International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

The Impact of The War Between Russia and Ukraine Upshot Policy Change and Inflation – A Case Based Analysis

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Abstract:
The myriad consequences of a global energy reboot means that there may be some positive developments, too. However, with so much in a state of flux, it is difficult to predict with much certainty. Russia's invasion of Ukraine in February 2022 has had a profound effect on global energy markets. Price volatility, supply shortages, security issues and economic uncertainty have contributed to what the International Energy Agency (IEA) is calling the first truly global energy crisis, with impacts that will be felt for years to come. Coupled with the impact of the global pandemic, the energy crisis means 70 million people who recently gained access to electricity can no longer afford it. And 100 million people may no longer be able to make food with clean fuels.

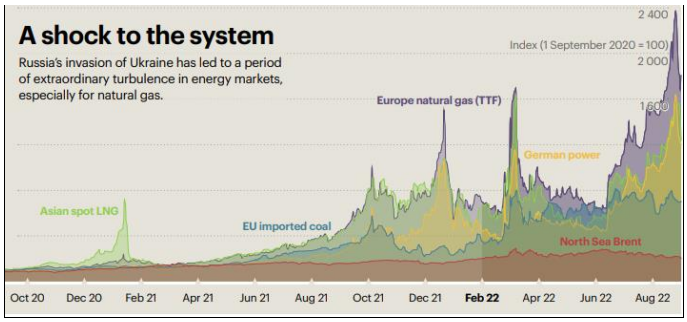
Fuel Crisis, IEA, Inflation, Federal Government, Renewable Energy, Covid-19, Post-invasion, Policy Change, Emission

- Russia's invasion of Ukraine has created shock waves in global energy markets, leading to price volatility, supply shortages, security issues and economic uncertainty.
- Poorer countries will bear the brunt of the negative consequences of the energy crisis.
- Here are six charts from the IEA's World Energy Outlook 2022 that explain the key changes to the energy sector post-invasion.

Russia's invasion of Ukraine in February 2022 has had a profound effect on global energy markets. Price volatility, supply shortages, security issues and economic uncertainty have contributed to what the International Energy Agency (IEA) is calling "the first truly global energy crisis, with impacts that will be felt for years to come".

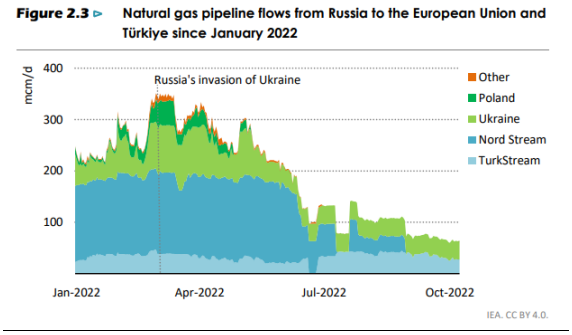
As ever, poorer countries — many still recovering from the effects of the global pandemic — will bear the brunt of the negative consequences of the energy crisis. The myriad consequences of a global energy reboot means that there may be some positive developments, too. However, with so much in a state of flux, it is difficult to predict with much certainty. As the IEA notes, "many of the contours of this new world are not yet fully defined, but there is no going back to the way things were". How the Ukraine invasion led to energy crisis
Here are six charts from the IEA's World Energy Outlook 2022 report that explain the key changes to the energy sector post-invasion.

1. Higher energy prices



A graph showing how Russia's invasion of Ukraine has led to energy crisis. Image: IEA Perhaps the most noticeable change for most people is that energy prices are rising. The IEA says high fuel costs account for 90% of the rise in average costs for electricity generation worldwide. Coupled with the impact of the global pandemic, the energy crisis means 70 million people who recently gained access to electricity can no longer afford it. And 100 million people may no longer be able to make food with clean fuels, returning instead to biomass, the IEA says. One potentially positive aspect of higher fossil fuel prices is they provide strong reasons to accelerate towards sustainable alternatives. That said, the need for energy security may prompt further investment in fossil fuel projects.

