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**Working Paper**

## The Ukraine Support Tracker: Which countries help Ukraine and how?

Kiel Working Paper, No. 2218

**Provided in Cooperation with:**

Kiel Institute for the World Economy – Leibniz Center for Research on Global Economic Challenges

*Suggested Citation:* Trebesch, Christoph et al. (2023) : The Ukraine Support Tracker: Which countries help Ukraine and how?, Kiel Working Paper, No. 2218, Kiel Institute for the World Economy (IfW Kiel), Kiel, <https://www.ifw-kiel.de/publications/the-ukraine-support-tracker-which-countries-help-ukraine-and-how-20852/>

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## Ukraine Support Tracker – Methodological Update & New Results on Aid “Allocation” (Febr. 2024)

This research note introduces several important novelties of our Ukraine Support Tracker project. We focus on four main points:

1. Multi-year aid packages and how we deal with them in our dataset
2. Our new “allocations” measure to better track aid sent to Ukraine
  - a. Definition and measurement of aid “allocations”
  - b. Results from our “allocation” dataset (incl. comparison with “commitments”)
3. Data quality:
  - a. Improved sources: why the quality of our sources and data has improved
  - b. A new data transparency index on weapon deliveries
  - c. How good is our dataset? New benchmarking exercises using newly released reports by France, Netherlands and the UK

This update complements our last research paper of February 2023, which describes our general approach and methodology:

- Christoph Trebesch, Arianna Antezza, Pietro Bompreszi, Katelyn Bushnell, Yelmurat Dyussimbinov, Andre Frank, Pascal Frank, Lukas Franz, Ivan Kharitonov, Bharath Kumar, Ekaterina Rebinskaya, Christopher Schade, Stefan Schramm and Leon Weiser (2023). "The Ukraine Support Tracker: Which countries help Ukraine and how?" Kiel Working Paper, No. 2218. [Download here](#).

## 1. Multi-year aid packages

Our baseline data tracks bilateral, government-to-government, commitments in military, financial, and humanitarian aid. Over the first year of the war, we did not differentiate between short and long-term aid, because most aid flows in the initial months came in the form of ad-hoc, short-term promises and deliveries.

More and more countries, however, have announced multi-year aid packages. These multi-year commitments often come in the form of special “funds” that are designed to gradually allocate a pot of donor money for specific aid packages. Over time, the committed funds are then used up (or earmarked) for specific weapon deliveries or budgetary support. Multi-year commitments tend to be very large and allow both Ukraine and donor countries to better plan aid allocation and delivery over the medium term. Against this backdrop we now make a distinction between short-term and multi-year commitments, as follows:

- A *short-term commitment* is defined as aid that is to be allocated or delivered within the next fiscal year. This is mostly the calendar year with some exceptions (In Canada or the UK the fiscal year runs from April to March so short-term aid is referred to financing within this period). Examples include the one-off transfer of weapons from own military stocks or the announcement of emergency aid. The majority of aid packages in the first year of the war were of this short-term nature.
- A *multi-year* commitment is defined as a spending plan announced over a horizon of two or more years, with funds pledged but not yet allocated over time or for specific purposes. Examples include the Norwegian Nansen Support Programme, the Danish Ukraine Fund, or the German security capacity building initiative (“Ertüchtigungshilfe”). These programs may earmark funds for the current and future fiscal year, as well as extend authorizations to enter into additional commitments in the future.

We now provide a brief overview of the main multi-year aid programs.

### Denmark

In March 2023, Denmark announced its intention to establish a Ukraine fund dedicated to financing future aid for Ukraine. The fund has been expanded several times since then. As of January 15 2024, the committed funds for military aid under the scheme amounted to DKK 59.6 billion (EUR 8 billion) – with allocations unevenly spread over 6 years (2023-2028), as follows: 2023: DKK 12.9 billion; 2024: 13.2 billion, 2025: 2.3 billion 2026: 1.8 billion; 2027: 1.4 billion; 2028: 1 billion.

### European Union

In June 2023, EU Commission President Ursula von der Leyen proposed a major EU support package of up to EUR 50 billion to be allocated between 2024 and 2027 (EUR 12.5 billion yearly). This so-called “Ukraine Facility” was set up for short- and medium-term assistance under 3

pillars: 1) resilience and reconstruction, 2) budgetary and financial support, and 3) EU accession support, including funds to improve the rule of law and democracy as well as administrative expenses. The finalization of this program was long in the making but it was finally approved on Feb. 1st, 2024.

### Germany

In May 2023, the German government announced a commitment of EUR 10.5 billion in military support through the "Ertüchtigungshilfe" to be allocated between 2024 and 2027. The main purpose of the fund is to finance in-kind military assistance to Ukraine via industry purchases. The total also includes future EPF contributions, which we count separately in our database.

### Lithuania

On July 24<sup>th</sup> 2023, the government of Lithuania announced a new aid fund of EUR 200 million to support and finance the Ukrainian military. The program will span a timeframe from 2024 through 2026. As of January 15<sup>th</sup>, no new information has been provided on this commitment nor have allocations been tracked under its financing.

### Norway

On February 16<sup>th</sup>, 2023, Norway was one of the first donors to establish a multi-year strategy under the so-called Nansen Support Program in February 2023, worth a total of NOK 75 billion (EUR 6.6 billion). The program covers both military and humanitarian assistance, including reconstruction and maintenance of civil infrastructure. Specifically, the fund is currently designed to provide NOK 15 billion (EUR 1.3 billion) per year for both humanitarian and military assistance, with an equal split between the two (NOK 7.5 billion each).

### Sweden

On the 17<sup>th</sup> of July, 2023, the Swedish government adopted a new strategy to support Ukraine. The so called Recovery and Reform cooperation agreement commits approximately EUR 500 million (SEK 6 billion) from 2023 until 2027, focusing on a wide range of aid purposes, including for critical infrastructure, essential social services, the green transition, entrepreneurship and trade, security and stabilisation, and human rights and democracy. Until further information is provided, we consider the financing as evenly split into 5 equal part.

