Workshop at the European Parliament:

Can the EU afford to ban Russian oil and gas imports?

With the participation of Maksym Chepeliev, Karen Pittel, Benjamin Moll, Georg Zachmann, and MEP Luis Garicano

Conclusions from the Workshop

- **Despite financial sanctions on Russian reserves, energy revenues continue flowing to Russia**. From the start of the war until the 27th of March, the EU has transferred more than 20 billion euros[1] – an injection of 700 million euros per day into the currency-starved Russian state. ´
- **The payments received from the EU** have been sufficient to overcome the limitations derived from the freeze on the Russian Central Bank reserves. This is seen by the fact that these payments have allowed the RCB to stabilize the ruble which, after collapsing by 70% after the invasion, has recovered all of its value. They also allow Russia to buy weapons, pay mercenaries and buy other goods in the international markets.
- **Existing research shows that a ban in energy imports from Russia would cause significant but manageable damage to the EU Economy.**
    - Were EU-Russian oil trade to stop, around 3mb/d of Russian crude supply and 1mb/d of oil products would be taken offline, constituting a serious global supply shock. But OPEC spare capacity estimates range up to 4 mb/d.
    - Current coal supply from Russia (> 40 MT) can also be replaced by EU spare capacity, after domestic coal production had been purposely declining for the last three decades. The EU has enough spare capacity to drastically increase power generation from coal in case of emergency If all hard coal power plants in Germany had operated at full capacity in 2021, they would have produced around 140 TWh more of electricity, consuming about 40 MT of additional coal. This additional demand for coal could be met by imports from countries such as Colombia.
    - Gas imports are more challenging to replace, but it is doable. Last year the EU imported 150 bcm of gas from Russia, including 15 bcm delivered as liquified natural gas (LNG). During the last three weeks the EU has been importing 2 bcm additional of LNG per week from the United States. If this trend continues it would allow the EU to replace about two thirds of Russian gas imports this year. The remaining gap should be filled by reducing gas consumption. This can be done by phasing out those types of industrial production that do not have much added value to the economy but consume large amounts of gas and start importing the outputs; gas in electricity generation could be replaced by coal, oil or renewable energy; the use of gas for heating can also be reduced, for instance, by lowering the temperature of homes and workspaces.
    - State-of-the-art macroeconomic analysis which includes (a) worst-case scenarios; (b) impact of cascading effects through supply chains; (c) impact on inflation-adjusted, real quantities; (d) parameter uncertainty; and, (e) in more recent analysis,[2] possible demand-side effects estimates the hit to German GDP between 0.5-3%. [3]

1 CREA (shinyapps.io)

2 See https://twitter.com/christianbaye13/status/1505928385788362756.

3 https://www.econtribute.de/RePEc/ajk/ajkpbs/ECONtribute_PB_028_2022.pdf

- A recently released note by the German Council of Economic Experts collecting all findings about the effects of an intensification of the conflict on the German economy shows that every single estimate in the central scenarios is below 2.2% of GDP. It includes ECB estimates of a 1.4% hit to euro area GDP in the most severe scenario of energy ban.[4]
- There are historical examples that this kind of substitution mechanism can take place in times of large scarcity. For instance, when the Druzhba pipeline from Russia to Germany was shut down due to contamination, crude oil started to be shipped by boat and refineries in east Germany continued working.
- A cutoff of Russian energy imports will not affect evenly all industries and households. The poorest households spend 6% of their income in energy, including less than 0.5% in fuel, whereas the riches households spend only about 2.5% of their income in energy with a higher proportion on fuel. Thus, richer households have capacity to cope with an increase in energy prices, but poor households would suffer more from it.

- **Targeted and efficient policies will be needed to help the most affected industries to adjust as well as low-income households to bear higher energy prices.**
  - Price signals from the market are important and they should remain. Industries and households need to understand that energy is becoming more scarce, especially certain energy sources. Thereby they will see benefits in choosing other energy sources and reducing consumption, which is overall positive for the economy.
  - Subsidizing fuel consumption disrupts price signaling and it benefits wealthier households the most. A more targeted and efficient policy could be to make lump-sum payments for heating to low-income households.
  - Countries should use the lessons learned during the COVID crisis to avoid losses for the most vulnerable households.
  - It is important to coordinate actions across Member States. For example, we should avoid countries competing against each other for an already pricy resource. This is what is happening now with some countries subsidizing fuels increasing demand that is detracted from other countries.
  - A European solution is needed. Different countries have different strengths, and different needs. If we start a race to lock in costly supplies at the expense of others, we will only manage to raise prices and leave all countries worse off.
  - Countries need to become more flexible when it comes to taking unusual actions in times of crisis, rather than continue business as usual: reducing regulations that are holding up new wind installations, flexibilizing emissions rules for coal plants, producing gas in fields that are ready but blocked, like in the Netherlands; some environmental regulations might need to be temporary loosened, and the military could help to build essential infrastructures for energy transmission or electricity generation.