2. Changing trade flows and supply shortages



Russia’s gas exports to the EU were drastically cut, causing a rapid shift in trade flows. Image: IEA Russia cut gas flows to the EU by around 80% between May and October 2022, leaving the bloc with a significant shortfall in its energy mix, and a pressing need to find energy alternatives from other places. While many of Russia’s former international partners have reduced or cut ties with the country, Russia has broadly kept its oil production and exports at close to pre-invasion levels by increasing exports elsewhere, including to China, India and Turkey.

3. Energy policy changes

Table 6.3 ▷ **Recent policy changes and announcements regarding electricity supply**

	Policy change	Authority
European Union	• Phase out coal-fired power plants in Czech Republic, Slovenia and Romania (emergency law).	Governments (January and June 2022)
United States	• Inflation Reduction Act provides funding for energy and climate programmes, including expanding and extending tax credits and incentives to promote clean energy technologies.	Federal government (in law August 2022)
	• Five states updated their renewable portfolio standard policies.	Various state governments
China	• New Plan for Renewable Energy Development: higher targets for renewables.	National Development and Reform Commission (June 2022)
Canada	• 2030 Emissions Reduction Plan outlines a sector-by-sector path to reach its emissions reduction target of 40% below 2005 levels by 2030 and net zero emissions by 2050.	Federal government (June 2022)
Korea	• Increase renewables in electricity generation to over 20% and nuclear power to over 30%, and decrease coal-fired power by 2030 under the New Energy Policy Direction.	State Council (July 2022)
Australia	• Climate Change Bill 2022 enshrines in law two national greenhouse gas emissions targets: 43% cut below 2005 levels by 2030 and achieve net zero emissions by 2050.	Federal government (in law July 2022)
Japan	• Restart nuclear power plants aligned with the 6th Strategic Energy Plan and the Green Transformation (GX) policy initiative.	Ministry of Economy, Trade and Industry (Aug 2022)
	Announced policy	**Authority**
G7 members	• Achieve predominantly decarbonised electricity sectors by 2035.	G7 Ministers of Climate, Energy and the Environment (May 2022)
European Union	• Fit for 55: Council agrees on binding 40% EU-level target for renewables in overall energy mix.	Council of the European Union (June 2022)
Germany	• Green energy law reforms set higher targets for wind and solar.	Government (July 2022)
Australia, Côte d'Ivoire, Israel, Nauru, United Arab Emirates, Viet Nam	• Net zero emissions targets by 2050.	Various national governments
Bahrain, Indonesia, Nigeria, Saudi Arabia	• Net zero emissions targets by 2060.	Various national governments
India	• Net zero emissions target by 2070.	Prime Minister (Nov 2021)
United Kingdom	• Energy Security Strategy sets new ambitions for offshore wind, nuclear and hydrogen.	Prime Minister (April 2022)
Japan	• Accelerated nuclear expansion, including SMRs, envisioned in the GX initiative.	(June 2022)

Policy changes have accelerated the push for more renewable energy, but short-term energy security is also vital. Image: IEA

The change in traditional energy trade routes means that affected countries have had to rally quickly to create new energy policies that not only prioritize long-term energy security, but also allow for existing energy demand to be met in the short term.

Governments are also developing plausible pathways to net-zero emissions by 2050, so the issues brought about by the current energy crisis need to be addressed with that in mind. In some cases — notably the US's Inflation Reduction Act — the crisis is pushing renewable energy projects forward, rather than backward, says the IEA.

How is the World Economic Forum driving the energy transition?

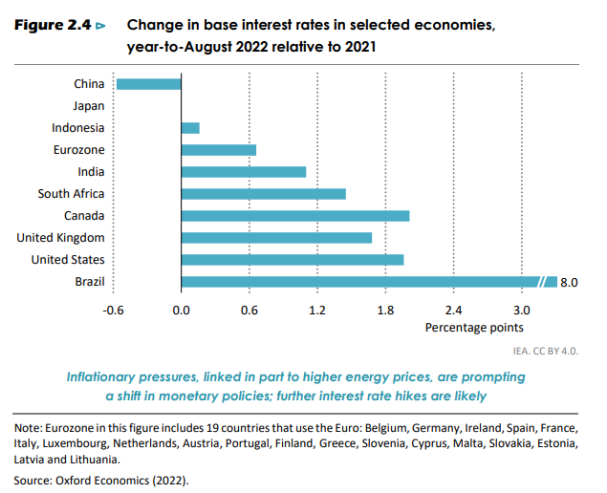
The World Economic Forum's Platform for Shaping the Future of Energy, Materials and Infrastructure works across six industries: electricity, oil and gas, mining and metals, chemicals and advanced materials, engineering and construction, and advanced energy solutions. It enables government and business to work together to accelerate the transformation of energy, materials and infrastructure systems.

