current account surpluses. They argued that both countries should act as locomotives to stimulate the world economy by reducing their high current account surpluses. At the same time, the idea that a moderate devaluation to increase price competitiveness and eliminate current account deficits was a preferable strategy was prevalent in the US.

Figure 4.7 shows that in the US, in the medium-term, there was a high correlation between the development of nominal wages, unit-labour costs and the inflation rate. Spychalski (2011) shows that the correlation between changes in nominal unit-labour costs and the change in the consumer price index is 0.825 for the 60 years from 1950 to 2010. Wage developments in the US in the 1970s were strongly cyclical and overall nominal wage increases were too high for a low inflation rate. Even before the first oil price shock in 1973, annual nominal wages increased by more than 6%. The oil price shock and with it the increase of the inflation rate triggered wage increases above 8% in 1974; thereafter, increases flattened out somewhat for a short time, only to rise sharply again after the second oil price shock. In 1980 they were over 10%. Then in the rest of the 1980s nominal wage increases dropped sharply. Unit-labour costs followed the development of nominal wages as well as the inflation rate with an overall high correlation between the three variables.

Wage developments reflect the labour market institutions in the US. The degree of trade union organisation was just over 30% in the early 1970s and then declined steadily. The US is one of the few countries in the Global North where wage agreements are not passed on to non-union members in any form whatsoever. Union



Fig. 4.7 Price level (GDP deflator), gross wages and unit-labour costs per hour in the US, annual rates of change, 1971–1986. *Source* Sachverständigenrat (1987), US Bureau of Labour Statistics Economic Analysis (2022a, b), World Bank (2023), own calculations

density and wage bargaining coverage is almost identical. For example, declarations of general applicability of collective bargaining results are not known (Lee and Shin 2021). Overall, wage coordination in the US is an Achilles heel for a functional economic regime, as unregulated market mechanisms in the labour market strongly influence wage developments. This can explain the strongly cyclical course of wage development.

Throughout the 1970s there were several attempts to control wage and price developments through administrative intervention. In 1971, President Nixon launched his "New Economic Policy." Part of this policy consisted of the already mentioned unilateral cancellation of the obligation to redeem US dollar central bank deposits in gold. This step was expected to lead to a devaluation of the US dollar. To dampen the expected inflationary effects, Nixon simultaneously imposed a three-month price and wage freeze. After that, a "Pay Board" and a "Price Commission" were to control the development of wages and prices. Trade unions and representatives from the business side as well as selected persons from society, including scientists, were represented with equal weight on the Pay Board. In 1973 in particular, Nixon again explicitly resorted to this instrument to fight against the inflationary development. In 1974, however, after the Watergate scandal he had to resign, and his vice president Gerald Ford became president. Furthermore, the "New Economic Policy" included a 10% surtax on all imports, tax relief for new investments and various tax cuts. All in all, an expansionary fiscal and monetary policy was intended to promote growth, as the US was in a phase of low growth at the beginning of the 1970s. These measures certainly were based in Keynesian logic and had a beneficial effect on growth, but they could not decisively stop wage and price dynamics (Healy 2011; Burton and Butkiewicz 2017). Trade unions quickly adopted a critical stance towards the Pay Board, so that there was no sign of active support for appropriate macroeconomic wage restraint. In fact, the opposite was the case. "Workers' doubts about the equity of the Nixon Administration's wage and price stabilization program appear to have united organised labour end helped to crystalize its major 1972 political goal. That objective is to defeat President Nixon and end what labour considers to be a generally antilabor administration dangerously threatening collective bargaining and the sanctity of contracts" (Stetson 1972, para. 1 and 2).

President Carter from the Democratic Party, who was elected 1976 and came into office in 1977, also tried to control inflationary dynamics by administrative means. In October 1978, he announced guidelines for price and wage development. Price development was capped in that prices were to be increased at a maximum of the 1977/78 increase, minus 0.5%. Wages were subject to the rule that they should not grow by more than 7%. In 1979, a wage guideline of wage increases between 7.5% to 9.5% was agreed. Of course, there were exceptions to the rule and the guidelines were basically voluntary, although certain sanctions were provided for. Many large companies supported the guidelines, as did some trade unions. Then in 1979, as part of the fight against inflation, a "National Accord" was agreed between trade unions and the government. Among other things, trade unions were to get five of the 15 seats on a new "Pay Advisory Committee."9 This agreement stipulated that disciplined wage bargaining would be rewarded with a less restrictive fiscal policy which was considered necessary to reduce inflation. However, conflicts quickly arose with parts of the trade unions, which wanted to enforce higher wage demands, including with strikes.

All in all, all these attempts failed to achieve their goal of slowing down the wage-price spiral. Real wage reductions, which were inevitable due to commodity price increases and devaluations of the US dollar, were not accepted. Higgs (1980, no page) summarises: "The guidelines did not slow the rate of inflation: during 1979 the decline in the purchasing power of money actually accelerated. That the programme failed to achieve its ostensible objective therefore is beyond argument." A series of political and social conflicts escalated. The trade unions were unable to organise adequate moderation and coordination of wage development, mainly because of their weakness to think and act according to macroeconomic needs and their structure. Wage policy was unable to moderate destabilising wage increases which led to unacceptably high inflation.

A particular influence on the price level development resulted from a specific feature of US energy policy. After the oil price shock of 1973, a policy was followed that subsidised domestic energy prices and set maximum prices for oil. As a result,

⁹ "Organized labour and President Carter announced today a 'national accord' on economic policy intended to bring union leadership into a more visible partnership with the Administration. From the Administration's viewpoint, the centrepiece of the accord was the agreement ratified today by the executive council of the American Federation of Labor and Congress of Industrial Organizations that labour would fill five of 15 seats on a new Pay Advisory Committee" (Cowan 1979, para. 1 and 2).

demand for oil remained high in the US after the first oil price shock, even though domestic production declined. When the second oil price explosion hit the economy in the late 1970s, the weaknesses of this energy policy became apparent. Already under Carter oil prices were successively adjusted to world market prices, which led to a further inflationary impulse (Herr and Spahn 1989, p. 124).

Monetary policy in the US is traditionally very active, increasing interest rates quickly and cutting them to very low levels when needed. This was also the case in the 1970s. The inflationary development in the US at the end of the 1960s led the Fed to increase the refinancing rates, then during the period of low growth in the early-1970s refinancing rates dropped, only to increase again after the oil price shock in 1973 (cf. Fig. 4.8). Thus, during the upswing after 1971, the Fed raised refinancing rates in such a way that real interest rates also rose. The Fed responded to the crisis of the mid-1970s with rapidly falling nominal interest rates, which caused real refinancing rates to become negative. From 1977 onwards, the Fed then gradually raised interest rates again, as the renewed upswing was accompanied by high and rising inflation rates. Overall, monetary policy in the US through the end of the 1970s can be characterised as very cautious in respect to GDP growth and employment. It took seriously its mandate to manage both the inflation rate and real growth.

As was discussed earlier, the goal of the Nixon and Carter administrations was to accept or even initiate a moderate devaluation of the US dollar in the interest of stabilising growth and employment. Such a strategy involves risks for a reserve currency. Since a reserve currency assumes the function as a store of international wealth and wealth owners from all over the world hold monetary wealth in the reserve



Fig. 4.8 Short-term money market interest rate in the US, 1966–1986. Source OECD (2023)

currency country to store wealth in a safe way, devaluation expectations quickly lead to violent portfolio shifts. They are to be expected above all when competing currencies exist that can also take over international functions. And so the situation came to a head in 1978 and especially in 1979. The US dollar experienced a new phase of weakness and depreciated significantly against the D-Mark, the Swiss franc and the Japanese yen (cf. Fig. 3.1). Since a number of currencies in Western industrial nations, such as the Pound sterling in the United Kingdom or the lira in Italy, and other countries depreciated substantially in the 1970s, the nominal effective exchange rate of the US dollar did not plummet so severely. From 1970 through the end of the decade, the real effective exchange rate depreciated substantially by a total of 30% (Fig. 4.9).

Confidence in the US dollar, which had been eroding since the end of the 1960s, collapsed at the end of the 1970s and resulted in heavy international portfolio shifts, strong devaluations of the US dollar against smaller reserve currencies and rising inflation in the US. The US dollar came under pressure not only because of relatively high inflation and the failure to fight inflation via the attempt to reduce wage increases, but also because the US was in a difficult geopolitical situation, which weakened the US dollar's function as a reserve currency. The Vietnam War had been lost, and the first oil price shocks revealed that the US could no longer control the global commodity markets as it had in the 1950s and 1960s. In addition, oil-producing countries publicly considered demanding a basket of currencies for their oil substantially weakening the international position of the US dollar. To make matters worse, in the Middle East, the US had lost its good relationship with Iran due to the Islamic



Fig. 4.9 Index of the nominal and real effective exchange rate of the US Dollar, 1970-1986, 1970 = 100. *Note* Increase means appreciation. *Source* Bank for International Settlements (2022), own calculations

Revolution in 1979. Already in 1978, the communist People's Democratic Party of Afghanistan had come to power in Afghanistan, which from 1979 to 1987 could only survive with the massive support of Soviet troops. As a result, the US could no longer satisfy the expectations of internationally active wealth owners and the role of the US dollar as the clearly dominant reserve currency was seriously threatened. We completely agree with Hyman Minsky (1979, p. 104) who argued: "Official reasoning seemed to disregard the need to keep the owners of offshore and domestic dollars happy with holding dollar assets, they seemingly did not understand that if dissatisfaction with holding dollars became widespread, the terms of trade would turn so against the dollar that rapid impoverishment and 'banana republic' rates of inflation would surely occur."

Finally, the US no longer saw itself in a position to orient its economic policy exclusively towards domestic economic objectives. A radical about-turn occurred with the appointment of Paul Volcker under the Carter administration in July 1979. Volcker, known as a hardliner in the field of monetary policy, initially tried to stabilise the exchange rate of the US dollar through cooperation with the German Bundesbank in particular. When this failed due to the unwillingness of the Bundesbank, he reacted with extremely restrictive monetary policy and raised the refinancing interest rates of the Fed to previously unheard-of levels (cf. Emminger 1986, p. 303; Sect. 4.1). Under his leadership, money market interest rates in the US peaked at 13.9% in 1979 and 18.5% in 1980. It was not until the summer of 1982 that the interest rate level was lowered, albeit still to a comparatively high level (cf. Fig. 4.8; OECD 2023).

Before Volcker took office, the Fed tried, as became fashionable after the breakdown of the Bretton Woods system, to indirectly influence the development of monetary aggregates by means of interest rate policy. However, strong fluctuations in money market interest rates were to be avoided even when targets were missed. In 1979, Volcker tried to control growth in monetary aggregates without any compromise. This led to extremely violent fluctuations in money market interest rates (cf. Fig. 4.8). It is an open question whether the Fed, similar to the Bundesbank, largely used money supply management only as a pretext for monetary policy or actually believed in the strategy. In any case, as early as 1982—the year in which the global debt crisis escalated, particularly in Latin America, and a number of US banks got into trouble—the Fed backed away from this policy and interest rates were lowered. The development of monetary aggregates increasingly receded into the background and finally became unimportant for monetary policy.

The turnaround in monetary policy in 1979 together with the second oil price shock triggered a deep recession not only in the US, but throughout the entire Western world. The Bundesbank also had to drastically increase its interest rates (cf. Sect. 4.1). In particular, due to increasing interest rates and collapsing export revenues, Latin America slid into an over-indebtedness crisis which resulted in long-term stagnation. President Carter had no chance of a second term in office due to the economic and political turbulence in the US. Ronald Reagan, from the Republican Party, was elected President of the US in 1980 and came into office in early 1981. With the radical liberalisation of the domestic and global financial markets (which began in a limited way in the 1970s), a clear policy in favour weakening trade unions and an economic

policy that promoted income and wealth inequality, the course was set for a new model of capitalism. Reagan also attempted to strengthen the position of the US in geopolitical terms. One thinks, for example, of the highly controversial "Strategic Defense Initiative" of the US, also called the War of the Stars (Schultz 1993).

The radical change in monetary policy and the deep recession brought wages and the inflation rate down rapidly. The appreciation of the US dollar supported this. Together with the political developments under Ronald Reagan this consolidated the international position of the US dollar. When the Fed lowered interest rates in 1982, the appreciation of the US dollar nevertheless continued until 1985. At the same time, US current account deficits exploded to an extent that was previously unthinkable. Budget deficits also remained high, as the Reagan administration's idea that massive tax cuts—especially for the rich—would finance themselves through high growth proved to be an illusion. This means under so-called "Reaganomics" tax revenues decreased and at the same time expenditures could not decrease in kind because of political conflicts between Democrats and Republicans.

When the US dollar depreciated significantly in 1985 and the Fed allowed this without resistance in the form of higher interest rates, no inflationary dynamic evolved. Because of weak trade unions a wage-price spiral did not develop. Also, the collapse of the oil price at the same time helped to avoid inflationary developments. Now, compared with the late-1970s, the US was in a stronger position. Central banks all over the world, including the German Bundesbank, intervened heavily to slow down the depreciation of the US dollar (Herr and Spahn 1989).

4.3 The United Kingdom—Dysfunctional Trade Union Structure, Wages and Inflation

After the Second World War, GDP growth in the United Kingdom fluctuated much more strongly between periods of high and low growth as the economy was characterised by a stop–go policy throughout the period. Expansionary phases led to current account deficits, which then regularly forced restrictive economic policies. Obviously, the United Kingdom did not follow the German constellation, which defended its international price competitiveness by implementing relatively low wage increases within the Bretton Woods system and trying to achieve permanent current account surpluses.

In the United Kingdom under the Bretton Woods system, a deficit in the current account led to capital exports or at least to insufficient capital inflows and devaluation pressure on the pound as well as, due to interventions by the Bank of England, to high losses of foreign exchange reserves and eventually to interest rate increases. The sensitivity of the capital account to the current account was also due to the fact that the United Kingdom still played a certain role as an international reserve currency, even though the pound had long ceded its role as the leading currency in the world to the US dollar. Finally, after a long struggle to keep its value stable in the Bretton

Woods system, the pound had to devalue in 1967 from 2.80 pounds per one US dollar to 2.40 pounds (Bruce 2019).

Looking at the current account balance in 1958, the United Kingdom had a surplus of 1.6% of GDP, followed by a deficit of 0.8% in 1960, a surplus of 0.6% in 1962, a deficit of 1.0% in 1964, a surplus of 0.3% in 1966, a deficit of 0.7% in 1967, a surplus of 1.6% in 1971 and a deficit of 3.8% in 1974. GDP growth fluctuated from 5.7% in 1964 to 1.5% in 1966, to 5.4% in 1968, to 1.9% in 1969, to 6.5% in 1973 and -2.5% in 1974 (OECD 2023; Chap. 3).

To understand these developments in the United Kingdom, trade union structure and wage bargaining has to be analysed. The country had an unprecedented fragmentation of trade unions and thus wage bargaining, which can be considered the crucial Achilles' heel of British development. Since a large part of the trade unions were organised along occupational lines according to the medieval principle of guilds, an unmanageable number of individual trade unions existed in the 1970s. Even within one company, several unions could be operating, and they sometimes competed fiercely with each other. The government-appointed Donovan Report of 1968 counted more than 600 individual unions, of which only 183, mostly the larger ones, belonged to the Trades Union Congress (TUC) as an umbrella organisation (Scharpf 1987, p. 101).

As a result, the individual trade unions kept pushing each other's wage demands upwards. Macroeconomic considerations in wage demands and wage coordination among, or even within, sectors could play no role in such a regime. Instead, individual unions consistently took advantage of wage policy leeway. The TUC could not change this weakness, as it was not entitled to negotiate wages and could not even set guidelines for wage development. Moreover, the TUC had no influence on a large number of small and very small unions (cf. Scharpf 1987, Chap. 5; Herr and Spahn 1989, p. 47). An equivalent situation could be found on the employers' side. The Confederation of British Industry (CBI), as the employers' umbrella organisation, had no competence to negotiate wages or to set guidelines for wage development. Overall, even on an informal level, wage coordination in the United Kingdom was extremely low.

The United Kingdom had to contend with sharp wage increases and consequently high inflation rates for long periods throughout the 1970s. Figure 4.10 shows that nominal gross wages rose very sharply and erratically over the course of the 1970s, with annual increases ranging from 10% to almost 30%. Inflation rates, very closely correlated with wage development and nominal unit-labour costs, were correspondingly high, in some cases reaching values well above 20%. Thus, the British economy had very high inflation rates compared to other developed economies. In particular, wage and price increases skyrocketed after the two oil price shocks.

Governments in the United Kingdom tried to dampen these excessively high wage settlements with various measures in order to achieve a lower inflation rate in the medium-term.¹⁰ As early as the mid-1960s, the Labour government under

¹⁰ See Herr & Spahn (1989), p. 45; Heine et al. (2006), p. 159; Scharpf (1987), p. 100; and Crouch (1982).



Fig. 4.10 Price level (GDP deflator), gross wages and unit-labour costs per hour in the United Kingdom, annual rates of change, 1971–1986. *Source* Sachverständigenrat (1987), Statistisches Bundesamt (2022a), World Bank (2023), own calculations

Harold Wilson tried to establish an industrial policy strategy with investment and innovation promotion. Part of the strategy included voluntary agreements with the TUC on wage restraint and, if necessary, price controls. The weakness of the pound and its devaluation within the Bretton Woods system in 1967 frustrated this strategy, and as early as 1966 the government resorted to a wage freeze. The trade unions were divided against this legal measure. Wildcat strikes ensued and in 1968 the government abandoned the attempt at direct wage control. This type of economic policy characterised the United Kingdom until the late 1970s. There were attempts to control the inflation problem via incomes policy, with wage and price freezes as necessary, so that monetary and fiscal policy could be used to stimulate the economy or at least to prevent restrictive economic policy. Nelson (2000, p. 17) characterised economic policy in the United Kingdom in the late 1960s and 1970s as follows: "The government maintained that it could stimulate output and employment through expansionary monetary and fiscal policies, while holding down inflation through statutory wage and price controls."

In 1970, the Conservatives won the election and Edward Heath introduced the *Industrial Relations Act* in 1971. With this act, the government sought to strengthen the power of union leaders, for example in strike actions, vis-à-vis shop stewards, i.e. union representatives in workplaces. Heath hoped that this would lead to a more coordinated wage-setting mechanism and fewer strikes. The law did not have much effect and instead led to a massive conflict between the government and the trade unions, although the trade union leaders initially took a rather neutral stance towards the law.

In 1972, after a surplus in 1971, the current account balance of the United Kingdom deteriorated again. Confidence in the stability of the pound eroded, capital exports increased and in June of 1972 another currency crisis broke out. Despite massive interventions by the Bank of England, the United Kingdom had to leave the Bretton Woods system, shift to flexible exchange rates and the pound lost value against most other currencies. In order to contain inflationary pressures, which were accelerated by the devaluation, Heath tried to reach an agreement with the TUC on a voluntary incomes policy to prevent an escalation of the inflation rate. No formal agreement was reached, but the unions signalled acquiescence to statutory arrangements. In the first phase from November 1972 to March 1973, all wages, prices, rents and dividend payments were legally frozen. In the second phase only the wages of the lower income groups were to be raised, and in a third phase, from November 1973, wages would be allowed to increase moderately. The miners' union in particular did not comply with the regulations and demanded wage increases of 25%. Conflict with the government ensued, the political situation heated up and Heath called for new elections in February 1974.

The winner of the election was Harold Wilson, who came to power again. Wilson made another attempt at incomes policy. Jack Jones, the president of the Transport and General Workers Union, the largest union in the TUC, proposed a strictly egalitarian wage increase of 6 pounds per week in 1975. The TUC accepted the proposal, as did the government. Wages rose in line with this rule in 1976, then, in 1977, according to agreed income policy, wages were to rise by 5%, but not by more than 6 pounds or less than 4.5 pounds per week. This policy dialled back wage increases and brought the inflation rate back to relatively low levels (cf. Fig. 4.10).

In this phase, the government took foreign loans denominated in foreign currency. The purpose was to increase capital imports and to help stabilise the pound (Herr and Spahn 1989, p. 52). In doing so, there was a risk that the real debt burden would increase in the event of a real devaluation of the pound. This policy did not help. In 1974 there was a high current account balance of 3.8% of GDP which could only be reduced in slow increments and remained negative over the following years. The unstable political situation led to a breakdown of confidence and the pound collapsed in 1976 after an already long period of weakness (cf. Fig. 4.11). The crisis was so deep that the Bank of England's foreign exchange reserves fell to a minimum. Even a loan of 5.3 billion US dollars from a consortium of banks to stabilise the pound exchange rate was not enough and the country had to turn to the International Monetary Fund (IMF). Even the credit line, which could be drawn from the IMF without conditions, fell short of requirements. The country needed further loans and had to submit to the Fund's austerity measures. As a result, the IMF's loan to the United Kingdom was the highest amount of aid ever given by the Fund at that point (Bruce 2019). Harold Wilson resigned in 1976 and Jim Callaghan, also from the Labour Party, became Prime Minister.

Figure 4.11 shows that despite strong nominal depreciation, the real effective exchange rate indicates only a moderate real depreciation of the pound. Obviously, nominal depreciations were compensated for by high inflation rates, and meanwhile these depreciations triggered further inflation. In the second half of the 1970s, after


Fig. 4.11 Index of the nominal and real effective exchange rate of the pound sterling, 1970-1986, 1970 = 100. *Note* Increase means appreciation. *Source* Bank for International Settlements (2022), own calculations

the financial crisis of 1976, the pound appreciated in nominal and real terms, which was then followed by a period of depreciations after the recovery of the US dollar.

In respect to wage policy, Callaghan initially followed the same strategy from before the Heath and Wilson administrations. In 1978, his government proposed to the unions that wage increases be limited to 10%. In return, the government offered a youth unemployment programme, higher child benefits and tax cuts. However, the incomes policy failed. The TUC passed a resolution in autumn 1977 calling for free collective bargaining without government interference. The background to this demand was a fall in real wages in 1977 of almost 10%, which was mainly the result of the devaluation of the pound in the years before. The Callaghan government nevertheless proposed a wage guideline with a maximum wage increase of 5% for 1978. This led to a break with the trade unions and subsequently Callaghan followed a policy to control inflation that went beyond incomes policy. The trade union movement has been resentful of wage guidelines for some time by this point. The compression of the wage structure in previous years through wage increases in the form of fixed amounts led to criticism of better earning workers who wanted higher wage increases. In addition, the left wing of the Labour Party and parts of the trade unions became politically radicalised. Finally, in 1978, there was the "Winter of Discontent" with months of mass strikes by dockers, teachers, locomotive drivers and health service workers, among others. The aim was a significant wage increase.

However, only limited success was achieved. Among all this economic and political turbulence as well as the inability of Callaghan to control inflation and solve the conflict with trade unions, Margaret Thatcher from the Conservative Party won the election in May 1979. She launched an extremely tough policy against trade unions. The Bank of England also took a decisive role in the fight against high inflation (see below).

In the 1970s, the United Kingdom failed to cope with the challenges of oil price shocks as well as a weak currency and was considered the "sick man of Europe", an expression first used to characterise the poor performing Ottoman Empire in the early nineteenth century (Economist 2017). The collapse of the Bretton Woods system changed the external rules of the game, as capital flight, devaluations and currency crises became more likely. Since wage policy in the United Kingdom in particular was in no way suitable to meet these new challenges, a crisis gradually developed that became increasingly unmanageable in terms of economic policy. Prolonged strikes, combined with the dysfunctional organisational structure of the bargaining parties and too high of wage increases led to high inflation rates and even currency crises. One can only agree with Scharpf (1987, p. 117) when he writes: "The Labour government has thus ... failed because of the impossibility, under the given institutional conditions, of permanently realising that minimum of coordination between state economic and financial policy and trade union wage policy, without which such a difficult economy as Britain's could not be successfully steered through the crisis of the 1970s."

Let us turn our attention to fiscal policy. Even during the 1950s and 1960s, the United Kingdom was characterised by an expansive fiscal policy orientation, which was regularly restricted by current account deficits and external weaknesses of the pound. Whenever the external value of the pound stabilised, a more expansionary fiscal course was adopted, which then had to be abandoned again due to external economic distortions.

After weak growth in the mid-1960s, GDP growth picked up over five per cent. The relatively high budget deficit could be reduced, and the United Kingdom realised budget surpluses by the end of the 1960s (cf. Fig. 4.12). The new Heath government that came into office proceeded to stimulate unsatisfactory growth in 1971 with several fiscal policy packages. However, the pound entered a crisis in mid-1972, to which Heath responded with a fiscal policy "freeze." The government planned for fiscal policy to be neutral in 1973. The oil price shock in 1973 put a spoke in the government's wheel. The sharp drop in GDP and the recession in 1974 and 1975 led to budget deficits of almost 6% in 1975 and 1976, which at the time were considered to be very high deficits. At the same time, the current account deteriorated and fell deeply into the red. There was no room for significant expansionary fiscal policy. Smaller fiscal programmes were adopted in 1975, but only the automatic stabilisers worked and were responsible for the high budget deficits. Nevertheless, an attempt was made in mid-1975 to switch to a more active expansionary fiscal policy. However, this succeeded only for a short time. In 1976, due to the currency crisis of the pound and the conditions imposed by the IMF, all expansionary fiscal measures were stopped, and the deficits reduced. After 1976, "go" and "stop" fiscal policy strategies alternated until 1980 when Margaret Thatcher attempted to eliminate the budget deficits with aggressive austerity policies. But this too was only successful to a limited extent since the recession in 1980 and 1981 led endogenously to a high



Fig. 4.12 Net lending/borrowing of general government and gross public debt as a percentage of GDP in the United Kingdom, 1966–1986. *Note* Net lending/borrowing left-hand side, debt stocks right-hand side. *Source* Bank of England (2017), IMF (2022b), own calculations

budget deficit. The fiscal austerity policy followed by Thatcher caused growth and tax revenues to collapse and did not sufficiently reduce budget deficits. Ultimately, this very tough fiscal austerity policy was abandoned, and relatively high budget deficits were accepted (cf. Herr and Spahn 1989, p. 45).

Figure 4.12 shows that the gross debt stock of the government in the United Kingdom, measured in terms of GDP, declined from the mid-1960s and, despite relatively high budget deficits, remained stable around 50% in the 1970s. This was due to the sometimes very high inflation rates and interest rates that did not compensate for the inflation rate. Under the Thatcher government, massive privatisations and aggressive austerity policy led to a small reduction of public debt to GDP.

Finally, let us turn to monetary policy. The core problem of monetary policy was the conflict between monetary and wage policy, which was reflected in high inflation rates, current account deficits and regular currency crises. Against this background, the Bank of England was repeatedly forced to pursue restrictive monetary policy. The history of the United Kingdom's interest rate development is thus interwoven with the history of its currency crises. Thus, the Bank of England raised its interest rates, sometimes drastically, in 1967, 1972 and 1976 (cf. Fig. 4.13).

Wage-price spirals in boom phases were accepted to a certain point; eventually, however, they had to be countered by monetary policy against the backdrop of emerging currency crises. This pattern characterised monetary policy in the United Kingdom from the 1960s onwards. It is thus an example of how the transition to flexible exchange rates did not open up any external economic room. Indeed, in the United Kingdom, the opposite was the case. Under a regime of flexible exchange



Fig. 4.13 Short-term money market interest rate in the United Kingdom, 1966–1986. *Source* Bank of England (2017)

rates, the wage-price spiral became a devaluation-wage-price spiral leading to further devaluation (cf. also Chap. 7.1). With regard to the monetary policy of the Bank of England, it must be considered that the central bank only became independent in 1997 and during the period studied here was dependent on the decisions of the Chancellor of the Exchequer, who steered fiscal and monetary policy in the same direction.

The Bank of England's monetary policy can be divided into different phases. Until July 1976, the outbreak of the deep currency crisis, it was, as was analysed, "subordinate to incomes policy as the primary weapon against inflation" (Nelson 2000, p. 5). Only during currency crises were interest rates massively increased as the government clearly thought there were no other options available.

Following this, the Bank of England officially followed monetary targeting until April 1979, without much success in bringing down the inflation rate. After the election of Margaret Thatcher, the "Medium-term Financial Strategy" was implemented. Components of this strategy included a rapidly reducing money supply target over the following years, massive indirect tax cuts with a simultaneous strengthening of the role of indirect taxes, expenditure cuts in various areas and an attempt to reduce budget deficits. Due to off-shore oil, Thatcher's economic policy was facilitated as the country switched from a net-importer of oil to a net-exporter and thus benefited greatly from the second oil price shock.

Then, in 1985, the monetary targeting strategy was abandoned as money supply targets were regularly missed. Officially, the Bank of England switched to setting a target inflation rate in 1992 with an explicit disregard for the money supply (Nelson 2000).

The Conservative government, which definitely wanted a regime change in the United Kingdom, was not able to push through all of its goals, such as the clear limitation of budget deficits. But with the election of Margaret Thatcher, a neoliberal turn was initiated. It was characterised by a decidedly hostile policy towards the trade unions, the abolition of the minimum wage and the far-reaching privatisation of public enterprises and public services.

The inflation rate was brought down. Unemployment rates increased to almost 12% (see Fig. 3.9) which reduced trade unions' power and thus wage increases. The political pivot under Thatcher, as in the US under Reagan, replaced the post-war model of capitalism with a new neoliberal model.

4.4 Italy—An Example of Dangerous Muddling Through During Periods of Economic and Political Turbulence

Looking only at real GDP growth rates or employment trends in Italy (see Figs. 3.8 and 3.9) for the period analysed here, one might conclude that the country did many things right. Real GDP growth rates in the period from the end of the 1960s to the beginning of the 1980s were roughly in line with the average level of OECD countries. Only from the beginning of the 1980s did the Italian economy show slightly below-average growth rates, and in terms of GDP growth it did not develop worse than, for example, West Germany. The economic upswings and downswings of the 1970s also showed no remarkable deviations from the trend of other developed economies. At around 6%, the unemployment rate was above the OECD average at the end of the 1960s. Then it rose permanently in the 1970s and reached 8% by the beginning of the 1980s. This was roughly equivalent to the West German and US levels (cf. Chap. 3; OECD 2023).

Nevertheless, this rather positive picture is deceptive (cf. Herr and Spahn 1989, p. 30). West Germany, the US and the United Kingdom did not handle the challenges of the 1970s in an ideal way, but Italy must be characterised in the period from the mid-1960s through the early 1980s as a completely dysfunctional economic regime—an example of dangerous muddling through. Neither fiscal nor monetary nor wage policy aligned their economic policy objectives with economic necessities. The explanation for this is found in the unstable political constellation of that period.

The Democrazia Cristiana (DC) was Italy's most important political party for a very long time. From the period following the Second World War until 1981 it had always provided the prime minister, albeit with changing coalition partners. The overarching political consensus of the DC and its allies was not to provide a platform for further success to the steadily growing Italian Communist Party (PCI) or even to allow it to participate in government. At the same time, the conservative forces felt too weak to push through a more restrictive economic policy concept despite high inflation. The PCI was not able to take over government responsibility until 1976, but the party was able to influence the decision making of the DC even before this point. In 1976, the PCI won 34.4% of the vote in the parliamentary elections. It was then informally included in the government by the Prime Minister, Giulio Andreotti, in a "historic compromise" that broke up again in 1979.¹¹ In the 1980s, the influence of the PCI waned, and in the early 1990s the DC dissolved after several corruption cases.

Overall, from the end of the 1960s onwards, Italy was characterised by a heated political atmosphere in all areas of life, "Schools, factories, leisure facilities, universities and every other place of social life became, for a whole generation of men and women, the object and, at the same time, the venue of escalating political and ideological confrontations" (Livi 2020). Various developments interacted throughout this process. There were ongoing labour struggles and waves of strikes, social movements including the student movement were strong, and Italy was swept by an ongoing wave of terror from radical left and right groups (Livi 2020). Large sections of the population fought for radical changes to the economic and political system in Italy. At the same time, distributional conflicts came to a head from the late 1960s onwards. Between then and the end of the 1970s, the DC governments pursued an economic policy that did not provide the PCI with any space for further success and was intended to prevent social unrest. Added to this was the particular problem that regional disparities were huge, indeed, they were the largest of any developed capitalist economy (Mauro et al. 2012).

Let us turn to wage and price level developments from the end of the 1960s onwards, which got completely out of hand. The inflationary developments in Italy by no means began with the oil price shock in 1973. There were already strong nominal wage increases by the end of the 1960s. Figure 4.14 shows that the development of gross wages in the 1970s was cyclical and much too high, which completely violated the wage norm for a functional wage development which recommends wage increases according to medium-term productivity development plus a low inflation rate. Over the course of the decade, annual increases in gross wages ranged from just under 12% (1972) to 25% (1977) and thus completely detached themselves from the trend in productivity. Consequently, the inflation rate from 1973 to 1984 was never below 10% and constantly fluctuated between 15 and 20%. Figure 4.14 also shows the close connection between the development of unit-labour costs and that of the price level for Italy.

Italy had, and still has, functional wage bargaining institutions. Wages were negotiated at the sectoral level and the results of the bargaining were extended to all companies in a sector according to Italy's constitution. Italy thus has an automatic mechanism of generalisation of collective agreements (Leonardi et al. 2019).¹² Problematically, the trade union movement is organised in three politically different confederations. The CGIL (Confederazione Italiana Generale del Lavoro) was close to the then strong communist party, the CISL (Confederazione Italiana Sindacati

¹¹ The term 'historic compromise' was used by Italian Communist leader Enrico Berlinguer in 1973 to indicate a possible governing coalition between the DC and the PCI (Moliterno 2000).

¹² In 2009, the mechanism was watered down as on a firm level operational adjustments to centrally negotiated agreements were made possible.



Fig. 4.14 Price level (GDP deflator), gross wages and unit-labour costs in Italy, annual rates of change, 1971–1986. *Source* Sachverständigenrat (1987), Istat (2022), World Bank (2023), own calculations

Lavoratori) to the socially oriented wing of the DC and the UIL (Unione Italiena del Lavoro) to the smaller parties, i.e. the socialists, social democrats and republicans (Namuth 2012). Competition between the unions and their political polarisation certainly contributed to the destabilising wage demands.

From 1967 onwards, there were large waves of strikes in Italy, which developed in parallel with the student protests. The issues were wage increases and reductions in working hours. An agreement was reached on a gradual reduction of the working week from 44 to 40 h. Overall, gross wage increases in the late 1960s were over 20%. "Resistance from the business side was extremely low and the government was also initially unwilling or unable to adopt an anti-inflationary policy" (Thomasberger 1990, p. 202). At the beginning of the 1970s, there was a phase of relatively moderate wage increases as most collective agreements in Italy were concluded for a period of three years.

In 1973, the economic situation came to a head. After several years of relatively good GDP growth and high inflation rates, the current account slipped from a surplus to a deep deficit even before the oil price shock in 1973 (cf. Fig. 3.2). As early as January 1973, the lira came under heavy pressure. In February, even prior to the end of the Bretton Woods system, Italy had to switch to flexible exchange rates. The result was a sharp devaluation of the nominal and real effective exchange rate (cf. Fig. 4.15). In order to strengthen competitiveness through devaluation, wage policy must pull in the same direction and forego compensation for imported inflation and accept real wage losses. This did not happen in Italy. A classic devaluation-price-wage spiral occurred, as nominal wages soared in 1973. Hourly earnings in the manufacturing sector increased by 20%, pushing the inflation rate to the 20% mark. The government



Fig. 4.15 Index of the nominal and real effective exchange rate of the lira, 1970–1986. *Note* Increase means appreciation. *Source* Bank for International Settlements (2022), own calculations

imposed an absolute three-month price freeze in the summer of 1973 to tame inflation. After that, prices were supposed to rise in a controlled manner. The measures failed as the inflationary development could not be stopped.

