GROSS DOMESTIC PRODUCT

2022

November 2023

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Introduction

This document presents the results of the calculation of the Gross Domestic Product (GDP) for the year 2022 and recalls the main principles and methodological choices necessary for its elaboration.

The Gross Domestic Product (GDP) summarises economic activity and is an essential piece of information in the contemporary economic debate. It makes it possible to monitor and assess the effectiveness of economic policies and to make comparisons with other countries, particularly within the European Union.

The first calculation of GDP in the Principality was carried out in 2005, and it has since been the subject of an annual report. Since 2006, the results are detailed by business sector and presented in constant euros, allowing the effects of inflation to be corrected.

Moreover, the GDP data for the previous year are updated with the responses received after the deadline. A new extrapolation is thus calculated and integrated, which leads to a modification of the GDP amounts and therefore of the growth rates previously published.

1. The Gross Domestic Product

1.1. Global economic situation

After the significant economic rebound in 2021 following the end of the health crisis, global growth in 2022 was weaker than the previous year. However, the slowdown turned out to be much sharper than expected. Admittedly, the persistent momentum of the end of the crisis at the beginning of 2022 enabled economic growth to be high compared with the first few months of 2021, which were still affected by COVID-19, but this trend was quickly overtaken by the international geopolitical context and its consequences for economic activity. Indeed, in addition to the few remaining effects of the pandemic (notably in China), the war in Ukraine has triggered several repercussions, such as the disruption of supply chains, the intensification of financial conditions, and above all the tightening of monetary policies in order to control inflation, which has reached levels not seen for decades. Inflation, which was first felt on the energy markets before becoming more widespread, has had a heavy effect on real incomes and production costs, which in turn has had an impact on economic growth.

As a result, world real GDP growth[1] is 3.1% in 2022[2] (down 2.9 percentage points on 2021) and is now lower than that of the eurozone (3.5%, down 1.9 percentage points). Developed and developing countries are almost universally impacted by the economic context, and only a few countries have managed to limit its effects. France's GDP growth is down 4.3 points (to 2.6% in 2022), Italy's by 3.3 points (to 3.7% in 2022) and China's by 5.5 points (to 3.0% in 2022).

The Principality's GDP is particularly volatile. In 2021, the economic recovery resulted in real growth of 21.9%, which made it possible to erase the effects of the health crisis and surpass its pre-pandemic level of wealth creation by 6.0%. In 2022, Monaco was not spared by the global economic situation, and in particular by the consequences of inflation. That said, although GDP growth was more modest than the previous year, the Principality nevertheless managed to maintain a double-digit growth rate.

For 2022, Monaco's GDP amounts to 8.34 billion euros, compared with 7.29 billion in 2021. Adjusted for inflation, it is up 11.1% on the previous year. Over the decade, GDP grew by almost 50% in the Principality, compared with around 10% in France and 27% worldwide.

Figure 1: Ten-year change in GDP by geographical area
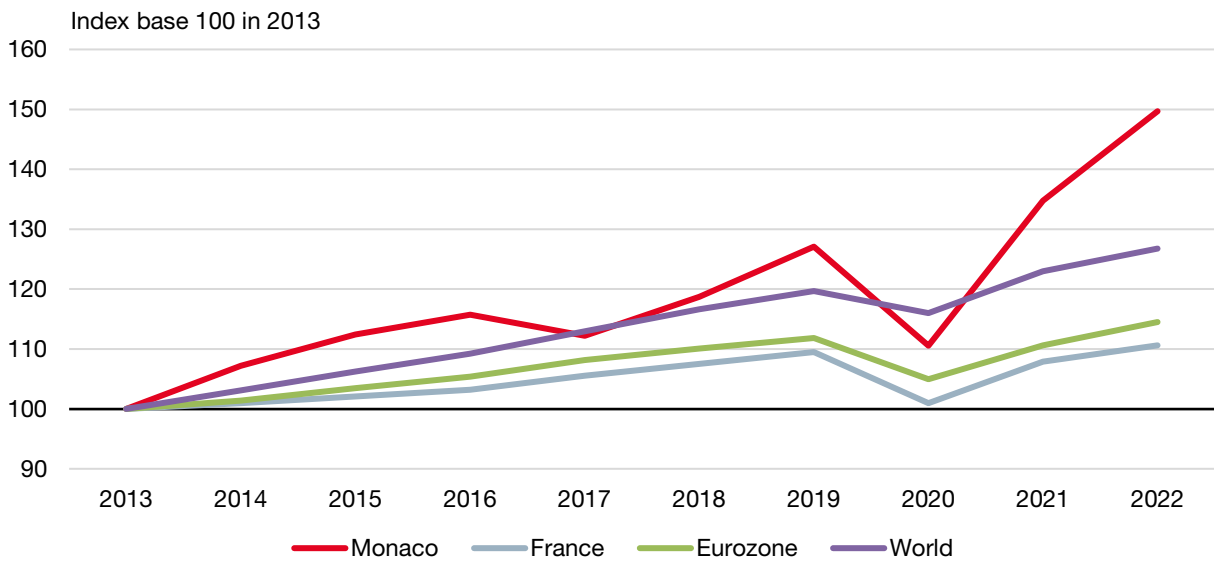
Sources: World Bank (extracted on 23/10/2023), Monaco Statistics

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[1] Adjusted for inflation
[2] See Appendix: Real GDP growth in the world

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1.2. National GDP results

1.2.1. Summary of results

In 2022, the Principality's GDP is 8.34 billion euros, compared with 7.29 billion in 2021 (cf. Table 1). After the strong growth of 21.9% in 2021, it remains at a very high level: +11.1% in volume, adjusted for inflation (cf. Table 2). Since 2013, GDP has increased by almost 50%, representing a compound annual growth rate of 4.6%.

Because of the method used in Monaco to define GDP as an indicator of income (cf. 2.1.4. Determining the GDP), it is divided into four components (cf. Table 3):

- Earning before interest, taxes, depreciation and amortisation (EBITDA) can be defined as the "remuneration" (productive income) of companies. Once again this year, it is rising significantly (+17.7%), although less markedly than in 2021. It represents 45.8% of GDP excluding subsidies, making it the largest contributor to GDP.
- Compensation of employees corresponds to the redistribution of annually created wealth in the form of salaries and social security contributions. In 2022, growth in this component is higher than in 2021. This year, the wage bill amounts to more than 3.5 billion euros and contributes to GDP (excluding subsidies) to the tune of 41.1%. Moreover, its growth is again greater than that of the number of active employees[3].
- Taxes rise by 9.1% to 1.15 billion euros, accounting for 13.2% of GDP excluding subsidies.
- Subsidies totalled 399.5 million euros (+5.1%), a constant growth rate excluding the health crisis.

Ten of the twelve main economic sectors (MES) of the Monegasque economy have increased their GDP compared to 2021, and eleven are above their pre-crisis level (cf. Table 4).

The three main business sectors in terms of GDP remain unchanged. Almost half of the wealth created in the Principality in 2022 (49.1%) comes from Scientific and technical activities, administrative and support service activities, Financial and insurance activities and Wholesale trade (cf. Figure 5).

GDP per capita records a real growth of 8.2% this year, bringing it to 91,353 euros (cf. Table 6).

GDP per employee, an indicator of economic productivity, reaches 137,831 euros in 2022, a real increase of 6.8%. This puts it even further ahead of its French equivalent (cf. Table 7).