In collaboration with Accenture, the Forum is implementing a toolbox of solutions and city sprints to boost sustainability and reduce emissions in urban settings, through the Net Zero Carbon Cities programme.

The Fostering Effective Energy Transition report summarizes insights from the Energy Transition Index in an effort to assist the world in readiness for energy transition.

The Mobilizing Investment for Clean Energy in Emerging Economies initiative enables collaborative actions to scale clean energy finance in emerging and developing markets.

4. Economic impacts of the energy crisis

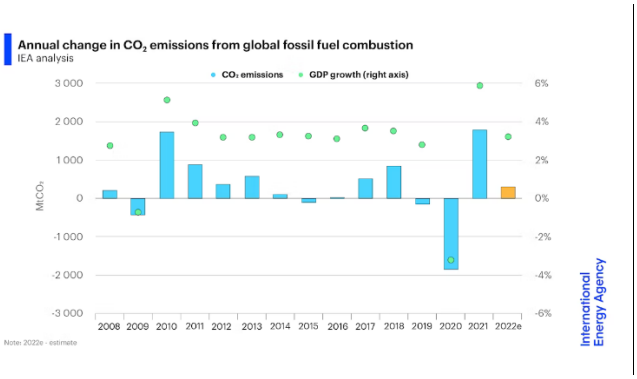


Higher costs due to energy crisis are contributing to rising interest rates, which could jeopardize the energy transition. Image: IEA

Higher energy costs are likely to lead to rising prices of goods and services. Higher interest rates coupled with falling incomes in real terms are pushing the world towards a recession, and the number of people falling back into extreme poverty is rising, says the report.

As many countries seek to increase the cost of borrowing money to counter inflation, clean energy projects that require financing could get caught in the economic fallout.

5. How emissions are being impacted

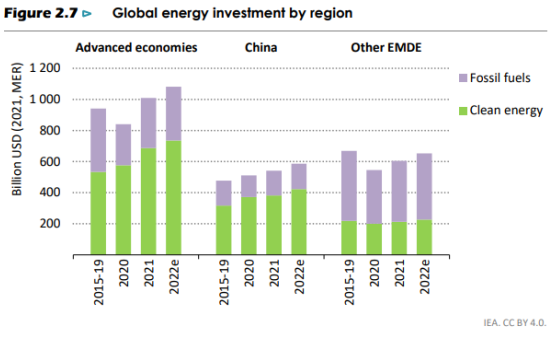


A bar chart showing annual change in CO2 emissions from global fossil fuel combustion. Image: IEA

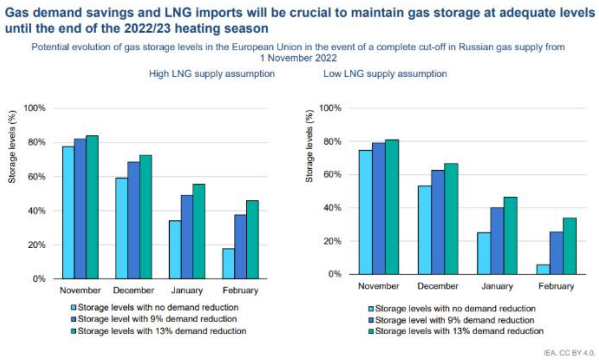
Some countries are accelerating their emission targets, others are increasing their use of coal, and some countries are doing both at the same time. The longer-term impact of the energy crisis on emissions is unclear, and many people are concerned about the impact on plans to reach net-zero emissions by 2050.