The lira continued to depreciate throughout 1973, wage increases and inflation remained high and the current account slid deeper into the red. The oil price shock in autumn 1973 further fuelled instability. The current account deficit was 4% of GDP in 1974. To reduce imports, Italy implemented an import deposit in May 1974; for certain imports, a sum of money had to be deposited with the central bank in the amount of 50% of the import invoices for six months. Due to the weakness of the lira and the overall political constellation, Italian wealth owners shifted their monetary wealth to more stable currencies. This export of capital put increasing pressure on the exchange rate. Although there were a number of capital controls, they could only partially stop this capital flight.¹³ To stabilise the external value of the lira, Italy borrowed through various channels. For example, the Italian state and governmentcontrolled banks borrowed abroad, the IMF as well as the European Community helped Italy with credits. In addition, central banks supported the Banca d'Italia. All of these efforts were not enough. At the beginning of 1976, Italy became insolvent. The external value of the lira dropped massively in nominal and real terms. The import deposit, which had been abolished in the meantime, was reintroduced, now for almost all consumer goods, but with a deposit requirement of only three months.

In June 1976, parliamentary elections were held, which resulted in an electoral victory for the PCI. It was then informally involved in government decisions as part of the "historic compromise." Under pressure from the trade unions and against the

¹³ Italy used the instrument of capital controls until the 1990s.

backdrop of this political constellation, the so-called Scala Mobile was introduced in 1977 under the Andreotti government, first for the private sector and, after tough disputes, also for the public sector in 1979. The trade unions' strategy was geared towards securing real wages and, where possible, redistribution. In addition, there were demands for the greater participation of workers in economic decisions on the firm level. The companies gave in on wage demands but did not accept extended rights for the labour movement (Thomasberger 1990, p. 203).

The Scala Mobile involved the indexation of wages according to the evolution of the price level. A special basket of goods was formed and the absolute increase in the price index of this basket of goods was multiplied by a fixed parameter, the so-called "contingenza point." The resulting sum determined the absolute increase in nominal wages. This was done every three months. What was interesting about this model was that with the Scala Mobile an equal sum was agreed to as an increase in wages for all workers.¹⁴ In addition to the Scala Mobile, further collective bargaining could be conducted to additionally increase wages.

Scala Mobile had two powerful effects. First, a wage-price spiral was institutionally established. Second, there was a strong effect of compressing wage dispersion. Thus, during the existence of the Scala Mobile, wage inequality in Italy decreased significantly (Manacorda 2004). In 1983, with the election of Benedetto Craxi (Prime Minister of Italy from 1983 to 1987) from the Socialist Party, the Scala Mobile was defused by defining a new base year for the basket of goods and a new "contingenza point." Particularly after 1983, there were intense protests by skilled workers and workers with generally higher wages, similar to those in the United Kingdom (see Sect. 4.3). Therefore, another reform followed in 1986 that instituted a percentage increase in wages up to a certain wage bill according to the rate of inflation and with an automatic adjustment beyond that of a quarter of the rate of inflation. Finally, the system was abolished in 1992, with a last adjustment in 1991 (Leonardi et al. 2019).

After the second oil price shock, gross wages and price levels increased by more than 20% due to the Scala Mobile. It was only after a reform of the Scala Mobile that wage increases and the inflation rate could be slowly reduced to below 5% by the mid-1980s, this was also due to a stabilisation of the exchange rate (see below) and falling commodity prices.

The dampening of the inflation rate occurred in Italy without a massive stabilisation crisis, which had been expected by many observers. The global slump in the early 1980s was weaker in Italy than, for example, in the US, the United Kingdom or West Germany. This draws attention to fiscal and monetary policy, which formed a specific interaction in Italy.

From the end of the 1960s, several major economic policy phases can be identified (Thomasberger 1990, p. 204). From the mid-1960s, fiscal policy in Italy was extremely expansionary, starting with budget deficits of around 4% of GDP. They then increased steadily and by 1975 reached values of over 10%. Even in economic

¹⁴ Thus, in the first quarter of 1977, the price index increased from 143 to 149, i.e. by 6. This value was multiplied by the "contingenza point" of 2389. This gave 14,334, so monthly wages were automatically increased by 14,334 lira at the end of the first quarter (Leonardi et al. 2019).

upswings there were high budget deficits. It is remarkable that they remained at a high level until the mid-1980s (cf. Fig. 4.16). Italy's fiscal policy was decisively shaped by two factors. On the one hand, restrictive fiscal policy was avoided because there was a consensus in conservative circles not to leave the PCI any space for political agitation. On the other hand, and closely related to this, there were considerable deficiencies in the social infrastructure (e.g. in the health system) and in the extent of social safeguards. The expansion of the welfare state, which was lagging behind when compared to other developed economies, was thus on the agenda. At the same time, the government was afraid to finance the necessary reforms by raising taxes or social security contributions.

Monetary policy was accommodative and made no effort to combat high inflation rates. Although nominal short-term interest rates were relatively high from 1973 until the mid-1980s (see Fig. 4.17), interest rates followed the inflation rate and did not signal a restrictive monetary policy. Figure 4.18 shows that real interest rates in Italy were extremely negative. The real interest rates for ten-year Italian government bonds show that from 1973 onwards, long-term real interest rates were negative and remained so until the early 1980s. The Banca d'Italia was not an independent institution. It was legally forced to buy government securities if the Italian government could not place them on the market. Thus, the high budget deficits in Italy in the early 1970s were largely financed by the central bank. The then President of the Banca d'Italia, Carli, wrote in 1973: "We asked and we keep asking ourselves whether the Banca d'Italia could have refused, or could refuse, to finance the budget deficit by refraining from the faculty, attributed by the law, of buying government debt. Such



Fig. 4.16 Net lending/borrowing of general government and gross public debt as a percentage of GDP in Italy, 1966–1986. *Note* Net lending/borrowing on the left, debt stocks on the right. *Source* Galli and Padavano (2008), own presentation



Fig. 4.17 Short-term money market interest rate in Italy, 1966–1986. *Source* Ameco (2023); Deleidi and Meloni (2014)

a refusal would leave the government in the impossibility of paying wages to public employees (...) and pensions to all citizens. It would look like an action of monetary policy: essentially it would be an act of rebellion" (quoted in Tabellini 1988, p. 94).

The creation of domestic monetary wealth through the purchase of government securities as well as the refinancing of banks, which provided more needed liquidity to the private sector, increased monetary wealth in lira. Due to the eroding confidence in the lira, a large part of this new monetary wealth was exchanged in stable foreign currencies. In the early 1970s Italy was caught in a devaluation-wage-price spiral which led to further devaluations.

Obviously, through the mid-1970s, Italy did not try to stabilise the exchange rate vis-à-vis the D-Mark as many other European countries did after the breakdown of the Bretton Woods system (see Chap. 3). Instead, it attempted to stabilise the exchange rate vis-à-vis the weak US dollar. But even this attempt failed, as showed by the 1976 devaluation of around 20% against the US dollar.

The deep currency crisis of 1976 did not only lead to the historic compromise between communists and conservatives, but it also led to a change in monetary policy strategy. The Banca d'Italia tried more actively to get inflation under control. A key element of the strategy was to stabilise the exchange rate. The Banca d'Italia tried seriously to keep a stable exchange rate against the US dollar or even to moderately appreciate the lira, and at the same time it accepted controlled devaluation against the D-Mark and other European currencies. This strategy was essentially successful (cf. Fig. 3.1), even though the effective nominal exchange rate continues to show a depreciation of the lira. The decisive factor was that Italy was able to realise current



Fig. 4.18 Real interest rates for ten-year Italian government bonds, nominal interest rate minus change in consumer price index, 1966–1986. *Source* Ameco (2023)

account surpluses in the second half of the 1970s, including against West Germany (cr. Fig. 3.2). Devaluation against the D-Mark and other European currencies contributed to this, but so did the institutional impediments to imports. Fiscal policy remained extremely expansionary during this phase with high budget deficits.

A new phase of monetary policy began with the radical, high interest rate policy of the US from 1979 onwards. The previously practised strategy of stabilising the exchange rate against the US dollar no longer worked, as the lira now depreciated strongly against the US dollar. Moreover, inflation, triggered by the second oil price shock, came to a head again with inflation rates of over 20% (cf. Fig. 4.14). On the political level, the historic compromise between the PCI and DC broke down. Already by 1978, Aldo Moro, who had been prime minister of Italy several times and was one of the constructors of the historic compromise in the DC, was kidnapped and murdered by the Red Brigades in order to prevent the continuation of the historic compromise. By the end of the 1970s, the DC instead oriented itself either towards other coalition partners or building a minority government.

In 1979, a U-turn towards contractionary monetary policy was initiated. Interest rates were raised sharply, so that the real interest rates for Italian government bonds became clearly positive (cf. Fig. 4.18). The so-called divorce between the Ministry of Finance and the Banca d'Italia in 1981, which abolished the automatic financing of the state budget by the central bank, had symbolic power. The rule that the interest rate policy of the Banca d'Italia had to be coordinated with the Ministry of Finance was only abandoned in 1992 as part of the preparations for joining the European Monetary Union.

From 1979 onwards, Italy pursued the often-maligned strategy of the Mundell-Fleming model, which proposes the combination of restrictive monetary policy to maintain external balance in an open economy and expansionary fiscal policy to stabilise the domestic economy (Fleming 1962; Mundell 1962). Fiscal policy remained permanently expansionary with very high budget deficits, while monetary policy was restrictive with high real interest rates. In order to not the national debt get out of hand, tax revenues were increased in the 1980s. At the same time, government expenditure also increased. Thus, tax revenues increased from about 35% of GDP in 1980 to 41.2% in 1986 (Thomasberger 1990, p. 199). Overall, due to persistently high budget deficits and the simultaneous increase in revenues and expenditures, fiscal policy followed an extremely expansionary course.¹⁵

Italian monetary policy in 1979 reflected intensified efforts to peg the lira to a stable currency. The European Monetary System (EMS), founded in 1979, was a system with fixed exchange rates which could be adjusted by political decisions and also included support mechanisms in case a currency came under devaluation pressure. The EMS was used as a nominal exchange rate anchor. In this system, the D-Mark took on the function of a regional reserve currency. The participating countries of the EMS thus had to defend their exchange rate against the D-Mark and largely follow the interest rate policy of the Deutsche Bundesbank.

Italy was one of the founding members of the EMS. However, there was an exception for Italy. The exchange rates of the countries participating in the system were in principle allowed to fluctuate $\pm 2.25\%$ around the politically determined central rate; for Italy, a bandwidth of $\pm 6.0\%$ was agreed to. Italy did not fully succeed in defending a fixed exchange rate. The lira had to be devalued within the EMS by 6% in 1981 and then again by 3% and 2.75% in 1982, by 2.5% in 1983 and by 2% in 1985 (Herr and Hübner 2005, p. 201). Nevertheless, Italy managed to use the EMS as an exchange rate anchor and reduced the inflation rate and the wage-price spiral to relatively low levels by the mid-1980s. However, these developments were also based on a weakening of the trade unions and a loosening of the Scala Mobile (Thomasberger 1990, p. 209).

Fiscal policy during this time massively supported domestic growth. However, this policy did not come free of charge. The restrictive monetary policy and the exchange rate anchor led to the real appreciation of the lira and to overall persistent current account deficits in the 1980s (cf. Figs. 4.15 and 3.2; Herr and Hübner 2005). In addition, public debt rose sharply. Italian public debt rose from the mid-1960s, but then remained at a level of around 60% from 1976 to the early 1980s, despite huge budget deficits, due to high inflation and negative real interest rates. Thereafter, based on the Mundell-Fleming strategy, public debt to GDP increased significantly, reaching close to 90% in 1986 (cf. 3.1 4.16). Public debt has remained a problem for Italy. In 2021 it amounted to 151% of GDP (Trading Economics 2023).

¹⁵ Haavelmo (1945) already made it clear that a simultaneous increase in government revenue and expenditure has an expansionary effect, since part of the tax payments come from private sector savings, while the government does not save.

Overall, Italy managed to survive a period of price shocks, massive devaluations, high nominal wage increases and high inflation rates without a sharp stabilisation crisis and prolonged stagnation. Nevertheless, there was a very severe risk in Italy that economic development would spiral completely out of control and plunge the country into a deep and prolonged crisis. This should be kept in mind when assessing Italian development.

4.5 Comparison of Developments in the Different Countries

In the following section, the four countries analysed above will be compared with each other. For this purpose, the development of central macroeconomic variables between 1966 and 1986 will be presented comparatively. This section will find that none of the countries were able to follow an ideal regime and, not surprisingly, each country was subject to specific historical, economic and political developments.

4.5.1 GDP Growth and Employment

We start with the growth of real GDP. Figure 4.19 provides a surprising result. If we set the index for real GDP in 1966 equal to 100, we see that Italy clearly had the best development. In the period shown, Italy had the highest average annual GDP growth rates at 3.5%. The US, with average growth at 3.05%, performed slightly better than West Germany at 2.89%. The United Kingdom shows the worst performance with average growth of 2.2% (OECD 2023).

Figure 3.8 showed that the business cycle of these countries synchronised during the 1970s. The countries went through slumps in 1974/75 and 1980/82 as well as the subsequent upswings together and were only slightly staggered. This was not the case in previous periods. One factor was that all countries of the Global North were affected by the two oil price shocks which reduced real aggregated domestic demand, particularly consumption demand, but also investment demand because of increasing interest rates and higher levels of uncertainty. However, this development also reflects the growing internationalisation of the developed economies. A particularly strong role was played by the increasingly liberalised international movement of capital, which increased the pressure for the unification of monetary policy. Greater trade integration also worked in the direction of unifying the global business cycle. This trend is still evident today in that the economic development of Global North countries is largely parallel (OECD 2023).

In all countries, the unemployment rate increased significantly during the period under consideration. Economic growth was not sufficient to keep unemployment at the level of the early 1970s. This situation was particularly bad in the United Kingdom. However, the unemployment rate rose most sharply from the mid-1960s to the mid-1980s in West Germany (cf. Fig. 3.9).



Fig. 4.19 Index of real GDP development for West Germany, the US, the United Kingdom and Italy, 1966-1986, 1966 = 100. *Source* FRED (2023)

4.5.2 Development of Wages and Prices

Let us turn to the development of unit-labour costs (cf. Fig. 4.20). It shows that despite the same oil price shocks, the reactions in the different countries were completely different. In none of the four countries was it possible to realise a wage development that corresponds to the wage norm, i.e. the medium-term productivity development plus a target inflation rate (cf. Chap. 7). Serious upward deviations from the wage norm can be seen particularly in the United Kingdom and Italy. Obviously, in these countries the trade unions pursued a decisive policy of real wage protection by adjusting nominal wages to the current or expected inflation rate. Further, attempts to adjust functional income distribution added to increasing unit-labour costs. The resulting increase in unit-labour costs was then passed on to prices by companies, as expected.

Unit-labour cost increases were also above the wage norm in the US and West Germany, although the deviations were not as severe as in the United Kingdom and Italy. West Germany deviated from the wage norm mainly in the late 1960s and the first half of the 1970s. In the second half of the 1970s, the bargaining parties in West Germany returned to a wage policy that was essentially functional, and this was maintained even after the second oil price shock in 1979. In the US, the increase in unit-labour costs from the end of the 1960s to the mid-1970s was moderate compared to the other three countries, but still too high to prevent an inflationary trend. From that point, unit-labour cost increases in the US remained high until they were ultimately reversed by the Fed's radical high interest rate policy in 1979 which resulted in a sharp rise in unemployment during the first half of the 1980s.



Fig. 4.20 Percentage change in unit-labour costs per hour in West Germany, the US, the United Kingdom and Italy, 1971–1986. *Source* OECD (2023)

In all four countries studied, a very close connection between the development of unit-labour costs and the price level became apparent (see Sects. 4.1, 4.2, 4.3 and 4.4). The differences in inflation rates are directly linked to the differing developments in unit-labour costs. In Italy and the United Kingdom, unit-labour costs and price levels rose significantly more than in the US and particularly more than in West Germany.

The specific wage formation mechanisms in each country contributed to the different development of wage dynamics. In West Germany, there was an institutional structure of powerful and large sectoral trade unions and corresponding employers' associations, a very high level of collective bargaining coverage among all employees, a high degree of informal horizontal wage coordination between sectors and a legal channelling of collective bargaining disputes.¹⁶ Due to their strength and size, the German trade unions were willing and able to take macroeconomic conditions into account. This was particularly true of trade unions in the export industries, which paid attention to the price competitiveness of exporting companies. This was by no means a weakness of the German trade union movement and instead shows that it was able to follow macroeconomic considerations and thus create a favourable framework for a functional wage policy.

In the United Kingdom, on the other hand, the unions were extremely fragmented in the 1970s. Although the TUC, as the umbrella organisation of the trade unions,

¹⁶ In the 1970s, almost all employees in West Germany were covered by regional collective agreements. In 1996, 70% of all employees in West Germany were still covered. In 2019, this figure was only 46% in former West Germany and 34% in the eastern parts of Germany (Kohaut 2020). In 2015, statutory minimum wages were introduced in Germany as a reaction this erosion in wage bargaining coverage.

more or less supported government policies on wage moderation, these attempts ultimately failed due to the structure of the trade union movement and the pursuit of unique interests by individual unions.

In Italy, a functional wage policy was not possible, or at least was made extremely difficult, as the trade union movement was divided into three ideologically opposed currents. Indeed, parts of the trade union movement were striving for fundamental reforms of Italian capitalism based on communist ideas. A macroeconomically functional and coordinated wage development was thus difficult to realise.

In the US, trade unions were unable to shape wage development according to macroeconomic considerations due to their overall low degree of organisation and the lack of any broad collective bargaining coverage of workers. Efforts to develop an adequate incomes policy were also not sufficiently supported by trade unions as they lacked the capacity to engage in the horizontal coordination of wage bargaining.

There are three major causes for dysfunctional wage increases, which ultimately lead to or contribute to inflationary developments:

First, rapidly rising unit-labour costs can be a reaction to a booming economy that leads to labour shortages in certain sectors. To attract labour that has become scarce, companies offer higher wages. In this situation, even if the trade unions make wage demands according to the wage norm, effective wages rise above collectively agreed wages. In all four countries studied, such a constellation existed at the end of the 1960s. And trade union leaders were placed under increasing pressure from members to increase wage demands. West Germany in the late 1960s is an example of this (cf. Sect. 4.1).

Second, high nominal wage increases can result from an external price level shock in an attempt to compensate for the real wage reductions resulting from the price shock. Above a certain strength of shock and real wage reduction, nominal wage increases are almost inevitable. Price shocks thus worsen the conditions for macroeconomically functional wage development. In Italy and the United Kingdom, the price shocks in the 1970s were particularly strong. In both countries not only higher US dollar prices burdened the economy, as oil is traded in US dollars the substantial depreciations of the pound and the lira compounded the effects of the oil price shock in the two countries.

However, in West Germany and the US, the policy of real wage protection played a major role among trade unions as well.

Finally, high wage increases can be due to a trade union strategy of redistributing profits to wages. From a macroeconomic perspective, however, in almost all cases, such a policy does not lead to redistribution, but ultimately to inflation. In Chap. 7 we find that under certain market constellations, wage increases above the wage norm can lead to lower profits and changes in functional income distribution. But room for such non-inflationary wage increases is limited and plays a secondary role in the long-term relationship between unit-labour costs and price level. From the mid-1960s onwards, a revolutionary movement developed, particularly in Italy, but also in the United Kingdom, which included the trade unions. This movement fought for reforms of the existing model of capitalism. Demands for redistribution also played a role. Even in West Germany there were beginnings of such a development at the end

of the 1960s, although it was much weaker than in Italy and the United Kingdom. In the US, the civil rights movement was strong at the end of the 1960s; and here, too, reforms of the capitalist model were sought. These movements partially confused high wage increases with structural reforms of the capitalist model. This also revealed how difficult it is to follow a macroeconomic strategy to prevent inflationary wage increases in a politically heated climate with a strong trade union movement.

Let us summarise. Even before the oil price shocks, these countries were experiencing economic and political constellations that made wage-price spirals very likely. The oil price shocks then hit within these constellations, and the result was inflationary developments of varying intensity.

4.5.3 Monetary Policy

A major opponent of workers or trade unions during periods of inflationary wage increases is the central bank, which can initiate a stabilisation crisis by raising interest rates. Fiscal policy is far too sluggish for this purpose. In all four countries studied, the central banks stepped in, albeit at different times, to bring down inflation rates. Ultimately, none of the countries could accept high inflation rates, as they would have led to the erosion of the monetary system and, eventually, to the endangerment of a functioning capitalist system—without any alternative system in place which could stabilise the situation. If high inflation rates are not combated, periods of hyperinflation cannot be ruled out. This can result in a complete collapse of the monetary system and the associated distributional and political turbulence (cf. the analysis of the German hyperinflation of 1923 in Chap. 2).

The patterns of monetary policy reaction in the four countries studied were markedly different in the 1970s. As shown in the subsections above, the German Bundesbank was already pursuing restrictive monetary policy in 1973 and intensified this policy strategy in 1974 in order to fight inflationary developments at an early stage. The rigorous stance of the German Bundesbank was intended to make it unmistakably clear to the wage bargaining parties that there was no way around a stability-oriented wage policy. When it became apparent that wage increases were decoupling from the wage norm traditionally observed to a greater or lesser extent in West Germany, combined with the added burden of the oil price shock of 1973, the Bundesbank had to implement hard countermeasures despite the high costs of negative GDP growth and high unemployment.

The other three countries pursued a different strategy. Here, the central banks were initially much more concerned than the Bundesbank about initiating a stabilisation crisis due to the negative employment effects of a restrictive monetary policy. The Fed did raise refinancing rates during the boom at the end of the 1960s and also after the oil price shock in 1973, but without seriously tightening the reins. Instead, it relied on a moderate devaluation of the US dollar to reduce or prevent current account deficits and hoped that government policy would have a moderating effect on wage development. It was only when the US dollar's function as a reserve currency was

seriously threatened that there was an uncompromising shift in monetary policy in 1979, which ushered in a worldwide recession. The Bundesbank, as all other central banks in the developed world, followed the high interest rate policy of the US to limit the depreciation of national currencies against the US dollar.

In the United Kingdom and Italy, it was only the twin crises of exacerbated price level increases and uncontrollable devaluations that led to a course correction. From the end of the 1960s, in the United Kingdom both Labour and Conservative governments tried to stop the inflationary wage dynamic through incomes policy as well as price and wage freezes. When James Callaghan broke off cooperation with the trade unions at the end of the 1970s, after another failure to fight inflation through incomes policy, there was rampant strike activity culminating in 1978 in the "Winter of Discontent." In the face of this crisis, monetary policy changed radically. The following Conservative government under Margaret Thatcher continued this restrictive policy more intensively.

A similar scenario existed in Italy, albeit with far greater political aggravation than in the United Kingdom. After the Second World War, monetary policy in Italy was traditionally subordinated to fiscal policy, even when the latter became extremely expansionary at the end of the 1960s. Restrictive monetary policy was avoided out of fear of negative employment effects, which resulted in the further strengthening of the powerful communist party in Italy. It was not until the deep financial crisis in 1976 that the Banca d'Italia tried to control inflationary developments by stabilising the lira against the US dollar. The radical change towards more restrictive monetary policy came at the end of the 1970s. This course correction was achieved mainly through the intensification of the instrument of an exchange rate anchor. From 1979, membership in the European Monetary System (EMS) meant that the exchange rate of the lira had to be defended. To this end, the lira's exchange rate was implicitly pegged to the stable D-Mark. Despite some devaluations within the EMS, the exchange rate anchor had a stabilising effect on the development of inflation in Italy. It gave the central bank good arguments for engaging in a shift towards a more restrictive orientation. Politically, the Scala Mobile was reformed and finally abolished. However, these changes would have been hard to imagine without the weakening of the trade unions and the communist party.

The different monetary policy strategies of the 1970s also become clear through the development of short-term real interest rates (Fig. 4.21). In fact, the central banks in Italy and the United Kingdom accepted negative short-term real interest rates throughout the 1970s (with the exception of the Bank of England in 1973) in order to avoid a stabilisation crisis. The Bundesbank pursued a monetary policy that pushed up real interest rates significantly from 1972 onwards and kept them at a relatively high level overall. The US accepted low or negative short-term real interest rates from 1971. The Fed did not change its strategy until the end of the 1970s.

One cannot understand the economic and political dynamics in Italy, the United Kingdom and the US without considering the exchange rate policies and developments in these countries. In both the United Kingdom and Italy, the strong devaluations of the respective national currencies were a key driver of dysfunctional inflationary developments. This is because they initiated a devaluation-wage-price spiral



Fig. 4.21 Short-term real interest rates in West Germany, the US, the United Kingdom and Italy, 1966–1986. *Note* Nominal short-term interest rates minus inflation rate (GDP deflator). Ameco (2023) Source

in both countries. Figure 4.22 shows that the lira, measured by the effective nominal exchange rate, lost more than 50% of its value from 1970 to 1986. For the pound it was almost 50%. In both countries, the crash in the external value of the currency took place in the 1970s. The case of the German hyperinflation of 1923 is proof that such a crash can spiral out of control.

The US dollar was also generally weak throughout the 1970s, but, as analysed in Sect. 4.2, this ended by the late-1970s when confidence in the US dollar broke down. The D-Mark experienced a trend of nominal appreciation, which contributed to the low inflation rate in West Germany. Accordingly, the restrictive monetary policy of the Bundesbank in the early 1970s was triggered by the confrontation with the trade unions and not, as in the three other countries, by currency devaluations. Figure 4.22 also clearly shows the German strategy of stability-oriented undervaluation as nominal appreciations were combined with current account surpluses.

In conclusion, Italy, the United Kingdom and the US were ultimately unable to ignore external destabilisation in the form of currency weaknesses. In this respect, we completely agree with Hajo Riese (1986, p. 247) that: "The stabilization of the price level is the necessary condition for safeguarding the wealth function of money, while external stability constitutes its efficiency criterion, because it indicates that asset owners are willing to hold sufficient assets in domestic currency." This means that restrictive monetary policy to fight inflationary developments is unavoidable when confidence in a currency breaks down, at least in a situation of unregulated capital flows.



Fig. 4.22 Index of the nominal effective exchange rate of the Deutsche Mark, the US dollar, the British Pound and the Italian Lira, 1970-1986, 1970 = 100. *Note* Increase means appreciation. *Source* Bank for International Settlements (2022), own calculations

This does not mean that devaluations cannot succeed in other constellations. One example is the devaluation of the US dollar from 1985 through the early 1990s, which was achieved without inflationary developments in the US and reduced the high US current account deficit to almost zero by the end of the 1980s. A precondition of a successful devaluation is that the real wage cuts linked to the devaluation do not trigger a wage-price spiral. For West Germany, this means that it could have accepted a devaluation at the beginning of the 1980s in order to promote employment and increase the scope for economic policy for the member countries of the EMS. The Bundesbank and the West German government were not prepared for such an experiment and consistently pursued a policy of stability-oriented undervaluation.

4.5.4 Fiscal Policy

The following remains a puzzle: Italy, shaken by high inflation, devaluations and currency crises, showed the best growth performance. This finding points to the role of fiscal policy. Figure 4.23 shows the fiscal balances of the four countries under consideration. It is clear that Italy pursued the most expansionary fiscal policy. During the economic slumps in 1975 and the early 1980s, as well as in 1985, the budget deficit as a share of GDP in Italy was over 10% in each case. During the entire period from 1974 onwards it was around 10%. This extremely expansionary fiscal policy was supported by expansionary monetary policy until the second half of the 1970s.



Fig. 4.23 Net lending/borrowing as a percentage of GDP for West Germany, the US, the United Kingdom and Italy, 1970–1986. *Source* Deutsche Bundesbank (2022b), Galli and Padovano (2008), OECD (2023), Bank of England (2017)

Towards the end of the decade there was a combination of expansionary fiscal and restrictive monetary policy following the logic of the Mundell-Fleming model. Due to the domestic political constellation in Italy, attempts were made to stabilise growth and employment by all means. This policy of "muddling through" can be considered quite successful in the context of the social and political conditions in Italy at the time, but it could have also ended in disaster—as, for example, in the case of the German hyperinflation.

The US had budget deficits of around 7% during the crisis in the mid-1970s and early-1980s and clearly engaged in anticyclical fiscal policy. In the 1980s, budget deficits remained high as part of Reaganomics. In the United Kingdom, budget deficits were over 6% in 1975 and over 4% in 1980. Thus, anticyclical fiscal policy was much less pronounced after the second oil price shock mainly due to the attempted austerity policy of the newly elected government under Margaret Thatcher. Overall, West Germany showed the weakest anti-cyclical fiscal policy orientation with relatively small budget deficits in crises and quick reductions in deficits after the crisis. There was a tendency in West Germany to consolidate deficits too quickly after crises and in this way, growth opportunities were neglected.

In terms of gross government debt (cf. Fig. 4.24), it can be seen that Italy's fiscal policy caused the government debt-to-GDP ratio to rise significantly. It increased from just under 40% of GDP in 1970 to about 54% in 1980, and then rose steeply to over 80% in 1986. Through the end of the 1970s this was due to staggering budget deficits which increased government debt to GDP despite high inflation. After the late-1970s, the combination of high budget deficits and high interest rates led to the explosion of public debt to GDP. In the US, the public debt-to-GDP ratio fell



Fig. 4.24 General government debt as a percentage of GDP in West Germany, the US, the United Kingdom and Italy, 1966–1986. *Source* Sachverständigenrat (1987), Galli and Padovano (2008), Bank of England (2017), US Office of Management and Budget (2022)

from about 40% during the 1970s to 30% in the early 1980s. It then increased to over 40% due to Ronald Reagan's bout of expansionary fiscal policy in 1986. Up until the 1980s, the decline in the government debt-to-GDP ratio in the US, despite expansionary fiscal policy, was due to relatively low interest rates, an increase of the inflation rate and real GDP growth. United Kingdom was able to reduce the government debt much more radically. The public debt burden was 80% of GDP in 1966 and then halved by the mid-1980s. This happened due to relatively low nominal interest rates compared to persistently high inflation rates, especially in the 1970s. In West Germany, the government debt-to-GDP ratio rose from below 20% in the late 1960s to just over 80% in the mid-1980s. This was mainly the result of the Bundesbank's early restrictive monetary policy, despite prudent fiscal policy.

4.6 Summary

This brings us to the overall assessment of the development of the four countries from the late-1960s onwards. The low growth rates in the United Kingdom from 1974 onwards are not surprising, as economic policy was dysfunctional overall. It is true that attempts were made to provide expansionary impulses with the help of fiscal policy, especially in the first half of the 1970s. However, due to heavy devaluations and several crises of the pound, it was not possible to maintain this line. Both fiscal and monetary policy alternated constantly between expansionary and restrictive phases. But the biggest problem in the United Kingdom was that attempts at an appropriate

incomes policy were not successful and failed because of the structure and orientation of the trade union movement.

The US was also far from an "ideal" economic regime in the 1970s. For too long, the illusion was held that even with relatively high inflation rates and a weak US dollar over a longer period, it would be possible to issue the international reserve currency unchallenged. For this reason, the focus on economic policy was on the domestic political situation. Only when the function of the reserve currency was seriously threatened did the Fed introduce tough restrictive monetary policy in 1979. As a result, not only the US, but the entire Western world at that time, was plunged into an extremely costly global crisis with high growth losses. Prior to this, the collective bargaining partners in the US had not succeeded in aligning wage increases with the wage norm.

Growth in West Germany could have been higher, but both monetary and fiscal policy pursued a cautious and restrictive course compared to other countries. From the end of the 1960s to 1974, wage development in West Germany deviated from the wage norm, a development which could be more or less prevented in the decades before. This resulted in the conflict with the Bundesbank and the deep recession in 1975, which was intensified by monetary policy. Afterwards, West Germany returned to its corporatist roots. From the mid-1970s onwards, the wage bargaining parties again oriented themselves towards a productivity-oriented wage policy plus a low inflation rate and thus subordinated themselves to the strategy of a stability-oriented undervaluation of the D-Mark. On this basis, it would not have been necessary to react to the weakness of the D-Mark with restrictive monetary policy in the early 1980s. Indeed, a moderate devaluation without fuelling inflation would have very likely been possible at that time. Fiscal policy in West Germany could have been more expansive overall. This applies above all to the phase from the end of the 1970s onwards. Whenever this seemed possible, attempts were made to limit increases in national debt and to prevent budget deficits from getting out of hand. The price for this was that economic growth and employment remained below their potential.

Italy is a special case. It was successful in terms of real growth but also could have ended up in an economic and political catastrophe.

Overall, we can draw the following general conclusions from the analysis of the four countries:

First, the two oil price shocks in the 1970s led to two recessions. This happened independently of monetary policy responses. Obviously, the price shocks reduced real consumer demand so much that a growth slump became inevitable. In addition, investment demand also usually collapses due to rising uncertainties and higher interest rates.

Secondly, none of the countries could escape the inflationary dynamics of the late 1960s and early 1970s, driven first by cyclical overheating and the radical movements to reform the existing type of capitalism and later by the commodity price shock. All countries experienced a wage-price spiral, which did, however, vary greatly in time and intensity.

Thirdly, exchange rate developments played an extraordinarily important role. It decisively drove the inflationary dynamics in some countries through a devaluation-inflation-wage-price spiral leading to further depreciation and inflation. Contrary to the promises of the neoclassical paradigm, flexible exchange rates do not necessarily lead to an expansion of national economic policy leeway. Instead, threatening devaluations can force the primacy of external stabilisation. This is the case when capital flight or current account deficits cause a currency to crash, resulting in the spiral outlined above. However, the exchange rate can also be used in economic policy as a nominal anchor for price level development.

Fourthly, none of the countries could avoid fighting inflation. However, the fight against inflation was pursued with different strategies. West Germany relied on a restrictive monetary policy that began very early, while the others held back at first and reacted only after inflation had reached system-threatening proportions. Italy chose a specific way of fighting inflation at the end of the 1970s by pegging the lira to a stable currency.

Fifth, fiscal policy has proven effective for cyclical stabilisation, but also for promoting trend growth. To compensate for falling real demand due to the price shocks, fiscal policy could have been more expansionary, particularly in West Germany. Nevertheless, a continuous increase in government debt should be avoided (Heine and Herr 2022).

Sixth, in some of the countries studied, the dynamics of crisis and inflation led to radical political changes and a strengthening of liberal economic forces. Inflationary phases that were not brought under control obviously strengthened neoliberal parties. As a result, a new model of capitalism was introduced in the 1980s, in which trade unions were weakened overall while the financial system was strengthened. The opportunity to develop an alternative to the neoliberal model in the 1970s was lost in inflation, if you will.

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Chapter 5 Deflationary Tendencies After the 2008 Financial Crisis, the Covid-19 Pandemic and Stagflation After the Energy Shock



The explanations given so far may give the impression that only inflationary processes can develop into system-threatening crises. However, this impression would be incorrect. Deflationary processes are also capable of developing into crises, a particularly vivid example of this would be the Great Depression of the 1930s. However, negative experiences associated with falling price levels are not limited to this period. Economies were also confronted with this danger after the Second World War. A prime example is Japan, which, since the 1990s, has been stuck in a period of economic stagnation and has faced threat of deflation for many years (Herr 2015; Herr and Kazandziska 2011). The US and the European Monetary Union (EMU) were also on the brink of deflation several times between 2008 and 2021, which was only averted by massive intervention by the central bank and government. For this reason, in the first subsection of this chapter, we will briefly outline the dangers posed by deflationary processes. We will then use the example of the financial crisis and Great Recession of 2008/09 to show which economic policy instruments were used to avert a complete economic catastrophe like the one in the 1930s.

