



# Taiwan

## Country Insights and Commodity Report

Q1 2022



# Taiwan

## Q1 2022

Taiwan posted an impressive economic performance in 2021, with preliminary full-year growth of 6.3% seen – its highest level in over ten years, as demand for its tech and semiconductor exports continued, as well as a recovery in consumer sentiment domestically.

The construction industry's value add rose by 8.4% year-on-year in the first three quarters of 2021, according to the Directorate General of Budget, Accounting and Statistics (DGBAS). Annual average growth of 3.2% is expected from 2022-2025, driven by investment on manufacturing, transport and renewable energy projects. Downside risks remain, particularly in more recent months, as the Russia-Ukraine conflict exacerbates disruption to the supply chain and material price escalation.

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As material costs will continue to represent a challenge for the construction industry for the foreseeable future, Linesight will publish quarterly updates to track commodities and provide insights about future projections on movements.

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### Lumber

Taiwan is heavily dependent on imports to meet its lumber demand, and prices are expected to remain elevated. This is having a major impact on new house prices. In late 2021, following increased materials prices during the year, Taiwan's top property developer, Pau Jar Group, stated that it would be raising house prices by 30% to 40%.



### Cement and concrete

Strong growth in construction has boosted demand for cement and concrete, pushing up domestic prices. Taiwan's two largest cement companies, Taiwan Cement Corp (TCC) and Asia Cement Corp (ACC), have committed to becoming carbon neutral by 2050, with efforts to develop low carbon and recycling technologies.



### Concrete blocks and bricks

Domestic brick production has been in decline in recent years, and as such brick demand is mainly met through imports. A proximity to major brick producing markets, such as China and Vietnam, will help to keep the price of bricks stable. However, with higher energy prices expected to push up production costs, as well as the improving trend in construction output, brick prices will remain elevated.



### Steel (rebar and structural)

In addition to global pressures that have contributed to higher steel prices, demand in Taiwan will be bolstered by investments under the Forward-Looking Infrastructure Development Program, which covers a wide range of public infrastructure projects, including sectors such as transport, green energy and digital infrastructure. This is in addition to the significant cost and supply pressures that TSMC's current construction programme, which involves the development of a number of fabrication plants, is placing on the domestic steel market.



### Copper

Copper prices are continuing on an upward trend. Taiwan's copper needs are met by imports, and in late 2021, Chile's state-controlled Codelco, stated that it had succeeded in concluding a sales plan for key markets in Asia, including Taiwan, which featured copper premiums up by above 20%.





# Taiwan - Commodity Report



Materials	Q4 2021	Q3 Q4 2022 (f)		Q4 - Q1 (e) 2022
	NT\$	NT\$	2021-22 (f) % change	% change
<b>Copper</b> (NT\$/MT)	260,035	291,067	11.9% ↑	4.5% ↑ ■
<b>Steel rebar</b> (NT\$/MT)	22,520	24,440	8.5% ↑	0.1% ↑ ■
<b>Steel flat</b> (NT\$/MT)	32,047	34,362	7.2% ↑	-1.6% ↓ ■
<b>Lumber</b> (NT\$/M3)	6,539.7	7,108.8	8.7% ↑	2% ↑ ●
<b>Asphalt</b> (NT\$/MT)	13,827	14,686	6.2% ↑	1.1% ↑ ■
<b>Limestone</b> (NT\$/MT)	1,716.6	1,738.1	1.3% ↑	0.5% ↑ ●
<b>Cement</b> (NT\$/MT)	3,260	3,530	8.3% ↑	3.6% ↑ ■
<b>Concrete</b> (NT\$/M3)	1,489	1,615	8.5% ↑	7.4% ↑ ●
<b>Welded mesh</b> (NT\$/unit)	350	375	7% ↑	0.1% ↑ ■
<b>Bricks</b> (NT\$/'000 unit)	17,000	18,215	7.1% ↑	0.9% ↑ ●
<b>Plasterboard</b> (NT\$/unit)	230	242.9	5.6% ↑	1% ↑ ●
<b>Diesel</b> (NT\$/litre)	27.07	30.33	12% ↑	6.1% ↑ ●