### Switzerland

On April 12<sup>th</sup>, 2023, the Swiss federal council reserved funding of CHF 1.5 billion for the next international cooperation strategy period from 2025 to 2028 for Ukraine. The fund will be used for humanitarian aid and development cooperation.

Table 1 below provides a summary overview.

Table 1: Main multi-year aid programs

Country	Announcement Date	Disbursement Period	Total Commitment (billion EUR, Jan 15, 2024)	Allocated (billion EUR, Jan 15, 2024)	Outstanding (billion EUR, Jan 15, 2024)
Denmark	May 2023	2023-2028	8	4	4
EU	June 2023	2024-2027	50	0	50
Germany	May 2023	2024-2027	10.5	1.6	8.9
Lithuania	July 2023	2024-2026	0.2	0	200
Norway	Feb 2023	2023-2027	6.6	1.2	5.4
Sweden	July 2023	2023-2027	0.52	0.83	0.439
Switzerland	April 2023	2025-2028	1.6	0	1.6

## 2. Introducing a new “allocations” measure of aid

### 2.1. Definition and measurement of aid “allocations”

Thus far, the best available data to analyze and compare aid to Ukraine was on commitments. This is because governments tend to be more transparent regarding commitments rather than on deliveries, e.g. on weapon transfers to the battlefield. Whenever the data allows, we also collect and compare aid delivery and disbursement, but this was thus far only possible for subset of the data, e.g. for certain heavy weapons and for budgetary support. Given the data constraints and lack of government transparency on deliveries, we thus focus on commitments as the baseline measure of Ukraine support. Over the past months, however, the quality and availability of official sources has improved, and European governments have become more transparent. As a result, we are able to expand our project and also measure the specific allocation of aid to be delivered to Ukraine.

Aid “allocations” are defined as aid that is earmarked and/or specified for delivery in the near term. Government allocate aid by specifying an aid package that is to be sent to Ukraine. These announcements can be usually linked to a previous specific government commitment of military, financial or humanitarian aid. In practice, the commitment is “drawn down” and specified through an allocation, thus moving closer to the actual delivery to Ukraine. For example, we code military aid as “allocated” if a government announces a new military aid package, including a list on which exact weapons are to be sent. We can then quantify the value of this package and code it as allocated.

In our dataset, almost all allocations we have coded are intended for delivery in the short to medium term, meaning in a few, days, weeks or months. There are few exceptions in which governments allocate military aid that is to be sent only further in the future, e.g. because

production takes until end-2024 or even 2025.<sup>1</sup> But these cases are very rare, and account for less than 1% of total allocated aid in our data. Most allocations can thus be interpreted as “soon to be delivered”.

The new allocation data allows us to present a much better picture on aid actually arriving in Ukraine, i.e. effectively available for the Ukrainian army and government. This is the case because our new allocation numbers consider only aid which has been earmarked for a specific purpose, therefore excluding potentially unfulfilled promises.

Distinguishing “commitments” from “allocations” is particularly important for multi-year aid programs and budgetary aid (e.g. the EU’s MFA program), as we can distinguish between large but unused commitments and those parts of the program that have actually been used or allocated for Ukraine, e.g. for weapon delivery or financial aid disbursements. Tracking the allocation of specific aid packages also allows for a more precise assessment for what committed aid is ultimately used for (purpose coding) and helps us to control for double counting and erroneous entries. Aid packages which are standalone, i.e., allocations which are not part of commitments, are coded as independent entries.

Take the example of Norway’s Nansen Support Programme, which budgeted NOK 7.5 billion (approx. EUR 1 billion) for military aid in 2023. In our new dataset update, we can now subdivide this 7.5 billion commitment into 15 military allocation packages, with exact dates and aid lists over the course of 2023, e.g. for the delivery of main battle tanks, anti-aircraft surface-to-air systems, and general military equipment. Another example is the Swedish Recovery and Reform cooperation program with commitments of EUR 0.5 billion to be disbursed between 2023 and 2027. For 2023 we tracked 2 separate winter packages that were financed from this fund, as allocations of specified infrastructure and further civilian support. Finally, there is the well-known case of the US Presidential Drawdown Authority, which we already discuss in detail in our working paper (see also Figure 1 on the depletion of US military aid below).<sup>2</sup>

## 2.2. Results from our new “allocations” dataset

In this section we show key insights from our new allocations data, in particular trends across donors and over time and on the large gap between commitments (generally promised aid) and allocations (specified aid for near term delivery).

We start with Figure 1 on the allocation of US aid, since it nicely illustrates how US aid depleted over time and how our new allocation dataset is structured. The orange bars show the date and size of new military aid commitments for Ukraine that we coded from the various Ukraine

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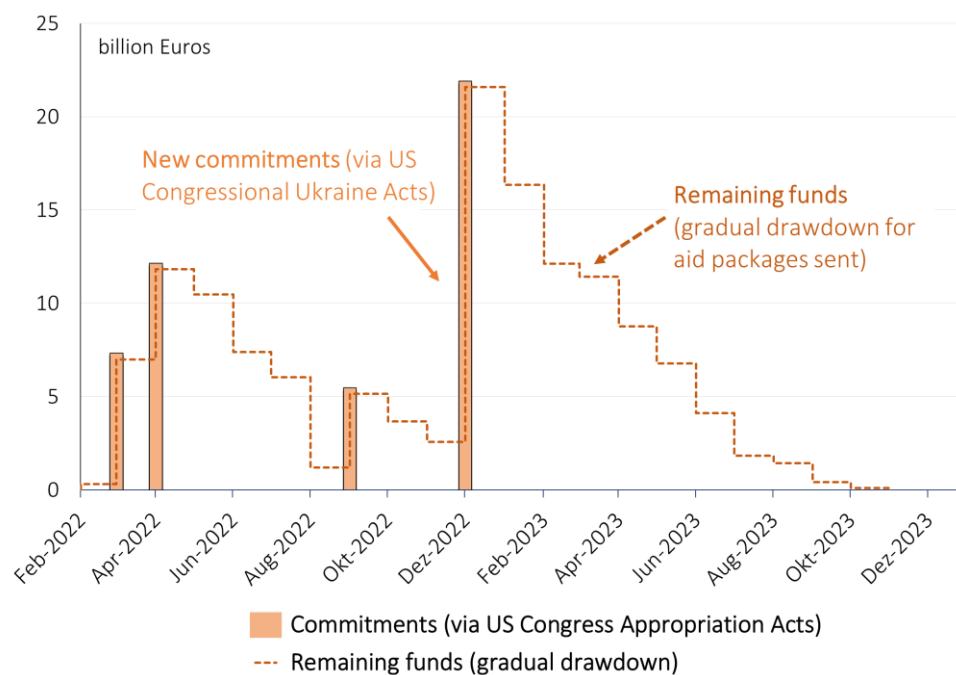
<sup>1</sup> Canada for example announced a weapon acquisition program for 50 armoured personal carriers that will be delivered only in a few years from now, from Belgium for reconstruction projects, and from Latvia for future NATO contributions.