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[3] Employee who worked at least one hour during December of the year concerned

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Monaco Statistics

1.2.2. Amount and evolution of GDP

GDP 2005 is the base year for this aggregate. It is expressed in "nominal terms", i.e., in current euros. Growth is calculated from the evolution of GDP in nominal terms corrected for inflation (GDP in real terms). The index used for this correction is calculated annually by INSEE, the French National Institute for Statistics and Economic Studies (cf. 2.2.4. GDP in current euros and in constant euros). In 2018, the year 2014 replaced the year 2010 as the reference year (base 100). This change has marginally modified the number of real GDPs and their evolution.

Table 1: Change in nominal GDP[4]

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
GDP	4,936.0	5,321.3	5,643.6	5,841.2	5,693.0	6,081.9	6,595.9	5,900.6	7,293.3	8,341.5

Unit: million euros
Source: Monaco Statistics

Table 2: Change in real GDP[5]

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Nominal GDP	4,936.0	5,321.3	5,643.6	5,841.2	5,693.0	6,081.9	6,595.9	5,900.6	7,293.3	8,341.5
Price index	*99.4*	*100.0*	*101.1*	*101.7*	*102.2*	*103.2*	*104.5*	*107.5*	*109.0*	*112.2*
Real GDP	4,964.5	5,321.3	5,580.1	5,745.5	5,570.6	5,892.6	6,310.0	5,489.0	6,689.3	7,431.6
Real GDP growth		7.2%	4.9%	3.0%	-3.0%	5.8%	7.1%	-13.0%	21.9%	11.1%

Unit: million euros
Sources: INSEE, Monaco Statistics

In 2022, the Principality of Monaco's GDP reaches 8.34 billion euros. Like the other economic indicators for 2022, it continues to grow at a sustained rate following the strong rebound observed in 2021 after the health crisis. In fact, despite the rise in the inflation rate, GDP grows by 11.1% in volume terms compared with 2021, representing a real increase of more than 740 million euros.

Over the decade, GDP grew on average each year by 4.6%. Between 2013 and 2022, it has therefore increased by around 50%.
Between 2019 and 2022, the compound annual growth rate rises to 5.6%, for an increase of 17.8% over the period.

Figure 2: Ten-year change in GDP in millions of current euros
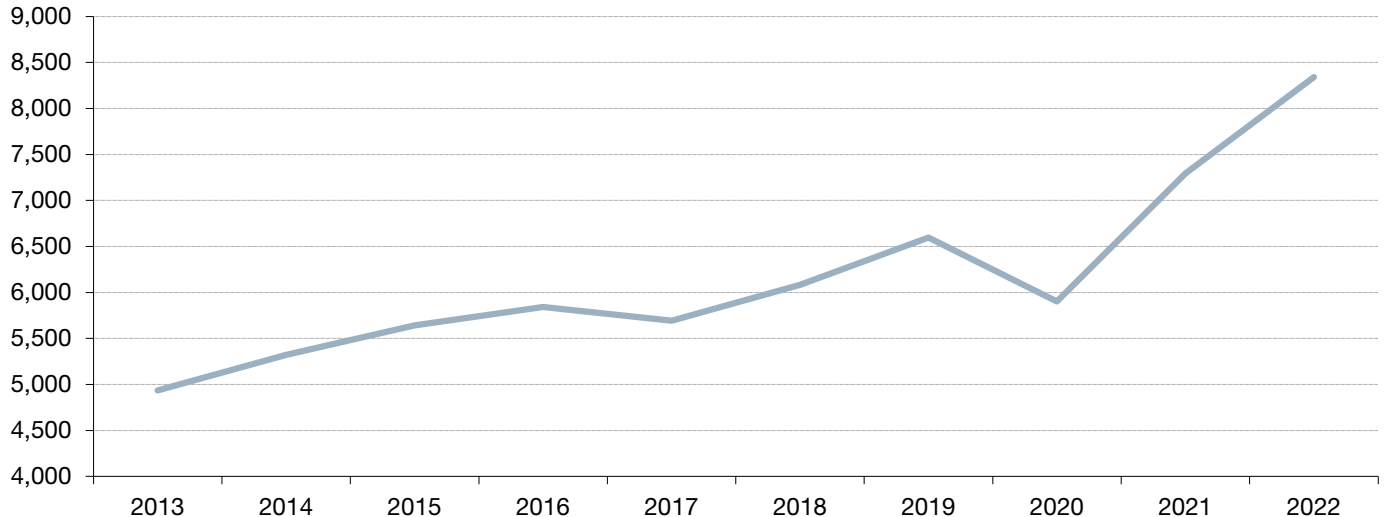
Unit: million euros
Source: Monaco Statistics

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[4] Nominal GDP is expressed in "current euros".
[5] Real GDP is expressed in "constant euros" with a base 100 in 2014. It is adjusted for inflation by the Gross domestic product and its components price indexes published by INSEE.

1.2.3.   GDP structure[6]

All four components of GDP are up in 2022. Thus, only subsidies have a negative impact on the wealth created since they are deducted from the amount of GDP in the income approach used in the Principality (cf. 2.1.4. Determining the GDP).

Table 3: GDP structure in millions of current euros

|	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Var 21/22
EBITDA	2,013.0	2,210.4	2,453.7	2,564.8	2,334.5	2,598.6	2,957.9	2,733.7	3,397.4	3,999.4	17.7%
Compensation of employees	2,528.7	2,649.6	2,694.7	2,772.0	2,884.9	2,959.6	3,096.8	2,925.3	3,220.1	3,589.2	11.5%
Taxes	596.8	685.4	726.2	746.0	746.5	811.4	858.8	927.5	1,055.9	1,152.3	9.1%
Subsidies	-202.4	-224.1	-231.0	-241.6	-272.9	-287.7	-317.5	-685.9	-380.0	-399.5	5.1%
Nominal GDP	**4,936.0**	**5,321.3**	**5,643.6**	**5,841.2**	**5,693.0**	**6,081.9**	**6,595.9**	**5,900.6**	**7,293.3**	**8,341.5**	14.4%

Unit: million euros
Source: Monaco Statistics

Figure 3: Change in GDP components in millions of current euros
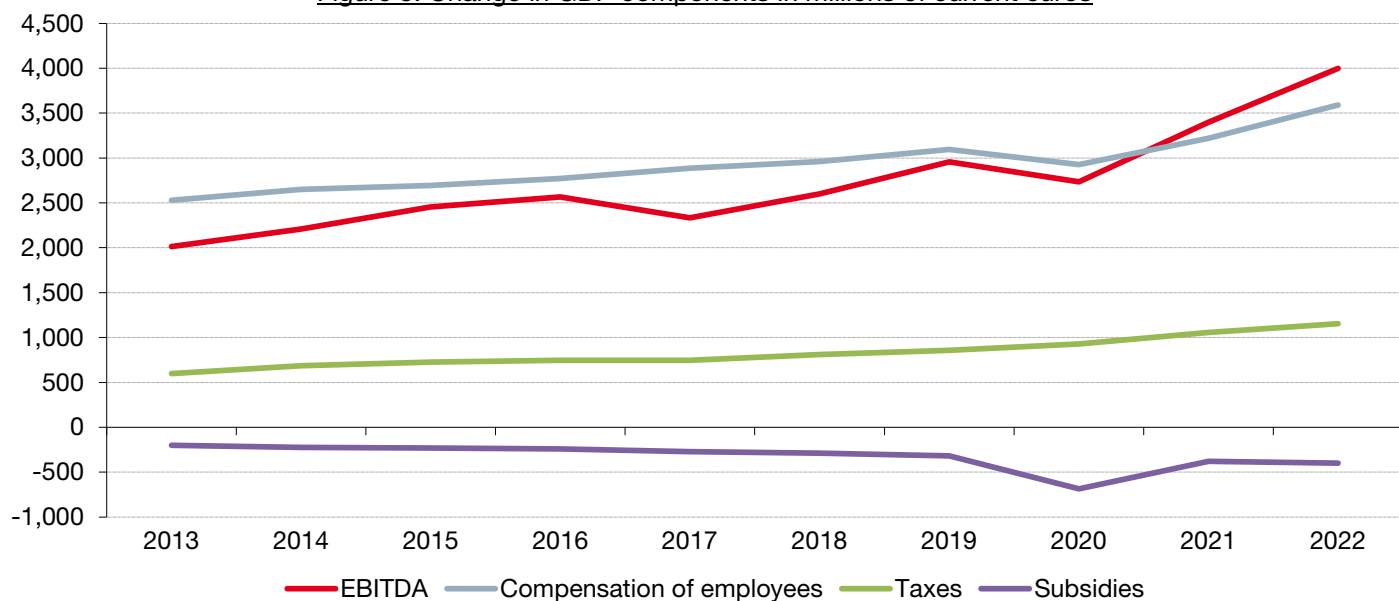
Unit: million euros
Source: Monaco Statistics