**Q3 Q4 2022 (f):** Forecasted average  
**2021-22 % change:** % change from Q4 2021 to Q3 Q4 2022 average  
 ● Q4 to Q1 2022 % change greater than estimation in our Q4 report  
 ■ Q4 to Q1 2022 % change less than estimation in our Q4 report

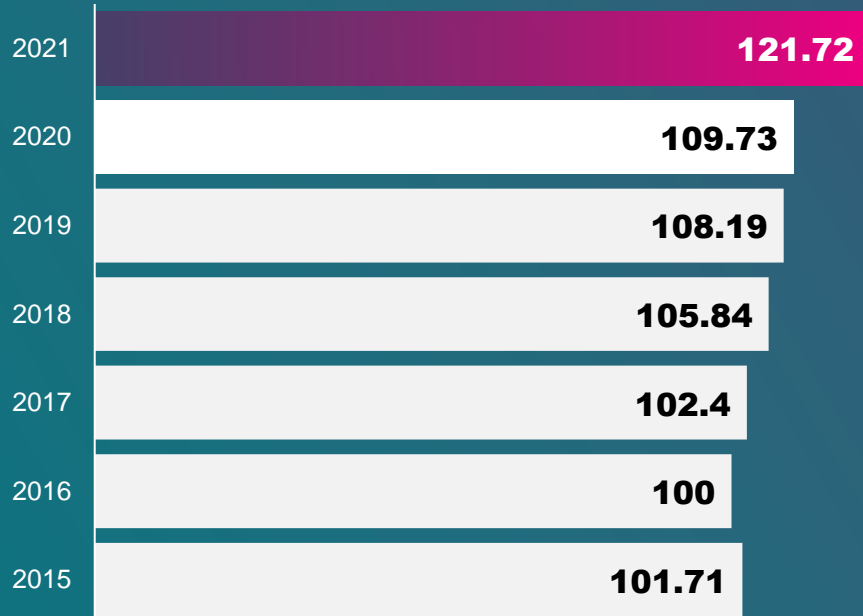
Material	% change Q1 - Q2 2022 (f)	Level of impact of pricing on construction procurement and supply chain *	
<b>Copper</b>	+4% ↑	High	Taiwan's copper products rely on imports, and given the sharp rise in global copper prices amid a surge in demand and supply disruptions, Taiwan's copper prices rose sharply in 2021. Prices remained relatively high in early 2022, but faced increased volatility after the outbreak of the Russia-Ukraine conflict.
<b>Steel prices</b> - Steel rebar - Flat steel	+5.3% ↑ +5.7% ↑	High	Owing to supply disruptions and increases in raw material prices, steel prices soared in 2021. Rebar prices eased back in December and January, but rebounded in March as global markets reacted to the Russia-Ukraine conflict. Prices will remain around these high levels, owing in part to high energy and raw materials prices. Scrap prices have also risen recently, increasing by around 10% in March alone.
<b>Cement Concrete</b>	+1.5% ↑ +1% ↑	High	Supported by a relatively solid construction industry, which avoided a downturn in 2020, strong cement demand has contributed to a steady upward trend in prices. In Q4 2021, prices were up by around 8% year-on-year. With construction output set to continue to expand, prices will remain elevated in 2022, which will also reflect higher energy costs.
<b>Asphalt</b>	+2% ↑	Moderate	Asphalt prices trended upwards in 2021, reflecting pressures stemming from the recovery in crude oil. Prices edged up in the first two months of 2022, and given the rise in global crude oil prices upon the outbreak of the Russia-Ukraine conflict, asphalt production costs will pick up.
<b>Limestone</b>	+0.7% ↑	Moderate	Limestone prices have been relatively stable compared to other construction materials, but as energy and transportation costs rise, there could be some additional inflationary pressures in the coming quarters.

Please note that commodity prices are based on representative materials available in the respective countries, and as these materials may not be standard across all markets, cross-country comparisons on prices can be ineffective. For example, asphalt types can vary between hot, cold or a bitumen price, and standard unit sizes for materials can vary across countries.