Shortly after the Great Recession, the euro area was hit by the so-called euro crisis, which consisted of public households in various EMU countries experiencing financing problems. This crisis brought the EMU to the brink of collapse. This crisis is discussed in the second subsection.

In 2020, just as the US in particular was beginning to recover from the aftermath of the 2008 financial crisis, the global economy was hit by the Covid-19 pandemic, which again led to massive fiscal and monetary interventions. The Covid-19 crisis is discussed in the third subsection.

Finally, in late 2021, mainly due to the Ukraine war that started in early 2022, there was a commodity price shock that can be compared to the oil price shocks of the 1970s. This development led to radical changes in monetary policy strategies and, as in the 1980s, to stagflation. This development is discussed in the fourth subsection.

The analysis will make clear that Western countries and the world economy are being hit by a whole sequence of crises—not to mention the ecological crisis. The US and Germany are chosen as examples for deeper analysis. As Italy and the United Kingdom were analysed in Chap. 4, developments in these two countries are also reflected as well as developments in the EMU as a whole.

5.1 Low Inflation and Deflationary Tendencies After the 2008 Financial Crisis

As the previous chapters have shown, wage-price spirals, along with devaluations, are the main driving forces of inflationary processes. Since wage costs, like other costs, have to be covered by prices, increases in wage costs are passed on to prices in the medium-term. Thus, nominal wages initially determine the price level and not employment. Of course, changes in oligopolistic or monopsonistic power, excess demand or lack of demand, international competition, etc. can prevent a one-to-one pass-through of labour costs, but this does not change the fact that labour cost changes are a key determinant of price level changes (cf. Chap. 7).

Thus, we do not follow the neoclassical view that real wages determine the level of employment. In this view unemployment is caused by real wages that are too high. The suggested remedy then would be to cut real wages and in this way increase demand for labour. This position alone is irritating, because wage negotiations never deal with real wages, and instead always deal with nominal wage changes. The final real wage is a result of the market.¹

We do not share the neoclassical view that there is an inverse relationship between real wage cuts and higher demand for labour. This seems to us to be neither theoretically (cf. Heine and Herr 2021, 2013) nor empirically sound (cf. Chaps. 4 and 7). Instead, we assume that wage costs are one of the central factors determining the price level. For a given technology, the employment level is determined by aggregate demand. Of course, in situations of full capacity utilisation or full employment, higher demand cannot increase employment. But these constellations have been very rare throughout the history of capitalism.

The correlation between the development of nominal wages and that of the price level also applies to deflationary processes. Deflationary processes are typically triggered by deep recessions following asset market crises, such as real estate or stock market crises, which then spill over to the whole financial market. In typical financial market crises, the decline in asset market prices leads to an increase in the volume of bad loans. Consequently, the asset side of commercial banks' balance sheets is burdened. Fearing further loan defaults and liquidity shortages, banks will tighten their lending, further fuelling the crisis. In addition to more cautious lending by banks, the deteriorating future expectations of companies causes investment demand

¹ It should be noted that neoclassical economists and policy makers following this approach frequently argue that real wages should be cut to reduce unemployment and at the same time argue nominal wages should not increase because of inflationary pressure. Such argumentation is, of course, inconsistent.

to fall. Consumer demand also slows in such situations due to rising unemployment, over-indebtedness (even among private households) and negative income expectations. As a result, production falls dramatically and unemployment figures continue to soar.

In such a situation, trade unions come under considerable pressure, as their power is reduced due to increasing unemployment. If nominal wages and, as a result, nominal unit-labour costs fall, after some time competition among companies leads to lower prices. As wages and the price level fall, the real debt burden of economic agents will increase and the downward spiral turns again. In addition, demand will now shrink as consumers expect falling prices and shift the purchase of consumer durables into the future; enterprises do not invest today when they expect that competitors can buy much cheaper capital goods in the future. Overall, a deflationary process is characterised by the combination of demand deflation destroying profits and cost deflation driven by falling wages.

Irving Fisher (1933) impressively described this process using the example of the Great Depression which started with the stock market collapse in autumn 1929. By the early 1930s, this collapse had resulted in sharply decreasing wages and prices as well as an unprecedented fall in production and an increase in unemployment in all developed economies at that time. The Great Depression showed what force periods of deflation can unleash. It led to a level of impoverishment unheard of in the twentieth century that impacted large sections of the population including the middle class and ultimately culminated in fascist takeovers in a number of countries, particularly Germany.

The establishment of a nominal wage anchor that reflects the wage norm forms the decisive tool against deflationary processes. This is the only way to prevent a cumulatively declining price level, if you will, a wage-price spiral with a reversed sign. Without a nominal wage anchor even small crises can quickly lead to deflationary disasters (see Chap. 7).

Central banks can hardly contain catastrophic deflationary developments with normal interest rate policy because the effectiveness of interest rate policy is asymmetric: rising interest rates can stop inflation. Admittedly, such monetary policy leads to a stabilisation crisis, with all the negative consequences. But in cases of deflation, the power of a central bank is very limited. Even if it lowers refinancing rates to zero, real interest rates will remain positive, or even increase, because of the falling price level. In addition, in a deflationary constellation, a central bank cannot overcome strict credit rationing by banks even if it pumps liquidity into the financial system.

In deflationary economic crises, government budget deficits increase endogenously as tax revenues shrink and social spending increases. If, in such a situation, attempts are made to reduce budget deficits by means of a procyclical fiscal policy, the crisis will worsen. Thus, rationally acting governments have no choice but to accept high budget deficits in the situation described. However, governments do not always react rationally. During the Great Depression, for example, both the German government under Heinrich Brüning and the US government under President Herbert Hoover pursued destabilising procyclical fiscal policies with disastrous consequences. Undoubtedly, Hoover would have had space for more expansionary fiscal policy (Kindleberger 1973).

Following these considerations, we can analyse the developments after the financial crisis that erupted in the US in 2007 and eventually reached Western Europe and much of the rest of the world by 2008 and 2009. The background of this crisis was shaped by the radical liberalisation of financial markets which began in the 1980s; this period of liberalisation was central to the evolution of a new type of capitalism. One result of these reforms was the emergence of an extensive shadow banking system that was not subject to government regulation. This allowed increasingly risky financial transactions to be conducted without supervision or intervention. Among other things, these reforms made it possible to use subprime mortgage loans to finance a fragile real estate boom, particularly in the US, by selling risky mortgages from banks to special purpose vehicles - which, to a large extent, were established by commercial banks themselves. These vehicles then bundled a large number of mortgages and refinanced themselves through asset-backed securities that had different levels of risk. The buyers of asset-backed securities included insurance companies, pension funds, hedge funds and private investors willing to take risks (for details, see Heine and Herr 2021; Detzer et al. 2017). European investors of all stripes soon joined in this speculative business including establishing their own special purpose vehicles.

Real estate prices in the US peaked in the first quarter of 2007 and then started to fall. When households, particularly those that were financially weak, were unable to repay their mortgage loans, the real estate market collapsed like a house of cards and quickly dragged the entire financial system (which was already in a fragile constellation overall) into crisis. In this situation doubts developed about the liquidity or even solvency of financial institutions. The market for asset-backed securities collapsed completely. General uncertainty increased. In the autumn of 2008, the crisis reached a climax with the insolvency of the US investment bank Lehman Brothers. At this point, banks were no longer willing to lend to each other, and they began hoarding money to meet their own liabilities. As a result, the money market between banks dried out. The crisis then took on a dimension not seen in the Global North since the financial crisis of the early 1930s.

Unsurprisingly, this crisis plunged the global economy into a deep recession in 2009. Figure 5.1 shows a sharp drop in growth rates, especially in Germany, the United Kingdom and Italy, but also in the United States. It is also clear that growth between the 2009 recession and the Covid-19 crisis was very low, which means that there was a constant threat of relapsing into crisis mode. In the EMU in particular, growth was weak, averaging only around 0.8% per year from 2009 to 2019, the last year before the Covid-19 crisis. In Italy, for example, it even averaged -0.2% over the same period. In Germany, one of the countries that performed relatively well in the EMU during this period, the growth rate was 1.1% and in the US it was 1.8% (OECD 2023a, b).

Given the situation described, governments and central banks had to intervene. The recession called for expansionary fiscal policy. Figure 5.2 documents the extent to which governments intervened financially to prevent a catastrophe. It shows very



Fig. 5.1 Annual growth rates of real GDP in Germany, the US, the United Kingdom and Italy, 2005–2023. *Source* OECD (2023a, b)

high budget deficits of up to over 13% of GDP in the US from 2008 to 2013. The United Kingdom also had very high budget deficits during this phase. In Germany, on the other hand, deficits were rather low at 3.2% of GDP in 2009 and 4.4% a year later, in Italy deficits were 5.1% of GDP in 2009 and 4.2% in 2010. For the EMU as a whole, the figures in 2009 and 2010 were 6.2 and 6.3% (OECD 2023a, b). In the EMU, the deficits were thus significantly below the values for the US. This is one of the reasons why the US was less affected by the 2009 recession than many other countries.

These high budget deficits resulted from various sources. First, the automatic stabilisers worked as the sharp recession in 2009 caused tax revenues to shrink and social spending to rise. Second, aggregate demand was stabilised by discretionary fiscal measures. Third, public budgets were forced to help bail out financial institutions. These financial institutions either received massive injections of government funds in the form of credit, or the state had to step in as owner and raise large sums in this capacity. It is worth noting that the interventions by governments and central banks usually protected the owners of financial institutions. This is especially true for investors in the shadow banking system, who had often engaged in high-risk activities in this financial market segment with high expected returns. Joseph Stiglitz (2010, p. 109), speaking of the "great American robbery" argues that it would also have been possible to allow insolvent shadow banking institutions to collapse and put a defensive ring around the commercial banks. However, according to Stiglitz, Barack Obama, then president of the United States, chose to protect Wall Street. He



Fig. 5.2 General government deficit as a percentage of GDP in Germany, the US, the United Kingdom and Italy, 2005–2023. 2023 first half of the year. *Source* OECD (2023a, b), Trading Economics (2023)

did not follow in the footsteps of Franklin Roosevelt, who instead radically reformed and regulated the financial system in the 1930s.²

Beginning already in 2008, while President George W. Bush was still in office, the *Economic Stimulus Act* was passed with a value of 153 billion US dollars, which mainly included tax cuts for middle and lower incomes, tax investment incentives and support for the real estate sector through the additional purchase of mortgages by state-owned institutions (Congress 2023a, b). In the same year, the Troubled Asset Relief Program (TARP), with a value of 700 billion US dollars, 4.7% of the GDP in 2008, was passed with the intention of purchasing toxic assets and equity from financial institutions to strengthen the financial sector. TARP had various subprograms, in particular to support problem banks. For example, together with the Fed, TARP bailed out and took over AIG (American International Group Inc.), one of the most important multinational insurance corporations worldwide. At that point, state ownership in AIG was valued at more than 90%. After restructuring in 2012, the state sold its ownership (Johnsson and Tracer 2014). In addition, within the framework of TARP, the automobile industry was saved from collapse and the mortgage market was stabilised (U.S. Department of the Treasury 2023). Then in 2009, under Obama, the traditionally Keynesian-motivated 787 billion US dollar American Recovery and *Reinvestment Act was* enacted to stabilise aggregate demand over several years. The program included a broad set of measures ranging from investment incentives for

 $^{^2}$ Financial system rescue measures took place in particular in 2009. Government-funded purchases of bank assets amounted to 1.6%, and bank recapitalisations to 3.1% of GDP in that year (Kollmann et al. 2012).

environmental transformation and infrastructure improvement to transfer payments to poorer households, support for the healthcare system and more generous student loans (Congress 2023a).

At the European level, there were no relevant joint programs in response to the financial crisis. In late 2008, the European Commission proposed a stimulus package of around 2% of EU-GDP, the European Economic Recovery Plan. However, according to this plan, fiscal policy should primarily be carried out at the national level. Let us look at Germany. In October 2008, the Financial Market Stabilization Fund, with a value of 100 billion euros (4% of German GDP in 2008), was adopted with the aim of cushioning the consequences of the financial crisis. In Germany itself, there was neither a real estate boom before the crisis nor a large domestic risk-laden shadow banking system. However, German financial institutions were massively involved in the global financial system, so they were heavily affected by the crisis, particularly due to their financial connections with the US and other European countries. The Fund, which took government-guaranteed loans, gave loans and guarantees to financial institutions. The Fund also made it possible for the government to become an owner of at-risk financial institutions. After some hesitation, the *Economic Stimulus Package I* and *II* and later the *Citizens' Relief Act* were passed. The three packages were worth about 85 billion euros (3.4% of GDP in 2008), with about half consisting of additional spending and the other half of tax cuts. Similar programs were implemented in other EMU countries.

Overall, discretionary fiscal measures amounted to 1.98% of GDP in the US in 2009 and 1.77% in 2010. In the EMU as a whole, the figures were much lower, 1.01% in 2009 and 0.85% in 2010. Compared to the rest of the EMU, Germany followed a relatively expansionary fiscal policy strategy with fiscal measures amounting to 1.44% of GDP in 2009 and 1.0% in 2010 (Bundesministerium für Finanzen 2008; Sachverständigenrat 2009, Chap. 5). During the financial crisis and subsequent Great Recession, US fiscal policy was much more expansionary than in the EMU and it remained this way long after the recession.

Let us come to monetary policy. Central banks were extremely challenged by the force of the crisis. Let us start with interest rate policy. Figure 5.3 shows radical interest rate cuts in response to the financial crisis in 2008. Refinancing interest rates were cut immediately to levels close to zero, particularly by the Fed, and were left at very low levels in the following years. The ECB and the Bank of England followed more cautiously, with the ECB even attempting to raise interest rates in 2011 despite poor economic developments. After that, however, money market interest rates in the Eurozone actually turned negative for a significant period of time—a development that did not occur in the US or the United Kingdom. The Fed and the Bank of England were eventually able to increase their refinancing rates after 2016.

In the US, the radical reduction in refinancing rates in 2008 was far from sufficient to combat either the freeze in the short-term interbank lending market in the autumn of the same year or the general liquidity crunch (for an overview, see Herr et al. 2016; Detzer et al. 2017). The deep recession that followed in 2009 also called for extremely expansionary monetary policy. Therefore, the Fed decided to intervene massively in addition to setting low interest rates. In particular, government bonds were purchased



Fig. 5.3 Three-month money market interest rates in the EMU, US and United Kingdom, 2005–July 2023. *Source* OECD (2023a, b)

on a large scale, as well as securities, such as asset-backed securities, that could no longer be sold on secondary markets after the end of the housing boom. Numerous other measures were adopted in addition to expanding the Fed's traditional set of tools by purchasing longer-term securities.³

The Fed also intervened directly to rescue systemically important financial institutions. When Bear Stearns informed the Fed on 13 March 2008 that it would go bankrupt, the Fed decided to provide Bear Stearns with a bridge loan in order to gain time. The special purpose vehicle Maiden Lane LLC was created to buy assets from Bear Stearns, consisting of a loan of 28.82 billion US dollars from the Federal Reserve Bank of New York and a subordinated loan of 1.15 billion US dollars from

³ Already in December 2007, the Fed instituted the Term Auction Facility (TAF) to address disruptions in money markets; in March 2008, it created the Term Securities Lending Facility (TSLF), which enabled primary dealers to borrow U.S. Treasury securities against their hard-to-sell collaterals; in March 2008, it created the Primary Dealer Credit Facility (PDCF) to provide primary dealers with collateralised cash loans over night; in November 2008, the Term Asset-Backed Securities Loan Facility (TALF) was created trying to reopen and stabilise markets for securities; in the framework of TALF and the Troubled Asset Relief Program (TARP), the Fed together with the Treasury offered 200 billion US dollars for interventions; in September 2008, the Asset-backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF) was established to provide liquidity to money market mutual funds; in October 2008, the Fed authorised the Commercial Paper Funding Facility (CPFF) to create a limited liability company CPFF LLC to buy unsecured and asset-backed commercial paper; the creation of the Money Market Investor Funding Facility (MMIFF) was announced in October 2008 to purchase short-term debt from money market mutual funds; in November 2008, the Fed announced that it would purchase government-sponsored debt and mortgage-backed securities; in March 2009, the amounts of purchased government-sponsored debt and mortgage-backed securities were increased.
J.P. Morgan Chase and Co. In October 2008, the Fed bailed out AIG, a financial institution that sold, among other things, insurance globally in the form of credit default swaps. The Fed took ownership of 79.9% of AIG's equity. At the end of November 2008, the Federal Reserve Bank of New York together with the Treasury and the Federal Deposit Insurance Corporation (FDIC), provided Citigroup with a lending commitment to prevent the institution from failure. In January 2009, the Federal Reserve made a joint statement with the Treasury and the FDIC that to ensure financial stability they will provide assistance to Bank of America which also ran into troubles. The Fed also supported troubled local public households as well as individual large corporations (see Herr et al. 2016).

The ECB reacted in a similar way. In July 2009, a program to purchase covered bonds (*Covered Bonds Purchase Program*) with a value of 60 billion euro was launched. A second program, with a value of 40 billion euro, was started in 2011 and a third, worth 260 billion euro, in 2014. Currency swaps were agreed to between the Fed and the ECB in 2008. Their aim was to secure the liquidity of financial institutions within the EMU in foreign currencies during the crisis.

Figure 5.4 shows the extent to which the balance sheets of the various central banks changed during and after the crisis. The ECB in particular shows an incredibly sharp increase in its balance sheet.

Thanks to massive fiscal and monetary policy interventions, the financial crisis and Great Recession of 2008 and 2009 were overcome relatively quickly. The lesson of the Great Depression in the 1930s had apparently been learned. However, it was not possible to quickly return to satisfactory growth rates, positive interest rates and a "normal" constellation of capitalism. This was particularly true for the Eurozone.



Fig. 5.4 Balance sheet of ECB, Fed and Bank of England in per cent of GDP, 2005–2022. *Source* Fed (2023), Bank of England (2023), ECB (2023c), OECD (2023a, b), own calculations

5.2 The Euro Crisis Starting in 2010

At the end of 2010, new and unique troubles emerged in the euro area from which other currency areas were spared. This reflects the special characteristics of the EMU, which cannot be found in any other currency area worldwide. The initial trigger was the development in Greece, which quickly spread to other member countries, particularly in Southern Europe. In 2009, Greece's budget deficit (15.2% of GDP) and public debt (135.5%) increased dramatically, this was true of other countries in the EMU as well (OECD 2023a, b). In this respect, Greece was only the tip of the iceberg. The crisis is often mistakenly referred to as a sovereign debt crisis, but the causes of the crisis lie in the construction of the EMU.

The crisis began with refinancing problems in a number of national public households in the EMU. As members of the EMU, countries such as Greece, Portugal, Spain and Ireland no longer had their own central banks that could have supported their public budgets. The ECB, on the other hand, still had its hands tied at that time, as it was not allowed-especially given the pressure it was under from Germanyto act as a lender of last resort for public households. The EMU, for its part, had no corresponding institutions that could have taken over this function. Indeed, the opposite was the case. In the Maastricht-Treaty from 1992, which laid the basis for the currency union established in 1999, a 'no bailout clause' was included which explicitly made clear that EMU countries with financing problems in terms of public households could not hope for help by other countries in the EMU. Consequently, in 2010 and subsequent years, financial market agents no longer ruled out the possibility that governments in the EU could default, and a crisis broke out. Interest rates on loans to governments in countries such as Greece, Portugal, and Ireland exploded; rates jumped to over 25% in Greece, but also rose dramatically on loans to the government in Italy and Spain (OECD 2023a, b). The insolvency of public households in these countries was just around the corner, with dramatic consequences for millions of people and social cohesion.

In June 2010, the *European Financial Stability Facility (EFSF)* was created, rather hesitantly, as a temporary institution. Then, in 2012, the *European Stability Mechanism (ESM)* was established as a permanent institution. Both function in such a way that all EMU member countries became owners of the institutions, in proportion to their shares of the EMU GDP, and these institutions can take on debt. Under strict conditions, countries with financing problems in their public budgets can then be helped. The so-called Troika, consisting of the European Commission, the ECB and the International Monetary Fund, which set the conditions for countries in need of EFSF and ESM support, became a symbol for neoliberally oriented tendencies when setting aid conditions.⁴ The EFSF and ESM were far from sufficient to solve the euro crisis. This was only achieved in 2012 when the ECB was allowed to assume the

⁴ Among other things, the Troika has forced Greece into a wave of privatisation. Since 2011, almost all major ports and airports in Greece have been sold to foreign companies. In 2016, after several previous steps, the Chinese state-owned group COSCO secured a two-thirds majority stake in the port of Piraeus, one of the most important transshipment ports in Europe (Bali 2022).

role of lender of last resort for public budgets as well. This put it on equal footing the central banks of all other countries in the world.

Accordingly, the euro crisis resulted primarily from two undesirable constellations. On the one hand, the ECB was not allowed to come to the aid of member countries experiencing difficulties and, on the other, there was no institution on a supranational level in the EMU providing fiscal support to countries in need. The crisis was thus home-made and reflected the poor institutions of the EMU and not a sovereign debt crisis.

The crisis also revealed that the EU has a very small central fiscal budget overall. The EMU has no independent fiscal centre but is part of the EU in this respect. Thus, the EMU can be compared to a half-finished house that is poorly protected against storms. For a monetary union without its own relevant tax revenues, sufficient expenditures and the possibility to engage in active fiscal policy remains an unstable entity. The European Commission, which manages the central budget of the EU, is allowed to have a maximum expenditure value of 1.4% of the EU's gross national income (GNI) (European Parliament 2023). The actual revenues and expenditure of the EU centre is even lower, at just over 1% of GNI. For comparison, in the US, central government spending in 2022 was 25% of GNI (OECD 2023a, b).

Let us take a closer look at fiscal policy in the EMU. In the EMU (and partly also in the EU), a whole range of regulations were installed after the establishment of the monetary union in 1999, which were intended to regulate the fiscal policy of member states and limit budget deficits (see Heine and Herr 2021; European Commission 2023). These regulations were intended to serve as an alternative to a fiscal union in the form of a strong fiscal centre. As early as 1997, the Stability and Growth Pact (SGP) was adopted, which, apart from special situations such as very severe recessions or natural disasters, allowed a maximum budget deficit of 3% of GDP and, as a longer-term target, a maximum gross public debt of 60% of GDP. The SGP was not adhered to by many countries after the establishment of the EMU, and the possible sanctions for violations as outlined by the SGP were ultimately not imposed. As a result, the SGP was relaxed somewhat in 2005 under the leadership of France and Germany. It was temporarily suspended during the 2008 financial crisis. However, at the insistence of Germany in particular and some smaller EMU countries (which were essentially captivated by the idea of low budget deficits and low public debt), the SGP was then drastically tightened and supplemented.

A whole series of regulations came into force in 2011 with the so-called *Sixpack*. Among other things, the pact demands an active reduction of public debt if it exceeds 60% of GDP, in addition to the maximum permitted 3% budget deficit. In addition, sanctions in the form of temporary non-interest-bearing deposits with EU central institutions or fines in the volume of certain percentages of GDP are to take effect more quickly if the rules are violated. Further, a scoreboard with a large number of indicators is used to identify economic imbalances in EMU countries at an early stage and the country concerned is subsequently forced to adjust.

But even the provisions of the six-pack were not enough to satisfy certain EMU countries, particularly Germany. As early as 2009, the debate in Germany was dominated by the idea that public debt was getting out of hand. The debate was exacerbated

by the emerging refinancing problems of some public households in EMU member states (see above). As a result, Germany's economic policy was changed in 2009 with a focus on reducing public deficits and returning to strict European fiscal rules. In 2009, a *Debt Break* was introduced to the German constitution, which allows a structural budget deficit of a maximum of 0.35% of GDP (calculated over the business cycle) for the central government and does not allow structural budget deficits for public households at lower government levels. However, the Debt Break leaves a loophole open. It is allowed to take on additional debt via special funds for specific purposes if parliament approves this with a two-thirds majority. A wide variety of so-called special funds were then created (Deutsche Bundesbank 2023).

Instead of deriving the need for a fiscal union from the euro crisis, i.e. a strong fiscal centre, the fiscal thumbscrews for EMU states were tightened further. This must be understood with the context that there is insufficient will on the part of EMU member states to move in the direction of a "United States of Europe" thereby strengthening the rights of the European Parliament, establishing a government on the EMU level and surrendering some of their own rights.

This led to the adoption of the *Fiscal Compact* in 2012, which is binding for EMU member states. The Fiscal Compact stipulates that public budgets must be largely balanced over the business cycle. A cyclically adjusted budget deficit of no more than 0.5% of GDP is permitted. It may amount to 1.0% if a country's public debt is significantly below 60% of GDP. If the national debt is above 60%, then the country must actively pursue a reduction in the debt-to-GDP ratio in line with a country specific proposal from the European Commission. In addition, the imposition of sanctions has been simplified. Finally, a rule corresponding to the fiscal compact must be included in the national constitutions of the EMU countries. As with the SGP, the rule can be temporarily suspended in the case of special events.

The development of the budget balances (see Fig. 5.2) in Germany and Italy after the 2009 recession shows how significantly budget deficits were reduced. The EMU as a whole had a budget deficit of only 2.5% on average between 2011 and 2019 (OECD 2023a, b). The poor growth in this phase (of only 0.8% on average) and the extremely expansionary monetary policy strategy can be attributed to a large extent to fiscal policy that was switched to a restrictive orientation far too early following the Great Recession and the failed crisis management during the euro crisis. In a situation of weak growth, public budgets should have a growth-stabilising effect. However, from 2007 to 2019, the last year before the Covid-19 crisis, government debt in the US increased from 86.2 to 136.1%, while in the EMU it increased only from 65.0 to 84.0% (OECD 2023a, b). An obvious problem exists that without permanent expansionary fiscal policy, sufficient growth cannot be achieved. This illustrates that the existing type of capitalism has deep problems in its basic functioning.

In view of the passivity of fiscal policy in the EMU, monetary policy was relied upon, as the existence of the currency union was at stake. The ECB lived up to this responsibility with the appointment of Mario Draghi as the new president of the ECB. Shortly after his appointment and the escalation of the euro crisis as well as the danger of the collapse of the monetary union, he stated in a speech at the Global Investment Conference in London on July 26, 2012: "Within our mandate, the ECB

is ready to do whatever it takes to preserve the euro. And believe me, it will be enough" (ECB 2012, no page reference). Subsequently, the ECB was given the right to assume the role of a comprehensive lender of last resort in terms of public budgets and subsequently began to act in this capacity. Obviously, countries such as Germany agreed to change the ECB's strategy due to the heightened crisis situation. Monetary policy was now extremely expansionary, and the spook of the euro crisis was over.

Let us take a closer look at the ECB's monetary policy. Nominal money market interest rates in the EMU were lowered rapidly and permanently from 2012 onward (cf. Figure 5.3). They even became negative from 2016 onward. This interest rate policy was flanked by a whole series of programs within the framework of so-called unconventional monetary policy.

For example, the ECB has adopted extensive programs with monthly net asset purchases by the central bank. In mid-2014, the ECB initiated the *APP (Asset Purchase Program)*. Net purchases amounted to around 60 billion euros per month as of 2015. The APP is comprised of several subprograms. The largest subprogram is the *PSPP (Public Sector Purchase Program)*, i.e. the program to purchase government securities. Other subprograms had the purpose of buying interest-bearing papers from companies or keeping certain financial markets liquid. Overall, the APP was intended to bring long-term interest rates to a low level, keep financial markets functioning, finance the public budgets of euro crisis countries and stimulate investment activity (ECB 2023a).

The central bank's balance sheet total (Fig. 5.4) shows the extent of the creation of central bank money. For example, when a central bank buys government securities or lends to commercial banks against collateral, it pays for this with its own money, which it can create "out of thin air." The ECB's balance sheet increased slowly from a level of around 10% of GDP when it was founded in 1999, then jumped in 2008 due to its function as lender of last resort for financial institutions. There was a further increase to over 30% of GDP due to the ECB's support of public households in 2012 and the following years (National Bank of Greece 2023).

Figure 5.5 shows how low inflation rates were, both during the Great Recession and after 2012. Deflationary dangers were on the horizon from the financial crisis onwards. This figure shows that inflation rates in Germany, the US, Italy and the United Kingdom were below the central banks' target inflation rates of two per cent for a number of years after the financial crisis in 2008. In a number of EMU countries, deflationary tendencies existed.

These low inflation rates primarily reflect an insufficient increase in nominal wages. Collective wage agreements and wage development in general did not correspond to the wage norm, i.e. an increase in line with the central bank's target inflation rate plus medium-term productivity development. The pressure from employers, the media and the state was so immense that trade unions, which were weakened in many countries anyway, were unable to push through sufficiently high wage increases. This can be seen in Fig. 5.6 which shows the development of the annual change in nominal wages per hour worked. What is striking are the very moderate wage increases in various years after the Great Recession in Germany, the US, the United Kingdom and Italy. In some EMU countries, changes in nominal wages were zero or even fell



Fig. 5.5 Monthly inflation rates (consumer price index) in Germany, the US, the UK and Italy, 2005–July 2023. *Source* OECD (2003)

significantly. In Greece, wages fell from 2011 through 2016 at an annual average of 4.2%. During this period Portugal, Spain and Ireland also experienced nominal wage cuts. These wage cuts led to real depreciation within the EMU and reflect the much too high nominal wage increases prior to 2008. It should be noted that wages in Germany were rising relatively strongly after 2009 when compared with the decade before the financial crisis. These divergent nominal wage developments, not reflecting productivity developments, reveal that in the EMU is not only lacking a fiscal centre but it is also lacking a method for coordinated wage development. The average annual increase in nominal hourly wages from 2009 to 2019 was 2.02% in the EMU and 2.34% in the US over the same period (OECD 2023a, b). Wage increases in the EMU were thus too low overall and brought the currency area to the brink of deflationary development. A "Japanese scenario" was looming. But wage increases in the US also tended to be at the lower end of the wage norm. The result was very low inflation rates. Without the extremely expansionary monetary policy and the expansionary fiscal policy implemented during the Great Recession, the EMU certainly would have fallen into a massive deflationary crisis. The same is the case in the US and United Kingdom.



Fig. 5.6 Annual change of nominal gross wages per hour worked in Germany, the US, the United Kingdom and Italy, 2005–2023. *Source* OECD (2023a, b), Trading Economics (2023), Statista (2023)

5.3 The Covid-19 Pandemic Starting in 2020

EMU member countries, in particular, had not yet recovered from the financial crisis and subsequent euro crisis when a violent exogenous shock occurred. Covid-19 led to the death of tens of thousands of people and paralyzed economic activity in almost every country in the world. The Covid-19 recession was so severe because it was both a supply crisis and a demand crisis. It was a supply crisis due to lockdowns and disrupted supply chains and a demand crisis because of decreases in employment, real incomes and aggregate demand. Figure 5.1 shows just how deep the slump was in 2020. But as was the case during the Great Recession, in this recession the slump in the US (with a contraction of 2.8% of GDP) was smaller when compared with Germany (4.1%), Italy (9.0%), the EMU (6.2%) or the United Kingdom (11.0%) (OECD 2023a, b).

In the face of this novel threat, fiscal and monetary policy responses were extremely intense. Let us start with fiscal policy in the context of the Covid-19 crisis. Figure 5.2 shows that the US had very high budget deficits at 14.9% of GDP in 2020 and 12.1% in 2021. The United Kingdom and Italy also had budget deficits of 13.1% and 8.0% and 9.7% and 9.9%, respectively, in those two years. Germany was one of the countries that realised budget surpluses before the Covid-19 crisis, at 1.9% in 2018 and 1.5% in 2019, ultimately shifting to budget deficits of 4.3% of GDP in 2020 and 3.7% in 2021. The EMU realised a budget deficit of 7.1% of GDP in 2020 and 5.3% in 2021 (OECD 2023a, b).

The fiscal programs adopted to combat the Covid-19 crisis were spectacularly intense in the developed industrial countries and included massive government policies that went beyond traditional fiscal policies. Table 5.1 shows that not only did countries adopt traditional fiscal measures such as increased spending or tax cuts, but in some countries additional instruments such as government guarantees and loans, government to increase corporate equity, or debt assumption played even more important roles.

Strikingly, the US adopted huge traditional discretionary measures to combat the Covid crisis—these amounted to 25.5% of GDP in 2020—while other instruments played a minor role. Some of the fiscal measures, 3.3% of GDP in 2020, were directly targeted at the healthcare system in the US. Other fiscal measures in the US were aimed specifically at transfers and loans to households, such as through unemployment assistance, and to businesses, with smaller businesses also receiving transfer payments. Support was also provided to local governments by the central government (for details, see IMF 2022).

In early 2020, the SGP and Fiscal Compact were immediately lifted in the EMU, and in Germany the Debt Break was suspended. In Germany, the traditional discretionary fiscal measures adopted from 2020 to 2021 amounted to 15.3% of GDP in 2020, with only a small portion going to direct support for healthcare. Clearly, due to broader population coverage, the German healthcare system is relatively well prepared to deal with shocks such as the Covid-19 crisis, at least when compared with the US. German measures included short-term allowances for workers who worked only a few hours or not at all but remained employed by their companies allowing them to receive about 70% of their normal salary according to their social situation. Transfers to small businesses, the self-employed or particularly affected families also played a role. In addition, the 2020 value-added tax was reduced for a few months and relief was granted for both income and corporate taxes.

Country	Total traditional fiscal measures*	Traditional fiscal measures in the health sector	Other traditional fiscal measures	Other measures**	Total
Germany	15.3	1.8	13.6	27.8	43.1
Italy	10.9	1.2	9.7	35.3	46.2
US	25.5	3.3****	22.5****	2.4	27.9
United Kingdom	19.3	4.8****	14.4****	16.7	36.0
EU***	3.8	0.0	3.8	6.7	10.5

Table 5.1 Covid-19 crisis measures adopted from March 2020 to October 2021 as a percentage ofGDP in 2020

*Increase in expenditures, decrease in revenues; **Lending, purchase of equity (shares), issuance of guarantees, assumption of debt; ***These measures are included in the figures for the individual EU countries; **** Only central government *Source* IMF (2022) In Germany, the other measures adopted were massive, adding up to 27.8% of GDP in 2020. Here the state-owned development bank KfW (Kreditanstalt für Wiederaufbau), the third largest German bank, played a decisive role. It provided guarantees on a large scale so that banks continued to lend to companies. State equity investments, for example in Germany's largest airline, also played a role. In addition, there was direct state support for the development of vaccines (for details, see IMF 2022; De Conti et al. 2024).

Looking at the social impact of the Covid-19 crisis, in Germany it emerges that poorer households were relatively well protected. A study by the Bertelsmann Stiftung summarised the effects of the Corona crisis: "German policy (was) able to prevent worse consequences for most employees and even greater inequalities in the labour market through its rapid response. Thus, it is a success of this policy that employees in low- and middle-income households—in contrast to employees with high incomes—suffered no real income losses on average during the first year of the pandemic" (Braband et al. 2022, p. 10). Because of short-time work programmes, unemployment barely increased in Germany, from 3.0% in 2019 to only 3.7% in 2020. Similarly, unemployment only increased from 2.8% to 4.6% in the United Kingdom, and from a high 9.3–9.5% in Italy. In the US, the rise in unemployment was massive, from 3.7% in 2019 to 8.1% a year later (OECD 2023a, b).

However, these figures mask the fact that poorer sections of the population were harder hit by the Covid-19 pandemic than richer ones. Germany can serve as an example. Unemployed persons and residents of poorer neighbourhoods contracted Covid-19 at above-average rates. School closures further reduced educational opportunities particularly for lower income groups; domestic violence against women also increased during this period (DGB 2021, p. 82).