In 2022, EBITDA once again shows a very significant increase (+17.7%), approaching 4 billion euros. Its growth is nevertheless lower than that seen the previous year (+24.3%). This year again, it is the largest contributor to GDP, ahead of compensation of employees, accounting for 45.8% of current GDP excluding subsidies (i.e. almost half the value of GDP).

Compensation of employees, which this year amounts to more than 3.5 billion euros, is the only component of GDP whose growth has accelerated compared with 2021 (+11.5% compared with +10.1%). What's more, the growth in the wage bill is three times greater than that of the employed population (public and private) in the Principality (+4.1%). By 2022, it accounts for 41.1% of wealth created, excluding subsidies.

Taxes continue to rise in 2022 (+9.1%), notably through value added tax (VAT), but at a slightly slower rate than the previous year (+13.8% in 2021). They contribute 13.2% to current GDP excluding subsidies.

With a constant rate of growth over the decade, excluding the health crisis, subsidies rise again in 2022 (+5.1%) to around 400 million euros.

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[6] Variations within this sub-section are expressed in nominal terms and therefore do not take account of inflation.

1.2.4. GDP by major economic sector[7]

In 2022, only two MESs saw their GDP decrease in value compared with 2021, and eleven surpassed their pre-pandemic level.

Figure 4: GDP by major economic sector in 2020 and 2021 in millions of current euros
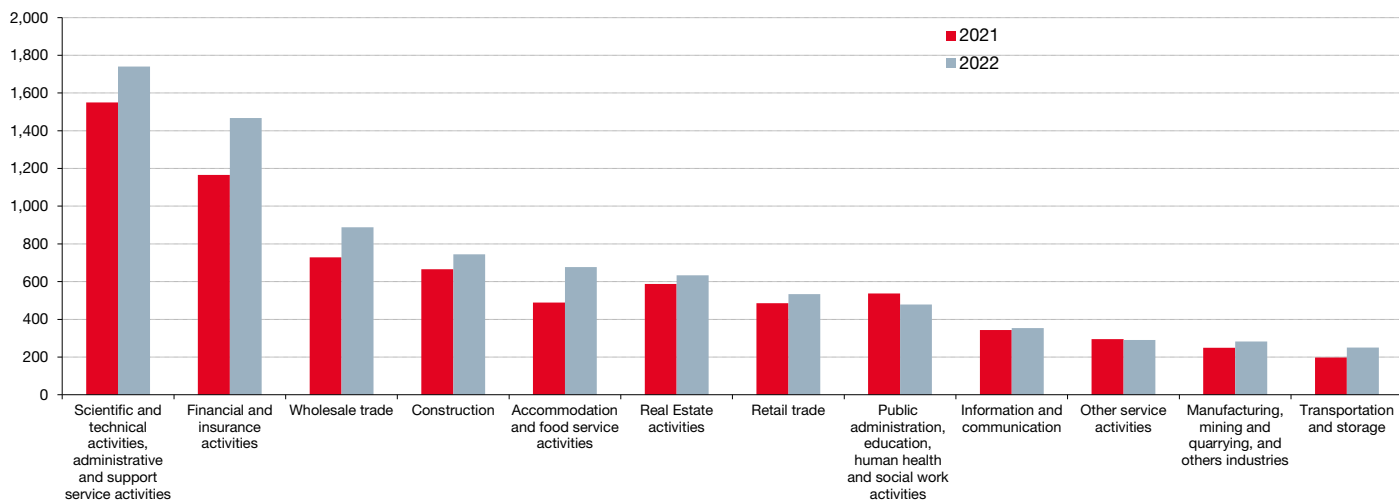
Unit: million euros
Source: Monaco Statistics

Table 4: GDP by major economic sector in millions of current euros

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Var 21/22	Share 2022
Scientific and technical activities, administrative and support service activities	826.3	835.5	837.5	866.7	967.0	1,090.5	1,181.7	1,213.4	1,550.1	1,740.9	12.3%	20.9%
Financial and insurance activities	822.0	897.4	947.7	939.1	1,011.1	968.5	1,105.9	1,091.3	1,165.3	1,467.9	26.0%	17.6%
Wholesale trade	413.4	483.9	541.9	510.3	479.6	565.8	551.4	514.1	728.6	888.4	21.9%	10.6%
Construction	381.6	415.5	718.8	837.9	494.3	576.8	656.8	689.4	665.7	744.7	11.9%	8.9%
Accommodation and food service activities	360.0	347.0	374.2	360.3	466.5	511.7	605.9	198.8	489.4	676.8	38.3%	8.1%
Real Estate activities	415.5	540.5	494.2	520.2	567.0	614.7	610.0	572.2	587.4	633.2	7.8%	7.6%
Retail trade	345.4	355.8	334.3	343.4	346.0	336.1	357.7	293.3	485.9	534.0	9.9%	6.4%
Public administration, education, human health and social work activities	392.4	409.6	404.3	399.6	411.2	416.8	562.1	500.9	537.1	478.9	-10.8%	5.7%
Information and communication	242.5	244.2	250.2	271.8	302.4	314.7	337.3	293.5	342.7	353.4	3.1%	4.2%
Other service activities	232.2	343.3	266.8	370.6	194.6	257.2	198.8	174.5	294.7	290.5	-1.4%	3.5%
Manufacturing, mining and quarrying, and others industries	309.3	256.6	274.5	229.4	234.4	223.0	203.0	188.4	249.0	282.9	13.6%	3.4%
Transportation and storage	195.2	192.1	199.1	192.0	218.6	206.0	225.2	170.8	197.5	249.9	26.5%	3.0%
GDP	**4,936.0**	**5,321.3**	**5,643.6**	**5,841.2**	**5,693.0**	**6,081.9**	**6,595.9**	**5,900.6**	**7,293.3**	**8,341.5**	**14.4%**	**100%**

Unit: million euros
Source: Monaco Statistics

Once again, the Scientific and technical activities, administrative and support service activities MES generated the most wealth in the Principality in 2022. At 1,740.9 million euros, it accounted for more than a fifth of the value of overall GDP. Management consultancy activities contributed to the 12.3% increase in GDP in this business sector this year.

The second biggest contributor is the Financial and insurance activities business sector, whose nominal GDP reaches almost 1.5 billion euros this year after a significant acceleration in its growth (+26.0% in 2022 compared with +6.8% in 2021).