However, even though CO2 emissions will continue to go up in 2022, according to projections, the growth is less than 1% higher than in 2021, mainly thanks to the rapid rise of renewable energy and electric vehicles, according to the IEA.

6. A push towards renewables

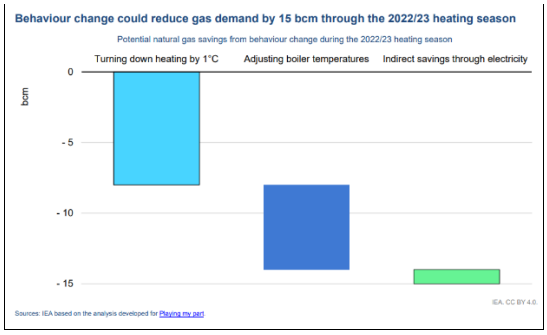


A bar chart showing global energy investment by region. Image: IEA. Broken relationships between Russia and its energy customers have led to a rapid focus on maintaining energy security. Having a robust and diverse energy mix is at the heart of energy security policies, and the IEA says it is possible that the crisis could accelerate the move to more sustainable fuels. But this is not yet known, and the negative economic outlook and short-term policy choices to ensure energy for today's needs could slow momentum in the push towards renewables. The world's energy problems did not start with Russia's invasion of Ukraine, but the subsequent energy crisis created a number of seismic changes to the energy sector. Some changes will be temporary, some will be permanent, but the decisions being made today are reshaping the energy sector forever. Energy crisis causing 'significant harm to consumers' The discovery of leaks in the Nord Stream 1 gas pipe in September has limited the supply of gas to Europe further, and a complete shutdown of Russian pipeline flows to the European Union cannot be ruled out in future, the report adds. "Russia's invasion of Ukraine and sharp reductions in natural gas supplies to Europe are causing significant harm to consumers, businesses and entire economies – not just in Europe but also in emerging and developing economies," said Keisuke Sadamori, the IEA's Director of Energy Markets and Security. "The outlook for gas markets remains clouded, not least because of Russia's reckless and unpredictable conduct, which has shattered its reputation as a reliable supplier." The European Union has been working collectively to strengthen the security of its supply this year, including "further diversifying supply sources, setting minimum underground storage inventory obligations, and co-ordinating seasonal demand reductions in recent months". This has meant it has managed to fill its gas storage to 90%, the IEA adds.



Gas demand savings and LNG imports will be crucial to maintain gas storage at adequate levels until the end of the 2022/23 heating season in response to the energy crisis. Image: IEA Demand for liquefied natural gas is rising fast Europe's push to mitigate its reliance on Russian gas has increased demand for liquefied natural gas (LNG). The IEA forecasts that Europe's LNG imports will increase by over 60 billion cubic metres (bcm) this year. This has led to record high ship rates and a shortage of ships to transport the

fuel, according to Bloomberg. Asia's LNG imports will remain lower than last year for the remainder of 2022, according to the report. "However, China's LNG imports could rise next year under a series of new contracts concluded since the beginning of 2021, while a colder-than-average winter would also result in additional demand from northeast Asia, further adding to market tightness," the IEA adds.



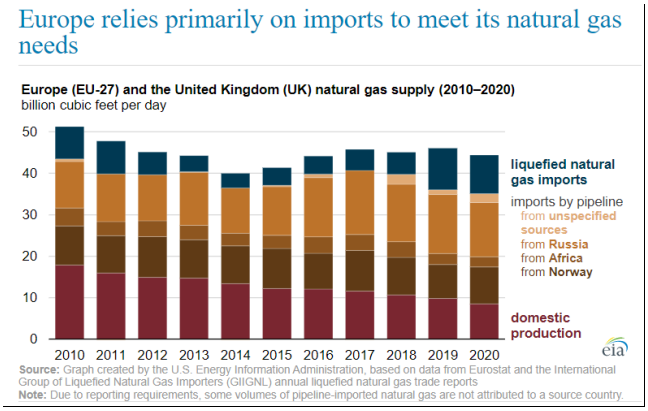
Storage levels will be crucial at the end of the 2022/23 heating season due to the energy crisis, says the IEA. Image: IEA

Behaviour change needed to avoid exacerbating the gas crisis

The IEA says further major adjustments are needed to avoid exacerbating a gas crisis in Europe in the case of lower flows. A 13% demand reduction would be needed in order to keep storage levels above 33% into 2023 if lower flows continue, it says. The analysis indicates that behaviour change alone could reduce gas demand by 15 bcm during the 2022/23 heating season, which equates to over 40% of the required 13% demand reduction.