<sup>2</sup> In most cases, the sums of commitments and subsequent allocations or “drawdowns” match perfectly. However, in the US case there have been rounding or revaluation issues, leading to a small divergence of committed and allocated funds in aggregate. For details see the detailed congressional reports here: <https://www.congress.gov/118/meeting/house/116204/documents/HHRG-118-GO06-20230713-SD003.pdf>; and here <https://crsreports.congress.gov/product/pdf/IF/IF12040>

appropriations acts by the US Congress since February 2022 (note: here we only show military commitments destined for delivery to Ukraine and not the total volume of these acts, see our main paper for details on US aid).

The dotted lines show the level of residual funds, which decline with each allocation made, i.e. with each US military aid package that is earmarked for delivery. These military allocations consist mostly of drawdowns under the Presidential Drawdown Authority, an instrument that was very effective in rapidly delivering military assistance to Ukraine. The graph shows the importance of distinguishing between commitments and allocations to understand the dynamics of aid over time.

Figure 1: US military commitments and allocations over time



Note: This figure shows the dynamics of US funding for military aid to Ukraine over time. We link US commitments (bars) to the drawdown or "allocation" of funds for specific weapons and other military items sent to Ukraine.

Figure 2 expands on Figure 1 by showing the dynamics of commitments vs. allocations for the three types of US aid to Ukraine we track, namely military, financial and humanitarian aid. The dotted line represents total commitments per month, while the shaded areas represent total allocations per month, for each of these aid types. US commitments peaked at EUR 67.71 billion after the US appropriations bill of late 2022. Since then, the committed funds have been gradually used up by allocating military and financial aid to Ukraine. Because no new Ukraine appropriation act has passed US congress, lines of both commitments and allocations have flattened, meaning that US aid flows have all but come to a halt. For example, U.S. military allocations averaged EUR 2.82 billion per month in the first half of 2023 (January through July), but they dropped to an average of just EUR 0.47 per month from August through December 2023. We can expect no major new aid allocations until a new Ukraine act passes congress, in

which case US commitments would spike again. The figure also illustrates the dominance of military aid in US aid. For illustration, total US humanitarian aid allocations amount to EUR 2.5 billion (over 2 years), comparable to what the US allocated for military aid in a single month.

Figure 2: US aid over time - committed vs. allocated

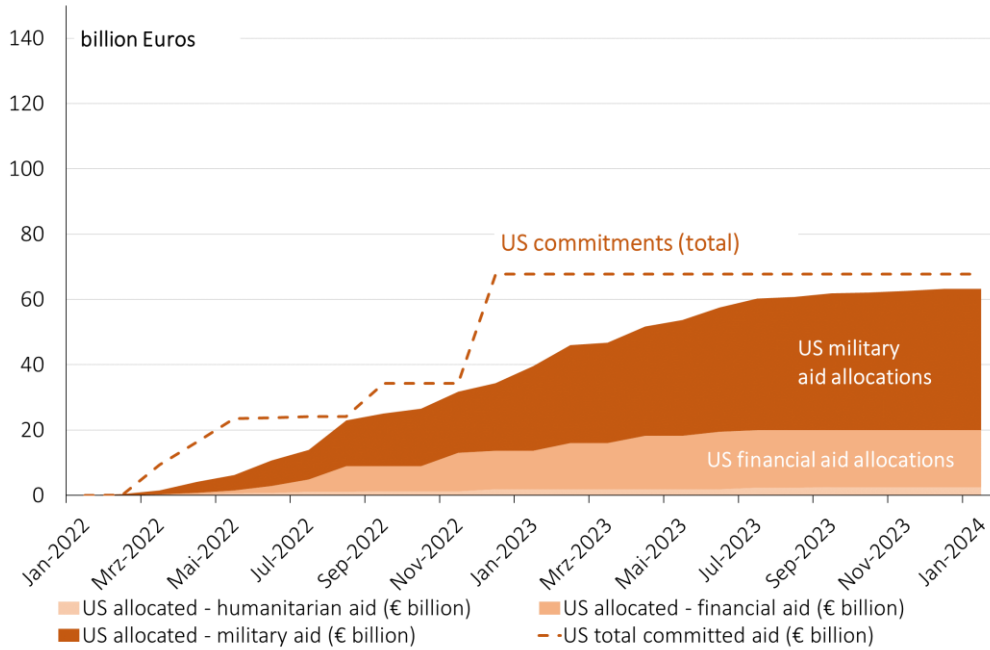
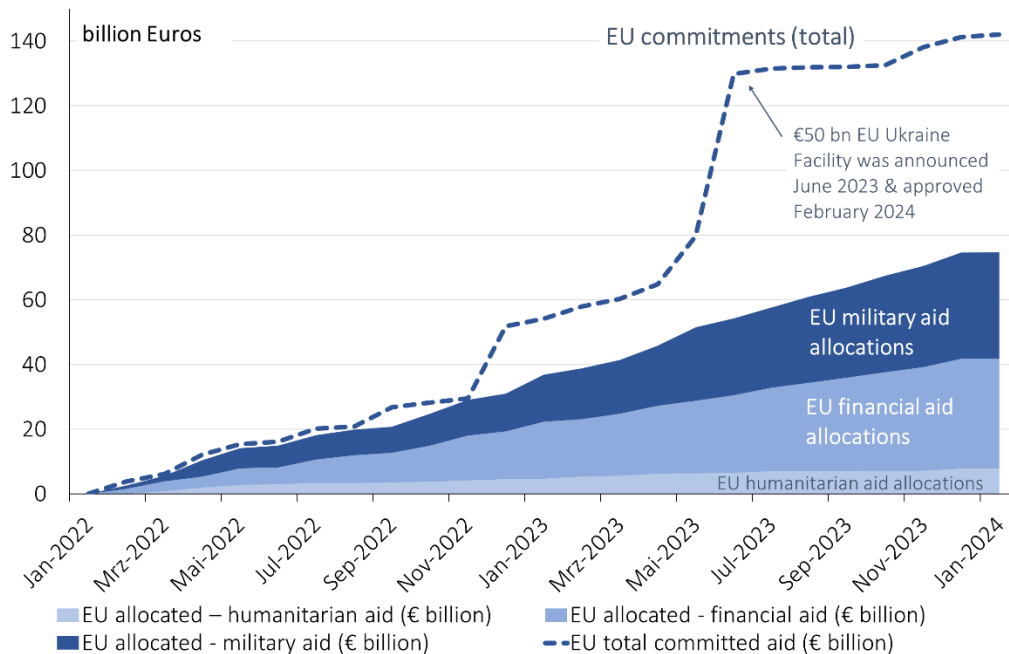