In the US, about 10% of the population does not have health insurance—the rate of uninsured people is disproportionately composed of minorities and black people. Additionally, an increase in unemployment hit the US particularly hard. Government transfers have been able to offset these effects during the Covid-19 crisis to some extent. In the US, it is also apparent that lower income earners were significantly more affected by the pandemic than higher income earners, leading to problems similar to those experienced in Germany (Hu 2022). In both the US and Germany, the Gini coefficient declined slightly during the Covid-19 crisis as high- and middle-income households suffered high losses in their income (Trading Economics 2023).

For the EMU, one area of crisis management is particularly noteworthy. There was at least a partially joint European response to the Covid-19 crisis. In April 2020, the EU finance ministers agreed on three programs with a value of 540 billion euros, almost 4% of the EU's GDP in 2020. First, the *European Stability Mechanism (ESM)* was to give additional credits to member states of the EU. Second, the *European Investment Bank*, owned by the member states of the EU, should expand credits to companies. And third, the program *Support to Mitigate Unemployment Risks in an Emergency (SURE)* should help to stabilise labour markets. More important, in July 2020, the program *NextGenerationEU (NGEU)* with a value of around 6% of the EU's GDP in 2020 was enacted at the EU level, with the main aim of supporting

economic recovery following the Covid-19 crisis while facilitating the green transformation, digitalisation and the improvement of healthcare systems. This program allowed the European Commission to borrow funds of over 700 billion euros, with the member states jointly liable for the sum. This had only been done once before on a large scale for the SURE program with a value of EUR 100 billion. Prior to this, Germany in particular had always opposed joint borrowing. In principle, the European Commission is prohibited from taking out loans and depends on transfers from the member states for its financing. However, a compromise was only possible because of a requirement that the EU budget may not rise significantly above 1% of EU GDP in the medium-term (EU 2023).

Overall, in both the US and Germany, as in all other countries of the Global North, and quite in contrast to the countries of the Global South, there was a comprehensive fiscal response that decisively cushioned these economies from the effects of the Covid-19 crisis and prevented the slide into a deflationary phase (De Conti et al. 2024).

Monetary policy has also been extremely active in anti-crisis mediation in the EMU. Nominal interest rates on the money market remained negative in the EMU in 2020 and even fell further during the pandemic (see Fig. 5.3). This was due to refinancing rates remaining at zero while flooding the banking system with liquidity. In January 2019, the ECB's APP was suspended, meaning that the ECB's net purchases under this program remained at zero. But by November 2019, before the pandemic, monthly net purchases of \in 20 billion resumed as the Eurozone economy weakened again. Under the impact of the incoming Covid-19 crisis in early 2020, the ECB additionally adopted the *Pandemic Emergency Purchase Program (PEPP)*. Under this program, the ECB purchased assets worth EUR 1,696 billion by the end of March 2022; 97% of these purchases were government securities (ECB 2023b).

The Fed responded to the deep recession triggered by the Covid-19 pandemic by rapidly lowering interest rates to zero. In spring 2020, the Fed then implemented a large number of programs to stabilise the economic situation (for an overview, see Clarida et al. 2021). For example, the Fed decided to increase its holdings of treasury and mortgage-backed securities with several programs and announced that it will continue to purchase treasury securities and mortgage-backed securities "in the amounts needed." To support the flow of credits to households and businesses, several facilities were founded. For example, the *Primary Market Corporate Credit Facility (PMCCF)* gave companies access to credit to maintain business operations and capacity during the Covid-19 crisis. The *Municipal Liquidity Facility (MLF) was created* to help state and local governments.

At the international level, the Fed also provided increasing liquidity in US dollars throughout 2020. In March, it extended existing liquidity swap lines with the Bank of Canada, the Bank of England, the Bank of Japan, the ECB, and the Swiss National Bank. Swap agreements with nine additional central banks followed.⁵ The *Foreign* and International Monetary Authorities (FIMA) Repo Facility allowed foreign central

⁵ Other central banks, particularly the ECB and the People's Bank of China, also used the instrument of swap agreements, however to a much smaller extent.

banks to temporarily raise US dollars by selling US treasuries to the Fed. Swap agreements were formulated so that central banks could give their own central bank money as collateral to the Fed. For example, let us say the ECB gave newly created euro central bank money to the Fed in order to receive US dollars to help banks in the EMU that needed US dollars or to stabilise the exchange rate. Swap agreements with countries from the Global North were, as a rule, quantitatively unlimited. In substance the Fed acted as the lender of last resort for the Global North and a number of politically "friendly" emerging market economies. It did this to stabilise the global financial system, but also to avoid dramatic losses for US banks. We can only agree with the economists of the Fed when they write: "In the United States, monetary policy responses to the COVID crisis were unprecedented in their scale, scope, and speed. (...) The Federal Reserve acted decisively and with dispatch to deploy all the tools in its conventional kit and to design, develop, and launch within weeks a series of innovative facilities to support the flow of credit to households and business" (Clarida et al. 2021, p. 19).

Interventions by the ECB and the Fed are reflected in the development of the two central banks' balance sheet totals as a share of GDP (see Fig. 5.4). From 1960 to 2008, the Fed's balance sheet total was 5% of GDP with minor fluctuations. After 2008, total assets held by the Fed rose to 25% in 2014, before falling back to 10%. During the Covid-19 crisis, the balance sheet total skyrocketed again, reaching levels of almost 40% by the end of 2021. Since then, the values have declined again (FRED 2023). The development of the ECB's balance sheet total is even more extreme. The ECB's balance sheet total increased from just over 10% of GDP at the beginning of the financial crisis in 2007 to 30% during the euro crisis. After a slight decrease, the ECB's balance sheet total started to increase again, reflecting the trend of poor economic development in the EMU. In 2019, it reached around 40% and by 2021 nearly 70% of the EMU GDP, it then started to decline again. The Bank of England increased its balance sheet total almost continuously from 5% before the financial crisis to about 45% of GDP at the end of 2022.⁶

While the greatest dangers of the Covid-19 crisis have been averted in the countries of the Global North thanks to active fiscal and monetary policy, the economic situation has come to a head in many countries of the Global South. In the group of middle-income countries, external debt increased from 22% of gross national income in 2010 to 26.1% in 2021, and in the group of low-income countries it jumped from 18% to a dangerous 51.4%. Accordingly, many of the low-income countries were facing over-indebtedness after the Covid-19 and energy crises. An additional problem is that private nonguaranteed external debt has increased significantly—from 780 million US dollars in 1990, to 14.3 billion in 2010 to 70.31 billion in 2021 for the low-income countries. The increase for middle-income countries went from 49.02 billion US dollars in 1990 to a spectacular 1.44 trillion in 2010 and 2.89 trillion in 2021 (World Bank 2023). It should be noted that most of this debt is denominated in foreign currency and, therefore, is extremely risky.

⁶ The Bank of Japan's balance sheet reached a spectacular 130% of GDP after the Covid-19 crisis (National Bank of Greece 2023).

Even before the outbreak of the Ukraine war, the level of public and private external debt was critical in 135 of 148 Global South countries surveyed. In 39 countries, the situation was considered particularly dangerous. Mass defaults were prevented only by the *Debt Service Suspension Initiative (DSSI)* launched by the World Bank and the International Monetary Fund in May 2020. This temporarily suspended debt service for 73 countries. But no debt relief is planned so far (Rehbein 2022).⁷ Countries in the Global North were relatively well cushioned against the Covid-19 crisis and were able to overcome the associated challenges relatively quickly. This is undoubtedly not the case for the countries of the Global South. They are in danger of sinking once again into a phase of external debt crises that could last for many years, which is compounded by massive ecological problems in many of the countries.

If we compare the ECB's monetary policy with that of the Fed, we see that the latter was able to intervene in the economy much more directly and without long debates (see above). Nevertheless, the balance sheet total as a share of GDP for the ECB increased more dramatically and is higher than the Fed's (see Fig. 5.4). Other central banks in the Global North had similar or even more extensive interventions. Since the financial crisis of 2008, monetary policy in the leading Western industrialised countries has followed strategies and interventions that were hardly thought possible before. But they became necessary to save the extremely battered economic system.

Joscha Wulleber (2021) rightly speaks of a *central bank capitalism*. In it, central banks take a leading role in stabilising economies that have been exposed to multiple shocks. Central bank capitalism is reflected in the volume of central bank balance sheets and has three dimensions: first, rescuing the financial system through large-scale intervention, the usual lender of last resort function, while trying to stimulate investment; second, financing public budgets on a large scale as lender of last resort for public households; and third, stabilising the international financial system via swap agreements by key central banks, particularly the Fed.

Let us take a closer look at the different dimensions of central bank capitalism. We start with liquidity creation to help the financial system. First, note that the huge increase in a central bank's total asset holding and thus central bank money creation does not equate to the amount of central bank money flowing to the public. For example, the Bank for International Settlements (2019, p. 4) has calculated that the aggregate total assets of 23 central banks in advanced economies increased fivefold between 2008 and 2018, while cash in circulation (coins and banknotes) only doubled. Before 2008, there was a close correlation between cash in circulation and the balance sheet total of the central bank as well as between GDP growth and the balance sheet total. Calculating the average growth rate of the Fed's balance sheet total and M3 for the US between 2005 and 2020 yields an average growth rate of 9.5% for the balance sheet total and 6.8% for M3; in the EMU, the values are 11.8 and 4.9% (OECD 2023a,

⁷ The ratio of external debt to total export earnings in the group of low- and middle-income countries was 80% in 2010 and 103% in 2020, the ratio of debt service to total exports was 9% in 2010 and 14% in 2021, and the ratio of foreign reserves to external debt stock was 122% in 2010 and 69% in 2021. The increase in foreign debt stock to GDP and the risk of external over-indebtedness was particularly dramatic in Latin America and the Caribbean, the Middle East and North Africa, and sub-Saharan Africa (World Bank 2022).

b; FRED 2023, own calculation). These developments result from the fact that a large part of the central bank money created remains in the financial system and does not increase the financial assets of the public.⁸ The massive interventions by central banks thus had the primary effect of stabilising the financial system, including the shadow banking system. How long this can be successful without a radical reform, particularly of the shadow banking system, must remain an open question.

If swap agreements are used to finance financial institutions the monetary wealth of the public does not increase. If, for example, the ECB uses a swap agreement to act as lender of last resort for a German bank indebted in US dollars, the balance sheet total of the Fed increases, but monetary wealth in US dollars of the public does not. If the ECB uses a swap agreement with the Fed to intervene in the foreign exchange market und sells US dollars to a private wealth owner against euros, monetary wealth in US dollars held by the public increases. However, such a policy will only typically be followed when the euro is weak and wealth owners want to hold US dollars.

If central banks help governments to refinance the existing stock of public debt, monetary wealth in the public sector does not increase. If, for example, the central bank gives credit to the government and the government pays back its debt vis-à-vis a private household, the monetary wealth of the public does not increase. However, economic agents now hold more bank deposits and fewer interest-bearing securities. They have to decide how to use the additional deposits. The situation is different when budget deficits are financed by the central bank. In this case central bank money flows to the private sector via the purchase of goods, wages of public employees, etc.⁹

To sum up: huge interventions by central banks and the corresponding increase of central bank money can increase monetary wealth within the financial system as well as of the public. If additional monetary wealth is held by the public, there is no problem for the stability of the economy; however, if the public tries to exchange the additional monetary wealth in foreign currencies, devaluations and an inflationary development occurs. There may also be a flight into real assets and stock markets with the effect of real estate and stock market bubbles.

Central banks in the countries of the Global North have enormous scope to stabilise national economies even in deep and protracted crises. Consider the Bank of Japan, with its sizeable balance sheet of 130% of GDP. In mid-2023, the Bank of Japan held 51% of nationally issued government securities, the ECB 38%, the Bank of England 37% and the Fed 20% (National Bank of Greece 2023). Here, too, it remains to be

⁸ This is illustrated by the following example. The central bank rescues a troubled bank and gives it a loan of 500 million in the domestic currency. The bank now settles its debts with other banks. The latter are now swimming in liquidity, but do not want to lend to the private sector. In this case they hold the 500 million as excess reserves in central bank money. The same effect exists when the public withdraws money from the troubled bank and increases deposits in other banks. In this case monetary wealth in the private sector also does not increase. In fact, after 2008, excess reserves in the banking system increased sharply (cf. Heine and Herr 2021).

⁹ If the central bank finances budget deficits and does not want private monetary wealth in the public sector to increase, it can try to neutralize the increase in monetary wealth in the private sector by issuing its own securities. The central bank can also sell foreign currency reserves to reduce domestic monetary wealth held by the public, for example to strengthen the currency. However, there are limits to such sterilisation policies (cf. the analysis of the German hyperinflation in Chap. 2).

seen to what extent countries of the Global North can sustain the financing of public budgets via central banks.

Countries of the Global South do not have such leeway. Danger arises when economic agents lose confidence in the stability of their money and begin to flee from the currency (see Chaps. 2 and 4). An analysis of the currency hierarchy shows that the scope for expansionary monetary policy and central bank financing of public budgets may be very small. It also shows that most of the world's currencies enjoy only low confidence. For this reason, the scope for economic policy in these countries is small, the Covid-19 crisis is only one example of this (Herr and Nettekoven 2022; De Conti et al. 2024).

5.4 Energy Price Shock and Stagflation After 2022

The previous analysis has shown that after the financial crisis in 2008 countries in the Global North experienced very low inflation rates. The EMU, in particular, was on the brink of deflationary development several times. Japan suffered from deflation. Only massive fiscal and/or monetary policy measures prevented these economies from crashing ultimately preventing a development like that in the 1930s. The energy price shock occurred in 2021 as economies were recovering from the Covid-19 recession and then escalated in 2022 after the war in Ukraine began in February 2022. The supply of oil and gas decreased, in particular due to sanctions imposed by Western countries to stop imports from Russia. This development has fundamentally changed the economic constellation. The agenda is not to fight deflationary threats, but to bring inflation rates back to the target inflation rate of the respective central bank. Memories of the 1970s have been awakened, including fears of crisis and stagflation developments.

Figure 5.7 shows the development of energy and food prices from 2005 until 2023. After the Great Recession in 2009, energy and food prices were relatively stable and even low for a long time. Then the energy and food price shock came which can certainly be compared with the first oil price shock in 1973. In both cases, energy prices rose sharply. The price of crude oil in international markets increased from 1.82 US dollars per barrel in 1972 to 10.81 US dollars a year later, and the price of natural gas rose from 0.54 US dollars per MMBtu (million British thermal units) to 1.73 US dollars over the same period. The absolute price increases of crude oil and gas were significantly higher during the energy crisis starting in 2021. The price of crude oil increased from 42.76 US dollars to 91.28 US dollars from September 1, 2020, to November 2, 2022, and the international price of natural gas increased from 2.43 US dollars to 6.73 US dollars during the same period. Additionally, due to the blockade of the export of wheat from Ukraine, food prices were also increasing sharply. Food price inflation increased from very low levels and by early 2023 had reached annual values of over 21% in Germany, 18% in the EMU and 11% in the US (World Bank 2023a; Trading Economics 2023). Thereafter, increases in oil and



Fig. 5.7 Development of prices for energy and food, 2005–July 2023. *Note* Monthly prices in nominal US dollars; energy prices include coal, crude oil, natural gas and liquified natural gas. *Source* World Bank (2023b), Trading Economics (2023), author's calculations

gas prices as well as food prices fell to substantially lower levels (for an explanation of the development of oil prices see Chap. 7).¹⁰

Through its second-round effects the price shock in energy and food pushed the price level up significantly (see Fig. 5.5). A peak in inflation rates was reached at the end of 2022. At that time, inflation rates were close to 12% in Italy, over 9% in the United Kingdom, over 8% in Germany, over 7% in the US and over 10% in the OECD as a whole (OECD 2023a, b). Thereafter, levels declined, but remained at a level well above the central banks' inflation targets of 2%. The main reason for the softening inflation rates were falling commodity and food prices. Further inflation rate developments will largely depend on how commodity and food prices develop and, above all, whether the strong price level shock triggers a wage-price spiral.

The euro depreciated significantly against the US dollar from the end of 2021. The price of one euro was 1.21 US dollar in spring 2021, then fell to 0.97 US dollar in September 2022 before rising again to around 1 US dollar per euro by fall 2023 (Trading Economics 2023). The depreciation of the euro during the period of rising commodity prices invoiced in US dollars put additional pressure on euro prices for commodities and food. In the US, by contrast, the strong US dollar had a dampening effect on prices as imports not invoiced in US dollars became cheaper in the US. The decisive reason for the temporary strength of the US dollar was the relatively high interest rates in the US (see Fig. 5.3). But also under the current monetary regime, capital flows from all over the world flow to the US in times of crisis and war, as the

¹⁰ The rise in energy and food prices was also certainly driven by speculation. Breman and Storm (2023) calculate that a substantial part of the price increase of energy was driven by speculation.

US is regarded as a "safe haven." In the United Kingdom, the development of the pound vis-a-vis the US dollar was almost similar to the one of the euro.

The energy price shock struck the world economy at an inopportune time. It caused a renewed and sharp drop in real aggregate demand. Let us look at real wages (Table 5.2). Expressed in constant prices, average real wages increased in the US from 66,174 US dollars in 2007, the last year before the financial crisis, to 60,732 US dollars in 2019, the year before the Covid-19 crisis, and dropped to 58,940 US dollars in 2022. For Germany the development is almost similar. Average real wages increased from 52,208 US dollars in 2007 to 60,732 US dollars in 2019 and dropped to 58,940 US dollars in 2022. Italy and the United Kingdom show the same pattern. It is worth mentioning that in these two countries real average wages experienced almost no increase. In 2023, further real wage losses must be expected. If the first quarter is taken as the basis for comparison, in an annual comparison real wages in 2023 fell by 0.7% in the US, by 3.3% in Germany, by 2.9% in the UK, by 7.3% in Italy and by 3.8% in the OECD (OECD 2023a). The development of real wages is of great importance for real consumer demand because wages are the most important source of income, especially for middle- and low-income households. It is obvious that significant losses in real wages reduce aggregate demand and this, if no other demand elements increase, results in reductions in production.

Different households are affected differently by energy and food price shocks. For example, the poorest households through to the middle class, in particular, suffer from rising heating costs or increasing food prices. Households with somewhat higher incomes, and rural populations in particular, have to cope with the rising cost of using their own cars. In general, households that consume a relatively high proportion of their income are particularly affected by price shocks.

Another factor of the economic slowdown after 2021 is, in the words of Keynes (1936), the deterioration of the "state of confidence." Future economic and political developments were highly uncertain in the context of the shock of the Covid-19 crisis, surging energy prices, the war in Ukraine, increasing geopolitical conflicts, the war in the middle east at the end of 2023 and the escalating environmental crises, including the open and controversial strategy of ecological transformation. This was compounded by the sharp rise in interest rates starting at the end of 2021, which

	2007	2019	2020	2021	2022
Germany	52,208	60,732	60,309	60,291	58,940
US	66,174	73,194	77,567	78,894	77,463
United Kingdom	53,927	54,703	53,612	54,762	53,985
Italy	46,928	46,460	44,246	45,961	44,893

Table 5.2 Average real wages in the Germany, the US, the United Kingdom and Italy, in constantdollars*, 2007–2023

* This indicator is measured in US dollar constant prices using 2016 base year and Purchasing Power Parities (PPPs) for private consumption of the same year for the exchange rate *Source* OECD (2023a, b)

is impacting the construction sector, among others. In addition, following the signs of crisis in the international financial system in spring 2023, banks are acting more cautiously in granting loans.¹¹ Against this backdrop, investment demand dropped sharply in 2020, recovered slightly in 2021 and 2022, only to fall back again in 2023 to growth rates of around zero in most industrialised countries (OECD 2023a, b).

Let us take a closer look at monetary policy. With the emergence of upward pressure on prices, the ECB raised interest rates dramatically by following, hesitantly at first, the monetary policy of the Fed, which reacted earlier and more aggressively to the surge in price levels starting at the end of 2021 by raising interest rates. By contrast, the Bank of England followed the Fed's monetary policy directly (Fig. 5.3). The Fed also reduced its balance sheet total by switching to net-monthly purchases (Fig. 5.4). At the same time, the ECB announced in June 2022 that it would stop its massive programs to purchase government securities under the APP. From July 2022 to February 2023, net purchases were zero. From March 2023, net purchases became negative at 15 billion euros per month (ECB 2023a). The PEPP stopped net asset purchases as early as March 2022 with the goal of prudently reducing asset holdings held by the ECB (ECB 2023b). Indeed, the balance sheet totals of the ECB have also been reduced since then (Fig. 5.4).

However, the ECB has created space for further—potentially massive—interventions. *Outright Monetary Transactions (OMTs)* were introduced in 2012 in the event of future financing problems for public budgets in the EMU. This allows the ECB to provide unlimited financing to troubled public budgets. The problem with OMTs is that the governments concerned must turn to the *European Stability Mechanism (ESM)* for this assistance and accept and fulfil its conditions. This can lead to delays on the one hand and political turmoil on the other if countries do not want to submit to the ESM (see Heine and Herr 2021). The ECB has recognised this problem and launched the *Transmission Protection Instrument (TPI)* along with increasing interest rates in July 2022. Under this instrument, the ECB is allowed to buy unlimited amounts of government securities of EMU member countries if public budgets are burdened by unjustifiably high interest rates or by refinancing problems. Although there is a list of criteria to be met, the ECB ultimately decides for itself and on a discretionary basis whether unlimited financing is appropriate (ECB 2022).

For all the parallels, the economic situation in 2021 shows considerable differences from the situation in the 1970s. So far, for most countries of the Global North, there is nothing to indicate the beginning of an escalating wage-price spiral. To be sure, in 2022 nominal wages began to rise with the energy price shock, by 4.8% in the US, 4% in the United Kingdom, 4.2% in Germany, below 2% in Italy and by 3.3% in the EMU as a whole. Mid-2023 annual nominal wages increases were 5.7% in the US, 8.1% in the United Kingdom, 6.6% in Germany and 4.6% in the EMU (Trading Economics 2023; Statista 2023). However, these increases bear no relation to the

¹¹ In March 2023, several US banks experienced problems and needed help from the Fed. In Switzerland, Credit-Suisse, the second largest Swiss bank and one of the thirty largest banks in the world, with systemic importance, ran into difficulties. Only a quick takeover of Credit-Suisse by UBS, the largest Swiss bank which is also systemically important, and government support stabilised the situation (Herr 2023a).

nominal wage increases in the 1970s. Overall, they do not deviate significantly from the wage norm. However, a few countries were characterised by very high wage increases in 2022, such as Bulgaria with 18.2%, Poland with 14.1%, Hungary with 14.6% or Lithuania with 10.9% (OECD 2023a, b). A big difference between the situation in 1973 and the energy price shock in 2022 is that prior to 1973 a wageprice spiral already existed which was developing as early as the late-1960s (Chap. 4). Before 2022 the opposite was the case. Wage increases were very low, and frequently they even fell substantially below the wage norm. It is an open question how long it will take to bring wage development and inflation rates back to the inflation target of 2% throughout the Global North. Labour market shortages for many professions could lead to a scenario of wage developments which lead to inflation rates a few percentage points above the wage norm. Central banks would then have to decide whether to accept the costs of lower GDP growth and higher unemployment rates to bring inflation down or not.

Stagnating, or even declining, real demand triggered by the Covid-19 crisis and intensified by the energy crises reduced GDP growth increases the risk of a prolonged economic downturn and a slow and weak recovery. This danger is reinforced by rising interest rates in all developed Western economies as well as the high level of uncertainty.¹² There are further risks. Real estate and stock market prices, which show bubble-like tendencies and were supported by super expansionary monetary policy before the energy price shock, could crash. There is also the looming debt crisis in the Global South. Political turbulence due to the high and rising costs of the ecological crisis and transformation must also be considered (see Chap. 6).

In this situation where the energy and food price shock reduced real private aggregate demand, fiscal policy was called upon to stabilise the economy with suitable measures. In fact, economic stimulus programs were introduced in many countries, but their strength varied considerably. Let us take Germany as an example. In 2022 and 2023, three so-called relief packages were launched, which included a variety of measures to dampen the energy price shock (Bundesministerium für Finanzen 2023). Among other things, in 2022 the fuel tax was reduced from June 1 to August 31; during the same period, a nationwide ticket was introduced that allowed the use of all local and regional public transportation in Germany for 9 euros per month, and energy-intensive companies were relieved by a sum of 1.7 billion euros. A "gas and heat brake"¹³ and a reduced tax rate for gas were implemented; companies were able to pay employees a tax-free bonus as part of their wage increases through the end of 2024; the commuter allowance was increased and one-off payments of 100 euros were made to recipients of social benefits as well as 200 euros to students. Furthermore, employed persons received an energy price lump sum of 300 euros and transfers for basic economic security were increased by 53 euros. In addition, special

¹² The following increases in insolvencies have been forecast for 2023: US 49%, France 41%, United Kingdom 16%, Germany 22%, Italy 24%. Globally, an increase of 21% is expected in 2023 and a further increase of 4% in 2024 (Reinsurance News 2023).

¹³ Here, the state took over gas and heating costs in full for December 2022. From January 2023, the state then assumed costs for gas above 12 cents per kilowatt hour for 80% of the previous year's consumption until April 2024. Similar arrangements apply to district heating and electricity.

budgets (which were allowed by the German Debt Break) were created, such as the "Special Assets of the German Armed Forces" enacted in spring 2022 with a value of 100 billion euros. Over the coming years this will increase demand for military equipment.

Fiscal policies to combat the energy crisis were not integrated into any joint fiscal programme on the European level, for example in the form of joint borrowing to finance joint stimulus packages. Such a European stabilisation package would have been conceivable, especially in the energy markets. Germany, and some other countries, had no interest in joint fiscal programmes. This did spark resentment toward Germany among some European partners and the European Commission because other countries had less fiscal leeway than Germany. Former Italian Prime Minister Mario Draghi, and before that President of the ECB, reacted accordingly with anger to the German fiscal programs: "In view of the common threats of our time, we cannot divide ourselves according to the possibilities of our budgets" (Stuttgarter Nachrichten 2022). Indeed, a European solution like the response to Covid-19 crisis would have made sense.

Figure 5.2 shows that the fiscal response to the weak growth caused by the energy price shock was weaker than during the financial and Covid-19 crises. Germany, which allowed only relatively small budget deficits during the Covid-19 crisis, reduced its deficits well below 3% of GDP. The US, Italy and the UK also reduced their very high budget deficits during the energy crisis, as did the EMU as a whole (OECD 2023a, b).

In Germany and the EMU in particular, the fiscal rules, if they are followed, lead to procyclical fiscal policy. During the Great Recession, the SGP was suspended; during the Covid-19 crisis Germany suspended the Debt Break and the EMU suspended the Fiscal Compact. However, in Germany, the rules of the Debt Break are to be met again, by all means, in 2024.¹⁴ Other EMU countries have an obligation to meet the Fiscal Compact or even stricter national rules. After the 2009 recession, Germany and (driven by the euro crisis) the entirety of the EMU reduced budget deficits too early and turned to restrictive fiscal policy. After the Covid-19 and energy crises the same happened. If Debt Breaks and fiscal rules to be fulfilled in 2024 and the following years, misled fiscal policy will prevent a quick recovery from these crises. We follow Peter Bofinger (2023, p. 1), a long-time former member of the German Council of Economic Advisors, when he argues that the German government is setting the wrong priorities and is partly responsible for Germany's weak economic performance. Of the Debt Break, he writes, "In this strict interpretation, the Debt Break is a straitjacket that deprives us of economic policy perspectives." Thus, he supports "a special fund of 50 billion euros for social housing." The lack of fiscal expansion in Germany during a situation characterised by stagnating GDP should be considered in the context of extremely low levels of public investment in Germany by international

¹⁴ In the governing coalition in Germany between the Social Democrats, the Greens and the Free Democrats that came into office at the end of 2021, the Free Democrats in particular, who provide the finance minister, stand for strict compliance with the Debt Break.

standards.¹⁵ This low level is clearly developing into an economic disadvantage, as Germany's infrastructure, for example, has been insufficiently maintained and expanded. A radical increase in public investment would be necessary for the socio-ecological transformation alone (Rietzler and Watt 2021).

The coming years are likely to be full of conflict in the EMU. This is because a number of member states will find it difficult to comply with the Fiscal Compact and even the SGP. Both will most likely be modified, the direction is unclear.

During and after the energy price shock a constellation similar to that of the early 1980s has formed, with high debts in numerous countries of the Global South, rising interest rates in the US and other industrialised countries and a weakening global economy. In addition, the situation of many over-indebted countries is aggravated by the worsening ecological crisis, so that explosive socio-political constellations must be expected there. Without massive support from international organisations and creditor countries, many countries in the Global South are once again at risk of a comprehensive over-indebtedness crisis and a lost decade, which would also have negative repercussions for the Global North.

Looking at the series of crises from the financial crisis of 2008 to the euro crisis in the EMU to the Covid-19 crisis, we conclude that, within the framework of "central bank capitalism" in the countries of the Global North, central banks have supported financial systems and public budgets on a scale unprecedented since the Second World War. They were driven to do so because, otherwise, the crises would have spiralled out of control and catastrophic political and economic developments during the Great Recession would have become likely.

We assume that the scope of central bank capitalism has not been exhausted, and this seems to be important. A collapse in confidence in the solvency of public budgets in individual countries, including within the EMU, as well as major global exchange rate turbulence cannot be ruled out. Central banks as lender of last resort for the financial system, public budgets and assistance for over-indebted countries, e.g. via swap agreements, cannot be ruled out.

Inflationary phases or even stagflations, as in 2022 and the following years, are problematic for central bank capitalism. In such constellations, a dilemma for central banks comes to a head as the fight against inflationary developments comes into conflict with the policy of stabilising financial systems and public budgets.

In any case, it would be more advisable to fundamentally reform the national and global financial systems and public finances so that the central bank interventions described above can be scaled back. It should also be kept in mind that central bank interventions responded to crises and did not actively address many dimensions of the current crisis constellation. They do not have sufficient instruments at their disposal to combat, for example, deep recessions, the growing inequality in income and wealth distribution within and between countries, the ecological crises or the lack of coherence in global economic development.

 $^{^{15}}$ Let us take the latest OECD Figs. (2023): public investment as a share of GDP was 11.8% in Germany in 2022, 13.0% in the EMU, 15.5% in the US, and 18.0% in the United Kingdom.

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Chapter 6 Conclusions and Recommendations



6.1 Macroeconomic Management After Price Shocks

In the first subsection of this chapter we will discuss what a desirable economic policy response to a price level surge, such as that caused by sharply rising energy prices, would look like. We will show that constructive interactions between the different macroeconomic policy areas—wage, monetary and fiscal policy—are crucial. The experience of the 1970s provides valuable insights in this regard.

Wage policy

Wage policy has a central role to play in the necessary policy mix following a price level shock. In general, the level of nominal wages should rise in line with the wage norm, i.e. the medium-term productivity trend plus the central bank's target inflation rate. This wage norm should also apply both in the events of an exogenous price level shock or in the event that the economy is facing a deflationary threat. Thus, nominal wage developments should become a stable nominal anchor for medium-term price level development. If wages follow the wage norm, the price level surge would roll through the entire economy once and raise the price level accordingly. When the price level push fades out, the inflation process also comes to an end and the inflation rate falls back to its target value. Our suggestion for wage developments after a price shock is in line with Keynes's (1936, p. 270) ideas: "In the light of these considerations I am now of the opinion that the maintenance of a stable general level of money-wages is, on a balance of considerations, the most advisable policy the money-wage level as a whole should be maintained as stable as possible, at any rate in the short period."

The requirements for this recommended wage policy are, of course, anything but easy to implement and require socio-political flanking measures. This is because the proposed wage policy must accept, for example, that an increase in energy prices will bring about a reduction in real wages. The rising cost of energy, if it has to be imported, reduces real domestic income in any scenario, and wage policy is hardly in a position to shift the consequences of this reduction from wage earners as a class to entrepreneurs as a class thereby reducing profit income. This is because companies have the ability to pass increasing costs, including rising wages, on to prices in the medium-term. They have the longer leverage. This is shown by empirical experience and also in theoretical considerations (see Chaps. 4 and 7). Of course, price and wage increases may not be one-to-one, and under certain conditions redistribution of functional income may be possible. For example, profits compress when the economy experiences stagflation with increasing costs and a lack of aggregate demand. Or, in the case of international competition, costs may not be passed on. Such constellations may well lead to redistribution in certain segments of the economy, but this does not change that wage increases above the wage norm nearly always lead to price increases and an inflation rate above the target inflation rate. Although a reduction in real wages is undoubtedly undesirable from a social policy perspective and must be cushioned for lower wage groups, a certain degree of real wage flexibility is necessary to stabilise an economy.

The situation is only slightly modified when most or all energy is produced within the country. The US fits this situation. From the 1970s on, the US consumed more energy than it produced domestically. But since 2019, domestic production is slightly higher than consumption (EIA 2023). In this case, an energy price shock would lead to massive redistribution within the country with high rents for energy producing companies. This would result in a decrease in real wages as well when energy prices increase substantially—even if the real income of the whole country does not change.

Wage policy can contribute to distributing income losses in such a way that low-income earners are better protected than those who earn well. To achieve this, wage development would follow the tradition of the solidaristic wage policy, which played an important role particularly in Scandinavia after World War II. Solidaristic wage policy implies not only a high degree of vertical wage coordination, i.e. within a sector, but also a high degree of horizontal wage coordination between sectors. Solidaristic wage policy, also known as the Rehn-Meidner model, aims for a low wage spread throughout the economy as a whole, including different sectors, and moderately higher wages for top earners (Schulten 2002). For example, higher wage increases in the low-wage sector, or even absolute wage increases for all employees, could contribute to the protection of low-income households in an economy experiencing price shocks.

A disastrous constellation after an exogenous price level shock is when solidarity among employees breaks down and each group tries to escape the real wage losses as best it can. In this situation, a "war" breaks out between the various factions of the working class. The results could include an escalating wage-price spiral and/or a severely unjust increase in wage dispersion. The United Kingdom in the 1970s provides a striking example of this. However, wage developments in Germany in the early 1970s and the insistence on hefty public sector wage increases after the 1973 oil price shock also represent dysfunctional wage policies. Wage developments in Italy were completely destabilising. Similarly, in the US, wage increases in the 1970s were not able to be realised in line with the wage norm. Ultimately, attempts to establish income policy to moderate wage increases failed in all four countries during the period from the late 1960s through the early 1980s (see Chap. 4).

If only individual occupational groups succeed in increasing their wages, for example, due to differences in union strength, the strategic key positions of certain professions, or labour shortages in specific areas, the wage spread widens with a number of negative consequences. Since it is usually the low-income earners in particular who fail to protect themselves from real wage reductions, this constellation leads to rising inequality in income distribution and thus to dampened consumer demand with undesirable consequences for growth and employment.

In the event of an energy price shock, institutions capable of coordinating wage developments according to macroeconomic needs are essential. First of all, the vertical coordination of wage development, i.e. within an industry, should be aimed for. In a situation where trade unions are weak, this can be achieved by a declaration of the general applicability of collective agreements by the state. Furthermore, horizontal coordination of wage development between unions in different industries is necessary. This can be achieved through various mechanisms—ideally through joint decisions by the unions' leaders. But large unions can also send signals for the entire wage round with their wage agreements.

It is also important to have institutions that attempt to coordinate the various macroeconomic policy areas. One example is government-organised cooperation between all macroeconomically important actors with the help of a "round table", a "concerted action", etc. In the 1970s, there were a wide variety of attempts to implement income policy in the countries studied, but despite some successes, none of them were successfully able to stop a price-wage-price spiral in the medium-term (see Chap. 4). This shows how difficult it is for a society to cope with a price level shock with a spirit of solidarity.