In 2022, Wholesale trade is the third largest contributor to the Principality's GDP. 888.4 million euros of wealth were created by this business sector this year, up 21.9% on the previous year. This MES was particularly buoyed by Agents involved in the sale of fuels, ores, metals, and industrial chemicals.

After a fall in 2021, the level of wealth created in the Construction sector has risen sharply again this year (+11.9%) to 744.7 million euros.

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[7] Variations within this sub-section are expressed in nominal terms and therefore do not take account of inflation.

Accommodation and food service activities sector continues to recover, with a 38.3% increase in nominal GDP. It now stands at 676.8 million euros, more than 70 million euros above its pre-crisis level.

Two major economic sectors posted lower GDP than last year:
- Every four years, the International Olympic Committee pays substantial subsidies to certain federations based in the Principality. As these subsidies were received in 2021, the change in GDP for Other service activities is heavily impacted in 2022. However, this decrease is limited by a significant increase in compensation of employees in this business sector. As a result, sectoral GDP falls by only 1.4% in value terms in 2022.
- Finally, the GDP of Public administration, education, human health, and social work activities declines by 10.8%, after recording particularly high levels between 2019 and 2021. This MES is, therefore, the only one whose GDP decreases compared to 2019. In comparison with 2018, this sectoral GDP grows by 14.9%, which corresponds to growth of 3.5% on average each year.

Figure 5: Sectoral distribution of GDP 2022
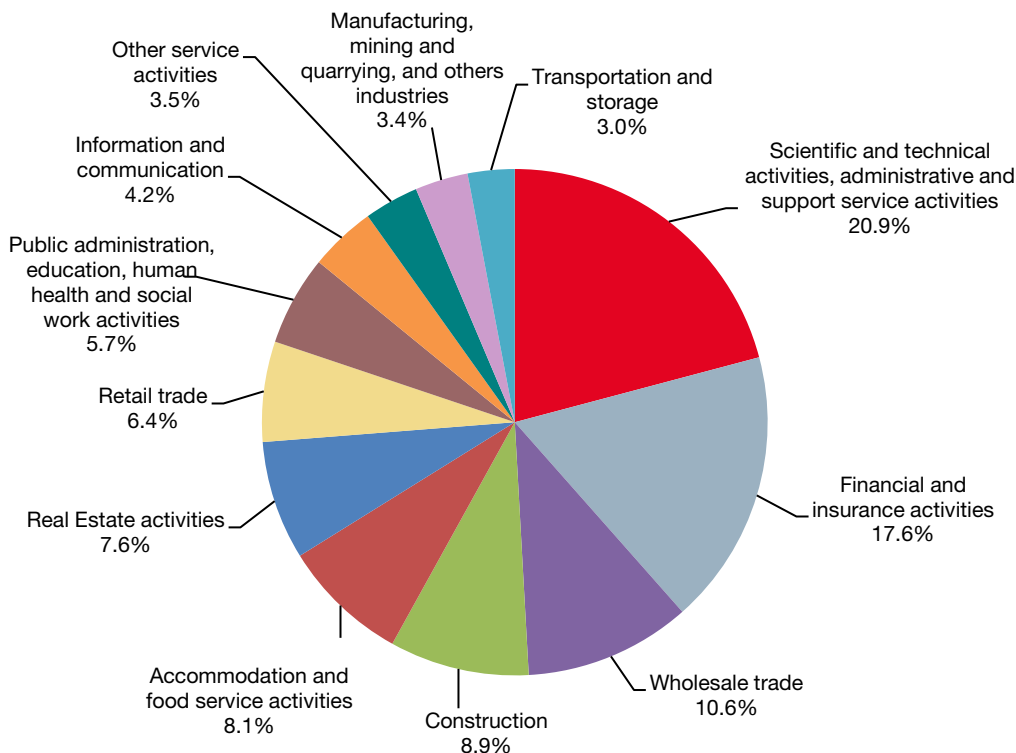
Source: Monaco Statistics

While the top three contributors to GDP, made up of Scientific and technical activities, administrative and support service activities, Financial and insurance activities and Wholesale trade, remain unchanged in 2022, their combined share increases by 1.9 percentage points. As a result, almost half (49.1%) of the wealth created in the Principality comes from these three MESs.

Scientific and technical activities, administrative and support service activities

Financial and insurance activities

Wholesale trade

Construction

Real Estate activities

Public administration, education, human health and social work activities

Accommodation and food service activities

Retail trade

Information and communication

Other service activities

Manufacturing, mining and quarrying, and others industries

Transportation and storage

0%   5%   10%   15%   20%   25%

■ 2021   ■ 2022

Source: Monaco Statistics

GDP growth in Financial and insurance activities was twice that of Scientific and technical activities, administrative and support service activities in 2022. As a result, the latter's share in GDP has fallen slightly this year, while that of Financial and insurance activities has risen by 1.6 points.

The good performance of Accommodation and food service activities has enabled it to take fifth place, at the expense of Real Estate activities. It is now close on the heels of Construction, the fourth largest contributor. Nevertheless, its share in 2022 (8.1%) remains lower than its share in 2019 (9.2%).

1.3. GDP per capita and per employee

The situation of the Principality of Monaco is atypical in many respects, particularly in terms of its resident and employed population.

Indeed, in 2022, for 39,050 residents, there are 60,519 active employees, 86.4% of whom live outside Monaco. This highly unusual situation, which is even unique in the world, makes international comparisons difficult and the use of certain traditional international indicators inappropriate. This is particularly true of the traditional GDP per capita indicator.

However, in order to situate the Principality in its environment and in an international context, two types of GDP per individual are calculated "ad hoc".

On the one hand, there is a GDP per capita, calculated since 2005, and on the other hand, a GDP per employee, calculated since 2010.

1.3.1. GDP per capita: presence on the economic territory

The European System of Accounts (ESA) uses the resident population of the economic territory to calculate GDP per inhabitant. However, it is important to take account of local economic specificities.

In the case of the Principality, 86.4% of the employed population are "commuters" who do not reside on Monegasque territory. Given their economic significance and their daily participation in the creation of wealth, it appeared relevant for the calculation of the GDP per capita that a reference population be determined.

The reference population retained comprises two components: the resident population and the non-resident population employed on the economic territory.

Table 5: Reference population for the calculation of GDP per capita

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Var 21/22
Residents (all nationalities)	36,750	37,350	37,900	37,500	38,300	38,300	38,150	38,350	39,100	39,050	-0.1%
Non-resident employees	41,884	43,218	42,931	43,559	45,497	47,581	49,261	47,115	49,862	52,260	4.8%
of which private employees outside MC	39,829	41,094	40,726	41,306	43,155	45,158	46,759	44,503	47,151	49,485	5.0%
of which public employees outside MC	2,055	2,124	2,205	2,253	2,342	2,423	2,502	2,612	2,711	2,775	2.4%
Total reference population	**78,634**	**80,568**	**80,831**	**81,059**	**83,797**	**85,881**	**87,411**	**85,465**	**88,962**	**91,310**	**2.6%**

Source: Monaco Statistics

The annual update of the population figure makes it possible to revise the population estimates previously made. The overall reference population in 2022 is 91,310 (+2,349 compared with 2021).