Figure 3: EU aid over time - committed vs. allocated



Note: Allocations are specific aid packages earmarked or specified for near term delivery to Ukraine. Data does not include private donations, support for refugees outside of Ukraine, and aid by international organizations. For information on data quality and transparency please see our data transparency index.

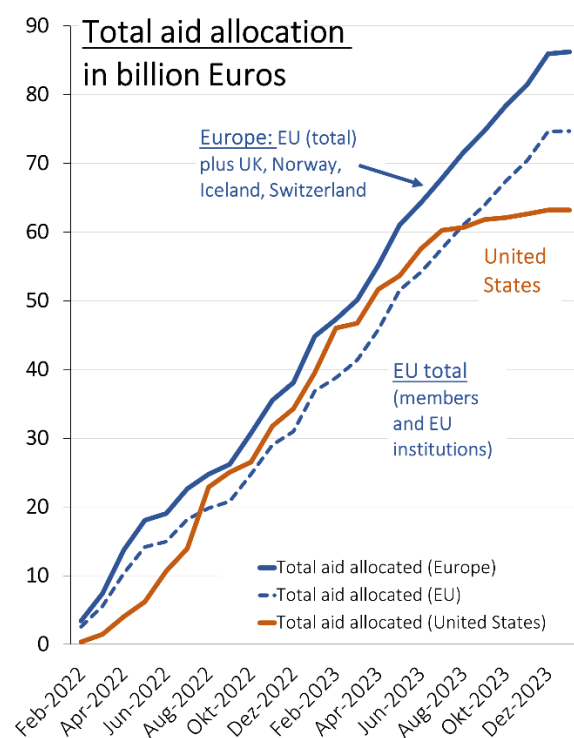


Figure 3 shows the same graph for the EU as a whole, thus summing up EU-level aid through the EU Commission and Council and all aid by EU member states. repeats the scheme of Figure 4, but for EU aid. Unlike for the US, EU commitments have continued to grow, reaching a total of EUR 144 billion as of January 15, 2024. In terms of allocations, EU aid total EUR 77.21 billion. There is thus a major gap between commitments and allocations, as only about 50% of promised aid has been allocated for delivery or disbursement. This means that aid arriving to Ukraine is far smaller than what commitment numbers suggest, and it also means that the EU still has a lot of financial room to allocate future aid to Ukraine.

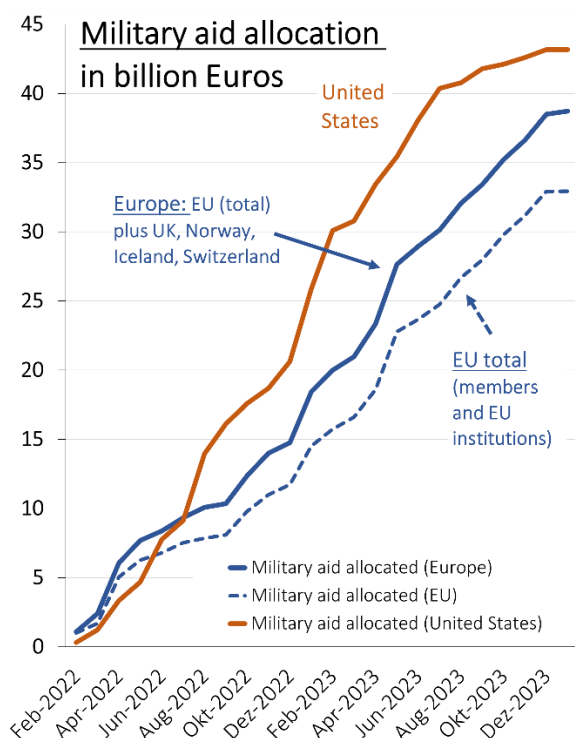
Figure 4 combines the above graphs to make a more direct comparison of US and European aid allocations over time. On European aid we now also look beyond EU member states and institutions and add all European donors including Iceland, Norway, Switzerland, and the United Kingdom. Panel A shows total allocations, including military, financial, and humanitarian.