It should be mentioned that compliance with the wage norm is not only necessary to avoid inflationary processes, but also to block deflationary developments. In this case, too, compliance can become difficult, as trade unions experiencing conditions of high unemployment come under economic pressure, while economists (probably from a (neo) classical tradition) demand falling wages. Keynes (1936, p. 14) writes, not without irony, "Thus it is fortunate that the workers, though unconsciously, are instinctively more reasonable economists than the classical school, inasmuch as they resist reductions of money-wages...Every trade union will put up some resistance to a cut in money-wages, however small."

There is a possibility for governments to intervene in situations of price level shocks that is worth mentioning. If price level shocks originate in specific goods such as oil or gas that are important for the economy as a whole, maximum prices for those goods could be set temporarily. If market prices then exceed the set price, the state can step in and bear the costs. Such a measure can slow down the inflation process, prevent the trigger of a wage-price spiral and at the same time stabilise aggregate demand due to the relief provided to firms and households (Weber et al. 2022; Dullien and Weber 2022).

Monetary policy

As is well known, monetary policy has to ensure that the development of the price level is basically in line with the target inflation rate. The chosen inflation rate should be relatively low and stable over the medium-term. It is up for discussion whether a target inflation rate of two per cent is the best solution. One could also, for example, assume a target inflation rate of three per cent by considering the ongoing cost pressures associated with ecological costs and the transformation to a sustainable economy.

Of course, monetary policy should also pursue other objectives, such as ensuring a high level of employment. It should, therefore, seek compromises between these various objectives, at least as long as price developments do not get out of hand. However, as mentioned, these other monetary policy objectives do not change the fact that both inflationary and deflationary developments fundamentally destabilise economies. Money plays a central role in capitalist economies and is a decisive functional condition for the functioning of capitalism. And a distorted capitalism is definitely worse than a functioning capitalism. Money can only fulfil this function if economic agents trust the stability of money. Otherwise, the consequences can include capital flight, devaluations, wage-price spirals, rising insecurity, declining investment and, finally, system-threatening crises. Therefore, a central bank must ultimately defend the soundness of its money with restrictive monetary policy and a stabilisation crisis, if necessary. The 1970s showed that all central banks had no choice but to act in this sense—some did so earlier, others later.

Central banks should follow their official strategy that the inflation target is a medium-term target. A central bank should allow an exogenous price shock and the following wave of inflation to pass through the economy and accept a significantly higher inflation rate during this period, which may well last one or two years. Monetary policy would be completely dysfunctional if it tried to compensate for the increase in energy prices by lowering nominal wages, for example. This is because nominal wage cuts are extremely difficult to implement and can hardly be managed in a solidary and fair manner. Wage policy is far too inert to be used to control inflation in the short-term.

During such a wave of inflation, the central bank's refinancing rates should remain relatively low and real interest rates should not become significantly positive. Such monetary policy does not preclude that central banks moderately increase refinancing rates during an inflation wave in order to prevent real interest rates from becoming markedly negative.

Nevertheless, the best intentions of a central bank can be thwarted by external policy conditions. This would be the case, for instance, if interest rates in reserve currency countries rise sharply and provoke undesirable capital exports and sharp devaluations at home, despite a stable price level. Capital controls can mitigate the potential conflict between internal and external stability and should be a readily available and accessed instrument for monetary policy. As early as the 1950s, Tinbergen (1956) pointed out that two economic policy targets need two instruments. To create external and internal stability, interest rate policy and capital controls are needed.

Let us briefly return to the case of deflation. If the nominal wage level falls, the economy slides into deflation and is confronted with all the associated negative consequences. In this case, the central bank has no effective power to stop the deflation process, since it cannot make the nominal interest rate appreciably negative. This means that for macroeconomic stability, it is desirable to have strong trade unions that have a macroeconomic understanding and maintain a nominal wage anchor. While statutory minimum wages can relieve unions of some of the burden of defending a wage anchor in situations of deflationary tendencies, this is not an ideal scenario, as it may move the wage structure in and undesirable direction for employees and trade union members.

To conclude, in the event of an exogenous price shock that triggers an inflationary wave, the central bank can offer to trade unions that it will keep interest rates as low as possible and not seek a stabilisation crisis by means of restrictive monetary policy in exchange for avoiding a wage-price spiral. It can also advocate alongside trade unions for an incomes policy and promote the creation of institutions that enable macroeconomic coordination.

Fiscal policy

If substantially more income suddenly flows abroad to oil- or gas-producing countries or to a domestic natural resource sector in the event of an energy price shock, real domestic income for the majority of the population is reduced. Energy price shocks lead to economic slowdowns or recessions even in the absence of restrictive monetary policy. This is the result of falling real consumer demand. But investment demand is also very likely to suffer due to increased levels of uncertainty or expectations of shrinking consumer demand.

The fact that an energy price shock can lead to recessions was clearly demonstrated by the two oil price shocks in 1973 and 1979. It should be noted that the subsequent recessions occurred independently of the (initially different) monetary policy orientations of the various central banks (see Chap. 4). The energy price crisis from 2021 onward also dampened real demand and reduced real GDP growth (see Chap. 5).

This is where fiscal policy comes into play. In the event of an exogenously generated price level shock, expansive fiscal policy should be enacted without delay to compensate for the loss of real demand in consumption and aggregate demand in general. Ideally, automatic fiscal stabilisers should be supplemented by active discretionary fiscal policy. Fiscal policy can include the stabilisation of the price of key commodities by setting maximum prices via corresponding subsidies (Weber et al. 2022).

The entire toolbox of fiscal policy can be applied. This includes governments financing additional expenditures at least partly by increasing taxes. If high income earners in particular are taxed this has an expansionary effect (Haavelmo 1945). For example, a temporary so-called excess profits tax can levy a tax on exploding rents based on increasing oil or gas prices—however, it may be difficult to tax oil companies in Saudi Arabia or Russia.

In general, we argue that the government debt-to-GDP ratio, like the debt ratios of economic units in general, should not rise permanently. This is because high debt ratios make an economic system more fragile, for instance in economies facing deflationary developments, phases of high interest rates or prolonged stagnations. Nevertheless, fiscal policy should be clearly countercyclical and should not pivot orientation towards fiscal consolidation too quickly following slumps. For this reason, we reject a Debt Break, as in Germany, or similarly restrictive regulations (see Chap. 5). We consider the golden rule of fiscal policy, which limits over-cyclical borrowing by public investment, to be useful (Truger 2016; Dullien et al. 2020; Heine and Herr 2022). According to this rule, over the business cycle government consumption should be financed through taxes and levies; however, government borrowing should be made possible for public investment. Particularly in the context of the ecological transformation, high levels of public investment are needed, which should not be restricted by fiscal rules.

Contrary to widespread prejudice, Keynes did not rely on fiscal policy for the longer-term stabilisation of a capitalist economy. Without doubt, Keynes suggested active fiscal policy to stabilise short-term fluctuations in aggregate demand. But he placed macroeconomic management of investment at the centre of his consideration. "I conceive, therefore, that a somewhat comprehensive socialization of investment will prove the only means of securing an approximation to full employment; though this need not exclude all manner of compromises and devices by which public authority will co-operate with private initiative" (Keynes 1936, p. 378). By socialisation of investment, Keynes meant that all public utilities, such as public transport or energy companies, power plants or district heating plants should be owned by different levels of government according to their function. Large stock companies should also be owned by the state. Keynes (1926) as well as Schumpeter (1942) viewed the owners of large public companies as largely functionless wealthy individuals who could be replaced without harm to economic development. Management is in the driver's seat of big companies and could controlled by means other than private wealth owners without much knowledge about companies or speculative units like hedge funds (Herr 2022; Heine and Herr 2023).

Stabilisation of low-income households

An energy price shock followed by a wave of rising prices has deep distributional implications. Because of the high consumption rate of low-income households and the structure of demand among these households—characterised by above-average consumption of goods that are particularly hard hit by rising energy prices—rising energy prices have strong effects on the real income of precisely this type of household.

In the constellation described above, low-income households must be supported by collective bargaining (see above) and, above all, by the state. Not only does social fairness dictate this, but support for these households stabilises aggregate demand and prevents distributional struggles. Destabilising political polarisation is reduced as well by supporting lower-income households. It is important that government measures benefit those who need them. A policy that enforces support regardless of the income situation of households would be dysfunctional in economic and social terms. In such a situation, a special levy on households with high incomes and wealth that directly benefits low-income households would also be conceivable.

Exchange rate risks and stabilisation of the global economy

The policies proposed so far can decisively stabilise a national economy in the event of an energy price shock. However, as indicated above, there are also external dangers that can lead to destabilisation.

The first potential problem is a crash in the exchange rate. If, for example, a country is dependent on energy imports but cannot quickly increase its exports, capital imports are needed to finance the resulting current account deficits. If these fail to materialise, for whatever reason, the threat of massive devaluation develops. Thus, the price level push, triggered by energy prices, is intensified due to rising import prices. If import ratios are high and devaluations are strong, the price level effect on the domestic market can be severe. In this case, it becomes increasingly difficult to maintain the wage norm and there is a danger that a devaluation-inflation-wage-price-devaluation spiral develops. This constellation becomes exacerbated when the country has high foreign debt denominated in foreign currency. The German hyperinflation of 1923 is an extreme example of this scenario (see Chap. 2). But Italy and the United Kingdom in the 1970s are also examples (see Chaps. 3 and 4). A country can also be affected by a loss in confidence for various reasons even without very high inflationary dynamics, which can lead to capital flight, strong devaluation and, finally, restrictive monetary policy. The US experienced such a situation in 1979 (see Chap. 4).

To limit such expectation-driven exchange rate shocks, joint intervention on the foreign exchange markets by the central banks of the countries concerned can help. Another conceivable option would be the introduction of capital controls, which should be accepted as a legitimate instrument of monetary policy. Both are, of course, hardly feasible under the current type of globalisation characterised by unleashed financial markets.

Let us return to the problem of large current account deficits that could potentially arise from exogenous energy price shocks, which can be destabilising particularly for countries of the Global South without their own natural resources. Current account deficits are only possible if corresponding capital imports can be initiated, or the central bank holds sufficient foreign reserves for foreign exchange market intervention. Both types of financing can fail; the result would then be the crash of the exchange rate. A serious problem could occur if devaluations cause the import bill and the current account deficit to explode due to the low demand elasticity of imports, while exports increase only slowly. This effect entered the literature as the Marshall-Lerner condition. If the absolute magnitude of import and export elasticity is smaller than 1, then the current account balance deteriorates during situations of devaluation (cf. Marshall 1879; Lerner 1944).

A further difficulty arises when countries have a high level of foreign debt denominated in foreign currency. Then, real devaluations increase the real debt burden in foreign currencies. In the scenario outlined, external over-indebtedness quickly becomes a problem, dragging the country into crisis and often a period of prolonged stagnation. A striking example of this is the over-indebtedness crises in almost all Latin American countries after the second oil price shock in 1979.

In such phases, it is important to have global mechanisms through which the affected countries are supported in defending relatively stable exchange rates. Conceivable mechanisms for this process include government loans from countries of the Global North or international institutions like the IMF, central bank swap agreements or debt moratoria.

The debt situations of countries in the Global South have deteriorated further following the Covid-19 crisis and the energy and food price crisis. The IMF (2022a, b p. 1) writes: "Governments are now struggling with rising import prices and debt bills in a highly uncertain environment of elevated inflation and a slowdown in growth. As monetary policy tightens to curb inflation, sovereign borrowing costs will rise, narrowing the scope for government spending and increasing debt vulnerabilities, especially in emerging market and developing economies." In early 2022, for the group of low-income countries the proportion of countries in debt distress or at high risk of debt distress has doubled to 60% from the 2015 levels. This development took place despite some debt relief and the suspension of debt servicing (IMF 2022a, b). Without massive intervention by creditor countries, developments such as the "lost decades" following the oil price shock of the 1970s seem likely.

To be sure, optimal macroeconomic policies are easy to develop in theory. But in specific historical situations, implementation can be difficult or even impossible. The situation in the Weimar Republic after First World War provides a vivid example. The period of the 1970s also shows how complicated the implementation of functional economic policy can be.

6.2 Longer-Term Economic Policy Recommendations

We will conclude with some remarks on the fundamental macroeconomic challenges that loom over the coming decades. It is obvious that the Covid-19 crisis and the subsequent energy price shock created massive economic problems. It should be noted that when the Covid-19 crisis broke out, many countries (particularly in the EMU) had not yet overcome the fallout from the 2008 financial crisis and subsequent recession. This is very clearly illustrated by the fact that the ECB was just trying to end its unconventional monetary policy of keeping refinancing rates below zero when the Covid-19 crisis began (Heine and Herr 2021). As if that were not enough, countries of the Global North will face numerous other challenges over the coming decades.

The ecological crisis

In brief, since the problems are well known, the developed economies, but also the countries of the Global South, need an ecological transformation in order to initiate sustainable development. For example, the capping of global warming cannot be postponed under any circumstances. The scientific forecasts in this field are unambiguous and they clearly predict the noticeable intensification of heat phases, heavy

rain, storms, floods, droughts, forest fires and species extinctions. Current measures to limit climate change have been characterised as insufficient (IPCC 2023).

Inequality within and between countries

Since the 1980s, income and wealth distribution has gradually shifted in favour of those with extremely high incomes and wealth (see Piketty 2014; Gallas et al. 2016). This increasing inequality in distribution reflects both deregulations in labour markets with a weakened role of trade unions, and also deregulations in the financial system and an erosion of overall social solidarity and responsibility. The development of the Gini coefficient for disposable income is an example of this. In the US, this Gini coefficient rose from 35.3 in 1979 to 41.5 in 2019. In the United Kingdom the values were 27.4 and 32.8 in the two years, with a slight decrease in inequality in recent years. In Germany, the Gini coefficient rose from 29.50 in 1991 to 31.7 in 2019, and in Italy from 31.5 to 34.6 over the same period.¹ In most countries of the Global South, inequality is much higher than in countries of the Global North; in Brazil, for example, the Gini coefficient in 2019 was 53.5, and in South Africa in 2014 it was 63.0. According to World Bank data, inequality in China, with a Gini coefficient of 38.2 in 2019, is lower than in the United States (World Bank 2023).

To give a more realistic impression, Piketty has detailed what a high Gini coefficient means. If we take a Gini coefficient of 36.0, which is well below the current one in the US, this could mean, for example, that the 10% of households with the highest income receive 35% of national income (the top 1% receive 10%), the poorest 50% of households receive 25%, and the middle 40% of households receive 40%. With a Gini coefficient of 49.0, values well below those of Brazil and South Africa and an easily conceivable future value for countries in the Global North, this means, for example, that 50% of disposable income flows to the 10% richest households (20% flows to the 1% at the top of the income pyramid), 20% flows to the 50% poorest households, and 30% flows to the middle 40% (Piketty 2014, p. 249).

Globalisation has created only very limited convergence of living standards in recent decades. If we take GDP per capita measured in purchasing power parity and in constant international dollars from 2017—an international dollar has the same purchasing power everywhere in the world—then the following development is shown: GDP per capita increased in the group of high-income countries expressed in international dollars from 31,818 in 1990 to 51,568 in 2022. In the group of middle-income countries there was an increase during the same period from 4,583 to 12,244, in the group of low-income countries the increase was from 1,337 to 1,940, in China from 1,424 to 18,188 and in India from 1,819 to 7,096 (World Bank 2023). In the group of low-income countries, there was a very small increase. The absolute increase in GDP per capita in international US dollars was 19,750 for high-income countries, 7,661 for middle-income countries and for low-income countries it was 603. Global convergence looks different.

¹ There were also a number of countries that showed a decreasing Gini coefficient for disposable income, such as France from 34.0 in 1979 to 30.7 in 2019.

In recent years, wealth has been distributed even more unequally and concentration has increased further. For example, as far as data are available, in 2021 the richest 1% of the population held 35.1% of the wealth in the US (the Gini coefficient for wealth was 85.0), 31.7% in Germany (Gini of 78.8), 22.3% in France (Gini of 70.2) and 21.1 in Japan (Gini of 64.7). In some countries of the Global South, wealth inequality is even higher. In 2021, the richest 1% held 49.3% of total wealth in Brazil (Gini of 89.2) and 40.6% in India (Gini of 82.2). The Gini coefficients for wealth are 70.6 in the United Kingdom and 88.0 in Russia. The situation is even more extreme for global wealth distribution. The richest decile (top 10% of adults) owns 82% of global wealth and the top 1% alone owns nearly half (46%) of all household assets. The poorer 50% of the world's population has assets of less than 1% (Credit Suisse Research Institute 2022, p. 33).

If there is no political intervention by way of wealth or inheritance taxes, a snowball effect takes hold in the concentration of wealth and, as a consequence, income. The higher the wealth, the higher the savings (even with a luxurious lifestyle), the faster wealth increases and subsequently income. Therefore, without political intervention, wealth concentration will continue to increase. What Paul Krugman (2020, no page reference) wrote applies not only to the US: "It remains true that America is less of a democracy and more of an oligarchy than we like to think. And to tackle inequality, we'll have to confront unequal political power as well as unequal income and wealth." Too high inequality curbs consumer demand. This is because high-income earners save a much larger share of their income than low-income households, and these savings are by no means automatically transferred into investments which depends on expectations about the future, the interest rate and credit availability.² And from a socio-political point of view, in almost all countries high inequality is correlated with negative social indicators such as early mortality, high crime rates or low social coherence (Wilkinson and Pickett 2009).

Geopolitical conflicts

The world economy is developing in the direction of a multipolar world. One indicator of this is the shift in countries as a share in the world GDP. Table 6.1 shows that high-income countries, the traditional industrialised countries, experienced a reduction in their share of world GDP from 1990 through 2022 from 63.6 to 46.2%—including the US which dropped from 19.7 to 15.5% and the European Union which dropped from 23.3 to 14.7%. The big winners were the middle-income countries which increased their share from 35.3 to 52.6% over the same period. The biggest winner was China with an increase of world GDP share of 3.1–18.5%. India also increased its share of world GDP, but to a much smaller extent than China. The group of 28 low-income countries experienced almost no increase its share of world GDP, Russia also realised a lower share of world GDP.

The changing world GDP shares of countries, and their respective country groups, results in changing economic power relations. This implies that moving forward the

 $^{^{2}}$ Given the marginal saving rate the volume of saving depends on the volume of investment and not the other way round (Heine & Herr 2013).

GDP purchasing power	Country groups and countries	1990	2022
parity, constant 2017	High-income counties	63.6	46.2
international dollar	Middle-income countries	35.3	52.6
	Low-income countries	0.7	1.0
	US	19.7	15.5
	China	3.1	18.5
	India	3.1	7.2
	European Union	23.3	14.7
	Russia	6.2	2.9

Source World Bank (2023), own calculations

traditionally dominant high-income countries will play a smaller role in global governance and the development of globalisation. The dominance of the US is particularly being challenged by China which, measured in real purchasing power, has become the biggest country in the world. Geopolitical conflicts seem preordained moving forward as the influence spheres of larger countries or blocks of countries will continue to change. One example is the increasing role of China in Africa and Latin America which were traditionally influenced primarily by the US and European countries like France.

International trade became distorted by the Covid-19 crisis. In 2022 and partly in 2023, factories all over the world came to a standstill due to supply bottlenecks. Global value chains became interrupted as inputs from other countries were not available. For example, the global lack of semi-conductors substantially reduced car production worldwide.³ The Covid-19 crisis resulted in economic policies designed to shorten global value chains and encourage domestic production; if production costs were prohibitive on a national level, then regional production or production in common economic blocks was encouraged. The Covid-19 crisis accelerated a general trend. Attempts by many countries including the US, European countries and China have been made to reduce economic dependencies in a world with increasing geopolitical tensions. For example, geopolitical competition between the US and China has led to trade restrictions with the aim of strengthening the domestic industrial sector. For example, in 2017 then US President Donald Trump withdrew from the Trans-Pacific Partnership (TPP) agreement and renegotiated the North American Free Trade Agreements (NAFTA) by replacing it with the United States-Mexico-Canada Agreement (USMCA). This shows a departure from the idea of free trade. In addition, tariffs were introduced specifically on Chinese imports and an export ban on high-tech products of all kinds was enacted. Empirically, this general shift in trade policy is reflected in the development of the share of global exports of goods and services to world GDP. World merchandise trade in per cent of world GDP increased from around 20% in the early 1970s, followed by a short period of contraction in the

³ For example, in Germany, two-thirds of the economic slump (GDP fell by minus 4.1% in 2020) was due to disrupted supply chains and the global collapse in demand (Dullien 2020, p. 147).

1980s, to over 50% in 2008 and remained at this level with fluctuations (World Bank 2023).

A new type of globalisation, characterised by more trade restrictions and the development of trade blocs, may reduce the welfare of certain countries and may also be problematic for countries like Germany or Japan which traditionally have high current account surpluses, but it does not automatically lead to lower GDP growth. In the 1950s and 1960s, GDP growth rates were much higher than in the following decades despite a relatively small percentage of exports of goods and services to GDP. If domestic production is more concentrated within trade blocs, new production and jobs can be created to substitute for exports. Due to the combination of increasing geopolitical tensions and the departure from free trade, industrial policy became popular again. Industrial policy in most countries, including in the Global North, has always played an important role. But over the past decade, industrial policy has intensified and been used to intervene more directly in certain sectors.

Geopolitical conflicts do not only affect trade relations. Various wars burden the world. This can be seen by the war in Yemen since 2015, the war in Ukraine since 2022 and the war in Palestine since 2023. Wars and geopolitical conflicts tend to drive up military spending. While such spending may increase aggregate demand and output, it does not directly create products to be consumed and is not productively invested; it undoubtedly makes it more difficult to finance social or environmental policy programs. However, wars usually increase GDP growth as military equipment has to be produced. Usually war economies have high public debt. This leads us to the next topic.

The problem of increasing debt

Debt ratios in virtually all economic sectors have increased continuously throughout recent decades. Compared to 1970, by 2021 the aggregated debt-to-GDP ratio of all economic sectors has more than doubled worldwide (IMF 2023). Table 6.2 shows the development of aggregate debt stocks for selected countries. In the US, France, Italy and Japan, debt quotas increased significantly after 1995. In France, the aggregated debt of all sectors in relation to GDP was close to 400% in 2021, and in Japan this quota was around 500%. The quota was over 300% in the US and Italy, and just under 300% in the United Kingdom. In Germany, the debt ratio for all sectors is still relatively low at around 250%. In the US, the government debt ratio in particular has grown strongly, as it has in Italy, France and the United Kingdom. In France, corporate sector debt is extremely high. Japan, which was hit by a severe real estate and stock market crisis in the late 1980s and then slid into a period of protracted stagnation with partly deflationary tendencies, did reduce private debt ratios, but at the cost of an extreme increase in government debt of over 250% of GDP.

It is obvious that the fragility of an economy increases with rising debt ratios. Two potentially destabilising factors stand out. First, as interest rates rise, high debt levels lead to exploding interest payments and, in some circumstances, to large financing deficits. Thus, there is a risk of a massive build-up of bad loans, asset market deflations, deep financial market crises and stagnations. If we assume a 5% increase in the general interest rate and a debt-to-GDP ratio of enterprises and private households

	Year	Germany	US	France	Italy	UK	Japan
Enterprises	1970	-	66.3	-	-	-	-
	1995	87.6	98.7	122.4	96.2	94.0	205.0
	2021	122.9	144.8	209.2	110.5	93.2	156.8
Private	1970	_	45.0	-	-	-	-
households	1995	61.1	65.5	41.3	26.8	65.4	83.0
	2021	56.4	79.9	77.3	56.7	90.7	71.2
Government	1970	11.6	46.2	21.1*	37.5	73.5	11.3
	1995	54.9	69.1	56.1	119.4	44.3	92.5
	2021	69.6	128.1	112.6	150.8	103.8	262.5
Total	1995	203.6	233.3	219.8	242.4	203.7	380.9
	2021	248.9	352.8	399.1	318.0	287.7	490.5

Table 6.2 Gross debt in per cent of GDP

* 1978 Source IMF (2023)

of 220% (the situation in Japan, France and the US) then interest payments as a per cent of GDP increase by 11%, a huge amount. Hyman Minsky (1975, 2016) was just one of many economists who addressed the increasing fragility of the economy as debt ratios rise.

Second, if deflationary developments occur, this not only dampens consumption demand and, above all, investment demand, but also leads to an increase in real debt holdings. This was the decisive crisis amplifier during the Great Depression of the 1930s (Fisher 1933) and it also played a crucial role in Japan's development after the asset market bubbles burst in the early 1990s (Herr and Kazandziska 2011).

Now, public households that borrow in domestic currency cannot run into liquidity and solvency problems if they can obtain unlimited financing via the central bank. This is because modern central banks create "money out of nothing" and can therefore, with appropriate regulations, come to the aid of public budgets in the form of "gifts" or loans. Even with the prohibition of directly financing government budgets, financing can take place through the printing press as commercial banks buy government securities and then resell them to the central bank. Indeed, the ECB and the Fed hold high percentages of national government debt. Philip Lane, chief economist at the ECB, announced in 2021 that the ECB held 30% of the sovereign debt in the EMU (Epoch Times 2021). The Fed held about 20% of US government debt at the end of 2022 (Pew Research Center 2023).

Modern Monetary Theory (MMT) (see, for example, Wray 2015) argues that states can easily borrow from the central bank and thereby guarantee full employment. As long as government debt is in national currency and national money is legal tender, the argument goes, increasing monetary wealth created by financing public households will voluntarily be held by the public. At the same time, it is assumed that domestic inflationary pressures arise only when full employment is exceeded. Thus, a perfect nominal wage anchor is assumed, a quasi-planned determination of wages until full
employment is reached. It is assumed that fiscal policy has the power to create full employment. In many cases it assumes that a super-multiplier exists which leads to automatic increases in investment when full capacity is approached. In this case fiscal policy is accelerated by stimulating private investment (for a summery see for example Nikiforos 2018).

What remains open in this context is how to handle a situation in which capacity limits in the capital stock are reached long before full employment is realised, and private investment does not increase. It would be misguided to make investment only dependent of capacity utilisation. It depends on the interest rate, availability of credit, on expectations and on the state of confidence. Expansionary fiscal policy can fail if it does not lead to sufficient new capacity-and there is no guarantee that full capacities will lead to investment. For this reason, Keynes (1936) did not recommend excessive fiscal policy but suggested the social control of investment to stabilise a capitalist economy. Another weakness of MMT is the assumption that confidence in national money can be easily maintained even with high financing of public budgets via the printing press. In this context, the German hyperinflation would be an object lesson for MMT. Obviously, in that case, budget financing via the printing press did not work out (see Chap. 2). Modern money is based on trust in government institutions to keep the value of money relatively stable. If this confidence collapses, budget financing is limited by the central bank. A cursory glance at the countries of the Global South makes this clear. If budget deficits are financed by the central bank, domestic financial assets increase. All experience shows that if there is a lack of confidence in domestic money, additional monetary wealth is immediately exchanged for foreign currencies. The result is a crash of the national currency, which makes further financing of budget deficits via the central bank impossible without eroding the monetary system (Herr and Nettekoven 2022; see also Chap. 7).⁴ In this respect, we consider steadily rising debt ratios to be alarming, including increasing ratios for governments.

Many factors are responsible for the massive increase in debt ratios outlined above, some of which will be named. The rising debt ratios in the corporate sector have to do with shareholder value governance, which became popular from the 1990s onward. This not only encouraged short-termism in investments and drove management salaries to almost obscene levels, but also led to high dividend pay-outs and high leverage strategies through borrowing, which weakened the equity base of companies. High real estate prices have contributed to private household debt, as has the increased tendency to finance consumption and risky real estate purchases through loans. Rising public debt is primarily due to the fact that budget deficits increased during economic downturns but were not sufficiently reduced in subsequent upturns.

⁴ Wray (2007, p. 24) relies on flexible exchange rates in this context: "A floating exchange rate and currency sovereignty provide the 'degree of freedom' that allows the government to spend without worrying that increased employment and higher demand will threaten an exchange rate peg. Thus, fiscal policy is 'freed' to pursue other objectives, rather than being held hostage to maintenance of the peg. By the same token, monetary policy can set the overnight interest rate to achieve other goals, rather than being determined by the rate consistent with pegging the exchange rate." This ignores hundreds of currency crises, including in the Global North.

This was compounded by costly crisis management in the context of the Global Financial Crisis of 2008 and the Covid-19 crisis of 2020. Obviously, sufficient revenue was not provided in the long-term to keep the public debt-to-GDP ratio at a certain level over the cycle.

Conclusion

The challenges described are enormous and to adopt a "business as usual" approach would be disastrous. This concerns not only the crisis-ridden nature of the existing type of capitalism, the unresolved question of how countries in the Global South have so far failed to converge with the productivity and living standard levels in the Global North, but also, how an ecological catastrophe can be averted. Of course, no one knows the "silver bullet," so a debate is urgently needed on what economic policy path should be taken in the future.

However, some milestones along the way are clearly discernible. There is no way around an ecological transformation of man's current relationship with nature. At the same time, the unbridled indebtedness of economies, national and international, must be limited, and the sustainable financing of companies as well as private and public budgets must be sought. Furthermore, fundamental reforms of the national and international financial system are necessary. Additionally, a reversal of the trend toward increasing inequality is imperative. In addition to tax policy and the control of extra profits, a wage policy based on solidarity is important here, including a high level of wage coverage by collective bargaining and macroeconomic coordination of wage development. Finally, a change in the economic and political interaction between the Global North and the Global South is to be strived for. We agree with Amartya Sen (1999) when he emphasises that positive development in all countries includes not only democratic structures, but also social upgrading in the form of poverty eradication, institutions of participation, social security and the economic opportunity to develop one's own capabilities.

This book cannot provide fundamental proposals for this debate without going beyond the given framework (see Dullien et al. 2011; Herr 2022; Heine and Herr 2023). However, in our view, the reforms to be striven for must go in the direction of a much more regulated capitalism. This implies that the role of the state must change, because the problems addressed will not be solved without massive state intervention. Already, industrial policy, long frowned upon officially, has regained importance and is openly practiced. Consider the Inflation Reduction Act of 2022 in the US which contains 500 billion US dollars in new spending and tax breaks with the aim to boost clean energy, reduce healthcare costs and increase tax revenues (Kaufmann 2022) or the 2019 European Green Deal by the European Commission which includes the commitment to slash emissions to net zero by 2050 and to 50% by 2030 (News European Parliament 2023). Similarly, neither environmental problems nor income and wealth inequality can be solved without government intervention. Whether future development will move in a social and ecological direction, flanked by strong trade unions and a civil society capable of taking action, or whether authoritarian models will prevail that attempt to impose completely different development paths, must remain open. In this respect, it cannot be ruled out that, in the event of political failure

to manage a just transition, uncontrollable economic and political constellations will arise as in Germany after the Second World War, which discredited the Weimar Republic and thus paved the way for fascism.

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Chapter 7 Theoretical Explanations for Price Level Changes



In this chapter, we will provide the theoretical foundations for understanding inflationary and deflationary processes. As already mentioned, placing the theoretical explanation at the end of the book serves to improve the readability of the preceding chapters.

In Sect. 7.1, we will present the explanation of price level changes in the tradition of John Maynard Keynes (1930), who provided an alternative to the quantity theory of money. Within this subchapter, as a first step, we analyse a closed economy. However, since the previous chapters have shown that devaluations can initiate and massively exacerbate inflationary processes, this gap will be filled in the second part of the section. On this basis, a comprehensive model to explain price level changes can be presented. In Sect. 7.2, we discuss two extreme versions of price level changes, hyperinflation and deflation. Our thesis is that the neoclassical quantity theory of money cannot adequately explain price level changes. This will be the subject of Sect. 7.3. The wage norm is presented in Sect. 7.4 which then explains how, in an ideal case, wages should develop to become a nominal anchor. This section also discusses exchange rates as nominal anchors. In Sect. 7.5, we show that in specific market constellations changes in functional income distribution as a result of higher wages are possible, but that this plays a minor role in explaining both inflationary and deflationary dynamics.

7.1 The Keynesian Approach to Explaining Inflation

In this subsection, the theory of inflation is presented and extended in the tradition of Keynes (1930) (see also Riese 1986). In a first step, we will use national accounts to shed light on the relationships between economic variables that cause price level changes.

The nominal net domestic product (NDP) of a given period is defined by the real net domestic product (NDP_r) multiplied by the price index (P). The net domestic product is the sum of wages (W) and profits earned domestically.¹ Profits here comprise the total sum of non-labour income, i.e. domestic income not derived from working as an employee. Profits earned domestically can be divided into equilibrium profits (Q_{ED}) disequilibrium profits (Q_{M}). Thus:

$$NDP = NDP_r \cdot P = W + Q_{ED} + Q_M$$

If the price index is isolated, it follows that:

$$P = \frac{W}{NDP_r} + \frac{Q_{ED}}{NDP_r} + \frac{Q_M}{NDP_r}$$
(7.1)

We begin by analysing the cost structure of an economy and then turn to disequilibrium profits.

The cost structure of an economy

Let us begin by considering the first term on the right-hand side of Eq. 7.1. It expresses unit labour costs at the macroeconomic level, i.e. the labour costs per unit of net domestic product. Dividing the numerator and denominator by hours worked (H) yields:

$$\frac{W}{NDP_r} = \frac{\frac{W}{H}}{\frac{NDP_r}{H}} = \frac{W}{\Pi}$$

where w stands for nominal hourly wage and Π stands for labour productivity. Unit labour costs are thus nominal hourly wages divided by labour productivity.

The second term on the right-hand side of Eq. 7.1, which gives the equilibrium domestic profit per unit of real NDP, can also be written in the following form:

$$\frac{Q_{ED}}{NDP_r} = \frac{q \cdot P \cdot K_r}{NDP_r}$$

Equilibrium profits are derived from the equilibrium rate of profit (q) multiplied by the capital stock used in the production process, which in turn is derived from the real capital stock (K_r) multiplied by the price index. The equilibrium rate of profit is the rate of profit that exists without taking into account disequilibria between the demand

¹ The sum of profits in a country can differ sharply from the profits generated domestically, as there can be high net flows of property income between countries. In terms of wages, this is effectively irrelevant. Here, income flows only emerge if a person lives in country A and commutes to country B for work. For wages, therefore, we do not consider international income flows. The situation is different for workers' remittances. These can play a large role in certain countries but are recorded as transfers.

and supply of goods and services which lead to changes in prices. Equilibrium profits includes extra profits due to the market power of firms on the selling and/or purchasing side.

Using a macroeconomic perspective we can assume that companies will be able to enforce their equilibrium profit rate in the medium term and will roll increasing costs over to prices. Thus, an increase in the level of labour costs will be reflected by (approximately) the same increase in the price level—much in the same way that an increase in the price of oil and gas ripples through the economy and raises the price level. Of course, many factors can modify this one-to-one roll-over of costs to prices, for example the intensity of international competition in some sectors of the economy, disequilibrium between demand and supply, the oligopolistic and monopsonistic power of companies or the strength of trade unions to force monopolies to share profits. However, these factors can only modify a one-to-one roll-over of costs to prices and are of secondary importance when explaining inflationary or deflationary processes (for a more detailed analysis, see Sect. 7.5).

In a situation where cost increases are affecting an entire industry, we can assume a price-price effect, which also occurs in situations of unemployment or when firms are underutilising their capacity. Excess demand is not needed to increase prices after cost increases (Riese 1986, p. 28). This is because if all firms in an industry are affected by rising costs, they will be able to raise prices by means of an uncoordinated joint action. A price-price effect also occurs when costs fall, although in this case this process would be expected to move more slowly than in the case of a cost increase. This is because cost reductions are unlikely to result in uncoordinated joint action and the competition process between companies takes time.