4 Source:https://www.ecb.europa.eu/pub/pdf/other/ecb.projections202203_ecbstaff~44f998dfd7.en.pdf

- **Not acting now comes with great risks**. First, this war continues taking innocent lives in Ukraine and could potentially expand to more countries. Second, Putin may cut off energy supply to Europe later on, when it is too late for energy companies and consumers to adjust before next winter starts. Third, a prolonged war also means prolonged indirect costs on Europe and the rest of the world, such as disruptions in the global food supply chain, a migration crisis, unfettered increase in energy prices, social unrest, etc.

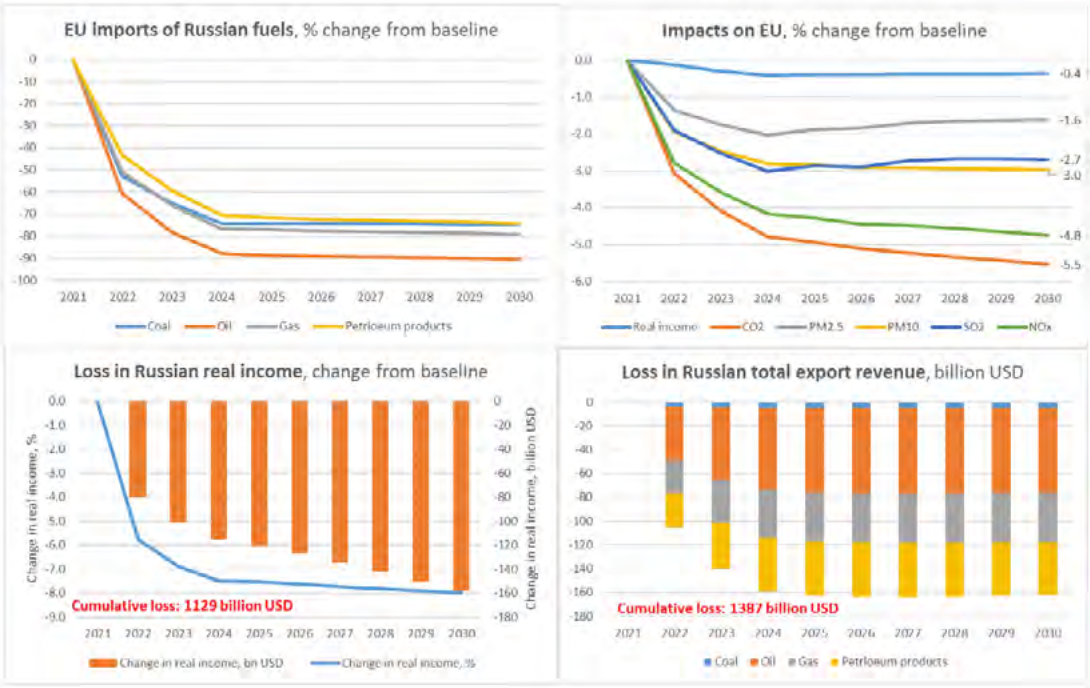
Findings from the academic papers authored by the speakers of this workshop:

Maksym Chepeliev, Ben Moll,
Karen Pittel and Georg Zachmann

1. Cutting Russia's fossil fuel exports: Short-term pain for long-term gain

Authors: M. Chepeliev, T. Hertel and D. van der Mensbrugghe
Link: Cutting Russia's fossil fuel exports: Short-term pain for long-term gain | VOX, CEPR Policy Portal (voxeu.org)

- The EU imports from Russia 26.9% of crude oil, 41.1% of natural gas and 46.7% of solid fuels that it consumes. The EU27 and UK together account for 63% of Russia's fossil fuel exports. Combined with the US, Turkey and Japan, the share of Russia exports increases to 80%.
- The authors analyse a scenario in which the EU reduces imports of fossil fuels between 40% and 60% in 2022 and reaches 70-90% in 2024, relative to baseline (the baseline scenario consists of the continuation of current trends until 2030). They focus on the medium and long-term impacts of fossil fuel import restrictions, and do not address its most immediate effects.
- For the EU, in the long run, costs are estimated to be a cumulative reduction in real income of less than 0.4% in 2030. This translates into a slowdown in the income growth rate of only 0.04% per year (i.e., instead of growing at 2.18% per year, the EU's real income would be growing at 2.14% per year over the period 2022-2030). An indirect benefit is a 3.1% reduction in the CO2 emissions of 2022, and 5.5% reduction by 2030 compared to baseline.
- For Russia, costs are significantly higher. In the short run, this fall in imports from the EU would imply a 6% loss in real income in 2022 (compared to baseline) and an 8% by 2030.



