

Establishing an activity tracker in Eastern Europe and Central Asia: Lessons from Ukraine

-Summary of results-

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Berlin/Kyiv, June 2021

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1. Introduction

Background:

- The Activity Tracker allows for real-time observation of the population's behavior and economic reaction to the COVID-19 pandemic and the economic development in general
- Policymakers can use this data for making policy decisions and predictions; businesses for planning their economic activity
- Such a tracker was already established in 2020 in Ukraine by the Center for Economic Strategy (CES), one of the leading think tanks in Ukraine, and a cooperation partner of GET.
- This Policy Briefing summarizes the results displayed in the Technical Note 02/2021

Purpose of the Policy Briefing:

- Tracking real-time activities of non-textbook indicators for Ukraine
- Using this template to suggest establishing activity trackers in Eastern Europe and Central Asia

2. What categories do we track?

1. Community Mobility

- Google mobility reports
- Tracked categories: Retail & recreation, Grocery & pharmacy, Transit stations, Workplaces

2. Labour market

- Local job posting websites
- Number of vacancies and resumes postings
- Number of postings that allow for remote and part-time work

3. Most affected industries

- Data on operating restaurants and their turnover,
- Railway ticket purchases and flight bookings

4. Rent prices

5. Electricity consumption

6. Bank payments

- Data from Privatbank (No. 1 in Ukraine)
- Number of unique transactions via POS terminals and online app

7. Vaccinations

- Official statistics of the Ministry of Health
- Share of people that have received at least one dose;
- Number of vaccine doses administered per 100 000 people over the past week

8. Lockdown stringency index

- “Oxford Government Response Index”

3. How do we select data sources?

1. High frequency

- Daily or weekly frequency
- Updated every week

2. Reliability

- Official sources, reliable websites or services that collect accurate data
- Updated regularly and easily accessed (no text or pdf data)
- Mostly data from open sources, data for several charts directly from companies

3. Long time series

- Data should also cover pre-pandemic times

4. What technologies do we use?

1. Python scripts

- Python programming language to automate data gathering, cleaning and processing.
- Alternatively, R programming language or any other statistical software can be used.

2. Microsoft Excel spreadsheets

- Used to save, transform, update and visualize the data.
- can easily be shared, manipulated and understood by other analysts or stakeholders.

3. [Datawrapper](#)

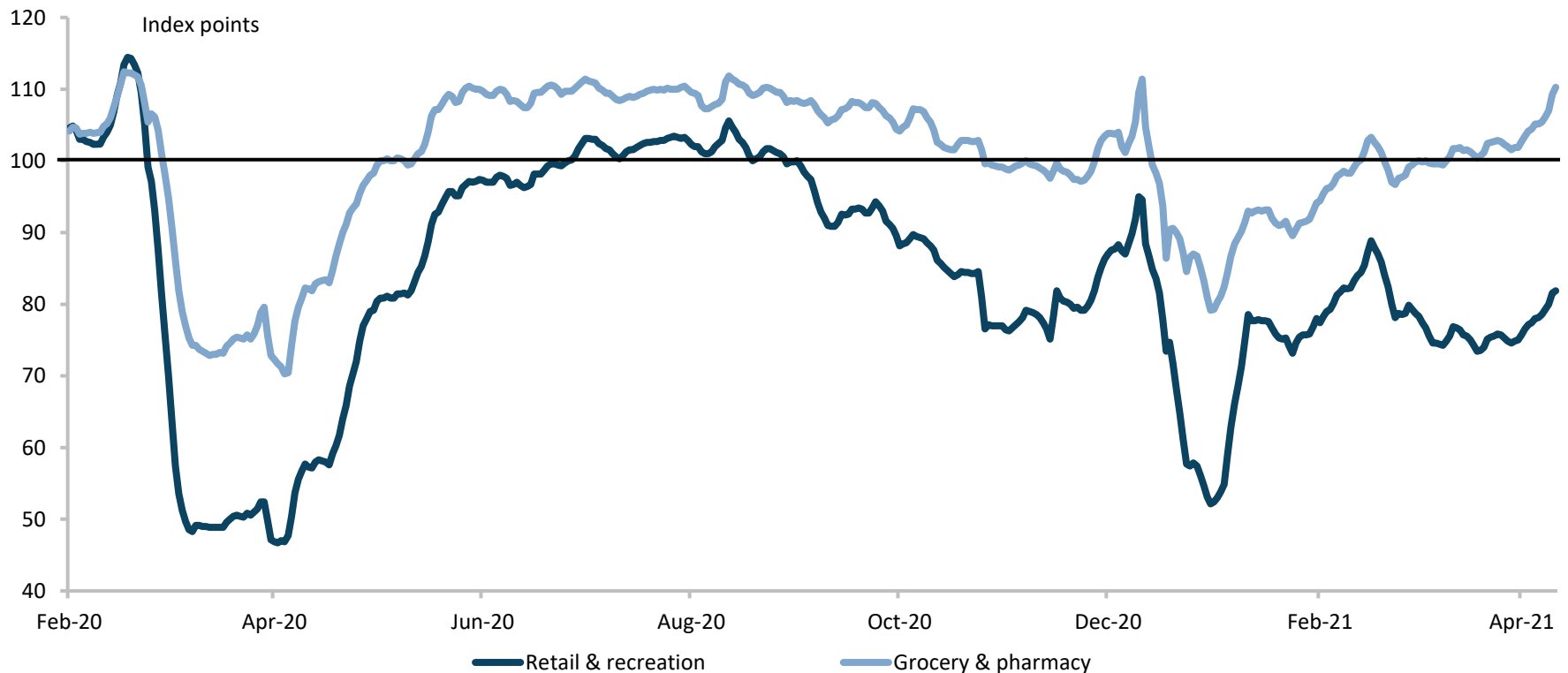
- Open-source chart tool that allows embedding interactive charts on a website
- Updating the data done manually every Monday.
- Any other software or service can be used (Microsoft Power Bi, Tableau).