Let us return to Eq. 7.1. The first two terms on the right-hand side show the cost factors which, in equilibrium, determine the price level. If we take over the specifications for the determination of the unit labour costs and the profits per unit output, we get:

$$P = \frac{w}{\Pi} + \frac{q \cdot P \cdot K_r}{NDP_r} \tag{7.2}$$

As an example, let us assume a purely domestic economy in which 50% of the unit costs consist of wages while the other 50% consist of the equilibrium profits per unit. If unit labour costs rise by 5%, then in the first round the price level will rise by 2.5%. However, since the output of firms is also the input of other firms, in the second round P·K_r will rise. It follows that the price level will increase successively by a total of 5%. So, under the assumptions made, there is a proportional relationship between the increase in unit labour costs and that in the price level.² Since the equilibrium rate of profit and the real capital stock only change slowly, it follows that it is unit labour costs which, according to the analysis so far, primarily determine the price level.

² For the formal proof, see Heine and Herr (2013, p. 425).

If the gross domestic product (GDP) is taken as the production volume, then depreciation must be added as a cost factor in Eq. 7.2. It should be noted that depreciation takes into account the replacement value of the capital stock, e.g. of a machine. If intermediate goods are added to GDP, the total value of the production of goods and services (TP) in a specific period is obtained. The price index for this comprehensive basket of goods (P_{TP}) is then given by:

$$P_{TP} = \frac{w}{\Pi} + \frac{q \cdot P_{PT} \cdot K_r}{TP_r} + \frac{a \cdot P_{PT} \cdot K_r}{TP_r} + \frac{P_{PT} \cdot Int_r}{TP_r}$$

where TP_r stands for real total product, a stands for the depreciation rate and Int_r stands for real input of intermediate goods. Productivity and nominal wage per hour are now related to total product. In this version of the domestic cost structure, the different channels of the second-round effects of unit labour cost increases become clearer. This is because rising unit labour costs and the subsequent higher prices in an industry ripple quickly and strongly through an economy due to intermediate input linkages. But increased depreciation costs also lead to strong second-round effects as inflation rises.

The significance of exchange rate changes

The next step is to consider the world economy. As the empirical analyses in this book have shown, exchange rate changes are a particularly important factor in inflation processes. This is because exchange rates can fluctuate very quickly and fundamentally over a short period of time, and depreciation leads to a domestic cost push by means of rising import prices. The strength of such a push depends on the change of the exchange rate and the import ratio. If e denotes the effective nominal exchange rate, with a rising exchange rate indicating depreciation of the domestic currency, Im denotes imports and $\frac{Im}{NDP_r}$ denotes the import ratio, then the cost push of a devaluation can be captured by $e \frac{Im}{NDP_r}$.

Price changes for natural resources, such as oil, gas and other raw materials as well as agricultural products, are relevant to the onset of inflationary processes. This, too, has been shown in the empirical chapters of the book. Finally, indirect taxes such as excise duties or the value-added tax, as well as a large number of government regulations, have an impact on the price level. With Z as the cost effect of exogenous factors, excluding exchange rate changes, $\frac{Z}{NDP_r}$ expresses the effect of exogenous cost factors per unit output.

If the exchange rate effect and exogenous cost factors outlined are taken into account given Eq. 7.1, the following equation results:

$$P = \frac{w}{\pi} + \frac{q \cdot P \cdot K_r}{NDP_r} + e\frac{Im}{NDP_r} + \frac{Z}{NDP_r}$$
(7.3)

For simplification we refrain from extending to the total product. However, it should be clear that import price increases, especially for intermediate goods, as well as higher depreciations quickly lead to changes in the price level. In order to adequately capture inflation processes, a distinction must be made between a one-off price level increase and the inflationary process which can also take the form of cumulative price level increases. The dynamic factors in Eq. 7.3, which have the potential to lead to inflationary processes, are unit labour costs and the exchange rate.

Changes in commodity prices, to take the most historically important example of exogenous price shocks, can trigger violent price level changes, but it is difficult to imagine permanently increasing commodity prices driving inflation. For this to happen, they would have to rise or fall permanently. The same argument applies to other exogenous cost factors.³ Profit per unit of net domestic product can also modify the price level, but this effect, which is very important for functional income distribution, is of secondary importance for price level developments. To assume an inflation process via a permanently rising profit rate is not very plausible. Profit rates as well as the value of the real capital stock can change in the medium- or long-term, but not so much in the short term.

Let us assume a price level increase due to a 100% increase in energy costs and that energy accounts for 10% of the equilibrium price level. This would cause a price level increase of 10%, which of course lowers real wages by the same percentage. If nominal wages and unit labour costs then rise by 10% in the same period with the aim of securing real wages, the inflation rate increases to 20%. If wages adjust again in the same period to defend real wages, the inflation rate rises to 40%. One can see the dynamics that can be triggered by a price level shock. If energy is imported, then sharp increases in energy prices make the importing country poorer, while making the exporting country richer. In such a situation, it is not possible for workers as a class to place the burden of rising energy prices on the side of capital, because companies can respond to increases in the wage level by raising prices.

Exchange rates can change quickly and sharply. Let us assume an import ratio of 40% and a devaluation of 50%, a scenario which is by no means unrealistic. This results in a price level increase via higher import prices of 20%. If, in the same period, the reduction in real wages is compensated by nominal wage increases, the inflation rate jumps to 40%. In such a scenario, a further crash of the currency is likely, as the analysis of German hyperinflation and the country analyses of Italy and the United Kingdom in particular have shown (see Chaps. 2 and 4).

The role of disequilibrium profits

Equilibrium profits are given when demand meets supply and disequilibrium between demand and supply does not influence profits. In a situation of full capacity utilisation, excess demand will increase prices. Then companies exploit their market power and realise corresponding disequilibrium profits. If demand collapses, then firms will reduce production and may lower prices to individually promote sales of their

³ It is likely that the ecological transformation via higher prices for natural resources, government policies, lower productivity increases due to more ecological production and similar factors could lead to a permanent increase of the price level. But even if this is the case, this factor cannot explain high inflation rates or cumulative inflationary processes.

products. In this situation companies realise disequilibrium losses. The price-quantity responses to a sharp increase or a sharp reduction in demand depend on the specific historical situation.

Disequilibrium profit, as given by this definition, can be defined more precisely for our purpose. National income (Y) is equal to net domestic product plus or minus net income flows between home and abroad (Y_F). We get $Y = NDP + Y_F$. Various types of income flows between countries exist. First, profits, dividends and interest, in short, income from wealth, can lead to net income flows between countries.⁴ For many countries, remittances are important, for example, when workers living abroad transfer money to their families in their home country. Finally, public transfers from governments, for example development aid, may play a role. For simplicity, we assume that all income flows between home and abroad end up with households. Net domestic product is equal to consumption by households (C), net investment (I), goods and services bought by the government (G), plus exports (Ex) minus imports (Im). We get:

$$Y = C + I + G + Ex - Im + Y_F$$

For simplicity, we also assume that all profits flow to households.⁵ In this case, national income breaks down into consumption by households (C), household savings (S_H), tax payments (T) and disequilibrium profits (Q_M).

$$Y = C + S_H + T + Q_M$$

It should be noted that Q_M are savings that flow into the pockets of companies and then to entrepreneurial households as unplanned savings. In the case of disequilibrium losses, where profits are less than planned (or even where overall losses were measured), lower profit income will flow to entrepreneurial households.

If the two equations above are set equal to each other and disequilibrium profits are isolated, the following equation is obtained:

$$Q_M = I - S_H + G - T + Ex - Im + Y_F$$

The budget balance (BB) or balance of public households is BB = G - T; the current account balance (CAB) is $CAB = Ex - Im + Y_F$. If BB is positive, a budget surplus exists; if the CAB is positive, a current account surplus exists. We get:

$$Q_M = I - S_H + BB + CAB \tag{7.4}$$

⁴ We do not take into account cross-border wage payments, as emphasised above, because they play a minimal role in quantitative terms.

⁵ We refrain from a more differentiated presentation, which would not yield much analytical gain for our case. Notwithstanding this, it should be clear that part of the profits remains with the companies and can be used for investment purposes.

with BB = G - T and $CAB = Ex - Im + Y_F$.

All else being equal, and assuming equilibrium, disequilibrium profits arise when investment increases, the government's budget surplus decreases (or the public deficit becomes bigger) and the current account surplus increases (or becomes smaller or less negative). In all these cases aggregate demand increases and firms respond by increasing prices due to full capacity utilisation.

If $Q_M = 0$ with the consequence that $I = S_H + (T - G) + (Im - Ex - Y_F)$ the above equation yields the equilibrium condition with no changes in prices and no extra profits. In this case, for example, net investment can be equal to planned private savings S_H , plus government sector savings in the form of a budget surplus (T - G)plus foreign savings in the form of a current account deficit $(Im - Ex - Y_F)$. Of course, private savings S_H in an equilibrium condition can be larger than net investment if, for example, the government runs a budget deficit and/or the country has a current account surplus. When $I > S_H + (T - G) + (Im - Ex - Y_F)$ there is excess demand (demand inflation), which leads to price level increases if production cannot be increased. If excess demand for goods leads to rising prices, then disequilibrium profits exist. When $I < S_H + (T - G) + (Im - Ex - Y_F)$ there is a supply surplus (demand deflation), which is accompanied by falling prices and disequilibrium losses.

Typical dynamic processes can be derived on the basis of our previous explanations. If disequilibrium profits exist and these profits stimulate further investment or additional consumption by the owners of the companies within the period under consideration, profits will continue to rise. Let us assume the case of additional consumption demand. "Thus, however much of their profits entrepreneurs spend on consumption, the increment of wealth belonging to entrepreneurs remains the same as before. Thus, profits, as a source of capital increment for entrepreneurs, are a widow's cruse which remains undepleted however much of them may be devoted to riotous living" (Keynes 1930, p. 125). Joseph Schumpeter (1934) based his explanation of the dynamic of capitalist economies on this mechanism. High investment, financed by the banking system including the central bank, exceeding planned savings allows firms to appropriate those goods they need to accumulate. Demand inflation is thus typical during phases of high growth with high investment and utilised capacities, i.e. during the final phase of a strong cyclical upswing.

If entrepreneurs react to a crisis characterised by low investment by further reducing their investment and consumption, their losses increase. Let us again listen to Keynes (1930, p. 125): "When on the other hand, entrepreneurs are making losses, and seek to recoup these losses by curtailing their normal expenditure, i.e. by saving more, the crisis becomes a Danaid jar which can never be filled; for the effect of this reduced expenditure is to inflict on the producers of consumption goods a loss of an equal amount".

The total factors of price level determination

Putting the above equations together and substituting Eqs. 7.3 and 7.4 into 7.1 gives:

$$P = \frac{w}{\pi} + \frac{q \cdot P \cdot K_r}{NDP_r} + e\frac{Im}{NDP_r} + \frac{Z}{NDP_r} + \frac{I - S_H + BB + CAB}{NDPr}$$
(7.5)

BB = G - T and $CAB = Ex - Im + Y_F$.

The first four terms on the right-hand side of the equation express the macroeconomic cost structure, the fifth term denotes an imbalance between supply and demand on the goods market, which leads to price level changes and extra profits or extra losses. Of course, intermediate consumption and depreciation could also be included as costs here.

On this basis, some typical market constellations can be outlined.

In a boom phase with high investment, high aggregate demand and high growth, excess demand increases the price level and creates extra profits when the economy reaches capacity limits. In such a constellation, demand inflation typically triggers a price-wage-price spiral. In a booming economy with rising prices, increasing extra profits and high employment rates, workers push for wage increases. Indeed, union leaders come under pressure to demand higher wages. At the same time, entrepreneurs compete for workers. This constellation can easily lead to a cumulative inflationary trend. For Keynes, this was a typical constellation in which wages follow prices. He argued that, as a rule, wages do not change "spontaneously" but react to the cyclical situation, which determines the demand for labour (Keynes 1930, p. 149). Examples of the constellation described can be found in the case studies above, especially at the end of the 1960s.

This does not rule out the possibility that spontaneous increases in wages can occur and trigger a wage-price spiral. The likelihood of spontaneous wage increases with the aim of changing functional income distribution depends, among other things, on the wage-setting system of a country and the overall political constellation. If the central bank does not intervene, increased wage costs can easily be passed on to prices. "Let the reader observe that changes in the average rate of earnings have no direct tendency in themselves to bring about profits or losses, because—so long as the currency authority allows the change without attempting to counteract it entrepreneurs will always be recouped for their changed outlay by the corresponding change in their receipts, which will result from the proportionate change in the price level" (Keynes 1930, p. 150).

Furthermore, a price-wage-price spiral can be triggered or amplified by an external price level shock. For instance, the sharp rise in oil prices in the 1970s was the external trigger for a cumulative inflationary trend in many economies. Devaluations can also set off a wage-price spiral, as has been shown. Rapid and radical devaluations are particularly dramatic when import ratios are high, as nominal wage increases then become almost inevitable.

Deep recessions accompanied by the threat of deflation, on the other hand, are characterised by insufficient demand for goods, falling nominal wages and market situation losses. Here, too, cumulative deflationary amplifications may occur, mainly due to the increase in real debt. In such a case, demand deflation can be combined with falling nominal wages resulting in a deflationary wage-price spiral. The Great Depression in the 1930s is an example of this (Fisher 1933).

Stagflation typically results from the combination of cost-driven inflation and a simultaneous lack of demand. This constellation is typical of a phase of when central banks start to fight against inflation via higher interest rates and create a stabilisation crisis—when, according to Keynes, the currency authority no longer allows high wages to roll-over to prices. Demand deflation is then combined with wages that continue to rise above the level compatible with the target inflation rate. Rising energy prices, which can shrink real demand, can also lead to stagflation even if the central bank does not change its monetary policy.

An ideal pass-through of higher costs to prices according to Eq. 7.5 cannot, of course, be expected in every situation. This becomes clear as soon as demand inflation and demand deflation are added to the analysis. Cost increases roll through the economy at a different speed in historical time. This process can take months or even longer. The specific economic constellation or even the degree of international competition may make it easier or more difficult to roll costs over. Generally, when there are decreasing costs, as emphasised, price reductions may take even longer and depend on the intensity of competition in the markets.

Conti and Nobili (2019), for example, have found that, empirically, when aggregate demand is insufficient and liquidity and financing conditions are good in the euro area, firms forgo a higher mark-up and instead try to increase their market shares.⁶ This may be the case in a historically specific situation, but it must nevertheless be assumed that, in the medium term, the price level develops gradually in line with the equilibrium determination. Keynes's (1936, p. 293) idea of "shifting equilibrium" is helpful here. The equilibrium shifts permanently in historical time without the economy having the opportunity to reach the new equilibrium. This is because before this happens, new factors will shift the equilibrium again, so that economic development is in a constant state of transition.

The factors in Eq. 7.5 can be distinguished between potentially dynamic factors and those that change slowly and non-cumulatively. Let us go through the different factors. *Nominal unit labour costs* can change rapidly and sharply if there are large changes in nominal wages. There is also a risk of a cumulative wage-price spiral, even if it is not triggered by wage increases. *Profits per unit of output* change only slowly and cannot be considered to be a dynamic factor in price level changes. They cannot explain inflationary processes. *Exchange rate changes*, especially strong devaluations, are potentially strong drivers of price level changes, especially since devaluations can acquire a cumulative character and combine with wage-price spirals. *Exogenous factors*, especially energy prices, can trigger strong price level shocks and a cumulative process, but are not themselves a factor in cumulative processes. For

⁶ "When aggregate demand is not robust and firms face easing conditions in raising external funds or have ample liquidity, they may find optimal to decrease their mark-ups lower, exploiting market shares at the expense of current profits" (Conti and Nobili 2019, p. 20).

example, energy prices do not permanently sharply increase or decrease. *Intermediate goods*, not shown Eq. 7.5 are not themselves a cause for an inflationary process, but they are a strong channel to spread higher costs through the whole economy. The same is the case for depreciations. *Imbalances between supply and demand* can also provide the starting point for cumulative price level changes, but they themselves lack the cumulative element. Even in hyperinflations, excess demand is of secondary importance compared to the exchange rate and adjustment of nominal wages (see Chap. 2). As a result, there are two factors that are typically responsible for cumulative changes in the price level: nominal wages and exchange rates. Therefore, these two factors should act as central anchors for price level development in economies that are macroeconomically managed.

Given the many factors affecting the price level, one might assume that the correlation between changes in the price level and changes in unit labour costs is considerable, but not dominant. However, this is not the case. Empirical studies clearly conclude that in the medium- and long-term, say in periods exceeding two years, there is an extremely close relationship between these two variables. In the short term, the correlation is weaker since many factors shown in Eq. 7.5 can play a temporary role.

We would like to point to some relevant studies that have examined the relationship between wages and prices. In a publication by the European Central Bank based on the period between the first quarter of 1985 and the first quarter of 2018, a close correlation between price level changes and changes in nominal unit labour costs was confirmed in the four largest EMU countries (Germany, France, Italy, Spain). According to the study, when costs increase, companies pass them on, not exactly, but to a high degree. "We document a strong link between labor cost and price inflation in the four major economies of the euro area and across three sectors (manufacturing, construction and service). Second, the analysis supports an imperfect but relatively high pass-through on average from costs to prices, in line with available firm-level evidence which documents a statistically significant relationship from the frequency of wage changes to that of prices, and a common strategy by several firms of increasing prices when faced with unexpected increases in wages" (Bobeica et al. 2019, p. 33). In an earlier study, the ECB (2004, p. 52) wrote: "Persistent movements in unit labor cost growth, as captured by the eight-quarter moving average ... tend to be associated with corresponding shifts in inflation".

Calculating a correlation between the change in the GDP deflator and nominal gross wages for Germany yields the high value of 0.76 for the period from 1971 to 2020 (authors' own calculation based on data from the Statistisches Bundesamt 2023). In the U.S., to cite another example, the correlation between changes in nominal unit labour costs and the change in the consumer price index is 0.825 for the 60 years from 1950 to 2010 (Spychalski 2011). In a study of 20 countries (covering all major industrialised countries) from 1970 to 2016, a correlation of 0.92 was found between the average annual change in unit labour costs and the average annual change in the GDP deflator (Senner and Sornette 2018). The Bank for International Settlements, in an examination of the relationship between 1970 and 2016, concludes,

"To be sure, ULC growth and inflation appear to co-move closely in the long run" (BIS 2017, p. 66).

7.2 Extreme Price Level Developments—Hyperinflation and Deflation

In the following, we turn our attention to extreme price level developments, by which we mean hyperinflations and deflations. We start with hyperinflations.

Hyperinflation

Hyperinflations are characterised by very high inflation rates, often leading to the complete collapse of the national monetary system. It has become common to reference Phillip Cagan (1956) and define hyperinflation as periods when the monthly inflation rate exceeds 50%. But the monetary system erodes at much lower rates of inflation—such as annual inflation rates of 50%—reducing the role of national money to unimportant monetary functions, such as retail payment.

Radical devaluations are the core element driving hyperinflations, as they can be very strong and inevitably entail nominal wage increases. Fischer et al. (2002, p. 845) studied 161 countries that suffered from high inflation rates after the Second World War. A key finding of the study is: "Does money cause inflation? (...) Our basic finding is that, more often than not, causation (in the Granger sense) runs from exchange-rate changes and inflation to money growth". This result is fully consistent with our analysis of the German hyperinflation of 1923 (see Chap. 2).

If an inflation process achieves high momentum, then companies need higher financial resources to buy inputs and capital goods and to pay workers due to increased wages. The demand for central bank money increases. Central banks can then hardly escape such a process, as they would otherwise not be able to perform their function as lender of last resort. If the central bank were to "turn off the money tap" in such a phase, the economy would come to a standstill and collapse. Even astronomically high interest rates are of little help during phases of very high inflation rates, as they are priced in and, if this is not possible, also lead to the collapse of the economy.

This calamity is compounded by another. A review of a variety of hyperinflations, including the German one in 1923, shows that hyperinflations are often accompanied by large budget deficits financed by the central bank (Robinson 1938; Fischer et al. 2002). Budget deficits financed by central bank money creation can became a key cause of inflation. Budget deficits financed by the central bank increase monetary wealth in the private sector. If the latter is unwilling to hold the increased monetary assets a flight from national money begins—toward domestic durable assets like real estate but especially toward stable foreign currencies. Budget deficits then lead to capital exports, which drive a devaluation-inflation spiral. Importantly, however, above a certain inflation rate, budget deficits explode endogenously. This is because taxes are always paid after economic activity. Due to the time lag, when the inflation

rate rises rapidly, real tax revenues fall drastically and increase the budget deficit. If the government sector wants to maintain its functions, it must increasingly rely on the central bank to finance its expenditures (Tanzi 1977). This Tanzi effect was also clearly observed during the German hyperinflation of 1923 (see Chap. 2).

On this basis, a typical hyperinflation can be explained. An inflationary impulse occurs, which can arise from a variety of causes. Examples include energy price shocks, high current account deficits and foreign debt leading to strong deflation, a "spontaneous" wage-price spiral, high budget deficits financed via the central bank leading to inflation, or high excess demand in goods markets. In a typical constellation of hyperinflation such an impulse cannot be controlled by economic policy, for example because of political turbulence and social blockades in the country concerned. The decisive factor is that at a certain point, which cannot be determined theoretically, confidence in the national currency erodes quickly. Flight to hold domestic durable assets increases, but mass capital flight is more important. Now, strong devaluations become the engine of the accelerating inflation process. Above a certain inflation rate nominal wage increases can no longer be prevented. A devaluation-inflation-wage-price spiral emerges. Due to the Tanzi effect, the accelerating devaluation process cumulatively increases nominal budget deficits, which are financed by the central bank's printing press. No other sufficient financing is available for the government. Money creation to supply the private sector with liquidity also explodes, as the central bank must assume the function of lender of last resort. Gradually, the money functions erode, first that of money as a store of value, then as the value standard of credit contracts and a means of purchasing higher-value goods, and finally as a means of payment in retail trade. When wages are no longer accepted in national currency by workers, the national monetary system has completely collapsed.⁷

Thomas Sargent (1982) emphasised that the end of budget financing via the printing press of the central bank provides the decisive milestone for ending hyperinflation. He is right in that the excessive budget financing outlined makes it impossible to stabilise the price level. It must be emphasised, however, that a whole range of additional measures is needed to end hyperinflation. In the event of a monetary reform, new money will be issued. Trade unions and businesses must be convinced that neither wages nor prices can be raised in the short term. The exchange rate, as the central driver of inflation, must be stabilised. Finally, a credible political frame-work must exist to introduce a new stable money or to bring down the high inflation

⁷ The hyperinflations of a number of countries of the former Soviet Union during the process of transformation to capitalist economies had specific causes. One example is the hyperinflation in Russia, which rose to 1526% per year in 1992. The central macroeconomic problem of the first phase of transformation in Russia was that enterprises could act almost completely autonomously—including the freedom to set prices—while the financial system still operated according to the logic of a planned economy. In planned economies, the quantity plan determined the volume of production of firms, while banks passively served the credit needs of enterprises under a so-called soft budget constraint. Since the banking system continued to operate according to the old logic even after price liberalisation and the abolition of quantity planning, it passively fulfilled the credit desires of enterprises. The latter, in turn, had an interest in taking out as many loans as possible due to their incentive structure and also because of the high inflation. The consequences were unbridled credit expansion, high monetary wealth creation, capital flight and hyperinflation (Herr 2002).

rate. In the case of the German hyperinflation of 1923, this tightrope act succeeded, and the new money was stable (Dornbusch 1985). In the case of the hyperinflation in Zimbabwe, to cite another example, it did not. The hyperinflation in Zimbabwe between 2007 and 2009 led to the complete collapse of the national monetary system and foreign currencies took over all monetary functions—as in Germany in 1923. The introduction of the "Zimdollar" as the national currency in 2019 could not create stability. By 2020, the annual inflation rate had already risen above 100% again and reached about 500% in mid-2023 (Coomer and Gstraunthaler 2011; Karombo 2019; Trading Economics 2023).

The theory of hyperinflation presented here contrasts with an explanation in the tradition of the quantity theory of money, which sees an increase in the money supply and, beyond a certain point, an acceleration in the velocity of money in circulation as the main cause of hyperinflations (Bresciani-Turroni 1937; Cagan 1956). According to the quantity theory of money (see below), it is mainly the excess demand for goods and services that is fed by an increasing money supply which drives the inflation process. The public holds, according to individual preferences, too much money and the attempt to reduce the stock of money held leads to high demand and inflation. At high rates of inflation, the demand for real cash holdings then falls radically. Two points in particular seem questionable about the quantity theory explanation of hyperinflation. First, money supply increases endogenously in the inflation process and the central bank loses the indirect control of the development of money supply via the interest rate. Of course, budget deficits financed through the central bank exacerbate this problem. Second, hyperinflations are not characterised by excess demand for goods and services. Instead, they are cost-driven at their core. After a certain point, hyperinflations are then also generally associated with falling output and rising unemployment rather than with high demand and output expansion.

Deflation

A second variant of destructive price level developments are deflations. They are typically characterised by a combination of profit deflation, i.e. a lack of aggregate demand and falling prices, and simultaneously falling nominal wages. The core cause of deflation is thus the destruction of the nominal wage anchor, i.e. falling nominal wages or unit labour costs. Deflationary risks once again highlight the need for rigidity in the nominal wage level and the danger of flexible wages. Here, too, there is an irreconcilable difference to neoclassical ideas, which propose nominal wage cuts to reduce real wages in order to combat unemployment. Keynes (1936, p. 13) already emphasised the flawed nature of this notion: "In assuming that the wage bargain determines the real wage the classical school have slipped in an illicit assumption. (...) There may exist no expedient by which labor as a whole can reduce its *real* wage to a given figure by making revised *money bargains* with the entrepreneurs".

A falling price level has a number of negative effects, which also make deflation a cumulative process above a certain level. If the price level falls and prices are expected to fall further as a result, consumer and investment demand collapse. Households postpone the purchase of durable goods, for example if home furnishings or a car can be bought at a cheaper price in the future. This dampens consumer demand.

Investment demand also falls, as no company will invest today if it has to assume that a competitor will be able to buy productive capital much more cheaply in a year's time. Above all, the expectation of falling prices in the future depresses the profitability of an investment calculated today. As the construction of new apartments and houses is also postponed during periods of deflation, construction activity collapses.

What is particularly devastating about deflation, however, is the real increase in all domestic debt stocks. This affects private households as well as companies and the government. Irving Fisher (1933) showed that in the US during the Great Depression in the early 1930s, real debt rose sharply despite falling nominal debt stocks. This not only rocked the "economic boat," but tipped it over. Decreases in prices "were great enough not only to 'rock the boat' but to start it capsizing. By March, 1933, liquidation had reduced the debts about 20 per cent, but had increased the dollar about 75 per cent, so that the real debt, that is the debt as measured in terms of commodities, was increased about 40 per cent" (Fisher 1933, p. 346).

The real debt effect of sharp deflation is so high that companies and private households collapse, and the financial system is fundamentally destabilised. Even households and companies that can cope with the increase in real debt will cut their consumption spending or investment due to their debt burden, in this way deflation is accompanied by shrinking demand and output. Without economic policy intervention, the financial crisis and shrinking production with prices falling further will lead to the collapse of the economy. Because of the danger of deflationary processes, central banks' target inflation rates are not zero, but always slightly positive. This is because central banks want to prevent even slight exogenous shocks or recessions from pushing the economy into deflation.⁸

7.3 The Failure of the Quantity Theory of Money

The classical or neoclassical explanation of price level changes is based on the quantity theory of money, its roots go back to the Middle Ages. Irving Fisher (1911) presented what is probably the best-known version of the original form of the quantity theory of money. It is based on the following equation: $M \cdot v = P \cdot Y_r$. Here M stands for the money supply, v for the velocity of circulation of money, P for the price index and Y_r for the volume of economic transactions or production, expressed here as real national income. The equation is an identity and becomes a theory only when certain assumptions are made about the various variables—in a similar way to the Keynesian

⁸ The Pigou effect (Pigou 1943), emphasised by neoclassical economists, became well-known in connection with deflation. The effect is based on the fact that financial assets held by the private sector in the form of net wealth increase in real terms during a deflation. Pigou assumes that at a certain point, this wealth effect increases consumption demand and ends deflation and crisis. However, net financial assets held by private individuals without government debt are minimal. If government debt is taken into account, the question arises as to how the government deals with rising real debt. The Pigou effect, if it has any meaning at all, is insufficient to compensate for the destructive power of deflation.

explanation of inflation above. In the quantity theory of money, the money supply is assumed to be exogenous. Milton Friedman later used the metaphor of a helicopter flying overhead and dropping money (Friedman 1969, Chap. 2). The velocity of the circulation of money is assumed to be constant on the basis of given payment technologies and habits, while Y_r is determined by the real sphere of the economy at least in the long run—and independently of money. This reflects the fact that the neoclassical and classical paradigms assume a dichotomy between the real and monetary spheres of the economy, with the monetary sphere being considered neutral and having no influence on the real sphere, at least in the long run. Arthur Pigou (1949) speaks of a "veil of money" over the real sphere, which must be removed in order to recognise economic laws. The real sphere determines real GDP, employment, consumption, investment, etc. via supply conditions. Flexible real wages lead, for example, to an equilibrium in the labour market where all persons willing to work for the equilibrium wage can become employed.

The difference between this and the Keynesian paradigm could not be greater. Keynes (1933) characterised capitalism as a *monetary production economy*. In such an economy, production processes are financed by money and depend on the advancement of money. Money influences the motives and decisions of economic agents, and neither short- nor long-term economic developments can be understood without considering the role of money. The nucleus of a monetary production economy is the formula "money \rightarrow production and income creation \rightarrow money plus additional money". Money is advanced into production processes with capital goods, intermediate goods and labour, with money coming to enterprises through loans, but also through equity. The production process is organised by the owner of the company, although in larger companies there is usually a separation of ownership and management. Production processes are only carried out if more money flows back through the sale of the goods and services produced than was advanced, i.e. if a profit can be made.⁹

If the money advances increase, production and employment rise. If the money advance dries up, the economy enters a crisis. In this model, the market mechanism leads to full employment only by chance (for a model of such a system see Herr 2014). It should be noted that when production processes are carried out the reflux of money occurs in the future. This inevitably introduces expectations and uncertainties that ultimately, according to Keynes, cannot be modelled deterministically. This is because expectations are subject to a myriad of influences, both economic and political. Thus, expectations represent an exogenous variable for economic models which connects the economic system with the overall social and political system of a society. Expectations develop in a historical context and depend on the state of confidence. "There is, however, not much to be said about the state of confidence a

⁹ The circular formula of capital M–G–M' with M as money, G as invested goods and labour, and M' as advanced money plus profit goes back to Karl Marx (1867). Keynes, who on the whole did not deal much with Marx, adopted the circular formula of capital as the correct description of a monetary production economy. In the manuscripts of the General Theory, Keynes (1978a, b, p. 81) writes that Marx made a "pregnant observation" when he developed the circular formula of capital with "parting with money for commodity (or effort) in order to obtain more money".

priori" (Keynes 1936, p. 149).¹⁰ Without grasping the specific historical conditions that govern credit expansion and the advance of equity, monetary and fiscal policy, or the wage policy of trade unions, just to mention a few factors, the development of an economy cannot be understood. Against this background, it seems abstruse to define money as a veil (Evans et al. 2007).

Let us return to the neoclassic paradigm and the quantity theory of money. According to the theoretic assumptions of the quantity theory, the above identity becomes $P = \frac{v}{Y_r}M$, with v stable at least in the short- to medium-term and changing only slowly, Y_r is determined by the real sphere, and M stands for the exogenously given money supply which is determined by the central bank. Inflation results if the money supply is increased more than the growth of Y_r .

A more sophisticated variant of the quantity theory of money comes from Milton Friedman, probably the best-known proponent of monetarism after the Second World War. Friedman (1969, Chap. 2) assumed that the public has a certain real demand for money in the following form: $\frac{M}{P} = f(\frac{Y}{P}, ...)$. The real demand for money (M/P) depends on real national income (Y/P) and a whole set of other variables such as the interest rate, the inflation rate, or the individual utility that economic agents attach to holding money. However, these additional variables do not matter for the mediumterm inflationary process. Real national income is, in the medium term, given by the real sphere independent of money. Friedman also assumed that the real demand for money is stable and is ultimately determined by real income. If the money supply is now increased and the helicopter drops money which is absorbed by the population, then the real cash holding of the population is higher than planned. As part of the socalled real balance effect, money holding is now reduced as the population increases its consumption spending. However, the increase in demand meets a given volume of production given by the real sphere. Excess demand pushes prices up until the original real money supply is reached again. During the transition period from the old to the new equilibrium, a variety of disturbances can occur, which, so the argument goes, can have an overall negative impact on the economy.

¹⁰ The neoclassical paradigm uses extremely unrealistic assumptions to make expectations endogenous thereby eliminating expectations as an independent variable from its models. Within the framework of "rational expectations" it is assumed that economic agents expect the equilibrium outcome of the respective economic models. Stanley Fischer (1980, p. 212), who himself has a sophisticated view of the rational expectations approach, defines rational expectations in their "strong form" assuming "that individuals' subjective probability distributions are the same as those implied by the models in which they are presumed to be the agents". For example, if a model is set up (in the following example, the Ricardian equivalence proposition) that any increase in the government's budget deficit increases the subsequent tax burden plus interest and that it is therefore rational for households to reduce consumption today with the effect that aggregate demand remains unchanged despite a higher budget deficit, then it is assumed that all economic agents in the economy believe in this model and act accordingly. We agree with Machlup (1983, p. 183) when he writes: "Hypothesizing identical interpretations of all available information on the basis of identical theories entertained by all agents and analysts is unacceptable. The auxiliary hypothesis that economic agents, public and private, can derive rational expectations from consulting statistical time series and relying on statistical averages is equally irrational." See also Herr (2010) on rational expectations.

Against this background, Friedman (1968, p. 15) proposed a monetary policy rule which became highly influential and was taken over by most central banks in the 1970s: "I believe that a monetary total is the best currently available immediate guide or criterion for monetary policy." And for the US: "I myself have argued for a rate that would on the average achieve rough stability in the level of prices of final products, which I have estimated would call for something like a 3 to 5 per cent per year rate of growth in currency plus all commercial bank deposits or a slightly lower rate of growth in currency plus demand deposits only" (Friedman 1968, p. 16). Friedman called for central banks to be deprived of discretionary leeway through a money supply rule. The purpose of this rule also was to protect them from political pressure; central banks should become institutionally independent, i.e. they would no longer be dependent on instructions from ministries.

At the end of the 1960s, with the exception of the Fed and the German Bundesbank, almost no central bank in the world was independent. In the background of Friedman's call for independent central banks was the insinuation that politicians would regularly inflate the economy for electoral reasons, with the aim of increasing employment in the short term. This is, according to Friedman, possible as workers have "money illusion" and only recognise increasing inflation rates after some time. As a result, when inflation rates rise faster than nominal wages, real wages fall in the short run, while workers simultaneously believe that real wages have risen. Falling real wages for firms increase labour demand and, because of money illusion, increasing real wages in the eyes of workers leads to an increase in labour supply. This constellation leads to higher employment and output according to neoclassical logic. After some time, workers realise that real wages were not at the level expected. They accordingly adjust their wage demands and the old equilibrium is realised again after some time.¹¹

Friedman's recommendations were adopted by many of the world's central banks in the 1970s, partly because the collapse of the Bretton Woods system ended the orientation of monetary policy toward the exchange rate, and partly because the mainstream macroeconomic model from the 1940s to the 1960s, the Neoclassical Synthesis,¹² entered into a period of crisis. The Fed moved to monetary targeting as early as 1972 in the form of achieving a certain growth of M1 within periods of two months (Meulendyke 1998, Sect. 4.2).¹³ The targeted aggregates were modified on

¹¹ Friedman came under fire from more radical variants of the neoclassical paradigm. Based on rational expectations, the argument was that economic agents are no longer "confused" by changes in the money supply. Any systematic response of monetary policy according to economic development is understood by economic agents. Money illusion is not possible as soon monetary policy follows a certain pattern. The economic disturbances of an unsteady money supply emphasised by Friedman then disappear and money becomes "neutral" even in the short run (Lucas 1972; Heine and Herr 2013). For economic policy, rational expectations never played an important role.