Figure 4: US vs European aid allocations over time

Panel A: Total aid allocations – US vs Europe



Panel B: military aid allocations – US vs Europe



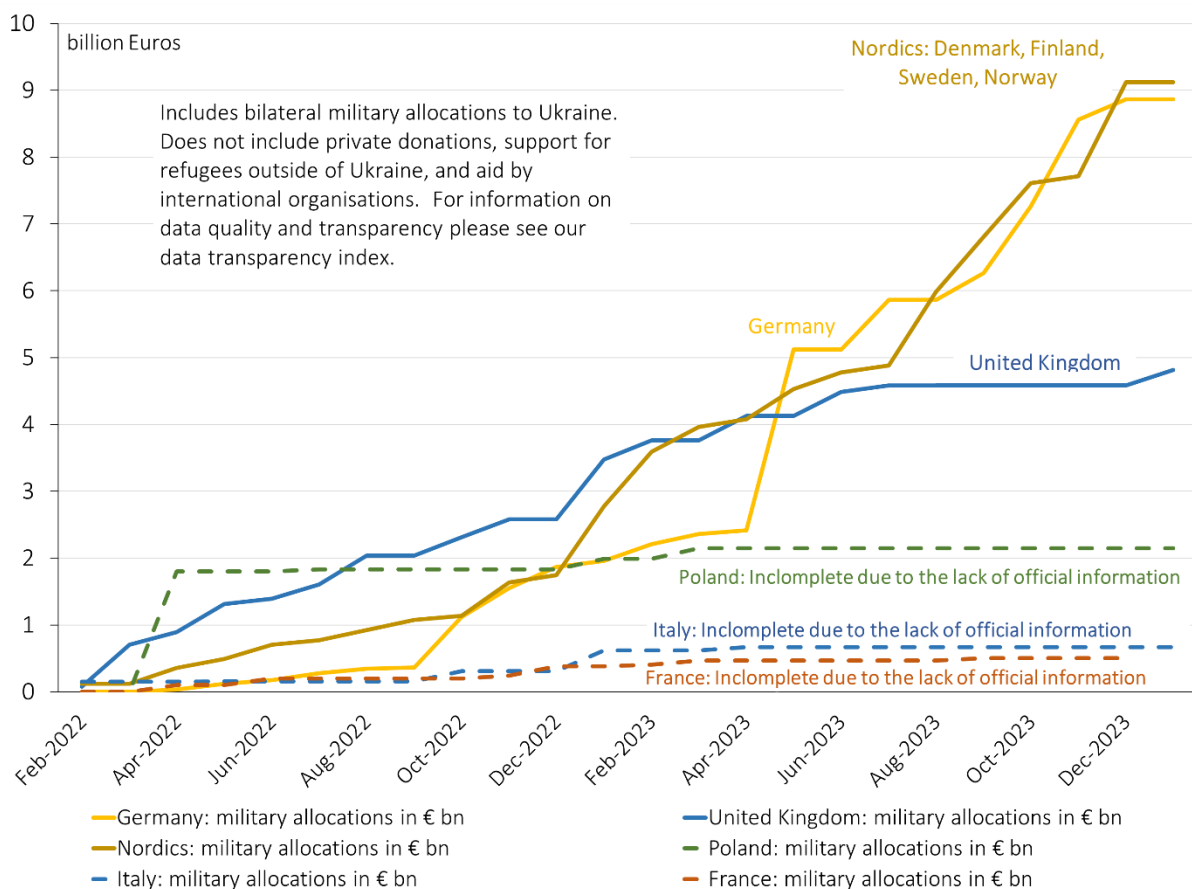
Since February 2022, Europe has consistently outpaced the United States in terms of allocated aid packages (those designated for near term delivery). Europe’s initial lead is a novel result, since in all previous releases we used commitments only and always found the US to be ahead from the start. Two years later, as of January 15, 2024, Europe’s lead in allocating aid to Ukraine has grown further, with EUR 88.7 billion in allocations by European donor countries and institutions compared to EUR 66.1 billion of US allocations (about 25% less). The US, however, is still ahead in military aid allocations, although the gap is shrinking due to the slowdown in

U.S. aid dynamics. As of January 15, 2024, the US had allocated EUR 43.2 billion in military aid, which is just over EUR 2 billion more than European countries.

Figure 5 looks at the trends of military allocations for the largest European donors over time. In the initial months after Russia’s invasion, we find the United Kingdom and Poland to have allocated the largest amounts of weaponry and military support to Ukraine. Today, as of January 15, 2024, the Nordic countries (Denmark, Finland, Sweden and Norway) and Germany are the two most important donors in terms of allocated military aid, with a total value of EUR 9.12 (Scandinavia) and EUR 9.36 billion (Germany). UK aid allocations have plateaued at below EUR 5 billion since mid-2023 and we also find little evidence that Poland has sent large amounts of military aid over the past year.

Compared to the Scandinavians, the UK or Germany, we find much smaller military aid allocated by Italy, and France, whose total military allocations are both below EUR 2 billion in our dataset. However, it should be emphasized that Italy, France and Poland are all not very transparent in their aid to Ukraine, so we are likely to underestimate total allocations. On France, a recent parliamentary report (discussed below) mentions EUR 1.7 billion as the total value of delivered military aid as of November 2023. This would roughly double the line for France in Figure 5, but still places France’s military allocations far below the UK, for example.

Figure 5: Top European donors- military aid allocated over time



### 3. Data quality

#### 3.1. Improved sources: why the quality of our sources and data has improved

There are several reasons why the quality of our sources and, therefore, of our dataset has increased considerably over the course of the past year.