5. Examples

- In Ukraine, we update the tracker weekly and publish it on the Centre for Economic Strategy [website](#).
- We provide a detailed description of the methodology and data sources under each graph.
- We compare all data points to the baseline and present only relative data (in percentages).
- When possible, we present daily frequency data (using a 7-day moving average).
- Some data have a weekly frequency.

5.1 Examples: Community mobility

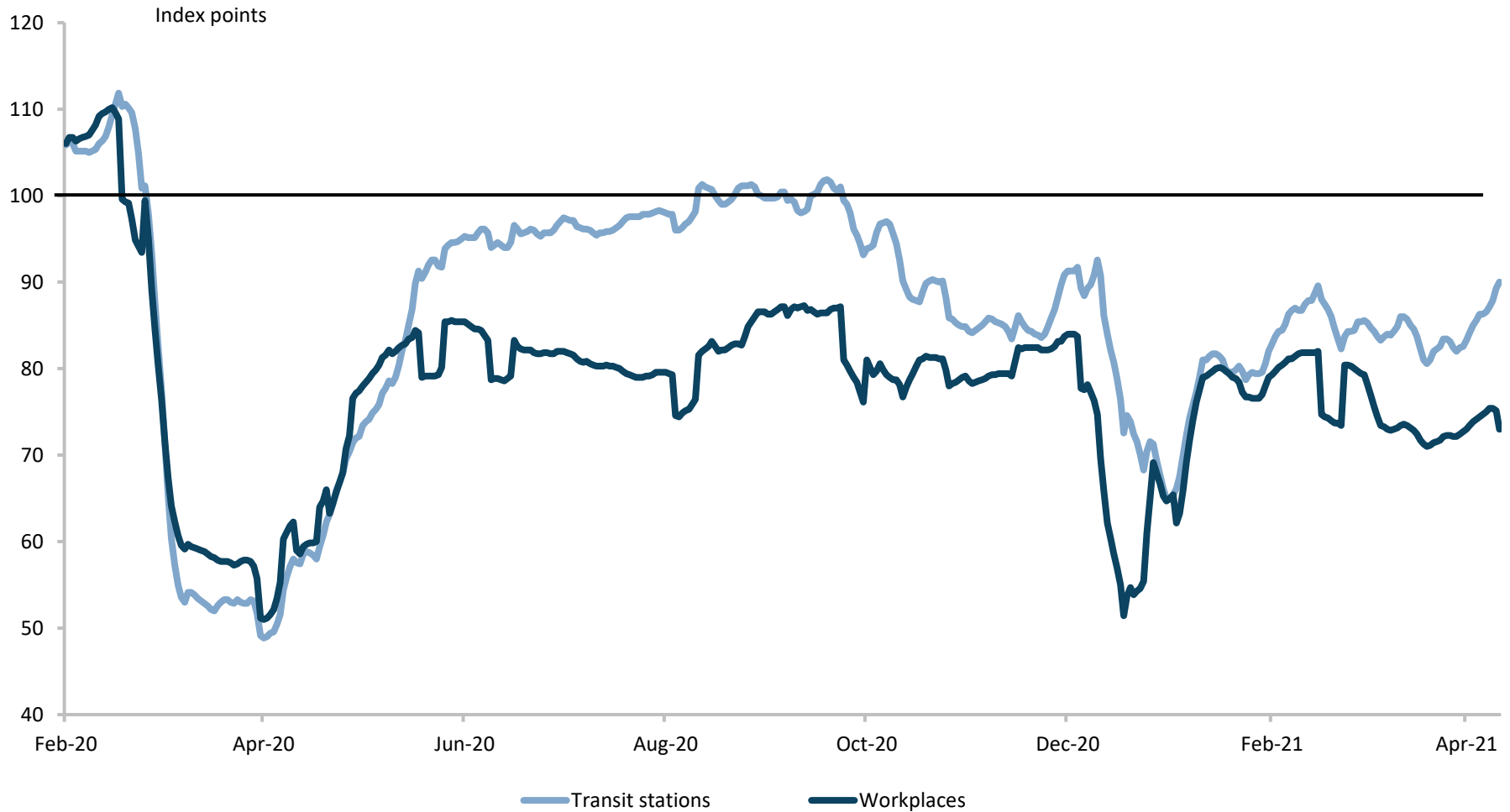
- We use [Google mobility reports](#) to track the mobility of the population.
- Google publishes aggregated mobility data for almost all the countries in the world with some exceptions (e.g. Belarus is not represented).
- Since all data points are already in relative terms, we simply transform it so the baseline=100 and calculate the 7-day moving average.