¹² The Neoclassical Synthesis was a neoclassical model that incorporated some Keynesian ideas. The assumption was that the neoclassical paradigm is correct in the long run, but in the short run some Keynesian distortions exist which make discretionary macroeconomic policy necessary. The model had no answer for how to explain and handle inflation.

¹³ The monetary aggregates are defined as follows: M1 is the sum of currency in circulation and overnight deposits; M2 is the sum of M1 plus deposits with an agreed maturity of up to two years and deposits redeemable at notice of up to three months; and M3 is the sum of M2 plus repurchase

various occasions throughout the 1970s, for example attempts were made to control M2. Until 1979, the Federal Open Market Committee (FOMC), which oversees monetary policy in the US, acted cautiously. This implied that even if the planned money supply target was not met, the refinancing interest rates for banks were only changed moderately as the FOMC did not want to destabilise the economy with highly fluctuating interest rates. This changed in 1979 with the new Chairman of the Fed, Paul Volcker. Given the high inflation rates in the US at the end of the 1970s, targeted monetary aggregates were to be achieved at all costs. The result was extremely high and fluctuating refinancing rates set by the Fed. By 1982, the phase of hard money supply management in the US was already over as the strategy completely failed. "In the absence of a stable relationship between money and economic activity, the FOMC modified its procedures for guiding reserve provision in 1983. It focused on measures of inflation and economic activity and placed less weight on the monetary aggregates" (Meulendyke 1998, 52).

The Bundesbank adopted its first money supply target in 1974, following the collapse of the Bretton Woods system and the end of its obligation to intervene in foreign exchange markets to defend the exchange rate. The Bundesbank set money supply targets until the establishment of the European Economic and Monetary Union (EMU) in 1999 (Deutsche Bundesbank 1998).

The Bank of England switched to monetary targeting in 1976; prior to that, attempts were made to control inflationary dynamics in the United Kingdom through income policy and more moderate wage increases. However, a hard monetary targeting strategy was not enforced until after the election of Margaret Thatcher in 1979 as part of the *Medium Term Financial Strategy (MTFS)*. Central to this strategy was the monetary targeting of M3. After the strategy failed, it was officially buried in 1985 (Nelson 2000).

The Banca d'Italia did not switch to monetary targeting until 1984. In the 1970s, monetary policy was subordinate to fiscal policy, as the Banca d'Italia had to finance large budget deficits. The shift in monetary policy strategy away from fiscal financing came in 1979 with the establishment of the European Monetary System (EMS). Italy was one of the founding members of the EMS and used the commitment to stabilise the exchange rate as an instrument to reduce inflation. In 1996, the strategy of monetary targeting was replaced by direct inflation targeting (Gaiotti and Secchi 2012).

Whether central banks used monetary targeting merely as a pretext for extremely restrictive monetary policy or if they actually believed in it is an open question. Heinz-Peter Spahn (1988) rightly emphasised that the Bundesbank always pursued pragmatic policy and used monetary targeting as a tool to communicate its unconditional will to fight inflation to the public. Thus, the Bundesbank has never, tried to achieve a set money supply target by all means, as the Fed did from 1979 onward. This is also supported by the fact that the Bundesbank failed to achieve its money

agreements, money market fund shares/units and debt securities with a maturity of up to two years. There may be small differences in the exact definition across central banks.

supply target in about half of the years between 1974 and 1998 during which it followed monetary targeting (Bofinger 2001; Herr and Kazandziska 2011).

It is now indisputable that monetary targeting has failed, and with it the quantity theory of money. There are several reasons for this:

First, it is by no means trivial to find a monetary aggregate that can be used as a monetary target. It would have to be closely correlated with price level developments and, at the same time, be controllable by the central bank. The difficulties in finding such an aggregate have increased by the tendencies of financialisation during recent decades, as, among other things, more and more credit relationships were securitised, and non-bank financial institutions began to play a greater role in the financial system (Wullweber 2021). Moreover, the definition of liquidity aggregates ultimately always remains arbitrary. After a period of experimentation, most central banks chose the very broad aggregate M3 as their target.

Second, empirical evidence showed that there was no stable relationship between the aggregate M3 and price level developments. For other monetary aggregates the correlation was even more unstable. Figure 7.1 shows the development of M3 and the inflation rate in the euro area. At the beginning of the EMU in 1999, the ECB set itself a growth target for M3 of 4% per annum and an inflation rate target of slightly below 2%. The target became the most important pillar for monetary policy. It should be mentioned that the ECB, influenced by the Bundesbank, was one of the few central banks still adhering to monetary targeting at that time.¹⁴ For the ECB, however, major problems arose with monetary targeting as early as one year after its foundation. The burst of the dot-com bubble in the late 1990s led to a slowdown in real growth in the EMU from 3.8% in 2000 to 2.2%, then 0.9% and finally 0.6% in the following years. At 2%, the inflation rate was very close to the ECB's target. But money supply in the form of M3 rose much more strongly than the targeted 4%. In accordance with the money supply rule, interest rates should have risen significantly, which would have been absurd in a phase of weak growth without inflation. It was obviously "overlooked" that in a crisis situation, the private sector tends to hold more liquidity and switches from prioritising long-term monetary wealth to short-term. In this way, M3 increased without any economic policy change by the central bank and without generating inflationary risks. In 2003, the ECB abandoned monetary targeting (Heine and Herr 2021). The following years repeatedly showed that sharp fluctuations in M3 growth had no corresponding impact on the inflation rate.

Third, it was not possible for monetary policy to steer a monetary aggregate in a satisfactory way. Friedman's "helicopter" provides a fundamentally flawed picture. Central banks influence banking sector lending to the private sector through their refinancing rates. Lending is the main factor in the growth of monetary aggregates, because if banks give additional loans, the bank balance sheet lengthens, and new monetary wealth is created in the form of demand deposits or M1. The additional

¹⁴ At its inception, the ECB set itself two pillars of monetary policy: M3 growth at an annual rate of 4% and, as a second pillar, discretionary leeway to respond to the development of economic variables ranging from wage developments, credit expansion, capacity utilisation, exchange rate movements, etc. The first pillar was considered to be more important (ECB 1999; Heine and Herr 2021).



Fig. 7.1 Annual rates of change in M3 and the price level (consumer price index) in the EMU, 2000–2023. HICP: Harmonized index of consumer prices of the ECB. *Source* ECB (2023), own calculations

monetary wealth can then be held in a variety of forms, for example as part of M3 or as a long-term debt security issued by the bank or the government. The monetary aggregate M3 can also change when the public shifts assets, for example, when long-term securities are converted into short-term time deposits. The realisation of a monetary aggregate target can easily fail under the above conditions, even if a central bank makes every effort to achieve it.

This was even evident in the unconventional monetary policy pursued by the ECB from 2012 onward. Under this policy, the ECB bought securities from banks and other financial institutions according to positive net amounts that were fixed monthly. In doing so, it sought to depress long-term interest rates and encourage financial institutions to expand credit. However, financial institutions were extremely reluctant to pass on the liquidity they had obtained to the private sector by credit expansion, and potential investors and consumers hardly asked for loans given the crisis situation. Instead, financial institutions held the additional liquidity in the form of excess reserves at the central bank as a financial safety buffer. As a result, the central bank money supply increased substantially, but M3 did not (see Chap. 5).¹⁵

Joan Robinson (1938) summed up the criticism of the idea that central banks can control money supply and that an increase in the money supply is the cause of inflation. She argued that a train cannot move when the brake is on (the price level cannot rise without an increase in the money supply), but it would be crazy to argue

¹⁵ M3 could only have been increased in a targeted manner if the central bank had conducted unconventional monetary policy directly and in a large scale with the public. However, this would have been very unusual and has rarely been put into practice.

that the cause of the train's movement is because the brake is open (the forces of inflation emanate from the money supply). "It is true that a train cannot move when the brake is on, but it would be foolish to say that the cause of motion in a train is that the brake is removed. It is no less, but no more, sensible to say that an increase in the quantity of money is the cause of inflation" (Robinson 1938, p. 511). Money supply is endogenous. Of course, the central bank can influence the development of money supply via its refinancing rate or other interventions, but it cannot directly realise a monetary target.

Overall, there are hardly any central banks that currently use the quantity theory of money in their monetary policy strategy or pursue monetary targeting. The strategy of setting a target inflation rate has gained acceptance. In this case, the central bank or the government publicly announces an inflation target to be achieved in the medium term. In this strategy, the central bank then develops a medium-term inflation forecast. If the expected inflation rate is above the target, the reaction must be restrictive monetary policy; if the forecast is below, monetary policy should become more expansionary. In this context, the development of the money supply no longer plays a role (Hammond 2012).

To announce an inflation target does not automatically mean that a certain inflation rate is the only target of a central bank. Let us take the Fed as an example. Its constitution officially mentions other targets of realising stable prices, maximum employment and moderate long-term interest rates. At the same time the Fed defined a medium-term target inflation rate of 2%. It has to find a compromise between this inflation target and the other targets (Fed 2023).

7.4 The Nominal Wage Anchor and Exchange Rate Anchor as Central Stabilisers

In Sect. 7.1, we showed that there are two factors that can generate a cumulative inflation process even if they are not the original triggers of price level changes. These two factors are nominal wages and the exchange rate. A necessary, though not sufficient, condition for stabilising capitalist economies is relatively stable wage and exchange rate developments. Wages and the exchange rate thus become anchors of the price level. We first consider the wage anchor.

The macroeconomically desirable wage development-the wage norm

In the long run, it is not surprising that the price level is determined by cost factors. Leaving aside exogenous shocks, unit labour costs are the decisive determinant of the price level from a domestic perspective and thus also the potential stabiliser for a targeted, generally low inflation rate. If wage developments become the domestic anchor of the price level, then unit labour costs must develop in a stable manner. The relationship between unit labour costs and the price level (excluding exogenous shocks and international influences) in the medium term is given by $P = \frac{W}{\Pi}$. If this

equation is written in terms of rates of change, it follows that $\dot{P} = \dot{w} - \dot{\Pi}$ with \dot{P} as the percentage change in the price level, \dot{w} as the percentage change in nominal hourly wages, and $\dot{\Pi}$ as the percentage change in labour productivity. The right-hand side of the equation expresses changes in unit labour costs. According to the logic of this equation, the price level changes in the medium term according to wage increases minus the increase of labour productivity. To reiterate, unit labour costs do not only act directly as a cost factor, but also indirectly via changing prices for intermediate inputs, depreciation and capital goods. The close empirical relationship between nominal unit labour costs and the development of the price level in the medium- and long-term has been shown in the previous chapters (see also below).

From the theoretical analysis and empirical observations, it follows that the development of the wage level should in no case be flexible, as this would destabilise the price level. Rather, the wage level should follow a stable growth path. Keynes (1936, p. 270) already had a very clear position on this: "But the money-wage level as a whole should be maintained as stable as possible, at any rate in the short period".

This leads us to the wage norm. Rearranging the equation $\dot{P} = \dot{w} - \prod$ results in $\dot{w} = \prod \dot{P} + \dot{P}$ and modified in:

$$\dot{w} = \prod_{\text{Trend}} + \dot{P}_{\text{Target}} \tag{7.6}$$

In Eq. 7.6, productivity was replaced by the trend productivity development and the inflation rate by the central bank's target inflation rate. If the trend productivity development is 1.5% and the target inflation rate is 2%, then wages should increase by 3.5% according to the wage norm. Unit labour costs and the inflation rate then rise by 2% and real wages by 1.5% if there are no other influences.

Official target inflation rates of currency areas have become popular since the early 1990s. New Zealand set a target of 1–2% in 1990, Canada set a target of 2% (\pm 1%) in 1991, Australia set a target of 2–3% in 1993 and so on. But also, the Philippines set a target of 4 (\pm 1)% in 2002, Uganda set a target of 5% in 2011 and India set a target of 2–6% in 2015. Today, almost all central banks in the world specify an inflation target (Jahan 2023). Central banks do not aim for absolute price level stability, as this would increase the risk of destabilising deflationary developments, for instance in the event of price level shocks. They target a low positive inflation rate. The target inflation target in many cases is slightly higher (Hammond 2012; Heine and Herr 2021). If no official inflation target exists, a low inflation rate should be chosen for the wage norm.

In the case of productivity development, its over-cyclical trend must be taken into account as statistically measured productivity development fluctuates strongly throughout the business cycle. This is because productivity, when statistically measured, falls during economic downturns, as companies cannot or do not want to immediately adjust employment to lower production, because they want to retain qualified workers. In the first phase of an upswing, productivity then increases statistically. If nominal wages followed annual rates of change in productivity, this would destabilise wage development.¹⁶

With otherwise unchanged conditions, according to the wage norm real wages increase in line with productivity development in the medium term. In general, the basis for higher real wages is higher productivity. Correlation between productivity development and real wage development was high after the Second World War. However, this was modified with the change in the type of capitalism since the 1980s.

An OECD study (2019, p. 102) showed that in many countries there was a relative decoupling between productivity development and the development of real wages. Real wages often grew more slowly than productivity. In the US, with an index value of 100 in 1997, labour productivity increased to the value of 145.8 by 2019. Real wages, deflated by the consumer price index, increased only to 121.9 and deflated by the gross-value-added deflator to 136.0 during this period. Calculating the annual increase in productivity for the period yields a value of 1.73%, while real wages, measured by the gross-value-added deflator, increased by 1.41% annually. This implies that prices obviously increased more than unit labour costs. In Germany, there was also a relative decoupling between productivity growth and real wage growth. But there are exceptions. In Italy, productivity and real wage development were very close to each other, but both stagnated close to zero. In the United Kingdom, as in Germany and the United States, real wages grew more slowly than labour productivity. In France, the relationship was very close, as it was in the Netherlands. In Norway, real wages grew much faster than labour productivity, reflecting the country's commodity exports.

These developments can have various causes. First, factors such as rising energy and real estate prices, which lead to higher rents for owners of natural resources and higher costs to rent or buy an apartment, lead to a reduction in real wages. Both factors played an important role during the period under review. This also explains why real wages performed significantly worse when deflated by the consumer price index. Second, the further entrenchment of markets in the form of more powerful oligopolies and monopolies as well as monopsonies, for example in global value chains, is likely to have increased the profit share (see Sect. 7.5). In addition, changes in terms of trade or tax policy, such as the increased importance of indirect taxes, can reduce real wages.

With the help of the wage norm, a functional wage policy can be derived for single countries. In the EMU from 2010 to 2020, average annual labour productivity increased at a rate of 1.04% (OECD 2023). Taking the ECB's target inflation rate of 2%, the wage norm yields a desirable annual increase in nominal wages of 3.04% in the EMU as a whole. In this case, the annual target inflation rate of 2% would

¹⁶ Productivity on a macroeconomic level is not easy to measure. However, in the wage norm a relatively stable development of productivity has to be assumed; digits after the decimal point are not so important for the wage norm.

be achieved and real wages would increase by an average of 1.04% per year assuming there are no structural factors that change the functional income distribution or exogenous factors such as energy prices or real estate bubbles that could strongly affect real wages.

In Italy, average annual productivity increased by only 0.59% from 2010 to 2020. In order to maintain price competitiveness in the EMU, nominal wages in Italy should increase by only 2.59% annually according to the wage norm. Therefore, to keep the price competitiveness of regions within currency areas unchanged, wages in all regions would have to rise in line with regional productivity development plus the central bank's target inflation rate. For large currency areas, such a regionally differentiated wage policy may be unavoidable. Nevertheless, experience shows that this is difficult to achieve in reality. One example is the EMU, where unit labour costs, particularly before the financial crisis in 2008, diverged sharply and massively shifted the price competitiveness of regions (Heine and Herr 2021). After 2021, similar developments can be observed in the EMU, this reveals the lack of a wage coordinating mechanism in the EMU (OECD 2023).

In the US, similar to the EMU, labour productivity increased by an average of 1.03% per year from 2010 to 2020. Ideally, wages in the US would have risen by 3.03% annually. In the United Kingdom, labour productivity rose by 0.74% on average during the period; thus, an annual increase in the nominal wage level of 2.74% would be desirable (OECD 2023).

A nominal wage anchor is not only desirable for the stability of an economy, but necessary. It is necessary to prevent inflationary developments, which sooner or later must be fought by the central bank at the expense of growth, employment and welfare. It should be taken into account that the power of the central bank is asymmetric. It can always stop an inflation process with restrictive monetary policy, but it cannot prevent a deflation process if wages increase insufficiently or even decrease. An example of this is the deflationary development in Japan, which was caused by stagnating and even falling unit labour costs (Herr and Kazandziska 2011; Herr 2015). The EMU also had to contend with deflationary developments during some periods (Heine and Herr 2021). Accordingly, a nominal wage anchor is also necessary to prevent deflationary processes.

Admittedly, compliance with the wage norm is easier to demand than it is to realise. The first problem is that macroeconomic considerations often play no role in wage bargaining. This is particularly the case if wages are bargained on a company level. The microeconomic strategy of unions can lead to strong wage increases, for example, in order to capture high extra profits during situations of excess demand. If wages increase for all companies, it is easy for companies to roll higher costs over to higher prices. However, this microeconomic calculus can also lead to nominal wage reductions if unions accept a wage reduction to increase the competitiveness of the firm and to safeguard employment. If this happens in a sufficiently large number of firms, the economy falls into a deflationary crisis.¹⁷

¹⁷ Anecdotally, it is reported that in Japan, after the bursting of the asset bubbles in the early 1990s and the subsequent Asian crisis in 1997, companies secretly lowered wages together with company

It is also problematic if wages in individual occupational groups or even sectors are increased significantly above the wage norm. If other sectors do not follow, this increases the real wages of those sectors with the high wage increase, even if the companies affected by higher wages roll all higher costs over to prices. In this situation, employees in other sectors experience falling real wages. In the absence of adequate horizontal wage coordination or a wage policy based on solidarity, the scenario described can lead to an inflationary process. This is because unions in sectors with initial moderate wage increases want to defend their relative position if wages in other sectors increase sharply.

Significant price level shocks, for example due to increases in energy prices or devaluations, pose a large problem. As real wages fall, this regularly leads to demands to compensate for the corresponding losses by increasing nominal wages. Union leaders typically find it difficult to resist such demands from their members, even if they understand the macroeconomic problems of such wage increases. If nominal wages rise more than the wage norm suggests, a wage-price spiral occurs, which sooner or later has to be fought by the central bank. What would be desirable is the flexibility of real wages and a stable development of nominal wages. Keynes (1936, p. 239) stated: "If, indeed, some attempt were made to stabilize real wages by fixing wages in terms of wage-goods, the effect would only be to cause a violent oscillation of money-prices. (...) That money-wages should be more stable than real wages is a condition of the system possessing inherent stability. Thus the attribution of relative stability of real wages is not merely a mistake in fact and experience. It is also a mistake in logic".

When energy prices explode, oil and gas producers realise higher rents. There is a redistribution of income to the advantage of oil and gas producing companies, which are often located abroad. In the latter case, real income in the home country will fall. There is nothing that can be done about this. But how will "paying the piper" be distributed domestically? If a battle is sparked over the distribution of real income losses, workers as a whole are in a weak position, because companies are in a position to pass on higher wages to prices thanks to their pricing power. The constellation described can degenerate into a "war" between wage earners and society in general. If some groups, unlike others, succeed in defending their real wages, the inequality of income distribution will increase. The group of "losers" has to pay double the cost. They suffer income losses due to rising oil and gas prices, which are exacerbated by rising price levels due to wage increases in some industries. As a rule, in such a war those employees who are at the lower end of the wage scale, have precarious jobs and are poorly organised in trade unions, are particularly affected by uncoordinated and non-solidaric wage development.

The desirable wage policy for macroeconomic development after a price shock is obvious. Wages should continue to follow the wage norm. Then, the inflationary push passes through the economy and the inflation rate declines again after the price shock has run its course. This implies the voluntary acceptance of temporary real wage

unions in order to improve their economic situation. Because many companies did this, Japan slipped into mild deflation over a long period.

losses, which cannot be prevented for workers as a whole anyway. This in no way precludes collective bargaining or fiscal and social policies from actively protecting the low-income groups that are particularly affected by oil and gas price increases. For example, collective bargaining agreements can be concluded that differentiate by wage group or provide for absolute rather than percentage wage increases. Policymakers can implement specific social policy programs and government transfers to benefit these groups.

The exchange rate as a nominal anchor

The case studies in Chaps. 2 and 4 have shown that exchange rates can change very quickly and radically. During hyperinflations, devaluations can reach astronomical levels. Since devaluations directly increase the prices of imported goods, exchange rates can trigger extremely strong price level surges via cost increases. The stronger the devaluation and the higher the import ratio, the larger the price level effect of a devaluation.

If there is a one-off devaluation and the foreign price level does not change and wage development follows the wage norm, the higher import prices pass through the economy like a wave. The inflation rate rises for some time and falls back to its target value, but at a now higher price level. In this case, the nominal devaluation will be higher than the domestic inflation rate, resulting in a real devaluation that increases a country's price competitiveness. Such devaluations may become necessary if a country slips into a persistent current account deficit. If, on the other hand, a devaluation triggers a wage-price spiral, then the economy runs the risk of entering a cumulative devaluation-wage-price spiral with further devaluations that leaves the real exchange rate unchanged.

Devaluations become dramatic when confidence in the future stability of a currency collapses. If there are sharp devaluations that increase the price level dramatically and reduce real wages accordingly, the country finds itself in an extremely difficult situation. This is because severe reductions in real wages are difficult to communicate to the population and often lead to increasing levels of poverty in parts of the population. However, if such a situation leads to strong nominal wage increases, the inflation increases further. The only way to prevent the erosion of the monetary system is often a stabilisation crisis with high costs for growth and employment. This was analysed in Chap. 4. There are countless other examples, the lost decade in almost all Latin American countries in the 1980s, or the crises in Mexico in 1994, in Sweden in 1996, in several Asian countries in 1997, in the Baltic countries and in Hungary after the financial crisis in 2008, and in Turkey in 2023, to name just a few.

A country caught in a devaluation-wage-price spiral, or at risk of experiencing such a spiral, can implement capital controls to prevent capital flight and, at the very least, a strong devaluation. This allows monetary policy to act less restrictively. Fiscal policy can then also be geared in a more expansionary direction. If wage increases do not get out of control such a policy combination reduces the risk of a severe recession. However, the risk that such a strategy will fail is high. In Italy, this course was pursued in the 1970s. Here, it was possible to reduce high inflation rates without a massive stabilisation crisis. However, historically, Italy in the 1970s was

an exception (see Sect. 4.4). Turkey, to give another example, which has been in an extremely fragile constellation with low GDP growth rates for a long time (Herr and Nettekoven 2014), has tried to avoid a hard stabilisation crisis despite devaluations and high inflation rates. Whether this will succeed remains an open question.

Economies with high current account deficits and high foreign debt denominated in foreign currency are in a particularly risky situation. This is because such countries are dependent on capital imports to finance current account deficits and/or service their debt. If confidence in the currency collapses and capital imports dry out, then a sharp devaluation can trigger a surge in inflation that further erodes confidence in the currency. An erosion of confidence in a currency can have many reasons, for example emerging doubts about the country's solvency, an increase in interest rates abroad, collapsing export revenues, a crisis in another country leading to contagion, or political instability at home. If the country in the situation described experiences devaluations, the real burden for foreign debt increases and a financial crisis becomes difficult to avoid. Without outside help, a crash in the exchange rate, followed by a financial crisis, over-indebtedness in foreign currency and a deep recession with the danger of a long period of stagnation can hardly be prevented.

A relatively stable exchange rate thus becomes the second anchor of price level developments alongside the wage norm. Therefore, central banks must pay attention to exchange rate movements, even if they do not officially follow an exchange rate target. Conflicts may arise between internal and external stabilisation. For example, a central bank's defence of the exchange rate by means of high interest rates can lead to a domestic crisis, even though there is no risk of inflation domestically. In such constellations central banks should have an instrument at hand in the form of capital controls to protect themselves against exchange rate turbulence. As Jan Tinbergen (1956) emphasised, there should be an instrument for each economic policy objective in order to avoid conflicting goals. Of course, central banks can build up high foreign exchange reserves as protection against capital flight and devaluation, but these can quickly prove to be insufficient.

In general, countries should be very cautious about foreign credit denominated in foreign currency. This is because high levels of foreign debt can lead to an extreme financial crisis without the possibility of the domestic central bank to take over its function as lender of last resort. In a crisis triggered by high foreign debt, the affected country becomes dependent on foreign governments and international institutions which can then dictate domestic policy. For these reasons, countries should avoid high current account deficits as well as high capital imports in the form of credit. Of course, countries in the Global North do not suffer from the "original sin" not to be able to take foreign credit denominated in domestic currency (Eichengreen et al. 2003). In the US, for example, at the end of 2022, foreign debt to GDP accounted for 95.3%, which is high when compared internationally (CEIC 2023). But this debt is in domestic currency and exchange rate risks impact the lenders and do not affect American debtors.

If a country joins a fixed exchange rate system or pegs its exchange rate to an external and stable currency, the exchange rate can ultimately only be defended if domestic wage developments are moderate and international price competitiveness

is maintained. If unit labour costs and prices increase permanently at home more than abroad, the country loses its international price competitiveness. Thus, sooner or later, it will enter a crisis or at least will have to adjust its exchange rate.

For most countries, an absolutely fixed exchange rate, whether in a currency system like the Gold Standard before the First World War or a one-sided absolutely fixed peg to a stable currency, is not a good option. A period of too-high nominal wage increases and decreasing price competitiveness, or a period of higher domestic growth compared to the rest of the world which leads to high imports can lead to unsustainable current account deficits. In such cases a controlled devaluation is desirable to establish external equilibrium again. The Bretton Woods system as well as the European Monetary System (EMS) were, in this sense, ideal currency systems, as they allowed discretionary adjustments of exchange rates within an otherwise fixed exchange rate system. In addition, both systems had institutions and/or central bank obligations to intervene in foreign exchange markets, at least in the short term, to defend the exchanges rates if a currency came under depreciation or appreciation pressure (see Chap. 3). Notably, in the first phase of the Bretton Woods system, capital controls substantially contributed to the stability of the system.¹⁸ While a revival of a modern Bretton Woods system is currently unrealistic, it would nevertheless be desirable to stabilise the global economy and also to reign in the power of agents in the financial system (Herr 2011). In the current situation of globalisation without a global exchange rate system, the best model for an exchange rate anchor is "floating plus" (Goldstein 2002). This implies that a country does not peg its exchange rate vis-à-vis another currency but prevents any currency mismatch and does not allow foreign currency credit dominated in foreign currency. Other types of capital controls as well as heavy interventions in the foreign exchange market would also keep the exchange rate relatively stable.

7.5 Market Power, Price Level Development and Distribution

The previous remarks have shown the importance of wage-price spirals and exchange rate changes for price level changes. Typically, wage-price spirals do not start an inflationary process, and instead are a reaction to developments which lead to an inflationary push and reduce real wages—examples include periods of high excess

¹⁸ Keynes, one of the fathers of the Bretton Woods system, was convinced that capital controls were necessary and desirable in the currency system to be established after the Second World War. "There is no country which can, in the future, safely allow the flight of funds for political reasons or to evade domestic taxation or in anticipation of the owner turning refugee. Equally, there is no county that can safely receive fugitive funds, which constitute an unwanted import of capital, yet cannot safely be used for fixed investment. For these reasons it is widely held that control of capital movements, both inward and outward, should be a permanent feature of the post-war system" (Keynes 1943, p. 31).

demand, depreciations or price shocks of natural resources. Wage-price spirals ultimately reflect the unsurprising fact that firms have to cover their costs by means of the goods and services they sell. Thus, cost developments become an essential element in explaining price level changes.

However, there has been a long debate about the possibility that increasing wages bite into profits and change functional income distribution (for an overview see Hein 2015, 2016). And indeed, wage developments can modify functional income distribution. Two arguments in this context are important. First, only models which analyse nominal wage developments and their distributional effects are acceptable. Models which assume real wage negotiations fail to analyse the existing capitalism. Second, it will become clear that even if wage development can modify functional income distribution this does not change the very close relationship between changes in nominal unit labour costs and the price level in the medium term.

Whether wages can change functional income distribution depends on the specific constellation of markets. Microeconomics has delivered comprehensive models of market constellations. We will use these models to analyse under which conditions nominal wage increases can increase the wage share. We begin this analysis with the case of perfect competition, then continue with the case of monopoly and the case of monopsony. Then we quickly consider the constellation of an equilibrium between demand and supply.

Perfect competition

The perfect competition scenario can be regarded as a theoretically extreme case. In this constellation, many firms compete fiercely, offer a homogeneous product and have no individual influence on the price of the product they sell and their input prices, including wages. At the same time there is plenty of demand. We have to assume falling or constant returns to scale for this market constellation, because perfect competition will only prevail in a market if market entry is easy and economies of scale do not exist.

The analysis of returns to scale assumes that all input factors are varied, including machines or buildings. This is therefore a longer-term analysis. Increasing returns to scale means that larger firms can produce more efficiently than smaller ones. Such efficiency effects arise from many factors: indivisibilities in inputs (every ship, even a small one, needs a captain); synergy effects (very small research departments are not efficient); network or specialisation effects in workers' qualifications and production tools, and so on. With diminishing returns to scale, larger firms quickly become more inefficient. There may be organisational problems in large firms or high transportation costs (running a quarry for the entire US would not be efficient; the case of running one chip factory in the whole country would be different). With constant returns to scale, the size of the firms does not matter for their efficiency. In most industries substantial economies of scale exist. Thus, perfect competition is an exception.

In our simplest case, we assume, in addition to perfect competition, that all firms operate with the same technology, have the same efficiency and thus face the same cost functions. These extreme assumptions underlie the standard microeconomic model in all textbooks. In a short-run analysis, the capital stock is given and output can be varied by varying inputs of labour and intermediate goods. The short-run total cost function of a typical firm then consists of fixed costs plus variable costs. The latter increase disproportionately as production expands because the input ratio between labour and the fixed capital stock becomes increasingly unfavourable. More and more workers work, if you like, with given machines. As a result, the short-term efficiency of firm declines with increasing output leading to increasing costs.¹⁹ Severe competition in this market constellation reduces profits to so-called normal profits which can be treated as part of costs. In the simplest case, the profit rate corresponds to the long-term interest rate, and when the firm uses credit to finance production profit is equal to interest costs. If a company works with equity capital, then the interest rate represents the opportunity costs. This is because investment in productive capital in the form of equity does not take place if the same rate of return can be earned in the credit market. If normal profits are not realised, a profit-oriented company will exit the market in the longer term, while in the opposite case it will enter the market.

This scenario is shown in Fig. 7.2, with currency units (CU) on the ordinate and the quantity produced (Q) on the abscissa. The figure shows the short-term total cost function (STC1) and the short-term total revenue function (STR1) for company 1. The total revenue function is calculated by multiplying the quantity sold (and produced) by the price p_1 given by the market. The total cost function starts with fixed costs and then increases disproportionately with the quantity produced. Profits are maximised when the difference between total revenue and costs is the largest, in our case when the quantity Q_2 is produced and profits are equal to the distance between points A and B.

With increasing output, the short-run average cost function (SAC1) initially falls sharply as fixed costs are spread over additional units produced (see the lower part of Fig. 7.2). However, average costs increase at a certain production volume due to permanently rising marginal costs caused by increasing labour input for a given amount of capital. Average costs start to rise exactly when marginal costs reach average costs. From this production volume on, for each additional output marginal costs are higher than average costs. Profits are maximised when marginal costs equal marginal revenues. This is because as long as marginal revenues are above marginal cost, any additional unit of output will increase total profits. In the lower part of Fig. 7.2, marginal revenue is determined by the price p_1 . Since, according to the model assumptions, the price cannot be influenced by the firm, it remains independent of the quantity sold. If there is perfect competition, the individual supply function starts at quantity Q_1 and follows the marginal cost curve with increasing prices. When company 1 maximises profits at quantity Q_2 , profits per unit are given by the distance between E and F.

¹⁹ In situations of decreasing and constant returns to scale, short-run variable costs will definitely rise as production increases. With increasing returns to scale, this need not be so. With increasing returns to scale, the marginal product of labour can—at least theoretically—increase as labour input increases. This would destroy the neoclassical demand function for labour, which usually assumes that demand for labour falls as real wages rise. Consequently, the neoclassical model must assume that the physical marginal returns of labour fall.



Fig. 7.2 Profit maximisation under the assumption of perfect competition

The constellation in Fig. 7.2 is not compatible with a long-term equilibrium. As companies make profits, new companies will enter the market. With decreasing and constant returns to scale, this is also possible for small firms. The influx of companies comes to an end when the price has fallen to the level of average costs. For an individual firm, this is the case when it produces at the minimum of the short-run average cost curve, at Q_1 . At production volume Q_1 only normal profits are made.

Figure 7.3 shows the long-term market equilibrium with constant and decreasing returns to scale.²⁰ All firms (three are shown in a way that adds the production of firm 2 to firm 1 and firm 3 to firm 2) will produce at the minimum of its average cost curves. This results in the long-run aggregate supply function (LAS). There will be so many firms in the market that aggregate demand at Q_3 , depending on the aggregate demand function (AD), can be satisfied at the equilibrium price p_0 .

Let us now turn to wage increases. First of all, in the case described above, wage increases in only one company are not possible, as this company would immediately be forced out of the market. However, trade unions can increase wages by the same

 $^{^{20}}$ We also assume that in the case of decreasing returns a certain minimum of production is needed to produce with profits.



Fig. 7.3 Long-term equilibrium under the assumption of falling or constant returns of scale and the same cost curves for all firms

percentage on the whole in all companies throughout the industry. In such a case, companies will immediately raise prices because all companies will be affected by the same cost increase and without increasing prices, they would not survive. Increasing prices would mean that aggregate demand will decrease, and some companies will have to leave the market. Thus, given the above conditions, workers will not succeed in changing the functional distribution.

There are two scenarios. In the first one only wages in the sector under consideration increase. In this case real wages in the sector increase and employment is reduced, normal profits in individual firms do not change. The rising real wages are based on redistribution between private households, since the rest of society now has to pay more for the product produced by the industry with the increased wages. In the second scenario, wages increase in all sectors by the same percentage. In this case, prices in all sectors increase and real wages do not change. Under the assumptions made, wage policy cannot change functional income distribution.

Let us proceed to a modification. We now assume that companies have different technologies or different management skills and these lead to different cost functions. Figure 7.4 shows this scenario. The short-run average cost curve (SAC1) stands for a group of companies which possess a better technology or better management skills than other companies in the market. These firms have the lowest level of average cost curves. The group of company 3 has the highest level of average costs; the group of company 2 is in the middle. If such a market constellation exists in the longer term, several assumptions are required. First, barriers must be assumed that do not allow all companies to use the best technology and best management. Second, the superior companies must not exhibit constant or increasing returns to scale. This is because, in such a case, superior companies would continuously expand and drive all other companies out of the market. Thus, decreasing returns to scale must be assumed. Third, it must be difficult for new companies to enter the market with superior technology and management. These are very strong assumptions, nevertheless, we want to accept them. In Fig. 7.4, firms belonging to group 1 make an extra profit equal to the distance from point G to H; firms belonging to group 2 make an extra profit


Fig. 7.4 Long-term equilibrium under the assumption of falling economies of scale and different cost curves

equal to the distance from I to J. Firms in the third group make no extra profit. But its cost functions determine the price of the product which is equal to the minimum of the average cost functions of firms in group 3.