# Taiwan - Commodity Report







## Construction cost index 2015-2021



## Knoema World Data Atlas

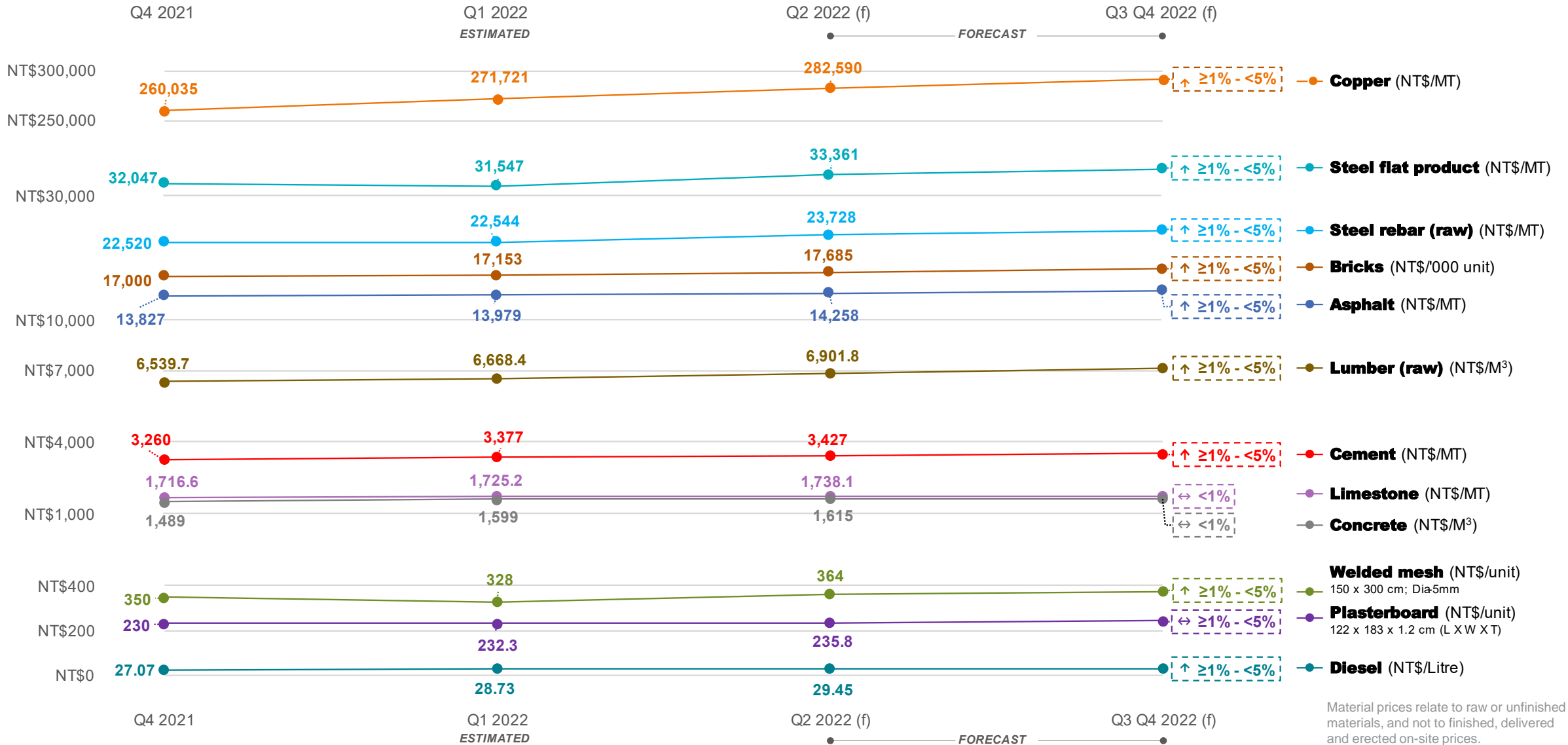
**Index of economic freedom 89.70 out of 100**

