Dependence of EU member states' domestic oil consumption on oil imports from Russia and the EU oil embargo

- Public attention focuses mainly on **direct imports of oil (crude oil and oil products) from Russia** and, hence, sees large differences in the dependence on Russian oil among EU member states (MS). However, for several EU MS, especially those with a lower share of direct imports, including Austria, **indirect oil imports from Russia** are far more important than direct ones. Indirect imports are imports (mainly of oil products) from other EU MS which originally imported them from Russia (mainly as crude oil).
- Looking at the **combined share of direct plus indirect oil imports from Russia in total oil imports**, considerably more EU MS have Russia as important ultimate source of their oil imports and there is **less heterogeneity** among EU MS. Nevertheless, EU MS with an above average combined share are mostly CESEE countries.
- The appropriate measure, however, to assess the **dependence of domestic oil consumption** (by both households and companies) on imports from Russia, is the **ratio of direct plus indirect imports from Russia in excess of total oil exports to domestic oil consumption**. In 2020, economically larger EU MS most dependent on oil imports from Russia were Slovakia, Poland, Czechia, Hungary, followed by Finland and Austria.
- To assess the **dependence of total domestic energy consumption** on oil imports from Russia, we must multiply this ratio with the **share of domestic oil consumption in total domestic energy consumption.** This share varies considerably among EU MS. It is substantially higher in Southern European EU MS but also in LU, IE, NL, DE and AT than in CESEE EU MS. Thus, the resulting measure for dependence of total domestic energy consumption on oil imports from Russia was most elevated in small Non-CESEE economies like MT, CY and LU. Still, among larger EU MS, this measure was highest in Slovakia, Poland, and Hungary, followed by Austria and Czechia in 2020. (Since 2020, however, import sources may have already changed substantially in some countries, like e.g. Poland and Finland.) In Austria, this share rises further when direct oil imports from Kazakhstan and Turkmenistan transiting Russian territory are included.
- When implementing the **EU27 oil embargo**, the main challenge will be to perform this **as a joint effort, which hinges on two questions**:
    - To what extent will EU MS reduce their oil (re-)exports to other EU MS in response to cutting their direct oil imports from Russia? This will likely depend on the extent they can substitute these imports by imports from non-Russian sources. **For Austria, Germany's ongoing substitution success will be important**, as 25% of Austria's oil imports stemmed from Germany in 2020.
    - **To what extent will EU MS, including Austria, reduce the share of oil** in their total domestic energy consumption by energy saving and by renewables?

Dependence of EU member states' total domestic oil consumption on oil import (import of crude oil and oil products) from Russia, 2020

For each indicator, color for ...
... bucket 1 (rank 1 to 3)
... bucket 2 (rank 4 to 6)
... bucket 3 (rank 7 to 9)