Notes: Estimated by authors using ENVISAGE model. All changes are reported relative to the baseline scenario.

2. What if? The economic effects for Germany of a stop of energy imports from Russia

Authors: K. Pittel, B. Moll, R. Bachmann, D. Baqaee, C. Bayer, M. Kuhn, A. Löschel, A. Peichl, M. Schularick.
Link: What if? The Economic Effects for Germany of a Stop of Energy Imports from Russia (econtribute.de)

- The authors assess the economic effects of a complete cut-off of the German economy from Russian energy imports.
- In the short run, the cut-off would lead to a GDP decline between 0.5% and 3%, in any case lower than the 4.5% decline that German GDP experienced in 2020 due to the COVID-19 pandemic. Results along that range depend on how easy is to substitute gas, oil, and coal from Russia with other energy sources, which will be more challenging in the short run.
- Imports of oil and coal from Russia can be substituted with imports from other countries, but the situation in the gas market is more challenging. Increasing gas imports from other countries, substituting gas used for electricity production by coal or nuclear as well as refilling of storage facilities over the summer can only reduce the shortfall to about 30% of gas consumption or 8% of German energy consumption over the next 12 months. How Germany copes with the remaining gap will depend on its capacity to substitute and reallocate energy inputs across sectors.
- The authors use a state-of-the-art multi-sector model with rich input-output linkages in which energy is a critical input in production. The key economic assumptions of the model relate to (i) the degree of substitutability between different intermediate inputs in the production process, in particular between the type of energy imported from Russia and other inputs, measured by various elasticities of substitution, and (ii) to the ease of reallocation of resources in the economy.
- They estimate that the output costs of a Russian import stop remain below 1% of GDP, that is 80-120 € per German citizen per year. In a worst-case scenario, where the 30% shortfall is not compensated at all, the economic costs would rise to about 2-2.5% of GDP, or about 1 000 € per German citizen over 1 year.
- The distributional consequences of an increase in energy prices are moderate. This is because typically households in Germany spend between 3 and 6 percent of their income on heating, and about 3.4 and 6.8 percent on car fuel, with little variation between the bottom and top income households. High-income households can absorb expenditure shocks for rising energy prices, thus targeted transfers to low-income households can be a cost-efficient way to compensate for an unequal impact of rising energy prices along income distribution[5].
- In case an embargo is politically desired it should start as soon as possible so that economic agents can use the summer period for adjustment.

5 On average, the poorest EU households spend 11.3% of their income on energy and transport fuels (European Commission 2020). This substantially varies across countries, being as low as 6% in Sweden and exceeding 23% in Slovakia.

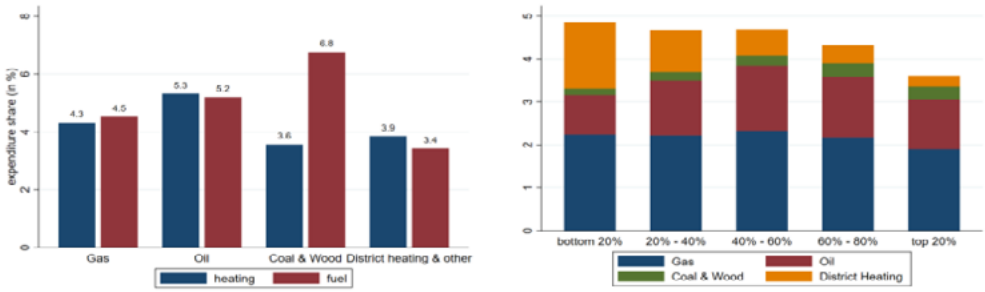
Economic impact on the German economy estimated by the model

Table 2

	Baqaee-Farhi (2021), full model	Simplified model, 10% oil, gas, coal shock	Simplified model, 30% gas shock
GDP, %	0.2-0.3	1.3	2.2
GNE, %	0.2-0.3	1.5	2.3
Cost per citizen	€80-120	€500-700	€800-1000