Material	% change Q1 – Q2 2022 (f)	Level of impact of pricing on construction procurement and supply chain *	
 <b>Lumber</b>	+3.5% ↑	Low	Reflecting the surge in global demand and supply disruptions, lumber prices picked up sharply during 2021, and continued to rise in Q1 2022. Demand will remain solid amid the ongoing steady expansion in residential construction.
 <b>Welded mesh</b>	+10.7% ↑	High	The price trend for welded mesh is based heavily on the price of steel. Hence, a similar price trend is expected for mesh products.
 <b>Bricks</b> <b>Plasterboard</b>	+3.1% ↑ +1.5% ↑	Low	Taiwan's brick prices have been relatively stable compared to other materials, with annual changes of around +2% in late 2021 and early 2022. Demand for bricks and plasterboard is set to remain high. The floor area of construction commenced jumped by 16% in 2020, and although it was down by close to 6% in 2021, the total area was still at a relatively high level compared to recent years, with early indicators for 2022 looking positive.
 <b>Diesel</b>	+2.5% ↑	Low	Although global crude oil prices rose sharply following the outbreak of the Russia-Ukraine conflict, domestic diesel price inflation has been relatively muted. This reflects government policies that require CPC Corp, the state-owned fuel supplier, to absorb much of the price increases, so as to keep Taiwan's domestic diesel price at levels lower than others in the region.

\* Level of impact rating reflects a combination of factors: the price movement and also price level (compared to recent past beyond the last quarter), the importance of the material, and general state of the supply chain in terms of stability.

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# Taiwan - Construction Materials Pricing (2021-2022)



Material prices relate to raw or unfinished materials, and not to finished, delivered and erected on-site prices.

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# Taiwan - Macroeconomic overview



## Economic indicators



**3.34%**

GDP growth in 2022 (f) and 6.3% in 2021



**1.5%** inflation rate for 2022 (f), and **1.6%** for 2021



**11.64M** people employed in 2022 (f) and 11.62M in 2021



**3.6%** unemployment rate in 2022 (f) and 3.8% in 2021



**106.74**

Consumer Price Index in 2022 (f) and 105.92 in 2021

## Weather conditions



**14°C to 34°C**

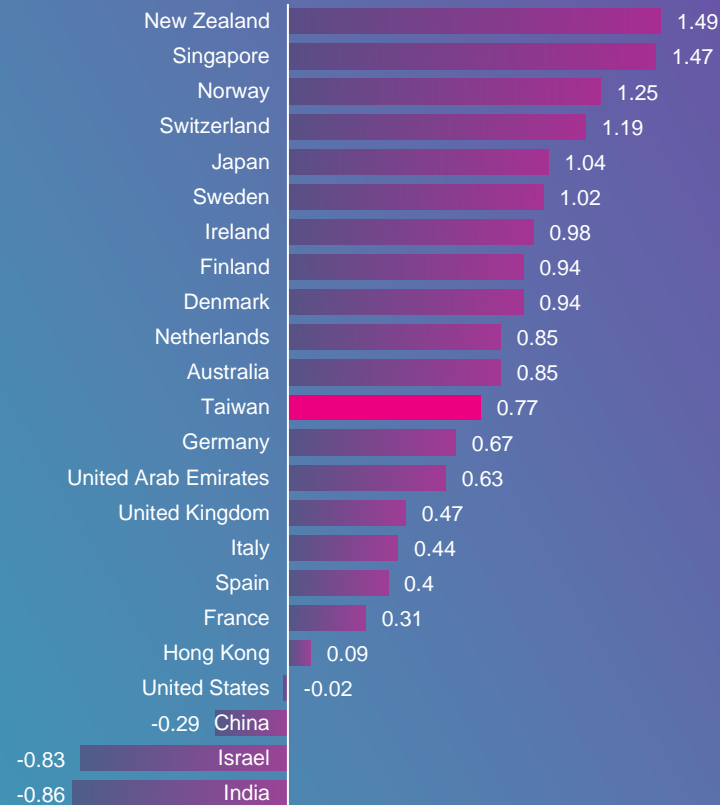
typical temperature range throughout the year



**2400mm**

average annual rainfall in Taiwan.