	Direct import	Indirect import	Sum of Dir. + Indir. Imp.	After deducting total oil exports of the respective EU member state:				Plus oil transiting through Russi
	1	2	3 (= 1 + 2)	4	5	6	7 (= 5 * 6)	8 (= 7 + ...)
	Direct import from Russia in % of total oil import	**Indirect import from Russia** in % of total oil import	**Direct and indirect import from Russia** in % of total oil import	**Direct and indirect import from Russia net of total oil export** in % of total oil net import	**Direct and indirect import from Russia net of total oil export** in % of total domestic oil use	***Total domestic oil use*** *in % of total domestic energy use*	**Direct and indirect import from Russia net of total oil export** in % of total domestic energy use	**... Including direct import from Kazakhstan and Turkmenistan transiting through Russia** in % of total domestic energy use
Slovakia	77.8	17.8	95.6	90.7	88.2	*21.5*	**18.9**	**20.3**
Finland	66.2	4.3	70.5	35.8	39.6	*22.8*	**9.0**	**9.0**
Lithuania	58.7	6.6	65.3	0.0	0.0	*37.1*	**0.0**	**26.1**
Poland	57.4	7.8	65.2	59.6	59.3	*29.6*	**17.5**	**20.4**
Estonia	49.6	50.4	100.0	100.0	0.0	*-4.3*	**0.0**	**0.0**
Bulgaria	48.6	10.4	59.0	31.1	31.9	*23.6*	**7.5**	**7.5**
Hungary	47.7	24.2	71.9	58.7	51.8	*27.9*	**14.5**	**15.9**
Romania	34.1	12.0	46.1	7.7	5.0	*29.8*	**1.5**	**13.4**
Czechia	28.8	35.6	64.4	57.0	58.5	*21.1*	**12.4**	**13.8**
Germany	27.5	7.4	34.9	20.2	20.8	*34.1*	**7.1**	**9.7**
Greece	23.2	2.2	25.4	0.0	0.0	*46.6*	**0.0**	**0.0**
Croatia	20.8	21.5	42.3	0.0	0.0	*33.1*	**0.0**	**0.0**
Netherlands	17.6	5.6	23.2	0.0	0.0	*36.8*	**0.0**	**0.0**
Slovenia	14.8	26.4	41.3	0.0	0.0	*29.5*	**0.0**	**0.0**
France	13.3	7.1	20.4	4.2	4.4	*28.3*	**1.2**	**3.6**
Italy	13.1	4.0	17.1	0.0	0.0	*31.9*	**0.0**	**0.0**
Denmark	9.5	6.1	15.6	0.0	0.0	*36.3*	**0.0**	**0.0**
Latvia	7.5	71.2	78.7	75.0	96.3	*31.2*	**30.1**	**30.1**
Sweden	6.6	17.2	23.9	0.0	0.0	*21.9*	**0.0**	**0.0**
Spain	6.5	3.7	10.2	0.0	0.0	*40.0*	**0.0**	**0.0**
Belgium	6.1	15.9	22.0	0.0	0.0	*36.4*	**0.0**	**0.0**
Austria	5.9	45.0	50.9	38.1	38.3	*34.0*	**13.0**	**21.7**
Ireland	4.6	3.4	8.1	0.0	0.0	*44.5*	**0.0**	**0.0**
Portugal	3.6	3.6	7.2	0.0	0.0	*41.7*	**0.0**	**0.0**
Cyprus	0.0	27.5	27.5	27.5	33.5	*85.0*	**28.4**	**28.4**
Malta	0.0	20.9	20.9	14.8	127.8	*41.4*	**53.0**	**53.0**
Luxembourg	0.0	35.3	35.3	35.2	44.1	*55.0*	**24.3**	**24.3**
EU27	**25.9**	**0.0**	**25.9**	**4.6**	**5.1**	***32.1***	**1.6**	**4.5**
Median	**14.8**	**12.0**	**35.3**	**7.7**	**4.4**	***33.1***	**1.2**	**7.5**

Source: Eurostat, IEA, Russian Customs Authority, UN Comtrade, OeNB estimate. Note: EU27 aggregate: Extra-EU oil import and export are taken for total oil import and export.
Item "direct and indirect import from Russia net of total oil export" set equal to zero if negative. "Total domestic oil use" and "total domestic energy use" are defined as the sum of domestic production plus net volumes from storage plus imports minus exports. In the case of Estonia, Latvia, Malta and Luxembourg, there were very large negative net volumes from storage (stock increase).

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Dependence of EU member states' domestic oil consumption (and domestic energy consumption) on oil imports from Russia and the EU oil embargo

This note provides a brief descriptive analysis that relates to:

- Imports, exports and domestic consumption of **oil**, comprising both crude oil and oil products measured in terms of their energy content, with **consumption** comprising the use by both households and companies. Total domestic consumption (i. e. use) of oil (or of total energy as the aggregate of all types of energy) is defined as the sum of domestic production plus net volumes from storage plus imports minus exports of oil.
- This note relates to the **year 2020**. Hence, there is the caveat that structural changes since 2020 are not captured by the data analysis. Such changes have likely occurred especially in the Baltic countries and in Poland, after Putin's threats against Ukraine in the context of the military build-up of the Russian army since the first quarter of 2021. Moreover, further changes have already taken place in recent months. For instance, Austria stopped its direct oil imports from Russia.

This note shows that **each EU member state's degree of dependence on oil imports from Russia relative to that of other EU MS hinges on the concept applied (see Table above)**:

- Looking at the **share of direct oil imports from Russia in total oil imports**, 8 of the 9 most dependent EU MS ("Top-9") are CESEE EU MS, with the exception being Finland. The EU27 aggregate share is 26%, based on extra-EU oil imports as denominator. The **median is about 15%**, with the min-max-range from 0% to 78% (Slovakia SK).
- However, for several EU MS, including Austria, **indirect oil imports from Russia** (oil imports that enter as imports from other EU MS which had imported these oil volumes from Russia) are far more important than direct ones. Indeed, only 3 of the Top-9 with respect to direct oil imports are among the Top-9 w.r.t. the share of indirect oil imports from Russia. The **median is 12%**, with the min-max-range from 0% to 71% (Latvia LV).
- Nevertheless, 8 of the Top-9 w.r.t. direct oil imports are among the Top-9 w.r.t. the **combined share of direct and indirect oil imports from Russia in total oil imports.** Again, 8 of them are CESEE EU MS. The **median is about 35%**, with the min-max-range from 7% to 100% (Estonia EE). The fact that the median of this measure is considerably higher than the median of only direct imports signals that considerably **more EU MS have Russia as important ultimate source of their oil imports**. Looking at total oil imports, there is less heterogeneity in the dependency on Russian oil among EU MS.
- However, several EU MS, including 4 of the Top-9 w.r.t. the combined share of direct and indirect oil imports from Russia, have large oil exports, including to other EU MS. Thus, **subtracting total oil exports and relating the net item to total domestic <u>oil</u> consumption** (which also excludes exports) yields a more appropriate concept of dependence of each country. According to this measure, 4 non-CESEE EU MS enter the Top-9, including Austria on the 9th position. The EU27 aggregate share is 5.1%, based on extra-EU oil exports. The **median is 4.4%**, with the min-max-range from 0% to 96% (LV),

if the value of 128% for Malta is considered an outlier (as imports from Russia serve only to increase the oil stock). Austria has a share of about 38%.

- At the same time, the **share of oil in total domestic energy consumption** varies considerably among EU member states. It is typically substantially higher in Southern European EU MS than in CESEE EU MS. Thus, among the Top-9 w.r.t. the share of oil in total energy consumption, there is only one CESEE EU MS, while there are also Luxembourg and Ireland among the Top-9. The EU27 aggregate share is 32%, the **median is about 33%**, with the min-max-range from 21% to 85% (CY), if the value of -4.3% for Estonia is considered an outlier (as total imports serve only to perform exports and increase the stock of oil). Austria has a share of 34%.

- Considering the weight of oil in total domestic energy consumption, the resulting **share of the net item (direct and indirect oil imports from Russia minus total oil exports) in total domestic energy consumption** shifts a bit away from CESEE EU MS. That is, among the Top-4 according to this measure, there are 3 small non-CESEE countries (MT, CY, LU). They receive all Russian oil indirectly as shipping oil, with the small absolute amounts involved not posing major substitution problems.
  Still, the remaining 6 among the Top-9 are CESEE EU MS plus Austria, with Hungary on the 7th and Austria on the 8th position. The EU27 aggregate share is 1.6%, the **median is 1.2%**, with the min-max-range from 0% to 30% (LV), if the value of 53% for Malta is again considered an outlier. Hungary has a share of 14.5%, Austria 13.0%.

- **Including direct oil imports from Kazakhstan and Turkmenistan, which transit Russian territory,** lifts the EU27 aggregate share to 4.5% and the **median to 7.5%,** and it raises the share for two EU member states quite significantly, namely for Lithuania to 26% and for Austria to about 21.5%, shifting Lithuania to the 4th and Austria to the 6th position among EU27.

Obviously, it is important to be aware of the **heterogeneity within the EU27** with respect to the dependence on oil imports from Russia. This heterogeneity is particularly pronounced when looking at the share of direct oil imports only, which is a measure widely reported in the media. Heterogeneity is clearly **less pronounced than at first glance when including indirect imports from Russia** via other EU MS. **However, it remains significant.** Therefore, when **implementing the EU27 oil embargo**, one of the main questions will be whether this will be performed as a **joint effort**, including by providing mutual support.

- The question will arise **to what extent EU MS will reduce their oil (re-)exports to other EU MS in response to cutting their direct oil imports from Russia**. This will likely depend on the extent EU MS can substitute these imports by imports from non-Russian sources. **Germany's ongoing substitution success will be important for Austria**, as 25% of Austria's oil imports stemmed from Germany in 2020, mainly in the form of diesel. Note that the **EU oil embargo exempts imports of pipeline oil from Russia (temporarily)**. This benefits several EU MS that belonged to the COMECON (CZ, SK, HU, PL and DE due to East-Germany) and are connected through the Drushba (Friendship) pipeline. However, Poland and Germany declared not to make use of this exception. Under this exception, it is generally not allowed to re-export these oil imports to other EU MS, apart from a further 18-month-exception for Slovakia to re-export to Czechia. Hungary's

claims for the right to re-export and thus gain competitive advantage appear to have remained unfulfilled. In 2020, Austria purchased 2% of its oil imports from Hungary, 5% from Slovakia and 1% from Czechia.

- To what extent will EU MS, including Austria, reduce the share of oil in their total domestic energy consumption by energy saving and by renewables?