- First, there is a general trend towards a formalization of aid schemes by donor governments. Rather than ad-hoc announcement or rushed parliamentary bills, as during 2022, governments now incorporate Ukraine aid into their current and medium-term budgetary planning and have launched designated Ukraine support funds backed by laws. This allows us to track both commitments and aid package allocation in a more precise way.
- Second, most governments have become much more transparent over time (with a few exceptions like France or Italy). 93% of tracked aid commitments in our dataset are now backed up by at least one official government document, a significant jump with respect to the number of tracked aid packages as of January 2023, where only 78% were backed by at least one official government source. The entries backed by official sources cover 99% of total aid captured in our dataset. Only in rare cases do we continue to rely on non-official documents, such as newspaper interviews with or tweets by a defense minister announcing the delivery of an important weapon. These quasi-official sources have become almost insignificant in recent updates.
- Third, governments make much more of an effort to publish their aid numbers and in-kind donations systematically. When this project started in April 2022, almost no country provided systematic information. Today, as of January 2024, 24 of the 43 donor governments now maintain a regularly updated overview website on their military, humanitarian, or financial assistance to Ukraine. As a rule of thumb, the most generous donors are also the more transparent ones, while minor donors tend to care little and often remain opaque. In our dataset, those donors with a detailed website account for 96% of total aid commitments tracked (EUR 243 billion).
- Fourth, we improve the overall quality of our price data that we use to estimate in-kind donations in the case we do not have credible official data on the value of weapons or humanitarian goods. Especially for heavy weapons, we spent additional weeks to gather new price data from the most reliable sources, namely from (i) official statements by the manufacturer, (ii) official government procurement reports, or (iii) bilateral contracts between governments. It should be emphasized, however, that we use the officially announced package and item values as a primary source when coding aid values. Only in the case where these are not reported or seem clearly biased, do we rely on our own estimated values based on our prices and registered item numbers. In total, only 23% of all commitment entries (corresponding to 2% of total aid) rely on our own evaluation using prices instead of donor reported values. The same holds for allocations, where the values are 26% (items coded) and 6% (shared of total aid), respectively.

### 3.2. A new data transparency index on weapon deliveries

The transparency on military deliveries to Ukraine is far from ideal. Out of security concerns, governments are unwilling to provide real-time information on when which military items are transferred across the border. However, some governments reveal these deliveries a few weeks later, which allows us to code deliveries reasonably well, at least for a few countries.

We define weapon delivery as an item that has been confirmed as having been transferred to Ukraine through an official statement or an official document. Our main source for heavy weapon deliveries are thus official reports. For cross-checking purposes, we also draw on the Ukraine-related reports by the United Nations Register of Conventional Arms (UNROCA). UNROCA focuses on major conventional arms, and delivery data is collected on a voluntary reporting basis by donor and recipient countries, including both government-to-government transfers as well as private transactions.

Unlike other sources, such as Oryx, we do not rely photographic or second-hand evidence, such as reports on the ground or open-source intelligence channels.<sup>3</sup> Furthermore, we focus explicitly on key military items, namely heavy weapons (see our long research paper for a definition and discussion). This means that we do not prioritize tracking the delivery of small caliber conventional arms or other smaller, in-kind military assistance items, also because these are of lower monetary value and are often not even properly captured by the donors themselves.<sup>4</sup>

Given the growing relevance of heavy weapons in the conflict, we seek to track their delivery as well as possible, but strive to be clear about the data and transparency constraints we face for our coding. For this purpose, we developed a second transparency index that focuses specifically on the transparency and data available on heavy weapon deliveries. This more specific index complements the general transparency index that we regularly update on our website and that is described in detail in our main research paper.

Our new heavy weapon transparency index is based on three subcomponents, the first being binary (yes/no) and the other two being continuous. These sub-indices on weapon transparency can be described as follows:

1. Centralized website: Is there a designated government website on Ukraine support with detailed heavy weapon delivery information (1 = Yes, 0 = No)
2. Official source on deliveries (share of heavy weapon entries in percent): Share of heavy weapon delivery entries in our dataset for which we have an *official* source, meaning a government report or official statement. The shares for each country are computed across all listed heavy weapon entries by that respective donor government.

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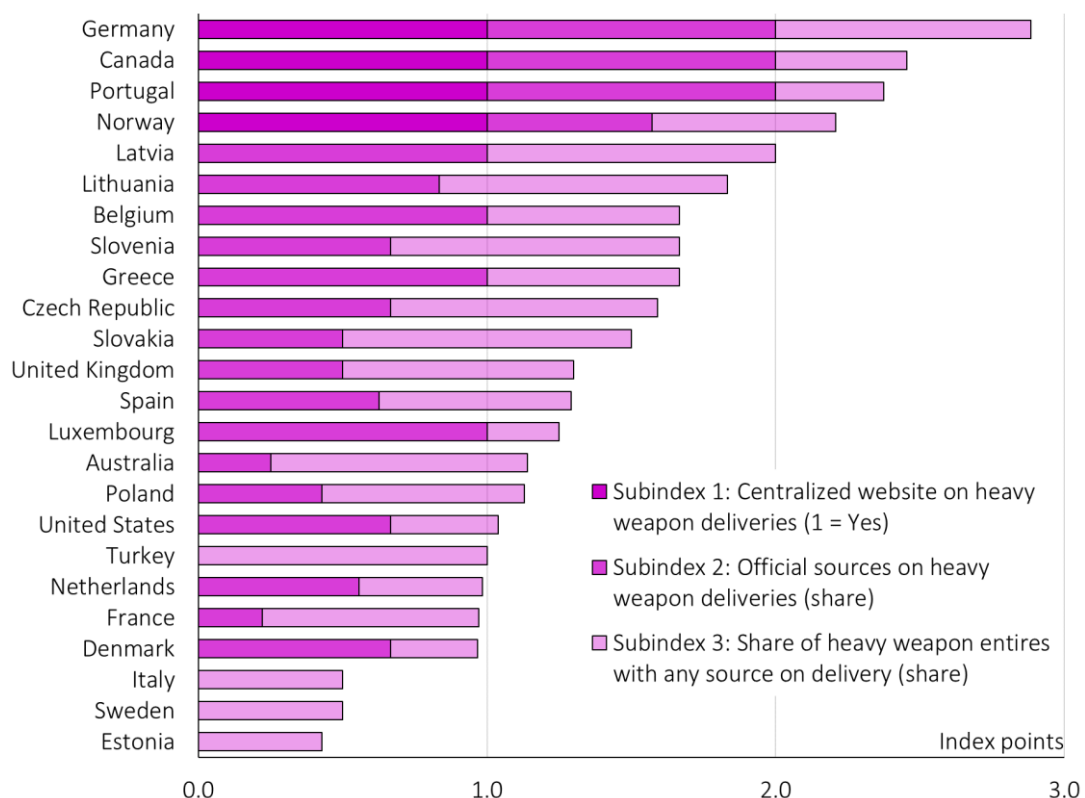
<sup>3</sup> The Ukraine Weapons Tracker or Oryx are two one examples of open-source intelligence platforms that rely on video and photographic evidence on military equipment delivery <https://twitter.com/uaweapons?lang=en>.