Data: the number of visitors, median of the corresponding day of the week measured during January 3 - February 6, 2020 = 100, 7-day moving average, according to Google Mobility Report, CES calculations.

5.1 Examples: Community mobility

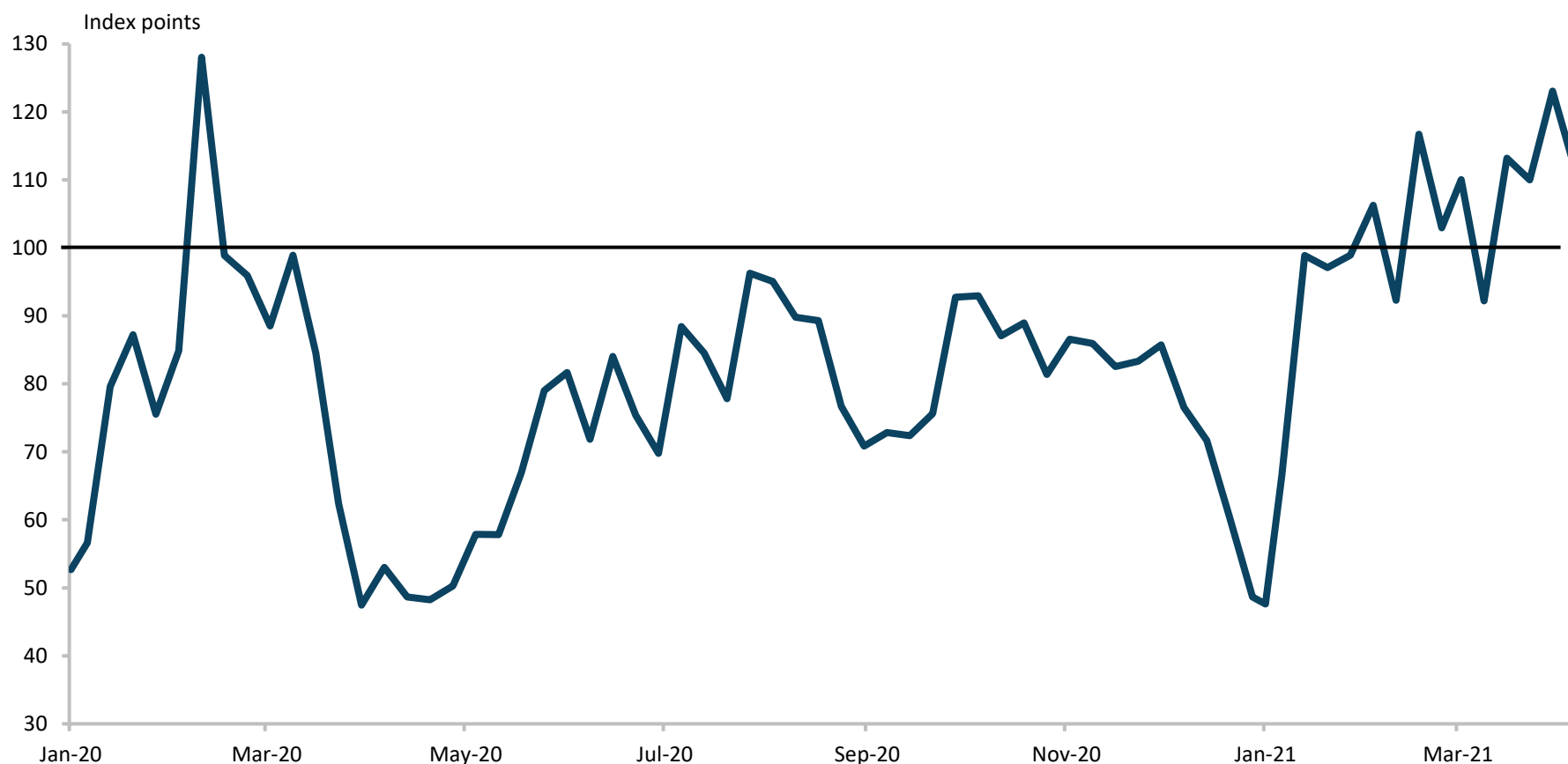
- We split Google Mobility data into two charts so that charts are not overloaded with lines.