The interesting point now is that in the case of firm level wage negotiations, workers can bite into extra profits as companies would be unable to pass on higher wage costs to prices. Militant trade unions could fully transfer the extra profits of these companies into wages. In firms of company group 1, wages can increase according to the distance from G to H, in company 2 wages can increase according to the distance between I and J. This shifts the functional distribution of income in favour of workers. Of course, there are limits to such a strategy. If extra profits are transformed into wages in a first wage round, they are no longer available in subsequent wage rounds.

Let us now assume an equal increase of wages in all companies in a sector. This shifts the average cost curves of all companies upward. Prices must increase, otherwise the companies with the average cost curves SAC3 will not survive. If prices rise, then the quantity demanded of the product concerned will fall, assuming normal demand behaviour. This implies that at least some of the companies with the highest average cost curves must leave the market. Extra profits of firms in group 1 and 2 would continue to exist. However, if wage increases are high and demand strongly decreases it is possible that all firms in group 3 would have to leave the market. In this new situation, the minimum average costs of firms in group 2 determine the market price. Now only firms in group 1 realise extra profits, but smaller ones than before the increase in wages.

In Fig. 7.4, we have implicitly assumed that wages increase only in the sector analysed. If wages in all sectors increase, the demand function (AD) in Fig. 7.4 will shift upwards and firms are able to increase prices further. In such a case sectoral wage increases are not able to change functional income distribution.

To summarise, if there are different levels of technology and management, trade unions can bite into extra profits and change functional income distribution via firm level wage bargaining. However, there are some drawbacks to such a bargaining model. First, firm level bargaining leads to high wage inequality since equal work is now paid differently. This must be perceived as unfair. Low wages "subsidise" poorly performing firms. Second, company wage bargaining leads to a decrease in the innovativeness of the economy. Why should companies enter into a competition for innovation if it will not change their profit situation since workers immediately capture extra profits? In a scenario with different cost functions and sectoral bargaining, extra profits also can be reduced but only if wages do not increase in other sectors.

Monopsony

A monopsony has a monopoly position on its input side but is simultaneously exposed to perfect competition on its selling side. On the input side, the company has a position of power and can influence the price of the inputs, on its output side the price is given by the market (Chamberlin 1933; Robinson 1933). Monopsony power can exist for all inputs. It plays a major role in global value chains. Multinational companies often have a very powerful position vis-à-vis their suppliers. A monopsony may well depress profits and wages in supplier firms to a minimum (Teipen et al. 2022). Monopsonies also exist in labour markets. They played a role particularly in the context of the discussion about extra profits and the effects of minimum wage increases (Stigler 1946; Card and Krueger 1995; Herr 2023). The following discussion will focus on monopsonies in labour markets.

A typical case of a monopsony in the labour market is a company town, a town that is heavily dependent on a single employer. A typical example is a steel factory in a small city. Although the factory faces fierce competition on the steel market it has a powerful position in the local labour market. Under these assumed conditions the company can pursue a perfidious strategy. It can reduce its output and in this way the demand of labour. If a typical labour supply function is assumed, with a decreasing labour supply in the case of falling wages, this strategy succeeds in lowering wages. As long as the effect of lowering wages is higher than the profit losses resulting from lower sales, the company in a monopsony position will pursue this strategy.

Figure 7.5 illustrates this case. In the lower part of the figure, a typical labour supply function $H_A = H_A(w, \bar{z})$ is given with H_A as labour supply, w as hourly wages and \bar{z} as a constant variable that includes factors such as preferences of workers, labour market participation of women, households' wealth, etc. The labour supply function assumes that supply of labour increases with rising real wages and decreases in the opposite case. Such a supply function is by no means uncontroversial. Keynes (1936, p. 12), for example, did not believe that a reduction in the real wage would lead to significant reductions in labour supply. In fact, labour supply depends on a great many factors beyond the real wage and is likely to have a very low elasticity to real wage changes. In fact, if real wages are very low and continue to fall, labour supply is likely to increase, as poor households will have to take on multiple jobs to survive. Nevertheless, we will assume a labour supply function in line with the neoclassical model. Let us return to our steel factory. If it reduces its demand for labour by reducing production, it can move along the labour supply function and lower the hourly wage.

The upper part of Fig. 7.5 shows the total revenues (TR) of the steel mill. Since it is assumed that it is subject to perfect competition on the sales side, the total revenues correspond to the price multiplied by the quantity sold, $TR = p \cdot Q$, where the price is given. Total costs in the situation of perfect competition are expressed by TC_1 , starting with fixed costs and then with output increasing variable costs. Here the wage per hour (w_p) is given by the market. Total costs increase disproportionately with increasing output and labour input because of an increasingly unfavourable ratio between labour and physical capital, the usual neoclassical assumption. Under conditions of perfect competition with given selling prices and given hourly wages, the steel factory will produce Q_p and employ H_p workers. In the long-run equilibrium no extra profits are realised. Now we assume that the steel factory exploits its position as a monopsony. It reduces output and employment, causing the wages of all workers in the factory to fall below their level under full competition. This results in the new cost function TP₂. Now the steel factory can realise extra profits. The profit maximum is realised when the steel mill reduces production to Q_m with the corresponding employment H_m and the now lower wage w_m .

It is now easy to understand that an increase of wages from w_m to w_p destroys extra profits and at the same time increases output and employment as the steel factory now goes back to production volume Q_p to maximise normal profits. Wage increases in this case shift the functional distribution of income to the benefit of workers. This result has played a major role in the debate over statutory minimum wages. In the framework of the neoclassical paradigm, this allows the explanation that increasing minimum wages, or wages in general, do not always lead to negative employment effects. Empirically, minimum wage increases have hardly had any negative effects on employment, even in sectors that are strongly affected by them.²¹ This was a problem for the neoclassical standard model, which emphasises the negative employment effects of increasing minimum wages. The monopsony model offered a way out to reconcile empirics with the neoclassical model.

But here, too, it must be emphasised that in the monopsony model certain wage increases are possible without price level increases and that functional redistributions occur. However, if the extra profits from wage increases are gone, then wage increases lead to direct price effects.

Monopsonies play a certain role in the labour market. Even without recourse to the neoclassical labour supply function, it can be argued that companies' positions of power in the labour market can lead to wage cuts or lower wage increases. For

²¹ In Germany, statutory minimum wages were not introduced until 2015. Minimum wages became necessary because, particularly after German unification in 1990, collective bargaining coverage increasingly declined, and a low-wage sector exploded with wages in this labour market segment falling to the level of basic social transfers or even below this level (Heine and Herr 1999; Herr and Ruoff 2019). Neoclassical economists warned that in a scenario where minimum wages were introduced, employment losses would occur. However, these did not occur despite the fact that wages in the low-wage sector were substantially increased. It was even possible to derive slightly positive employment effects in response to the introduction of minimum wages due to rising aggregate demand by minimum wage earners (Herr et al. 2017).



Fig. 7.5 Monopsony in the labour market

example, companies can enforce low wages that do not correspond to the general level by threatening to relocate production abroad or as part of restructuring measures.

Monopoly and oligopoly

Let us move on to monopolies and oligopolies. In this case, a company has market power on the selling side. A monopoly is a firm that is the only firm offering a product (or service) in a market. Such a firm is confronted with the demand function of the overall market, which typically shows falling demand when prices increase. In comparison to a scenario of perfect competition, a monopoly can obviously set the price of its product but must take into account that the quantity it can sell depends on the price it demands. Oligopolies can create a cartel and then act jointly like a monopoly. But even in the case that oligopolies compete with each other in a market, each oligopolistic firm is confronted with an individual demand curve and can set a price. Oligopolies and monopolies develop as soon as economies of scale exist. Because in this case bigger firms can produce more efficiently than small firms. In an established oligopolistic or monopolistic market, incumbent firms are protected from new firms entering the market because entering a market with economies of scale implies that a new firm must jump immediately to very high production volumes



Fig. 7.6 Profit maximisation and distribution assuming a monopoly

which requires not only huge sums of capital, but also very specific technological and management skills.

The upper part of Fig. 7.6 shows a typical demand function for a monopoly. The demand for the product decreases as the price increases, in line with the price elasticity of demand. The more inelastic and higher a demand for the good or service is, the more powerful the monopoly is in terms of earning extra profits. From the demand function the total revenue function $TR = p \cdot Q$ in the lower part of the figure can be derived. It takes the form of a parabola. Obviously, marginal revenue is positive and decreasing up to the maximum of the total revenue function, then marginal revenue becomes negative. Now, if the total cost function TC_1 is plotted, the profit maximum of the monopoly can be determined immediately. It is realised at the production volume Q_2 , the extra profit is expressed by the total revenue minus total costs, the distance between the points A and B. A profit-maximising monopoly will thus set the price p_1 for its product at which it can sell the quantity Q_2 .

If trade unions fight for higher wages, the total cost curve shifts upward, for example to TC_2 . In this case, the monopolist's extra profit falls to zero, the production quantity falls to Q_1 and the price rises to p_2 . Part of the rising wage costs is thus

passed on to the price, but the associated decrease in demand prevents a full passthrough. In our case, after radically increasing wages, the monopolist earns only the normal profit and functional income distribution has changed.

Michal Kalecki built his profit theory against the background of oligopolistic and monopolistic markets. According to him, the degree of monopoly depends on several factors, such as the extent of economic concentration in an industry, the extent of nonprice competition and the role of product differentiation or specific advertising. The power of trade unions plays an important role in determining the level of extra profits in such markets. This is because trade unions can appropriate part of the extra profits through wage increases. A monopolistic company is usually unable or unwilling to pass on all the rising costs to prices, as this would greatly reduce demand. "High mark-ups in existence will encourage strong trade unions to bargain for higher wages since they know that firms can 'afford' to pay them. If their demands are granted but (...) [the mark-up is] not changed, prices also increase. This would lead to a new round of demand for higher wages and the process would go on with price levels rising. But surely an industry will not like such a process making its products more and more expensive and thus less competitive with the products of other industries. To sum up, trade-union power restrains the mark-ups" (Kalecki 1971, p. 161; see also Kalecki 1938; for a modern version Hein 2015, Detzer and Hein 2015).

Several conclusions emerge. First, in the case of monopolies and oligopolies, both firm-based and industry-wide collective bargaining, which raises wages, leads to a reduction in profits and a change in the functional distribution of income to the benefit of wage earners. For oligopolies, negotiations on the company level can bite into firm specific extra profits. In these cases, however, output and employment will fall. Second, when trade unions have appropriated all the extra profits, further wage increases will only lead to corresponding price effects. Third, if we assume wage increases in all industries and thus a rising wage level, then the demand for products produced by monopolies and oligopolies also increases. The demand functions as well as the total revenue functions of monopolies and oligopolies shift upwards expanding the scope for price increases.

In many cases, monopolies and oligopolies have power not only in the markets they sell their products, but also vis-à-vis their suppliers as monopsonies. In such cases firms are in a rent-seeking paradise, usually with high extra profits (Dünhaupt et al. 2022).

It should be clear that trade unions usually do not have the power and strategy to capture all of the extra profits of oligopolies and monopolies. To which extent profit sharing takes place depends on the social and political conditions, including the corporate governance system, in a country and does not change quickly.

Monopolistic competition

The case of monopolistic competition was introduced into economic theory by Edward Chamberlin (1933) and Joan Robinson (1933). Compared to the perfect competition model, which assumes homogeneous goods, monopolistic competition assumes product differentiation. Here, with decreasing prices falling individual demand curves are assumed. Due to product differentiation, firms have the power to

change prices for their products to influence individual demand. At the same time, however, in contrast to monopolies and oligopolies, falling or constant returns to scale are assumed. Thus, new firms will enter the market as soon as extra profits are generated. Examples of markets with monopolistic competition are small restaurants specialising in specific national cuisines or hair salons each offering different hairstyles.

We can explain monopolistic competition with the help of Fig. 7.6. Although the monopoly power of a firm in monopolistic competition is very weak, it is, as mentioned, confronted with an individual demand function which increases with decreasing prices. Thus, the firm has a total revenue function as shown in the lower part of Fig. 7.6. Let us assume that the profit maximum is at the price p_1 and the production quantity Q_2 and the firm makes extra profits. In this case, new companies will enter the market, the individual demand curve will shift downwards as well as the total revenue function. This process continues until all extra profits have disappeared and the total revenue function just touches the total cost curve. Let us give an example. In the hairdressing industry, high profits are made, and each salon has its own specialty—style of haircuts, location, etc. In this case, new salons will enter the market and compete with their own variations until the extra profits in the industry disappear.

It is obvious that under monopolistic competition, as under full competition, in the longer term, wage increases, like other costs, are fully passed on to prices.

The Keynesian Functional Distribution of Income

In the Keynesian paradigm, no real wages are negotiated in labour markets. The neoclassical approach assumes this and makes functional income distribution dependent on the physical marginal productivity of the various factors of production.²²

²² John Bates Clark (1899) presented the modern version of the neoclassical theory to explain functional income distribution. Clark's approach is based on a macroeconomic production function, which explains macroeconomic output with the input of labour as well as the physical input of capital and land. Each production factor then becomes renumerated according to its physical contribution to the physical output. The neoclassical model of functional income distribution relies on very specific assumptions and is plagued by great contradictions. It works only under the assumption of smooth physical substitution among the various factors of production and constant returns to scale. According to marginal productivity theory, in a scenario of decreasing returns to scale, less is distributed than there is; when returns to scale are rising, too much is distributed. Constant returns to scale must be assumed to be an exception and are not typical for most industries. Fundamental inconsistencies in the model also became clear in the Cambridge-Cambridge debate. In the macroeconomic production function, capital and output must be calculated in values in a world of heterogeneous goods. The value of the capital stock and output depends on the structure of goods prices. However, the structure of prices depends centrally on the functional distribution of income (Sraffa 1960). Here, the model gets entangled in a vicious circle: the capital stock must be known to determine the distribution, and the distribution must be known to calculate the capital stock (Heine and Herr 2013, Chap. 3). If changes in relative prices are allowed the demand for labour in the neoclassical model may increases or decrease when real wages go up. It is a scientific scandal that the model of functional income distribution via marginal productivity of production factors is still a core element of neoclassical thinking (Harcourt 1972; Lazzarini 2011; Herr 2020).

What determines the functional distribution of income in the Keynesian paradigm? This will be shortly discussed in this section.

Before we develop the Keynesian approach, it should be mentioned that Keynes, as in the classical paradigm in the tradition of Adam Smith and David Ricardo and also in the model of Karl Marx, assumed that only labour can create income, despite the fact that not all income flows to labour. "I sympathise, therefore, with the preclassical doctrine that everything is produced by labour, aided by what used to be called art and is now called technique..." (Keynes 1936, p. 213) In Chap. 17 of the General Theory, Keynes (1936) developed the core of an alternative distribution theory. Capitalist economies are characterised by a high degree of uncertainty. It is not known how the economy will develop in the longer term, whether unemployment will rise or fall, whether there will be erratic fluctuations in stock and real estate prices. or whether a war or pandemic will lead to fundamental disruptions in all economic sectors. The list of unknown future events could be extended almost indefinitely. In such an uncertain world, the holding of a safe asset is of paramount importance. Money is the "ideal" safe asset, since money can be used at any time to purchase goods, settle debt contracts, cushion sudden financial risks, etc. Money can only fulfil these functions if it is stable. If this is not the case, foreign monies take over domestic monetary functions (Chap. 2). In an uncertain world, economic agents have a preference for holding money. Short-term liquidity, for example, bank deposits, can become a substitute for holding cash. The preference to hold liquidity is stronger or weaker, depending on the economic and also political situation of society.

Although liquidity holders forego interest income, they are better protected against the vagaries of the future. Satisfying this wish for security provides wealth holders with a nonpecuniary return, the liquidity premium, as Keynes (1936, Chap. 17) named it. If a wealth owner foregoes holding liquidity, he will demand compensation for the benefit of 5 holding liquidity—an interest. Accordingly, the stronger the desire to hold money or liquidity, the higher the liquidity premium and hence the greater the compensation to be paid in the form of interest. At a given level of uncertainty, the liquidity premium decreases with increasing holding of liquidity, but it generally does not reach zero. In credit markets, the marginal liquidity premia of wealth owners are equal to the long-run equilibrium interest rate, and the latter is equal to the long-run minimum profit rate of equity, because loans and equity can be viewed as substitutes for long-run investments (Leijonhufvud 1968). The level of profits thus has nothing to do with either the productivity of capital or the development of wages.

With banks, an additional factor comes into play that Keynes, in his abstract approach, did not take into account. Banks, for their part, are by no means willing or able to provide money free of charge. Demand deposits also transfer money for various purposes and produce costs for the bank. For term deposits or fixed-term deposits interest has to be paid, otherwise wealth holders would prefer demand deposits. However, this is not the key issue with banks. In modern monetary systems, banks are under permanent pressure to refinance themselves with the central bank. The latter refinances banks only on a very short-term basis. Banks, for their part, need the central bank's refinancing because bank deposits can be converted into banknotes at any time and statutory minimum reserves in central bank money must be held on bank deposits. Banks create deposits by lending money, for example, to firms or households. Lending is possible before the banks hold central bank money. However, they must then refinance themselves with the central bank.²³ The refinancing costs of banks are determined by the central bank, and the interest rate on bank deposits adjusts to the refinancing rate determined by the central bank. For example, deposit interest rates cannot rise above the refinancing rate of the central bank because if this happens banks would switch to central bank refinancing. Because of its function as lender of last resort, the central bank never can reject the demand by banks for refinancing. In addition to refinancing costs, banks must cover costs for personnel, buildings and risks of loan defaults and they also want to make a profit. Thus, the lending rate of banks is given by refinancing costs plus an interest rate spread to cover costs and earn a profit.

Companies rely on credit to carry out planned investment and production. Consequently, interest rates determine the longer-term minimum rate of profit. Even if it is assumed that a company operates exclusively with equity capital, the owner of the firm will at least expect a profit according to the interest rate. Interest rates thus become "opportunity costs". The level of the interest rate discourages all potential production that does not reach a rate of return of at least the level of the interest rate. Wealth owners in interaction with the banking system, including the central bank, thus impose a "tax" on the production process in capitalist economies, either indirectly through the interest rate or directly through holding equity, without which no production takes place. Given the profit rate, the wage bill and the functional income distribution are the result. Thus, when interest income and profits are given, wages are determined as the remaining part of income (Herr 2014).²⁴

The outlined Keynesian approach to explain the functional distribution of income can be easily linked to the approach of Kalecki (1971), who elevated the market power of firms to the centre of his explanation of profits (Herr 2019). As a result of his analyses, functional income distribution is determined by the power positions of firms as well as workers. The market power of firms operating in an oligopolistic market, for example, allows relatively high profits; but the market power of trade unions allows some of the oligopolistic profits to be transformed into wages (cf. above). The analysis thus provides a complement to the Keynesian theory of functional income distribution.

In terms of inflation theory, in the long term, changes in the functional distribution of income are not a relevant factor in modifying the close relationship between changes in wage costs and those in the price level. First, once extra profits have disappeared as a result of corresponding wage increases, further wage increases lead to the passing on of increased costs to prices. Second, there are not relevant extra profits in all industries. For example, in perfect and monopolistic competition, extra profits can be assumed to be relatively low. Third, if the wage level rises in all industries at the same time, it is more difficult for trade unions to fight for a higher

 $^{^{23}}$ These regulations are supplemented by statutory requirements for banks for equity holding, liquidity holding, etc.

²⁴ In the classical paradigm, wages are determined first and profits are the remaining part of income.

share of extra profits through wage increases. This is because, in this case nominal aggregate demand increases in the whole economy, which makes it easier for firms to pass on higher costs. Fourth, and of paramount importance for the inflation problem, the redistribution between extra profits and wages is a long-term process based on gradually changing structural factors and it also depends on the prevailing type of capitalism. It is important to note here that the development of the market power of companies and the fighting power and strategy of trade unions. Both change only over a longer period of time and have only a minimal impact on annual inflation rates. This has also been shown in the empirical chapters of this book.

All in all, the sobering result is, that trade unions have certain opportunities to change functional income distribution via wage policy, but generally the effects of wage increases result in higher prices. This also implies that most labour disputes try to improve or defend the relative position of their own group within the working class: "In other words, the struggle about money-wages primarily affects the *distribution of* the aggregate real wage between different labor-groups, and not its average amount per unit of employment, which depends ... on a different set of forces" (Keynes 1936, p. 14).

Longer-term changes in the functional distribution of income

In the longer term, shifts in the power of companies and of workers may well modify the functional distribution of income. Such processes usually take place gradually, as can be seen over recent decades. This is shown in Fig. 7.7, according to which the functional income distribution has changed to the disadvantage of wage earners in all countries shown. The decline of wage shares started in the 1970s and 1980s.



Fig. 7.7 Adjusted wage share, labour compensation to GDP, in Germany, the US, the UK and Italy, 1970–2022. *Source* Ameco (2023)

The lower wage shares are the consequence of several factors. The most important factor seems to be the fundamental economic and political changes during the 1970s which led to a new type of capitalism. In the country studies in Chap. 4, we have shown that the inflation wave of the 1970s and the failure of progressive forces to reform or at least defend the existing type of capitalism led to the advance of neoliberal governments, which then fundamentally changed the type of capitalism of the Western industrialised countries. From the 1980s onward, virtually all Western countries experienced waves of deregulation in their national financial systems and in the global financial market. As Gerald Epstein (2005, p. 3) puts it, "Financialization means the increasing of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies". At the same time, the power of trade unions has been reduced both politically and legally. The latter can be seen in the declining union density and collective bargaining coverage in many countries (Herr and Ruoff 2016). Trade unions in Western countries were also weakened as larger companies outsourced parts of their production to other countries including the Global South. From the 1990s onward, there was a drastic expansion of global value chains (Milberg and Winkler 2013; Teipen et al. 2022). Last not least privatisations as part of the neoliberal reforms have reduced wage shares as state-owned companies, for example in the field of public utilities, did not earn profits before privatisation.

An important development in this context is the change in corporate governance. If management seeks a compromise between the various interest groups in the company (especially owners, employees, lenders), then there is a chance of extra profit sharing between labour and capital. An example of this is the development in the US during the 1950s and 1960s, which grew out of the New Deal of the 1930s. According to John Kenneth Galbraith (1967), typical stakeholder capitalism in the US was characterised by management comparable to state bureaucracies that sought compromises among the various stakeholders in the firm. Compensation of management at the time was high compared to workers, but in no way comparable to the situation today. Profit sharing with workers was the rule, even accepted without strike activities. This type of capitalism existed in virtually all Western countries, exemplified by the co-determination laws in West Germany.

Then, in the 1980s, the shareholder corporate governance system began to take hold, popularised in particular by Alfred Rappaport (1986) and Jack Welch, the former CEO of General Electric. Here, management serves only one master, the owners, in many cases institutional investors, who in turn push aggressively for maximum profits and exploitation of workers. In a shareholder management system, management seeks to maximise profits at any cost, even in the short run, and is motivated to pursue such a strategy by profit-related bonuses. In such a system, the rate of profit is higher, especially when development is accompanied by weaker trade unions. Later, Rappaport (1999) himself castigated the short-term orientation of the new management system. The development of management salaries as part of financialisation is downright obscene. If one takes the average pay of the CEOs of the 350 largest privately owned US firms and compares it with the average annual compensation (wages and benefits of full-time, full-year workers) of production/

nonsupervisory workers (a group covering more than 80% of payroll employment), the CEO-to-worker compensation ratio has increased from 21-to-1 in 1965 to 366-to-1 in 2000 and 351-to-1 in 2020 (Mishel and Kandra 2021). If management salaries are counted as profits, then pay ratios have fallen even more sharply than indicated in Fig. 7.7 (see Dünhaupt 2011 for such a calculation).

Wage shares fell not only because of the above-mentioned changes in powerrelations within companies, but also because of the increasing market power of corporations and thus higher generation of extra profits. Colin Crouch (2015, p. 3) rightly speaks of "corporate neoliberalism". Politically, the concentration of power of multinational corporations has not been limited. On the contrary, they have great influence over government decisions. The philosophy of this type of liberalism differs substantially from classical liberalism, which emphasised the need for competition in markets and sought to prevent the power of large corporations, for example, through antitrust law. For example, Joseph Stiglitz (2012, 2019) emphasises that the increasingly excessive rent-seeking behaviour of corporations by means of the increasing role of brand names, increasingly sophisticated marketing strategies, artificially created opaque pricing systems, and political acceptance and support for very powerful-mostly multinational-corporations allowed a sharp increase in extra profits. But powerful players have also emerged on the purchasing side of firms. Leading companies in global value chains specialised in high value-added activities and used their power as monopsonies to minimise the prices of inputs and value added, including profits, in supplier factories, in the interest of their own profits. In the case of foreign direct investment, for example in countries of the Global South, profits from subsidiaries are repatriated (Dünhaupt et al. 2022).

Thus, there is no doubt that the change in the type of capitalism following the crisis of the 1970s has led to financialisation, increasing corporate market power, changing corporate governance and weaker trade unions, thereby changing the functional distribution of income to the detriment of wage earners. But all of this cannot change the fact that shifts in the functional income distribution play an absolutely minor role as a cause of inflation or deflation in the long run.

In our view, the necessary reforms of the current type of capitalism including modifying functional income distribution cannot be achieved by a trade union wage policy with the aim of redistribution. Other levers are needed for a reform of the economic status quo. What would be most important is a tax policy that generates revenues for the state through a more progressive income tax and a significant increase in wealth and inheritance taxes. These revenues could be used to finance social infrastructure (education, social security systems, etc.) and support ecological restructuring without permanently increasing government debt-to-GDP quotas. At the same time, further privatisation measures should be shelved. Instead, state-owned and semi-public enterprises should be expanded and strengthened, for example in the area of housing or in the energy, water and transport sectors. Public investment should play a greater role, and overall mechanisms should be established to stabilise investment activity as a whole and restructure it for ecological transformation. One trouble area are financial markets, which need to be regulated to a much greater extent, taking into account the shadow banking system. These examples of a reform

strategy suffice for the purpose of this book, since it is not the aim of this book to elaborate a corresponding program (for this, see Dullien et al. 2011; Herr 2022; Heine and Herr 2023). Our goal is much more modest, we wanted to explain how inflationary processes come about and how they can be avoided.

7.6 Oil Prices, Price Level and Economic Development

Oil prices play an important role throughout the empirical chapters of the book, both for the price level and for economic development in general. In this section we briefly discuss the factors that determine the price of oil which also apply to other natural resources such as natural gas or rare earth elements. We first analyse which factors determine oil prices, then we turn to the economic effects of significant changes in oil prices.

Figure 7.8 shows the inflation adjusted development of the crude oil price per barrel after the Second World War. During the decades following the Second World War the oil price was stable and even decreased in real terms. Then the two oil price shocks of the 1970s—in 1973 and 1979—drove the oil price up sharply. A collapse of the oil price came in mid-1980s. Prices remained relatively low until the early 2000s when oil prices skyrocketed until they plummeted during the financial crisis and Great Recession of 2008–09. Then came a period of volatile development which culminated in the collapse of oil prices in 2014. At the beginning of the war in Ukraine in 2022, oil prices sharply increased again and continued to increase.

Oil prices (as well as other natural resource prices) depend on three factors. First, they rely on the supply of crude oil, second, they rely on demand for crude oil and finally they rely on speculation. The supply of oil very much depends on the oligopolistic power of suppliers and their willingness and opportunity to use this power. Demand also plays a key role for the price of oil as the power of oligopolies and even monopolies depends on the demand function that they are confronted with. Finally, speculation plays a role in the crude oil market and leads to additional price volatility.

During the decades after the Second World War, oil prices were administrated by large multinational oil companies which dominated the market and enforced low prices for oil producing countries (Evans and Herr 2016). In 1973, the Organization of the Petroleum Exporting Countries (OPEC) increased oil prices dramatically as a response to the 1973 Arab–Israeli War. OPEC, founded in 1960, had a market share of around 80% in crude oil production during the early 1970s (Casey 2019). The two oil price shocks in the 1970s were, without a doubt, driven by supply shortages that were triggered by the politically motivated use of OPEC's oligopolistic power. In economic debates the oil price shocks of the 1970s were used as examples of severe supply side shocks.

But the situation changed. New producers of crude oil entered the market. For example, in 1985 Great Britain and Norway started to increase production and declared they would not follow OPEC's price policy. The market share of OPEC



Fig. 7.8 Development of oil price per barrel, adjusted for inflation, 1946–2023. *Source* FRED (2023)

dropped substantially to below 30% in the mid-1980s and then stabilised, and today it stands at a level of around 40% (Casey 2019; Statista 2023). In 1986, the oil price collapsed which reflected relatively weak demand and the impact of several additional suppliers.

The situation in the 2000s was different. During this period, the substantial increases and high volatility in oil prices cannot be explained by interventions of the OPEC cartel or other short-term supply factors. Instead, two factors play a role. First, global demand for crude oil increased sharply during the period of relatively high growth in countries of the Global North before the financial crisis of 2008. The exploding demand for oil from countries in the Global South was even more important for the crude oil market during this time. To illustrate this dynamic the following figures are instructive. In 1965, the US consumed 6,731.24 TWh (terawatt-hours), China consumed 165.9 TWh and India consumed 164.15 TWh. In 2022, the values were 10,041.52 TWh for the US, 7,821.52 TWh for China and 2,791.58 TWh for India (University of Oxford 2023). Overall, we can conclude that oil price developments are no longer dominated by supply-side shocks alone as was the case in the 1970s, but that changing global demand from the Global South also substantially determines oil prices.

Second, speculation started to play a significant role in determining oil prices during the 2000s. Future markets for oil started to play a role in the 1980s, although they did not play big role. This changed in the 2000s when investment in future markets triggered a huge bubble in the oil market (as well as other commodity markets). Several factors came together to create this scenario. The Commodity Futures Modernization Act of 2000 (CFMA) in the US made most over-the-counter derivatives transactions to be exempt from control by the Commodity Exchange Act of 1936 or as securities under the federal securities law. This change in the law provided banks, hedge funds and investment firms with easy access to commodity future markets. The law was passed despite resistance from the US Commodity Futures Trading Commission. Other factors also played a role. Investment in futures was boosted by new electronic platforms which dramatically reduced the costs of transactions and enhanced access to the market. In addition, newly created commodity indexes, such as the Standard and Poor's Goldman Sachs Commodity Index, facilitated investment in commodity future markets.²⁵ After the collapse of equity markets at the end of the new economy bubble in the early 2000s, investors were looking for high returns and investments which could reduce the risk of their portfolio. Commodity futures seemed to be ideal for this purpose (Gorton and Rouwenhorst 2006).

There is no doubt that future prices in oil markets since the early 2000s have been driven by investments by agents who are not directly involved in actually buying or selling oil. Expectations, and consequently investment in future markets, depend on specific economic, social and political constellations. Some of the investors in future markets believe in "stories", others with a short-term horizon use the future market for oil purely for speculation. Most experts in the field have come to the conclusion that the future markets for commodities influence spot commodity prices. A United Nations report summarises this in the following way: "The common view was that the role of financial investors had become more important in recent years. Due to their financial strength they could move prices in the short term, leading to increased volatility, which may harm markets and drive hedgers with an interest in physical commodities away from commodity derivative markets" (UN 2011, p. 48). We conclude that even when oil prices are mostly driven by fundamentals in the oil market, which means actual demand and supply, future markets, speculation and financialisation amplify price movements (Kaufmann 2011).²⁶

Increasing oil prices in 2021 mainly reflected the increasing demand for oil as growth recovered following the Covid-19 crisis; in 2022 the start of the war in Ukraine pushed oil prices up.

We can conclude that oil price development depends on a complex set of factors. Political conflicts that lead to supply shocks play a role, and so do the strategies of oligopolies in the global oil market like OPEC. An increasing role is played by global demand for oil from both the Global North and South which depends on GDP growth in these countries, and in the future will also increasingly rely on how successful the

²⁵ The index includes 24 commodities and was first calculated by Goldman Sachs in 1991, it was then taken over by Standard & Poor's in 2007.

²⁶ If, for example, speculation drives future prices of oil to very high levels and the arbitrage mechanism works, spot prices will be pushed up by buying oil today and storing it for the future. Of course, the capacity to store oil and the costs of storage, including financial costs, are relatively high and can slow down the arbitrage mechanism. However, there seems to be no doubt that arbitrage takes place and that future markets play a role in determining spot prices.

transition towards green energies is. Last but not least, in the short-term, expectations including speculation add to volatility in the oil market.

Let us come to the economic effects of significant changes in natural resource prices. We will use the example of substantially increasing oil prices. Higher oil prices immediately increase the price level as companies will, at least to a large extent, quickly pass higher costs for oil on to the goods and services they produce. As all firms are affected by higher costs for oil it is easy for them to increase prices. A direct price-price effect takes place without the need of excess demand (see the elaborations in this chapter). As oil is a direct or indirect input for almost all goods, for example via transportation, the price effect of higher oil prices quickly ripples through the economy.

Higher oil prices and subsequently the higher price level reduce real incomes and thus also real wages. The development of the 1970s as well as after 2021 has shown that the cut in real wages caused by higher oil prices, or natural resource prices in general, are a strong trigger for wage-price spirals as workers and their trade unions try to defend real wages (see Chaps. 4 and 5). For the working class as a whole as well for a society as a whole it is not possible to prevent real wages from falling when natural resource prices increase substantially. Firms will, at least to a significant degree, not only pass higher oil prices on to their products, but also higher wage costs.

The enormous effects of increasing oil prices can be shown by the extent of rentseeking by oil producing countries. The World Bank defines oil rents as the difference between the price of a commodity and the average cost of producing it. Figure 7.9 shows the oil rents in per cent of GDP for a selection of oil producing countries. Countries like Iran and Angola have been realising very high oil rents—with values of up to 50% or more of their GDP. Countries like the Republic of Congo, Nigeria and Azerbaijan, only to mention a few, also realise very high rent income from oil in per cent of GDP. The Russian Federation, to give another example, has oil rents as a share of GDP of around 10% during periods of high oil prices (World Bank 2023).

The World Bank also calculates rent income from natural resources as a whole including oil, natural gas and coal. Figure 7.10 shows the natural resource rent as a per cent of GDP for three countries. Here the Russian Federation shows high values, whereas for China these rents became less important when compared to the 1970s. Using this indicator Arab countries and many countries from the Global South show very high values.

These figures show that the development of oil prices and other prices for natural resources are correlated. Rent income from oil and other natural resources is unstable for many countries in the world, showing an initial peak in the 1970s, a second before the Great Recession of 2008–09 and a third after 2021. These figures also show the huge amount of income which flows from countries without natural resources to countries exporting natural resources during periods of high natural resource prices. Even if countries have their own natural resources, price hikes for natural resources benefit only a very small fraction of the domestic economy. The conclusion is that higher natural resource prices which result in higher rents in natural resource-rich countries will lead to substantial decreases in real wages and real income in general



Fig. 7.9 Oil rents as a percentage of GDP in Iran, Angola and the Arab World, 1970–2021. *Note* Oil rents are defined as the difference between the price of a commodity and the average cost of producing it. *Source* World Bank (2023)



Fig. 7.10 Total natural resource rents as a percentage of GDP in China, Chile and Russia, 1970–2021. *Note* Total natural resources rents are the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents. *Source* World Bank (2023)

in resource-poor countries. The immediate effect in the latter countries is shrinking real demand and stagnating or falling production.

Considering the price level effect and demand effect together, for most countries in the world hikes in natural resource prices will lead to stagflation, the very unpleasant constellation of increasing prices and shrinking GDP. Macroeconomic demand management in such a constellation is difficult but extremely important (see Chap. 6).

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