Table 6: Change in GDP per capita

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Nominal GDP in million euros	4,936.0	5,321.3	5,643.6	5,841.2	5,693.0	6,081.9	6,595.9	5,900.6	7,293.3	8,341.5
Total population selected	78,634	80,568	80,831	81,059	83,797	85,881	87,411	85,465	88,962	91,310
Nominal GDP per capita	**62,772**	**66,047**	**69,820**	**72,061**	**67,938**	**70,817**	**75,459**	**69,041**	**81,983**	**91,353**
Price index	*99.4*	*100.0*	*101.1*	*101.7*	*102.2*	*103.2*	*104.5*	*107.5*	*109.0*	*112.2*
Real GDP per capita	**63,134**	**66,047**	**69,034**	**70,880**	**66,477**	**68,614**	**72,188**	**64,224**	**75,193**	**81,389**
Real GDP per capita growth		4.6%	4.5%	2.7%	-6.2%	3.2%	5.2%	-11.0%	17.1%	8.2%

Sources: INSEE, Monaco Statistics

GDP per capita reaches a new record of 91,353 euros in 2022, thanks to continued high real growth of 8.2%. As the reference population has increased (+2.6%), the variation in GDP per capita is lower than that of GDP.

Over the decade, this indicator has risen by almost 30% in real terms, equivalent to growth of 2.9% on average each year.

1.3.2.   GDP per employee[8]

GDP per employee is an indicator that can be used as an element for measuring and comparing economic productivity.

Table 7: Change in GDP per employee

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Nominal GDP in million euros	4,936.0	5,321.3	5,643.6	5,841.2	5,693.0	6,081.9	6,595.9	5,900.6	7,293.3	8,341.5
Total population selected	50,835	52,239	51,956	52,447	54,303	56,311	57,870	55,383	58,157	60,519
Nominal GDP per employee	**97,098**	**101,864**	**108,623**	**111,374**	**104,838**	**108,004**	**113,979**	**106,542**	**125,409**	**137,831**
Price index	*99.4*	*100.0*	*101.1*	*101.7*	*102.2*	*103.2*	*104.5*	*107.5*	*109.0*	*112.2*
Real GDP per employee	**97,658**	**101,864**	**107,400**	**109,548**	**102,584**	**104,644**	**109,038**	**99,110**	**115,022**	**122,797**
Real GDP per employee growth		4.3%	5.4%	2.0%	-6.4%	2.0%	4.2%	-9.1%	16.1%	6.8%

Sources: INSEE, Monaco Statistics

GDP per employee stands at 137,831 euros in 2022. Adjusted for inflation, it is up by 6.8% and surpasses its previous record, set in 2021, by almost 7,800 euros.

Table 8: Change in French real GDP per employee[9]

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Var 21/22
Real GDP in billion euros (base 2014)	2,129.4	2,149.8	2,173.7	2,197.5	2,247.9	2,289.8	2,332.0	2,156.1	2,294.9	2,351.2	2.5%
Employed population in thousands (France)	24,658	24,669	24,772	24,960	25,279	25,420	25,730	25,730	26,604	26,958	1.3%
Real GDP per employee	**86,357**	**87,144**	**87,750**	**88,041**	**88,922**	**90,079**	**90,631**	**83,797**	**86,261**	**87,217**	**1.1%**

Sources: INSEE, Monaco Statistics

Table 9: Change in real GDP per employee in Monaco and France

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Var 21/22
Monaco	91,326	101,864	107,400	109,548	102,584	104,644	109,038	99,110	115,022	122,797	6.8%
France	86,357	87,144	87,750	88,041	88,922	90,079	90,631	83,797	86,261	87,217	1.1%
Difference Monaco / France	**5.8%**	**16.9%**	**22.4%**	**24.4%**	**15.4%**	**16.2%**	**20.3%**	**18.3%**	**33.3%**	**40.8%**	

Unit: euros, base 100 in 2014
Sources: INSEE, Monaco Statistics

Since 2013[10], this indicator has always been higher than its French equivalent. This trend continues this year too. Indeed, after almost doubling in 2021, the gap continues to widen, reaching just over 35,500 euros in favour of the Principality (i.e. real GDP per Monegasque employee 40.8% higher than in France).

Figure 7: Change in real GDP per employee in Monaco and France
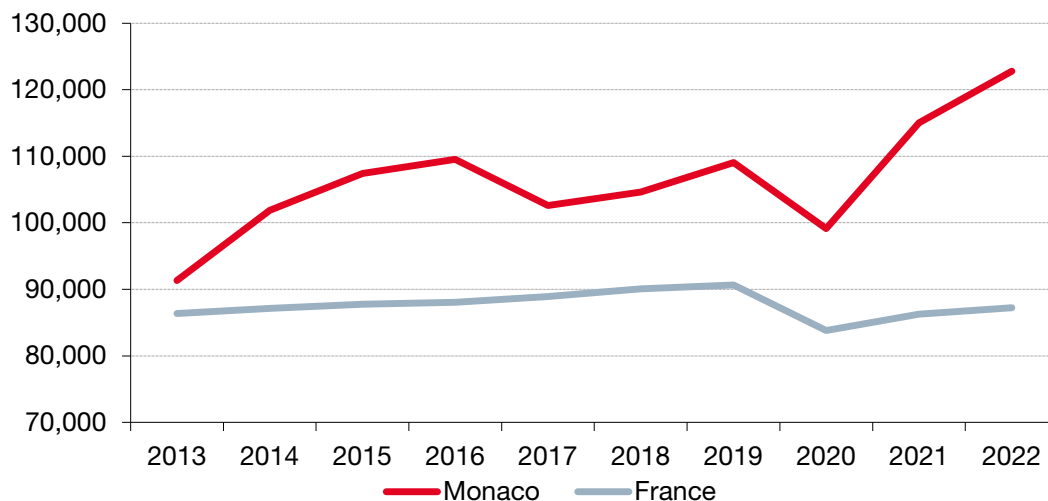
Unit: euros, base 100 in 2014
Sources: INSEE, Monaco Statistics

In 2022, France's GDP per employee has still not returned to its pre-crisis level (-3.8% compared with 2019), while that of the Principality increased by 12.6% between 2019 and 2022. Over this period, the gap between these two countries has widened in Monaco's favour (+93.3%).

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[8] Active employees who worked at least one hour during December 2022
[9] French data for 2020 and 2021 are provisional.
[10] Due to a change in the way non-resident employees are counted in 2013, data from previous years are not considered in the tables and graphs in this sub-section.

2. Methodology and calculation system of the GDP

2.1. Regulatory framework and adopted methodology

2.1.1. The European System of Accounts 1995 (ESA 95)

The European System of National and Regional Accounts (ESA 95), which came into effect in 1999 and is essentially consistent with the United Nations System of National Accounts (SNA 1993), defines a framework that ensures the consistency of evaluations within the European Union.

In the interests of comparability and transparency vis-à-vis the international community, and to the extent that information is available, the Principality has based itself on the ESA 95 to develop the tools for measuring national wealth, namely the Gross Domestic Product (GDP) and the Gross National Income (GNI)[11].

2.1.2. The European System of Accounts 2010 (ESA 2010)

The ESA 95 is gradually being replaced by the ESA 2010. For several countries (notably France and Switzerland), 2014 is the year in which the national accounts are revised, and the first ESA 2010 aggregates are published.

The main changes made are the inclusion of research and development expenditure and military expenditure.

Research and development expenditure in ESA 1995 is considered as current expenditure and recorded as intermediate consumption. They have the consequence of reducing the country's GDP. Yet this expenditure has a lasting impact, and its influence can be measured over several years. Therefore, according to the ESA 2010, it should be considered as investment, which increases the level of GDP.

Military expenditure, on the other hand, is treated in ESA 1995 as intermediate Government consumption if the military equipment cannot be used for civilian purposes (e.g. fighter planes). In ESA 2010, it was decided to record all arms expenditure as an investment if the life span is longer than one year.