Energy Expenditure Shares

Figure 1: Energy expenditure shares



(a) By heating source (b) By income

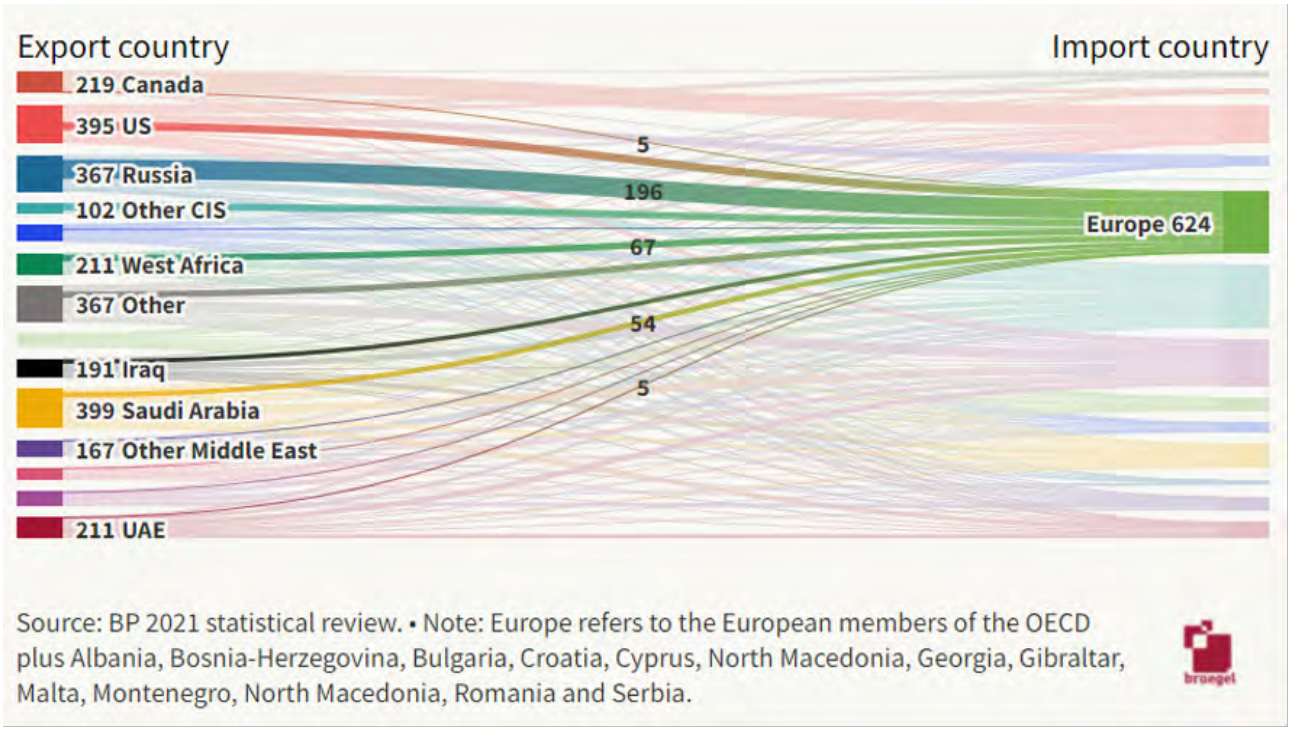
Notes: Left panel shows expenditure shares for all households by type of heating for heating (blue bars) and for fuel (red bars). Right panel shows energy expenditure shares for different heating sources along the income distribution.

3. Can Europe manage if Russian oil and coal are cut off?

Authors: G. Zachmann, B. Mcwilliams, G. Sgaravatti, and S. Tagliapietra

- Were EU-Russian oil trade to stop, around 3mb/d of Russian crude supply and 1mb/d of oil products would be taken offline, constituting a serious lobal supply shock.
    - OPEC spare capacity estimates range up to 4 mb/d, thus an increase in production from OPEC countries could compensate the the loss in Russian supply. However, three bottle necks need to be addressed: 1) intra-European oil infrastructure, which is used to moving crude oil and products from east to west, may need to adapt to flows eastwards; 2) refineries are currently optimised to use Russian oil and will be less efficient if producing with a different quality of crude; 3) replacing Russian refining capacity (e.g., to produce diesel) will require European refineries to raise runs about 10 percentage points.