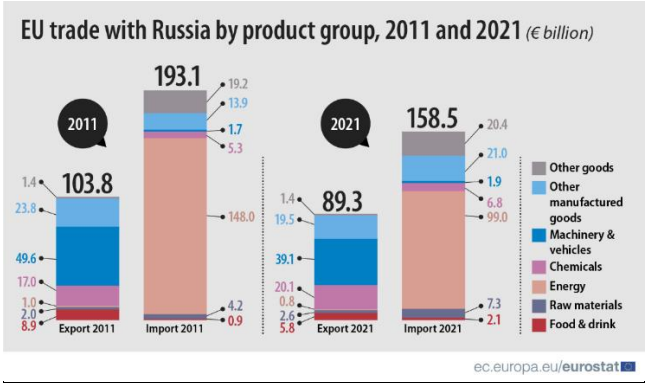
Looking ahead, the IEA says storage levels will be crucial at the end of the 2022/23 heating season and cold spell preparation should be put in place.

The report explains cold spells are particularly challenging for the gas system due to "the deliverability of storage sites declining with the decreasing level of working gas in stock (due to the lower reservoir pressure). This means that storage sites become less reactive (both in time and volume) to variations in demand by the end of the heating season."



The majority of EU gas is imported from Russia. Image: EIA

In the 10 years between 2011 and 2021, energy imports have dropped from 77% of trade to 62%. In contrast, imports of manufactured goods, machinery and vehicles, chemicals, raw materials and food and drink have all increased in value over this period.



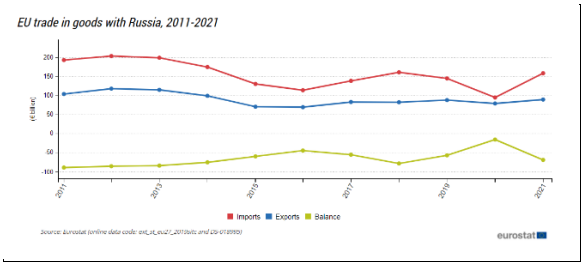
The EU imports less Russian oil and gas than it used to. Image: Eurostat

Russia is one of the EU's major trading partners.

More broadly than just fuel, both the EU's imports to and exports from Russia have decreased in the past decade.

In 2021, Russia was Europe's fifth-largest trading partner for EU exports of goods, after the US, UK, China and Switzerland. And it was the third-largest for EU imports of goods, after China and the US.

The trading relationship between the EU and Russia was significantly impacted by COVID-19 in 2020. The EU's trade deficit fell to $17.6 billion (€16bn), the lowest level over the past decade. By 2021 it had risen again to $75.9 billion (€69bn), but still down on the 2011 figure of $97.9 billion (€89bn).



Since 2012, imports and exports between the EU and Russia have decreased. Image: Eurostat Among the member states, the three largest importers of Russian goods in 2021 were Germany, the Netherlands and Poland. This trio was also the largest exporter of goods to Russia.

The impact of the Ukraine invasion

The US, EU and UK have all announced that they will curb Russian oil and gas imports in light of the invasion of Ukraine.

This includes a plan by the EU to cut its reliance on Russian gas by two-thirds by the end of the year. It is also fast forwarding plans to make the EU independent of Russian fossil fuels by 2030.

This will mean the EU both finding alternative sources for its gas in the short term, as well as boosting efficiency and the transition to greener alternatives.

Europe has already witnessed skyrocketing energy prices this winter, and since Russia invaded Ukraine, the price of oil and gas has risen sharply. The European Commission is rolling out a number of measures to get costs back onto an even keel. Oil accounts for approximately 3% of GDP and is one of the most important commodities in the world – petroleum products can be found in everything from personal protective equipment, plastics, chemicals and fertilisers through to aspirin, clothing, fuel for transportation and even solar panels.