Other methodological or conceptual changes are also introduced by the new European System of Accounts. Not all of them are yet methodologically complete, such as the estimation of the production of services by non-life insurers and reinsurers.

The particular situation of the Principality of Monaco (customs and monetary union with France, absence of a system of national accounts) leads to the absence of certain economic information.

This explains the fact that the calculation of GDP in the Principality does not take into account certain data. This is the case in particular for fictitious rents (estimate of the value of the rents that the inhabitants of a dwelling would have paid if they had been tenants and not owners), which are retained as part of GDP according to the ESA 2010 and never estimated in Monaco.

This reason also explains why the changes made by the ESA 2010 are not included in the calculation of GDP in Monaco, which continues to refer to the 1995 version of the ESA.

The non-inclusion of components of GDP in the Principality of Monaco undermines the estimate.

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[11] Gross national income is the sum of all primary (gross) income received by resident economic units (EBITDA, gross mixed income, compensation of employees, taxes net of subsidies on production and imports, property income received less paid).
It is equal to gross domestic product (GDP) minus primary income paid to non-resident economic units and plus primary income received from the rest of the world by resident units.
It provides a measure of the primary income received by all resident economic units and allows for international comparisons.
Source: INSEE

2.1.3.   GDP at the core of economic reasoning

GDP is one of the aggregates for determining national wealth and its evolution, i.e. economic growth.

Together with Gross National Income (GNI), it constitutes a synthesis of the theoretical considerations of macroeconomics and the practical considerations of the European national accounting framework.

2.1.4.   Determining the GDP

GDP can be apprehended in three ways, which are equivalent in terms of results:
- <u>as an activity indicator</u> (output approach)
  GDP is the sum of the gross value added (GVA) of the various institutional sectors or of the various business sectors, less subsidies on products, i.e.:
  > GDP = sum of GVA
  > + Taxes on products
  > - Subsidies on products
- <u>as a product indicator</u> (expenditure approach)
  GDP is the value of goods and services produced by resident units and available for final use. It is calculated as the sum of final uses of goods and services by resident institutional units.
- <u>as an income indicator</u> (income approach)
  GDP is equal to the sum of primary income distributed by resident producer units minus subsidies.
  > GDP = Compensation of employees
  > + EBITDA and mixed income
  > + Taxes on production
  > - Subsidies

The Principality has retained the GDP approach as an income indicator insofar as this approach does not imply the immediate implementation of national accounting. The major accounting balances make it possible to understand the macroeconomic consistency of this choice.

GDP calculated in this way is evaluated in "nominal terms", i.e. in current euros.

To evaluate the "real" growth of the aggregates, it is important to isolate the effect due to price changes from the "volume" effect. To do this, we deflate the GDP in "nominal terms" by the average variation in prices observed during the past year. This gives the "real" GDP.

The price index used for these calculations is that for France published by INSEE. The real GDP is calculated as a function of the change in the consumer price index, taking 2014 as the base year.

Calculation scope: the residence

The calculation scope is the national economy. This includes all resident units, i.e. units with an economic interest on the economic territory.
- The determination of the field of observation implies the definition of an economic territory comprising:
  - o   the geographical territory of that country;
  - o   the boundaries of free zones, warehouses and factories under customs control;
  - o   the national airspace, territorial waters and the continental shelf in international waters over which the country has exclusive rights;
  - o   territorial enclaves;
  - o   deposits in international waters operated by resident units.
- A time of observation: the year
  - o   a unit is recognised as having an economic interest in the territory if it carries out economic activities there for a relatively long period of time, i.e. for a period of one year or more. The nationality criterion does not apply; any other unit is classified as non-resident.
- The division of the economic territory into different classifications: economic agents, economic transactions, accounts.

2.2. Procedure implemented in the Principality

In order to meet the objectives set out above, the Government set up a working group on this subject in 2005 with the aim of defining the given territory and identifying the economic agents. The aim is to determine the statistical elements necessary for the elaboration of financial aggregates, in particular by setting up a national statistical survey that is essential for the elaboration of GDP.

Monaco Statistics (Institut Monégasque de la Statistique et des Études Économiques), created by Sovereign Order No. 3.095 of 24/01/2011 and a derivative of the Statistics and Economic Studies Division, is now naturally in charge of calculating the Principality's GDP.

2.2.1. Determining the calculation algorithms

The main objective of this vast project was to define the algorithms for calculating economic aggregates (cf. 2.3. GDP calculation algorithm) and to make all the information collected consistent.

2.2.2. Extrapolation method used for the GDP results

Since the implementation of the GDP calculation in 2005, data relating to EBITDA of Monegasque economic agents has been obtained through a survey.

Of the 11,204 economic agents concerned in 2022, the rate of files processed was 78.6% (compared with 76.9% in 2021). To approximate the overall level of EBITDA, and to compensate for the remaining non-response, statistical extrapolation procedures are used (with a constant methodology since the beginning). Some information concerning the non-responding companies could nevertheless be exploited, in particular the legal form, the sector and sub-sector of activity as well as the number of employees for some of them.

Firstly, the explanatory variables for EBITDA were determined based on the information provided by the respondent companies. Thus, statistical analyses made it possible to determine five explanatory variables:
1. the company size: the 100 companies with the highest revenues were treated differently. The aim was not to reproduce the atypical nature of these companies in the set of non-responding companies;
2. the legal form;
3. the business sector to which the company belongs;
4. the number of employees in the company;
5. the wage bill.

Nevertheless, the information available on the non-respondent companies did not allow us to exploit all of these explanatory variables. For example, the statistical analyses show that the number of employees seems to be an explanatory variable for EBITDA. However, this information could not be exploited insofar as the number of employees is rarely available for non-responding companies. The work was therefore refocused on the variables known about these entities, i.e. the legal form, the business sector and the business sub-sector.

Secondly, the results of the discriminant analysis were corrected for the bias caused by the existence of atypical values. Thus, for a legal form and a business sub-sector, 90% of the data were retained for extrapolation. The aim was to have a less volatile estimate of EBITDA and one that was not biased by singular firms in the class considered. After correcting the average estimates of EBITDA by class, the extrapolation could be carried out using the information available from the non-responding companies.

2.2.3. Determining GDP by sector

Within the framework of the analyses carried out by most of the Monegasque administrations, 12 business sectors within the Principality's economic fabric have been identified.

Structural hypotheses for the calculation of GDP by sector:

As regards <u>wages</u>, Monaco Statistics relies on the data provided by the Caisses Sociales de Monaco.

The <u>EBITDA</u> of each of the sectors was extrapolated using the same method as that used for the overall calculation of GDP (cf. above).

<u>Subsidies</u> were allocated and weighted to each sector according to their nature and purpose.

Regarding the distribution of <u>taxes</u> by business sector, several analyses were conducted.

On this basis, the following allocation rules were established:
- Concerning collected VAT, a small part is made up of an account "Not broken down by sector". It was accepted that it was possible to apply a breakdown key to this item, corresponding to that of the known part of the VAT collected by sector.
- Similarly, it was accepted that this breakdown key could be applied to all the other items listed below:
  - French payments in accordance with the sharing account;
  - Import duties;
  - Annual ship naturalisation fees;
  - Domestic consumption tax on energy products (T.I.C.P.E.) and consumption duties on tobacco;
  - Tobacco monopoly profits;
  - Leasehold duty;
  - Stamp duties;
  - Taxes on insurance agreements;
  - Consumption duty on alcohol;
  - Duties on company cars.
- On the other hand, it was agreed to allocate the budget items "Real estate VAT" and "Transfer duties for valuable consideration" to the real estate sector.