<sup>4</sup> See NYT article on “U.S. Military Aid to Ukraine Was Poorly Tracked, Pentagon Report Says.” <https://www.nytimes.com/2024/01/11/world/europe/us-military-aid-ukraine.html>

3. Any delivery source (share of heavy weapon entries in percent): Share of heavy weapon entries in our dataset for which we have *any* kind of source on weapon deliveries, including quasi-official ones (e.g. a tweet by a minister). The shares for each country are computed across all listed heavy weapon entries by that respective donor government.

The final index score per country is the sum of these three sub-indices. A score of 3 is the highest possible and suggests full delivery transparency, while 0 is the lowest possible score. Figure 6 shows the resulting index value by country. The average index score is 1.31 points, indicating a rather low degree of transparency with regards to heavy weapon deliveries on average. Among the most transparent are Germany and Canada, as they provide updated numbers on delivered weapons. The US instead does not provide centralized information on deliveries, and we are able to provide information on deliveries for only 37% of committed US heavy weapons.

Figure 6. Transparency index on heavy weapon deliveries



### 3.3. How good is our dataset? New benchmarking exercises using newly released reports by the Netherlands, the UK, and France

To check the quality and reliability of our data collection and aid valuation, we conduct a series of benchmarking exercises. We do this whenever donor governments release rich new information on their aid to Ukraine. Specifically, whenever possible, we compare our own aid estimates (using imperfect information available pre-release) against the newly released information by the donor. Here we summarize the most important cases since our last working paper update:

April 2023 – The Netherlands publishes a military aid overview page:

In April 2023, the government of the Netherlands made a big step towards transparency and launched a new version of their overview page on Ukraine aid, which now included detailed lists of all military items earmarked for Ukraine, including details on weapon types and the numbers of weapons or other items committed. This rich new data release by the Dutch allowed us to assess coverage gaps and bias in our own data collection approach. Specifically, we compare the full list of Dutch military aid items we had tracked in our dataset (version February 24, 2023) with the new Dutch list.

Overall, we had identified almost all of the relevant Dutch military aid items committed to Ukraine as of Q1 2023. Specifically, our dataset had correctly listed all heavy weapons committed, including 2 Patriot air defense systems, 45 overhauled T-72 main battle tanks, and 8 Panzerhaubitze 2000. What was new to us was the exact number of 196 YPR-765 infantry fighting vehicles committed by the Netherlands in 2022. In terms of estimated values, we were also pretty close. Our value estimates of Dutch military aid as of February 24<sup>th</sup> 2023 was EUR 2.35 billion. This compares to the newly released official Dutch estimate of EUR 2.5 billion on their overview page – a deviation of less than 10%.

July 2023 – The UK releases a rich new update on military support for Ukraine:

On July 20<sup>th</sup>, 2023, the Secretary of State for Defence of the UK provided the House of commons with an update on the military support for Ukraine. The report contains both estimates of the total value of military support as well as a detailed list of in-kind military assistance. As in the Dutch case, we had identified all the main military aid items listed as aid to Ukraine in our last dataset before the UK report (using release 13 covering commitments until July 31, 2023). Most importantly, we had correctly coded all 100 anti-air and 100 anti-tank weapons committed as of July 2023, as well as all 120 artillery items and 14 main battle tanks. Also, the estimated aid amounts closely match. Our dataset listed a total of value of EUR 2.8 billion in UK military aid commitments, compared to GBP 2.3 billion (or EUR 2.6 billion) in the UK report (both aggregated at the fiscal year 2022/2023). The difference is small and driven by exchange rate fluctuations and minor discrepancies in smaller aid items which cannot be realistically tracked (such as individual military equipment).

November 2023 – French National Assembly report on the military support for Ukraine:

On November 8<sup>th</sup>, 2023, the French National Assembly was briefed on a report on French military support to Ukraine.<sup>5</sup> It is the first official report on French military aid to Ukraine, after almost two years of opacity on the issue. The report is thus a welcome opportunity to update our data entries and also to check the reliability of our approach for a government that had previously only scantily shared details on its support to Ukraine (France ranks very low in our

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<sup>5</sup> The report is accessible here: <https://www.vie-publique.fr/rapport/292061-rapport-dinformation-sur-le-bilan-du-soutien-militaire-lukraine>

transparency ranking). For benchmarking, we compare the report of early November to our data release 14, which covered aid until October 31<sup>st</sup>, 2023.

All in all, our coding was surprisingly complete, given the incomplete information provided by the French government up until October. Most importantly, we correctly included all the heavy weapons sent by France, including all types of howitzers, armored vehicles, and ground-to-air-defense batteries. For 3 out of 8 heavy weapon types, our data was more detailed than the parliamentary report, as we list the number of weapons committed (based on official sources), while the report only mentions the weapon type but not numbers committed. These cases are highlighted in dark green in Table 2 below. On one type of heavy weapon – the TRF1 howitzers – we had coded a lower number of items, since we only had a reliable source on 6 canons, while the report lists 15 units as delivered (highlighted in orange).

Table 2: Comparing our dataset to the French National Assembly report – heavy weapons

Type	Entries in French parliamentary report (November 8)	Included in dataset? (as of October 31)	Explanation for discrepancy
<b>Artillery and MLRS</b>			
TRF1 howitzers	30 units	Yes 30 units	.
CAESAR howitzers	15 units	Yes, 6 units	Press rumors but no official source on 9 more howitzers (as of Oct 31)
LRUs (M270 MLRS)	No number	Yes, 2 units	.
120mm mortars	No number	Yes, no number	.
<b>Air-Defense</b>			
Crotale NG	No number	Yes, 2 units	.
CM200 Radar	1 item	Yes, 1 item	.
<b>Armored vehicles</b>			
VAB Armored Personnel Carrier	“Several dozen” units	Yes, 60 units	.
AMX10 RC	No number	Yes, no number	.