A global movement towards sustainability may eventually change the low price elasticity of demand for oil. But while the energy transition continues apace it's important to understand how supply and demand factors influence the price of oil and therefore the wider economy.

Maciej Kolaczkowski, Manager Oil and Gas Industry from the World Economic Forum's Energy, Materials, Infrastructure Platform, outlines the key factors which determine oil prices, their impact on the global economy and implications for the energy transition.

Rising oil prices

Oil prices are currently at nearly $100 a barrel. What has caused this price rise and why are oil prices so volatile?

Kolaczkowski: No one really has a crystal ball – tomorrow things can go in exactly the opposite direction. Change and volatility seem to be the only constant in the oil market. However, it is probably safe to say that there are three key underlying reasons:

Booming economic growth driving demand for oil

Two years ago when COVID-19 started, there was a plunge in economic activity and oil demand. Producers were adjusting production levels, but there is only so much one can do without destroying reservoirs or capital. Storage capacity is also limited. Moreover, there was uncertainty about how severe the economic crisis would be and how long it would last. These compounded factors pushed oil prices to very low levels not seen in decades. There was even a short period of time when oil prices went down to minus $40.

- The Consumer Price Index (CPI), a widely used measure of inflation, increased by 7% from December 2020.
- Shelter accounts for nearly a third of the CPI; whilst the price of rent only rose 3.8%, the price of lodging away from home (using a hotel) rose nearly 28%.
- Food is the next largest category in the CPI; with groceries, such as meat, increasing as much as 20%.
- Gasoline prices have risen more than anything else in the CPI basket over the past year; unleaded gasoline has risen by 50.8% since December 2020.

After many years of historically low inflation, consumer prices in the United States continued their steep ascent last month. The Consumer Price Index, the most widely followed inflation gauge, increased 7.0% from December 2020 to December 2021 – its highest rate in nearly 40 years.

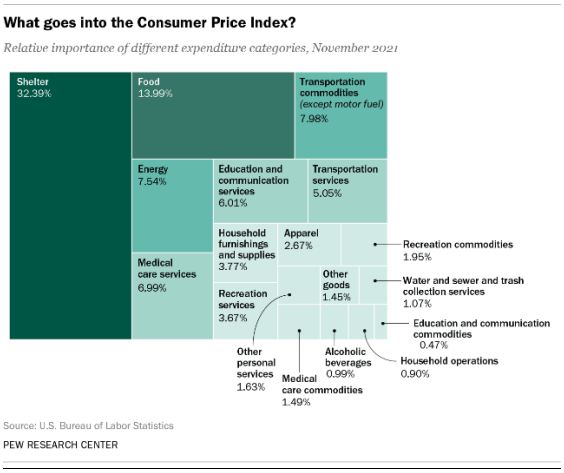
The CPI – or, to give it its full name, the Consumer Price Index for All Urban Consumers (CPI-U) – isn’t the government’s only measure of inflation. For that matter, it isn’t even the only version of the CPI. Pew Research Center analyses typically use the CPI’s Retroactive Series, especially when adjusting prices or dollar values over several years or decades, because that series adjusts the CPI for previous years to reflect current methodology. There’s also the Chained CPI, which is meant to reflect how consumers alter their buying patterns in response to changes in relative prices – for example, buying more chicken when beef becomes more expensive. The Chained CPI often (but not always) comes in a bit below the “regular” CPI-U: It rose 6.9% between December 2020 and December 2021.

But the CPI-U is the most widely cited inflation metric, so it’s worth popping the hood and looking inside to see how it works.

The Bureau of Labor Statistics (BLS), which is responsible for the CPI, starts by collecting price data for hundreds of discrete goods and services – the so-called “market basket” – from around 8,000 housing units and 23,000 retailers, service providers and online outlets in 75 urban areas around the country. Data on rents is gathered from some 50,000 landlords and tenants. The items sampled, and their weights in the

overall index, are determined by the Consumer Expenditure Survey, which is carried out for BLS by the Census Bureau.