## Political stability



Political stability index (-2.5 weak; 2.5 strong)

The index of Political Stability and Absence of Violence/ Terrorism measures perceptions of the likelihood that the government will be destabilised or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism.

## National holidays

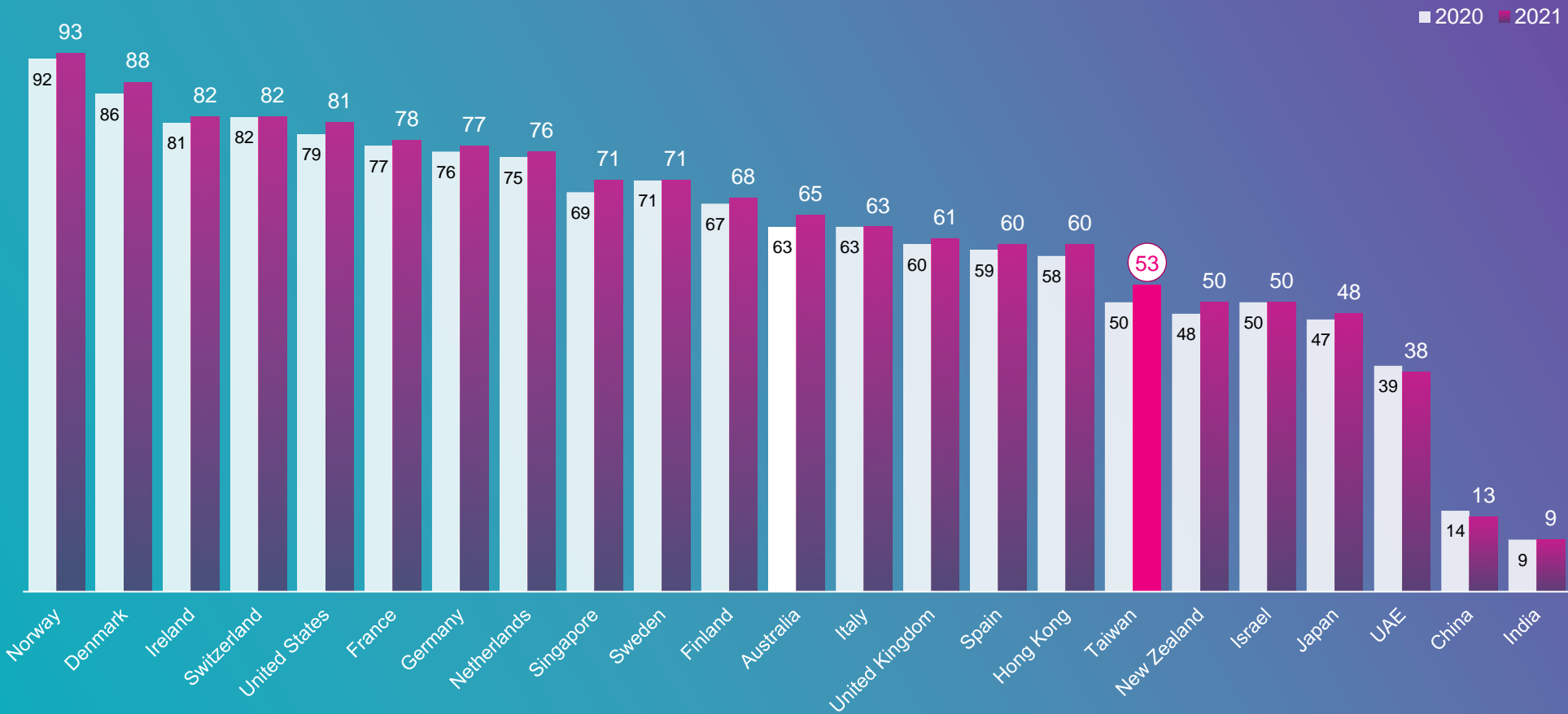


**14** national public holidays in Taiwan each year.

# Taiwan - Macroeconomic overview



## Labour productivity



Labour productivity per hour worked in 2020 international dollars, converted using Purchasing Power Parities

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## Labour costs



**NTD450**

is the average hourly earnings or

**NTD935,750**







average construction worker gross salary in Taiwan.