2.2.4. GDP in current euros and in constant euros

To evaluate the real GDP, a revaluation/inflation index was applied to the 2014 aggregates. Given the characteristics and geographical situation of the Principality's territory, it was agreed to use the data and assumptions used to evaluate French GDP and communicated by INSEE.

The annual accounts at constant prices (also known as "in real terms") of the base 2014 are presented "at the prices of the previous year, chained, base 2014" (1.103 Gross domestic product and its components price indexes[12]).

The objective of this presentation is to provide users of aggregates with the best time series at constant prices. Indeed, the evolution of an aggregate at constant prices is most interpretable when the year of constant prices is fairly close to the year of prices under review.

The changes in the aggregates at constant prices of the annual national accounts for a given year are calculated by taking the aggregates at current prices of the previous year as a basis and applying to them the changes in prices of the previous year. These series are then named 100 in 2014 and multiplied by the current price value of the aggregate in 2014, so that users have the order of magnitude of the aggregate available at the same time.

2.3. GDP calculation algorithm

2.3.1. Gross Domestic Product

GDP = Compensation and social charges (D1)
+ EBITDA and mixed income
+ Taxes on production (D2)
- Subsidies (D3)

2.3.2. Compensation and social charges (D1)

D1 = Gross wages & salaries in cash
+ Effective social contributions payable by employers
+ Imputed social contributions payable by employers

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[12] https://www.insee.fr/en/statistiques/5355105?sommaire=5355165

2.3.3. Earnings Before Interest, Taxes, Depreciation and Amortisation, and mixed income

If the declarant fills in the detailed Q1 questionnaire:
EBITDA =   Revenue before tax
               + Capitalised production
               - Amount of purchases
               ± Inventory changes
               - Consumption for the financial year
               + Operating subsidies
               - Taxes, duties and similar payments
               - Gross salaries and remuneration
               - Total social security contributions

If the declarant fills in the Q2 questionnaire:
EBITDA =   Revenue / Fees and/or treatments charged
               - Purchases and expenses for the financial year
               ± Inventory changes
               + Operating subsidies
               - Gross salaries and remuneration
               - Total social security contributions

2.3.4. Taxes on production (D2)

D2   =   VAT
                + Taxes on imports (D212)
                + Other taxes on products (D214)
                + Other taxes on production

VAT
VAT   =   D211
                + Net VAT collected in the Principality (excluding real estate VAT)
                ± French payments in accordance with the sharing account
Taxes on imports
D212   =   Import duties
                + Annual naturalisation duty on ships
Other taxes on products
D214   =   T.I.C.P.E. and consumption duties on tobacco
                + Tobacco monopoly profits
                + Transfer duties for valuable consideration
                + Leasehold duty
                + Stamp duty
                + Tax on insurance agreements
                + Real estate VAT
                + Consumption duty on alcohol

Other taxes on production
D29   =   Taxes related to the ownership or use of real estate, machinery, vehicles and equipment. Taxes on wage bill, on business licence, on pollutant emissions

2.3.5. Subsidies (D3)[13]

D3   =   Town hall operating grant
                + CHPG operating grant
                + Other public institutions' operating grants
                + Subsidies in the educational and cultural field
                + Grants in the public policies field
                + Grants in the social and humanitarian field
                + Aid for sport
   + Organisation of events in the Principality

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[13] D3 = (D393 + D399)