The BLS reports index weights for dozens of categories, subcategories and specific items in the CPI's basket of goods and services. The biggest category by far is shelter, which accounts for nearly a third of the index. The single weightiest item, at about 22.3%, is "owner's equivalent rent of primary residence" – essentially how much homeowners would have to pay if they were renting their homes. (The idea is to separate out shelter, the service provided by a house, from whatever value the house might have as an investment.)

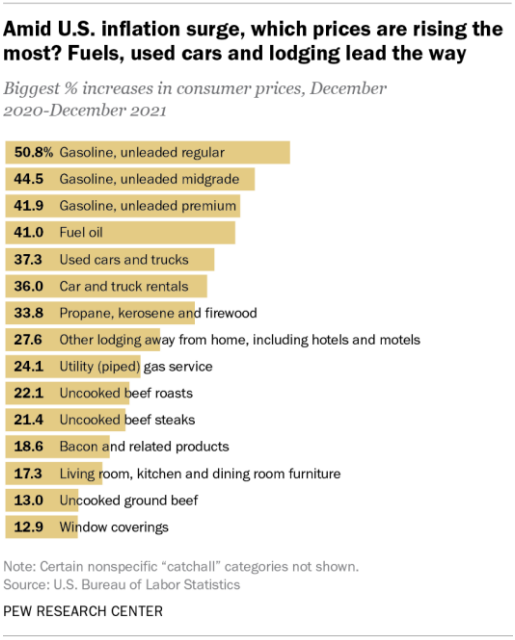


Shelter accounts for almost a third of the CPI. Image: Pew Research Center

While shelter costs carry the most weight in the CPI, they've not risen nearly as much as the index as a whole. In December, owner's equivalent rent was up 3.8% compared with December 2020, and regular rent of primary residence was just 3.3% higher. The one big exception among shelter costs was lodging away from home, a category that mostly tracks hotel and motel room rates, where prices were 27.6% higher than a year earlier. However, that subcategory accounts for less than 1% (0.849%, to be precise) of the CPI.

The next-biggest category, food, accounts for just under 14% of the index. Groceries, or "food at home," makes up a bit more than half of that category. Grocery prices were 6.5% higher than a year ago, which will come as no surprise to anyone who's been to a supermarket lately. Meats, especially beef and pork, led the way, with prices for beef roasts and steaks more than 20% higher than a year ago, bacon up 18.6% and chicken parts up 11.5%. (On the other hand, prices for hot dogs and cheese both are down 0.6%.)

Eating out has gotten more expensive too. Prices for full-service meals and snacks consumed away from home were up 6.6% from December 2020, and limited-service meals and snacks were up 8%. School breakfasts and lunches were down by nearly two-thirds, perhaps because the U.S. Department of Agriculture has authorized free meals for all children in public schools this academic year.



Although gasoline accounts for just 4% of the overall CPI, its price has risen more than anything else in the past year. Image: Pew Research Center.

Besides at the supermarket, consumers also feel the effects of inflation acutely at the fuel pump. Gasoline accounts for just 4% of the overall CPI, but prices for it have risen more than any other good or service in the CPI basket over the past year. Regular unleaded gasoline, for instance, is up 50.8% since December 2020. It should be noted that gas prices fell sharply in 2020, as demand plunged because much of the U.S. economy was shut down. As the economy reopened and demand came back, so did gas prices, though they've since risen 20% or more above pre-pandemic levels.

Energy goods and services, a category of which gasoline is a major component, accounts for roughly 7.5% of the overall CPI. Prices for fuels used for home heating and cooking also are sharply higher than a year ago: Fuel oil is up 41%, propane, kerosene and firewood are up 33.8%, and piped natural gas is up 24.1%. Now we will have to wait to see for how long this super inflation will continue.

Acknowledgement: Author is highly obliged to eminent international scientist Prof. (Dr.) Dhrubajyoti Chattopadhyay for his immense support. Correspondingly, to the Founder Chancellor of Presidency University Bangalore, Respected Dr. Nissar Ahmed Sir and Dean of Management Dr. Arul MJ Sir, Pro-VC Dr. Muddu Vinay Sir.

Credit: AEA (American Economic Association – US), Author is a lifetime fellow of AEA.

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