An entry level construction worker (1-3 years of experience) earns an average salary of **NTD544,962**. A senior level construction worker (8+ years of experience) earns an average salary of **NTD887,424**.



# Taiwan - Construction overview



Output 2021 and 2022 (f) (in millions)			
Sector	Total 2021	Total 2022(f)	% change
 Commercial	NT\$ 101,902.08	NT\$ 105,079.28	3.1%
 Energy and utilities	NT\$ 315,199.74	NT\$ 324,491.01	2.9%
 Industrial	NT\$ 253,012.71	NT\$ 259,903.49	2.7%
 Infrastructure	NT\$ 457,417.72	NT\$ 482,392.77	5.5%
 Institutional	NT\$ 91,842.89	NT\$ 93,616.14	1.9%
 Residential	NT\$ 540,875.02	NT\$ 554,814.85	2.6%
<b>Total output</b>	<b>NT\$ 1,760,253.08</b>	<b>NT\$ 1,820,300.48</b>	<b>3.4%</b>

## Long-lead equipment (LLE) – time risks

Long-lead equipment (LLE) lead times have changed drastically since the start of 2022. Suppliers have seen the implications of material shortages, delays and price hikes throughout the supply chain which is leading to extended lead times and reduced commitment from suppliers for new projects. The key areas in focus are:

- Demand:** The demand for long lead equipment in the data sector has increased exponentially with the IT boom. More and more data centre and crypto mining providers are joining the market and this new demand far outweighs the capacity of the supply chain. Entry onto the production line has become a significant challenge with suppliers reporting fully booked capacity until Q1 2023. Opportunities exist for the development of Tier 2 and Tier 3 suppliers to Tier 1 status however that will take time to develop an extended supply chain.
- Material shortage:** The end of Q1 2022 saw a significant drop in the availability of raw materials used for LLE production. Global factors such as the conflict in Ukraine and the resurgence of COVID19 has halted production which is at its lowest levels in recent years. The ethical approach, which is to manoeuvre away from the use of Russian gas and oil, has reduced production levels and added longer lead times within the supply chain – even for APAC, as the European impact is felt. The raw material shortages are expected to continue into Q2 2022, whilst there is uncertainty for the security of the supply chain.
- Freight durations and costs:** Heightened by the increase in fuel costs and compounded by the shortage of labour and low supply of shipping containers, freight durations have soared as suppliers look for ways to mitigate these challenges. The demand for freight services has grown across all markets in recent years and the competition amongst industries has had a negative effect on availability and durations. As clients consider alternative solutions, it almost becomes cost prohibitive to use quicker forms of transport such as air freight due to increasing fuel costs.

## Construction health & safety practices and culture



Taiwan incorporates all up-to-date elements of OHSAS into its Occupational Health and Safety Legislation, which was last updated in 2019.



**9.07** per 1,000 workers is Occupational Accident Rate under Labor Insurance Compensation in Construction.



**0.098** fatalities in construction in 2020, according to OSHA.



# Taiwan – Average construction costs



Building type	Cost range		
<b>Commercial</b>			
City centre air conditioned	\$2,700	\$3,150	per sq.m.
Shell and Core medium-high rise	\$2,350	\$2,600	per sq.m.
<b>Residential</b>			
Developer standard medium standard	\$1,950	\$2,400	per sq.m.
Developer standard high standard	\$2,800	\$4,200	per sq.m.
<b>Leisure</b>			
Hotel building (budget/3*)	\$2,900	\$3,300	per sq.m.
Hotel Building (4/5*)	\$3,800	\$4,200	per sq.m.
Shopping Centre - High quality	\$2,800	\$3,000	per sq.m.