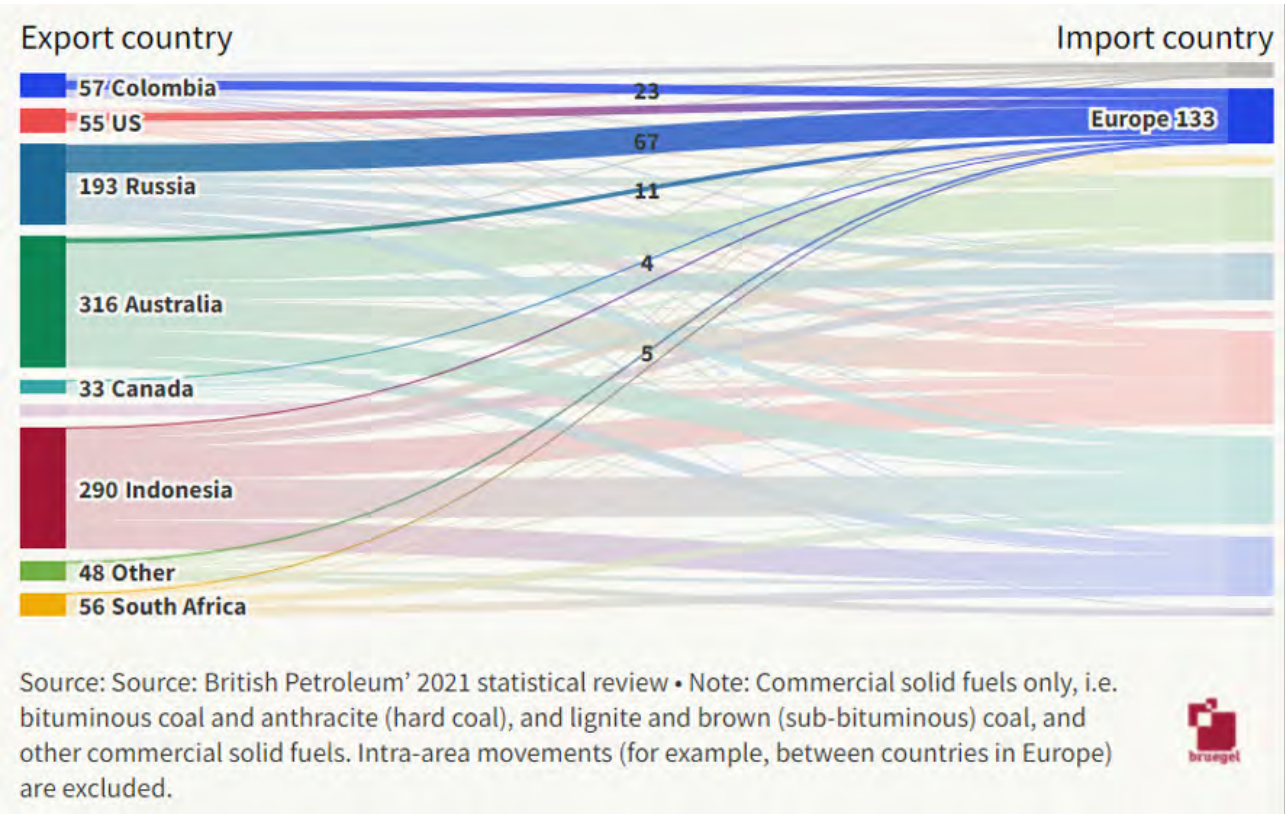
Global trade in crude oil and petroleum products in MT (2020)



Source: BP 2021 statistical review. • Note: Europe refers to the European members of the OECD plus Albania, Bosnia-Herzegovina, Bulgaria, Croatia, Cyprus, North Macedonia, Georgia, Gibraltar, Malta, Montenegro, North Macedonia, Romania and Serbia.

- Replacing current coal supply from Russia (> 40 MT) is also doable. It could be even exceeded if desirable after banning gas and oil imports from Russia to produce electricity. The EU has enough spare capacity to drastically increase power generation from coal in case of emergency. For example, if all hard coal power plants in Germany had operated at full capacity in 2021, they would have produced around 140 TWh more of electricity, consuming about 40 MT of additional coal.
    - Global coal markets are well supplied and flexible. Coal could be imported from China, India, Australia, South Africa, and the USA.
    - The EU could also increase domestic coal production by some 40 MT in case of emergency, after it had been purposely declining for the last three decades.

Global coal trade in MT (2020)



Source: Source: British Petroleum' 2021 statistical review • Note: Commercial solid fuels only, i.e. bituminous coal and anthracite (hard coal), and lignite and brown (sub-bituminous) coal, and other commercial solid fuels. Intra-area movements (for example, between countries in Europe) are excluded.

renew europe.