Appendix: Real GDP growth in the world

Table 10: Real GDP growth rates in several countries around the world

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Ireland	1.1%	8.6%	24.4%	2.0%	9.0%	8.5%	5.4%	6.2%	13.6%	12.0%
Monaco	**9.6%**	**7.2%**	**4.9%**	**3.0%**	**-3.0%**	**5.8%**	**7.1%**	**-13.0%**	**21.9%**	**11.1%**
Andorra	-3.5%	2.5%	1.4%	3.7%	0.3%	1.6%	2.0%	-11.2%	8.3%	8.8%
Saudi Arabia	2.9%	4.0%	4.7%	2.4%	-0.1%	2.8%	0.8%	-4.3%	3.9%	8.7%
Viet Nam	5.6%	6.4%	7.0%	6.7%	6.9%	7.5%	7.4%	2.9%	2.6%	8.0%
Iraq	7.6%	0.2%	4.7%	13.8%	-1.8%	2.6%	5.5%	-12.0%	1.6%	7.0%
India	6.4%	7.4%	8.0%	8.3%	6.8%	6.5%	3.9%	-5.8%	9.1%	7.0%
Malta	5.5%	7.6%	9.6%	3.4%	10.9%	6.1%	7.0%	-8.6%	11.8%	6.9%
Portugal	-0.9%	0.8%	1.8%	2.0%	3.5%	2.8%	2.7%	-8.3%	5.5%	6.7%
Egypt	2.2%	2.9%	4.4%	4.3%	4.2%	5.3%	5.6%	3.6%	3.3%	6.6%
Israel	4.4%	3.9%	2.5%	4.5%	4.3%	4.1%	4.2%	-1.9%	8.6%	6.5%
Iceland	4.6%	1.7%	4.4%	6.3%	4.2%	4.9%	1.8%	-7.2%	4.3%	6.4%
Croatia	-0.4%	-0.4%	2.5%	3.6%	3.4%	2.8%	3.4%	-8.6%	13.1%	6.3%
Greece	-2.5%	0.5%	-0.2%	-0.5%	1.1%	1.7%	1.9%	-9.0%	8.4%	5.9%
Cyprus	-6.6%	-1.8%	3.4%	6.6%	5.7%	5.6%	5.5%	-4.4%	6.6%	5.6%
Türkiye	8.5%	4.9%	6.1%	3.3%	7.5%	3.0%	0.8%	1.9%	11.4%	5.6%
Spain	-1.4%	1.4%	3.8%	3.0%	3.0%	2.3%	2.0%	-11.3%	5.5%	5.5%
Slovenia	-1.0%	2.8%	2.2%	3.2%	4.8%	4.5%	3.5%	-4.3%	8.2%	5.4%
Argentina	2.4%	-2.5%	2.7%	-2.1%	2.8%	-2.6%	-2.0%	-9.9%	10.4%	5.2%
Austria	0.0%	0.7%	1.0%	2.0%	2.3%	2.4%	1.5%	-6.5%	4.6%	5.0%
Poland	0.9%	3.8%	4.4%	3.0%	5.1%	5.9%	4.5%	-2.0%	6.8%	4.9%
Bahrain	5.4%	4.4%	2.5%	3.6%	4.3%	2.1%	2.2%	-4.6%	2.7%	4.9%
Qatar	5.6%	5.3%	4.8%	3.1%	-1.5%	1.2%	0.8%	-3.6%	1.6%	4.8%
Romania	0.3%	4.1%	3.2%	2.9%	8.2%	6.0%	3.9%	-3.7%	5.8%	4.8%
Hungary	1.8%	4.2%	3.7%	2.2%	4.3%	5.4%	4.9%	-4.5%	7.2%	4.6%
Netherlands	-0.1%	1.4%	2.0%	2.2%	2.9%	2.4%	2.0%	-3.9%	4.9%	4.5%
United Kingdom	1.8%	3.2%	2.4%	2.2%	2.4%	1.7%	1.6%	-11.0%	7.6%	4.1%
Denmark	0.9%	1.6%	2.3%	3.2%	2.8%	2.0%	1.5%	-2.0%	4.9%	3.8%
Italy	-1.8%	0.0%	0.8%	1.3%	1.7%	0.9%	0.5%	-9.0%	7.0%	3.7%
Singapore	4.8%	3.9%	3.0%	3.6%	4.5%	3.6%	1.3%	-3.9%	8.9%	3.6%
Australia	2.6%	2.6%	2.2%	2.7%	2.3%	2.9%	2.2%	-0.1%	2.2%	3.6%
European Union	**-0.1%**	**1.6%**	**2.3%**	**2.0%**	**2.8%**	**2.1%**	**1.8%**	**-5.7%**	**5.5%**	**3.5%**
Eurozone	**-0.2%**	**1.4%**	**2.0%**	**1.9%**	**2.6%**	**1.8%**	**1.6%**	**-6.1%**	**5.4%**	**3.5%**
Canada	2.3%	2.9%	0.7%	1.0%	3.0%	2.8%	1.9%	-5.1%	5.0%	3.4%
Bulgaria	-0.6%	1.0%	3.4%	3.0%	2.8%	2.7%	4.0%	-4.0%	7.6%	3.4%
Norway	1.0%	2.0%	1.9%	1.2%	2.5%	0.8%	1.1%	-1.3%	3.9%	3.3%
Belgium	0.5%	1.6%	2.0%	1.3%	1.6%	1.8%	2.3%	-5.4%	6.3%	3.2%
Algeria	2.8%	3.8%	3.7%	3.2%	1.3%	1.2%	1.0%	-5.1%	3.4%	3.1%
World	**2.8%**	**3.1%**	**3.1%**	**2.8%**	**3.4%**	**3.3%**	**2.6%**	**-3.1%**	**6.0%**	**3.1%**
China	7.8%	7.4%	7.0%	6.8%	6.9%	6.7%	6.0%	2.2%	8.4%	3.0%
Sweden	1.2%	2.7%	4.5%	2.1%	2.6%	2.0%	2.0%	-2.2%	5.4%	2.6%
France	**0.6%**	**1.0%**	**1.1%**	**1.1%**	**2.3%**	**1.9%**	**1.8%**	**-7.8%**	**6.8%**	**2.6%**
South Korea (Republic of Korea)	3.2%	3.2%	2.8%	2.9%	3.2%	2.9%	2.2%	-0.7%	4.1%	2.6%
Tunisia	2.4%	3.1%	1.0%	1.1%	2.2%	2.6%	1.6%	-8.8%	4.4%	2.5%
Czech Republic	0.0%	2.3%	5.4%	2.5%	5.2%	3.2%	3.0%	-5.5%	3.6%	2.5%
Serbia	2.9%	-1.6%	1.8%	3.3%	2.1%	4.5%	4.3%	-0.9%	7.5%	2.3%
New Zealand	2.8%	3.8%	3.7%	3.8%	3.5%	3.5%	2.4%	-0.7%	5.2%	2.2%
Finland	-0.9%	-0.4%	0.5%	2.8%	3.2%	1.1%	1.2%	-2.4%	3.0%	2.1%
United States	1.8%	2.3%	2.7%	1.7%	2.2%	2.9%	2.3%	-2.8%	5.9%	2.1%
Switzerland	1.8%	2.3%	1.6%	2.1%	1.4%	2.9%	1.1%	-2.4%	4.2%	2.1%
South Africa	2.5%	1.4%	1.3%	0.7%	1.2%	1.5%	0.3%	-6.3%	4.9%	2.0%
Latvia	2.0%	1.9%	3.9%	2.4%	3.3%	4.0%	2.6%	-2.2%	4.1%	2.0%
Lithuania	3.6%	3.5%	2.0%	2.5%	4.3%	4.0%	4.6%	0.0%	6.0%	1.9%
Germany	0.4%	2.2%	1.5%	2.2%	2.7%	1.0%	1.1%	-3.7%	2.6%	1.8%
Luxembourg	3.2%	2.6%	2.3%	5.0%	1.3%	1.2%	2.3%	-0.8%	5.1%	1.5%
Morocco	4.1%	2.7%	4.3%	0.5%	5.1%	3.1%	2.9%	-7.2%	7.9%	1.1%
Estonia	1.5%	3.0%	1.9%	3.2%	5.8%	3.8%	3.7%	-0.6%	8.0%	-1.3%
Russian Federation	1.8%	0.7%	-2.0%	0.2%	1.8%	2.8%	2.2%	-2.7%	5.6%	-2.1%
Ukraine	0.0%	-10.1%	-9.8%	2.4%	2.4%	3.5%	3.2%	-3.8%	3.4%	-29.1%
Lebanon	3.8%	2.5%	0.5%	1.6%	0.9%	-1.9%	-6.9%	-21.4%	-7.0%	NA

Sources: World Bank (extracted on 23/10/2023), Monaco Statistics

Figure 8: Ten-year change in GDP growth rate by geographical area
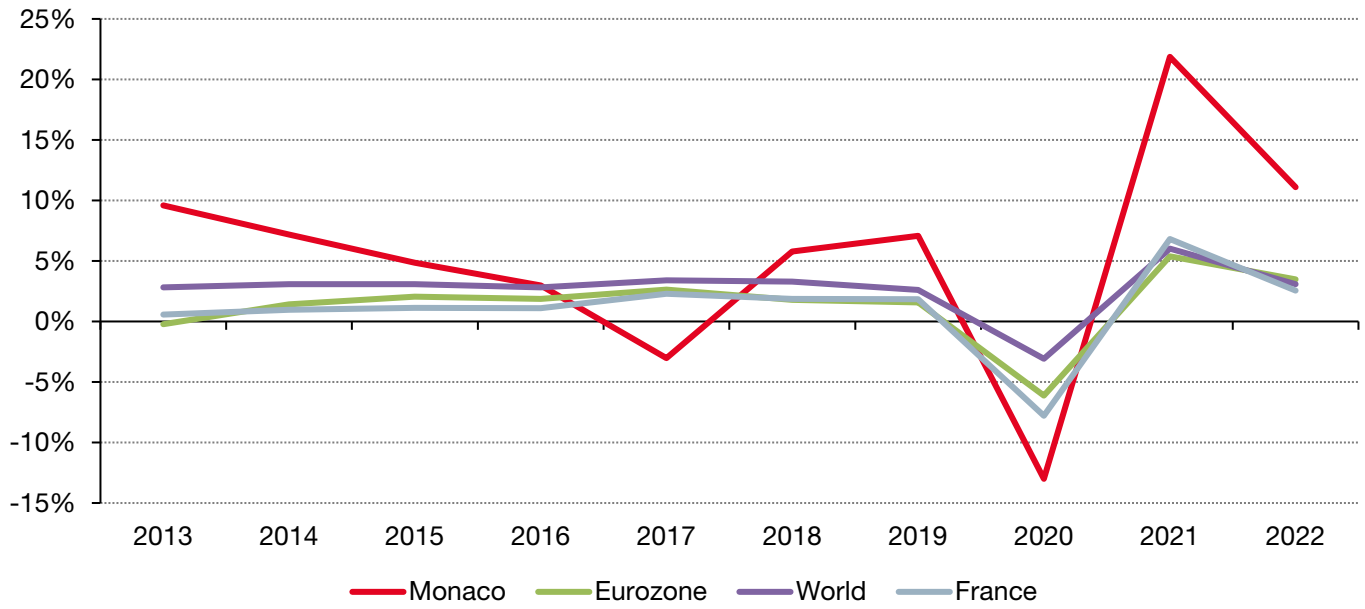
Sources: World Bank (extracted on 23/10/2023), Monaco Statistics

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