Our dataset was somewhat less complete on missiles and smaller military items. This is no surprise, as these items are much harder to track and less reported upon in the public. We had correctly included the SAMP/T and SCALP missiles but missed the 100 Mistral missiles and the Cotral missiles listed in the report. On these missiles, we were aware of several press and twitter rumors, but lacked a reliable official source to back them up for inclusion in our dataset. What we also missed was a range of low-value items such as machine guns, several non-armored vehicles, man-portable AT4 anti-tank weapons, or equipment items such as helmets and bulletproof vests. These smaller items are typically hard to track and usually account for only a

small share of total military support flows. Moreover, these items are often part of larger support packages, several of which we had counted (in Euro terms) in our data.

The report and follow-up website also provide an overview estimates of French military aid to Ukraine, including EUR 1.7 billion euros in in-kind arms transfers, EUR 300 million for Ukrainian military training; a new EUR 0.2 billion “special support fund” for future arms purchases for Ukraine, and EUR 1 billion as a contribution to the European Peace Facility (EPF).<sup>6</sup>

In the following benchmarking exercise, we focus mainly on the EUR 1.7 billion arms valuation, as the other amounts are clear and require no further discussion.<sup>7</sup> Compared to the EUR 1.7 billion Euros listed in the French report, our estimate of French weapon support to Ukraine was much smaller, amounting to EUR 540 million as of late October 2023. We next tried to make sense of this discrepancy. Unfortunately, an exact benchmarking exercise is not possible, because the report lacks details and clarity. In particular, it does not explain how this number is calculated and on which military items it is based on.

However, there are at least two probable reasons why our estimates on French military aid are so much smaller:

- The French report argues for a use of “replacement values”, rather than actual values as purchased or book values which would include depreciation or impairment of older material. In our dataset, we generally use upper bound prices when valuing weapons and military equipment. This is to avoid downward bias, e.g. due to depreciation effects. While using replacement values is a practice adopted by other donors as well, it can inflate the total value of aid provided. Take the example of the TRF1 howitzer sent by France, which were originally produced in the 1980s. Using replacement values means that these old howitzers are not valued at their actual (secondary market) price or book value, but instead at the price of a brand-new, latest-generation howitzer purchased for the French army as a replacement. In this context, it is striking that US pentagon officials apologized for erroneously using replacement values instead of book values in their calculations of Ukraine military aid. The press at the time reported the use of replacement values as an “accounting error” that had wrongly inflated US aid to Ukraine by more than USD 3 billion.<sup>8</sup> Against this backdrop, the report’s estimate of EUR 1.7 billion should be interpreted as an upper bound valuation of actual French weapon aid.

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<sup>6</sup> See <https://www.vie-publique.fr/rapport/292061-rapport-dinformation-sur-le-bilan-du-soutien-militaire-lukraine>

<sup>7</sup> The EUR 1 billion EPF contribution had been fully counted and assigned to France in our data. The EUR 200 million Ukraine support fund was not included, for the simple reason that it was only announced recently, namely on November 9<sup>th</sup>, a few days after our last data collection cut-off date (October 31). In addition, we generally do not track the costs of military training, which are difficult to value and compare internationally and on which little data exists. Military training also does not constitute a cross-border aid flows into Ukraine (the focus of our project).

<sup>8</sup> See e.g. <https://www.reuters.com/world/europe/pentagon-accounting-error-overvalued-ukraine-aid-by-3-billion-sources-2023-05-18/>



- Second, as discussed, we often lack data on the actual number of weapons sent by France. For obvious reasons, we cannot estimate the value of a specific weapon donations if we do not know how many weapons were sent. The report, unfortunately, was not helpful to fill the gaps, as it revealed almost no new information compared to our own dataset (see above). Given the lack of further explanations in the report, we can only assume that the EUR 1.7 billion valuation in it builds on more complete data on number of weapons sent, but we cannot know for sure.

To check the relevance of this data gap (lack of data on number of weapons sent), we conducted an additional benchmarking exercise. Specifically, to create an upper bound estimate, we use the highest available estimate on the number of weapons sent by France for each of the 20+ weapon items listed in the report. For this purpose, we move beyond the reliable, official sources we usually use for coding, and now also consider rumors published in the press or by specialized websites such as Oryx. Among all the reported numbers sent, we then use the highest estimate out there. The result is a total weapon value of EUR 662.7 billion, which we now use as our estimate of French in-kind military aid in our newest dataset release. The number is about EUR 100 million higher than the more conservative estimate we used before, but still far from the EUR 1.7 billion in the report.

In a next step, we value weapon donation amounts even for those weapons on which no further details are to be found anywhere (not even press rumors etc.). Specifically, we use high guesstimates of how many weapons France has sent for the opaque cases, namely 50 SAMP/T missiles, 100 SCALP missiles, 50 CROTALE missiles, 50 MTB P4 transport vehicles, 50 GBC 180 trucks, and 100 Zodiacs FUTURA nautical vehicles. With these (artificial) numbers, we arrive to an additional military aid value of EUR 330 million and add to this an estimated EUR 400 million value for equipment and further smaller items. This approach would bring our total tally of French military in-kind aid to EUR 1.4 billion (our new baseline EUR 0.662 billion plus the EUR 0.33 billion + EUR 0.4 billion guesstimate), which is still below the EUR 1.7 billion in the report.

We conclude that our data collection approach is informative even for countries that are non-transparent (we find that we still manage to capture almost all relevant weapon items). Furthermore, despite a deep-dive and various upper bound benchmarking exercises, we find it difficult to understand how the military aid valuation numbers in the French report come about. Either way, these numbers do not make much difference in the in the bigger picture. Shifting from our EUR 0.6 billion estimate to EUR 1.7 billion would barely change France's overall aid numbers or its rankings on our website.