Building type	Cost range		
<b>Education</b>			
Primary level (up to 3 stories, no air conditioning)	\$1,400	\$1,700	per sq.m.
<b>Car park</b>			
Multi storey	\$850	\$1,185	per sq.m.
Double level basement	\$1,300	\$1,600	per sq.m.
<b>Data Center</b>			
Data Center	\$8.45M	\$12.68M	MW

# Taiwan - Sectoral overview



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## 1. Life sciences

- As part of Taiwan's 'New Southbound Policy' investment in biotech and medical technology has been prioritized by the government. In addition, legislation exists for tax reduction benefits, to encourage R&D spending within the sector.
- Taiwan has a total of 207 registered biotech and pharmaceutical companies located in clusters in Taipei, Hsinchu, Taichung, Tainan, and Kaohsiung, with a combined revenue of USD\$12.06bn, up 13.37% from 2020.

2



## 2. Data centres

- There are frequent reports that Taiwan is poised to become Asia's 'data center hub', given the market top cloud suppliers' expansion on the island nation.
- Domestic demand is the main driver of growth in Taiwan's data center industry. Analysts from research firm, International Data Corporation (IDC), noted that enterprise infrastructure spending by firms in Taiwan in 2020 rose by 19.7% to NT\$23 billion (US\$822 million), fueled by a busy manufacturing sector that caters to the significant global appetite for chipsets and servers.

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## 3. Commercial

- The vacancy rate of grade A offices in Taipei dropped to 1.86%, while rental rates increase by 3.7% on average, as the demand for high grade physical offices remains high.
- Despite the economic impact of the pandemic, some private organisations are continuing to expand their businesses in Taiwan, and are willing to move into larger, new grade A offices.

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## 4. Residential

- Taiwan house prices grew 9.8% year on year in the third quarter of 2021, to finish the year with growth of 14.9% year on year.
- Presale and new housing projects in Taiwan's major cities have increased by 5% in the first quarter of 2022. The government has imposed a luxury tax on re-sale of housing within 3 years to prevent further uptick on house prices.

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## 4. Retail

- Sectoral performance generally has been significantly impacted by COVID and associated lockdowns, although all remaining sectoral restrictions lifted January 2022 – normality in activity, consumer confidence resuming.
- Following a sharp decline in retail sales in May and June, the sector performed strongly over the latter half of 2021, but then saw a sharp decrease in spending of 19.7% in July 2021.
- Building outlets and community-type of shopping centres are the recent trend in Taiwan.

# Taiwan - Report methodology



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Linesight has commissioned independent global research to track construction materials and commodity prices. The approach and methodology for the collection of construction material pricing and other indicators is based on primary and secondary research.

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## Primary and secondary research

Primary research is conducted on a quarterly basis with stakeholders in the value chain, including manufacturers and suppliers/distributors of the target materials, to ascertain market information on prices in recent quarters, and also on projections for changes in the coming quarter and remainder of the year. The market analysis also involves a thorough assessment of secondary sources of data on materials and labour prices, in addition to underlying demand and supply trends that will impact market prices.

Sources include GlobalData's Construction Intelligence Center (CIC), the World Bank, IMF, OECD, as well as country specific national statistics offices, such as the U.S. Bureau of Economic Analysis, Bureau of Labor Statistics, and also industry specific associations and publications. A more comprehensive list of sources is included below.

## Definitions

- Commodity prices are net of taxes for all the countries
- Prices are not customer delivered
- All commodities are raw materials
- Nominal and real data

Nominal data series do not exclude changes in prices and are also referred to as current prices series.

Annual changes in nominal data for construction output will include changes in construction activity, as well as changes in costs for materials and equipment.

Real data series are calculated by keeping prices constant (so, are also referred to as constant price series), and therefore, they reflect changes in activity only. Growth rates in nominal terms can overstate the pace of growth in construction activity if there is high inflation stemming from rising prices for key inputs.

## Sample sources – Taiwan

For Taiwan, sources for this report include, but are not limited to:

- IMF
- Economy.com
- The Global Economy
- Weather Spark
- Occupational Safety and Health Administration
- National Statistics
- Department of Statistics
- GlobalData's Construction Intelligence Center (CIC)
- Conference-board.org

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