Data: the number of visitors, median of the corresponding day of the week measured during January 3 - February 6, 2020 = 100, 7-day moving average, according to Google Mobility Report, CES calculations.

5.2 Examples: Number of vacancies

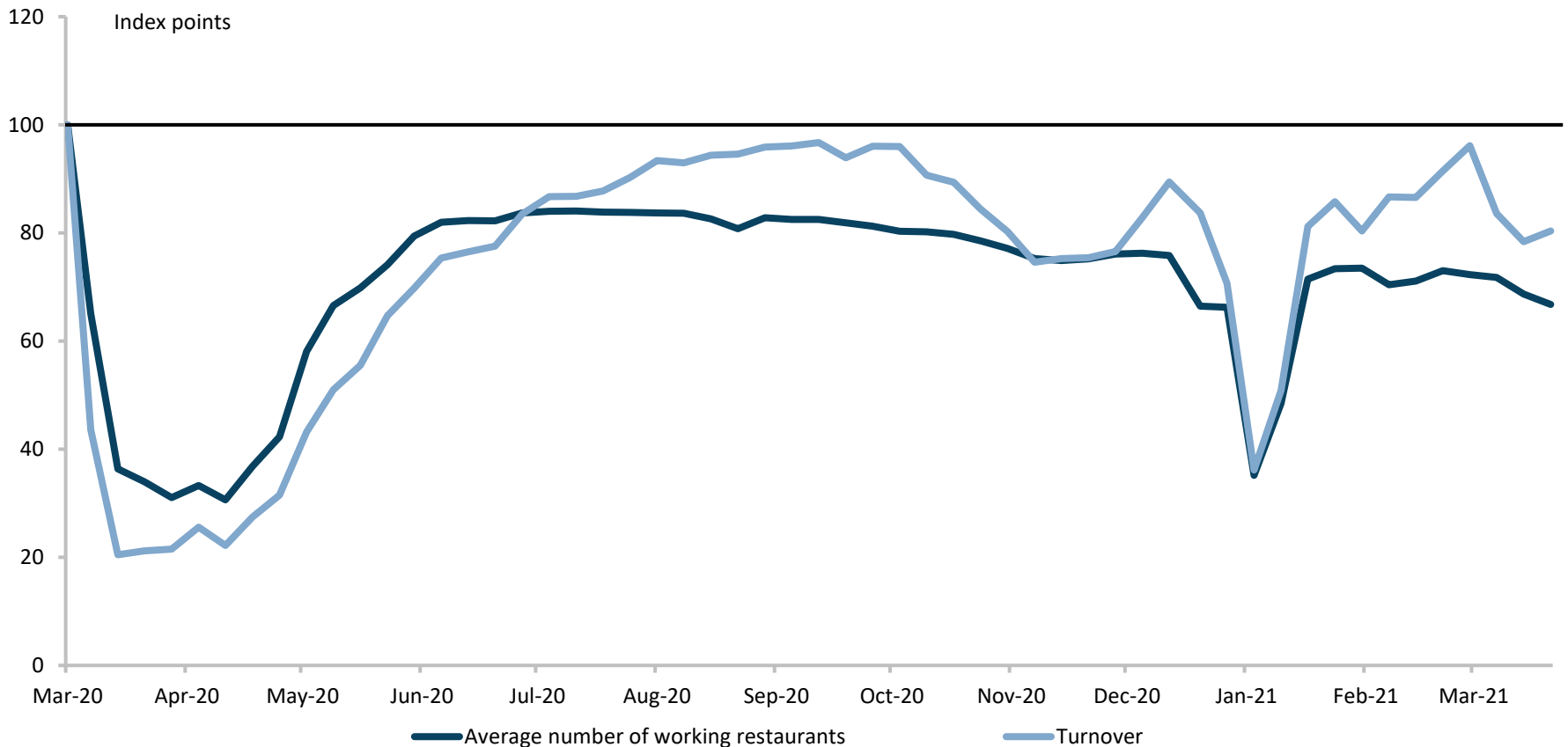
- We use two sources for this graph: rabota.ua and [Joble](https://www.joble.com) (Joble data is not public).
- The data have a weekly frequency.
- We first calculate relative indicators (compare all data points to the average of 2019) for each source and then combine two series into one by calculating the average.



Data: synthetic indices of the number of new vacancies, compared to the average of 2019, according to rabota.ua and [Joble](https://www.joble.com) data, CES calculations.

5.3 Examples: Most affected industries - Restaurants

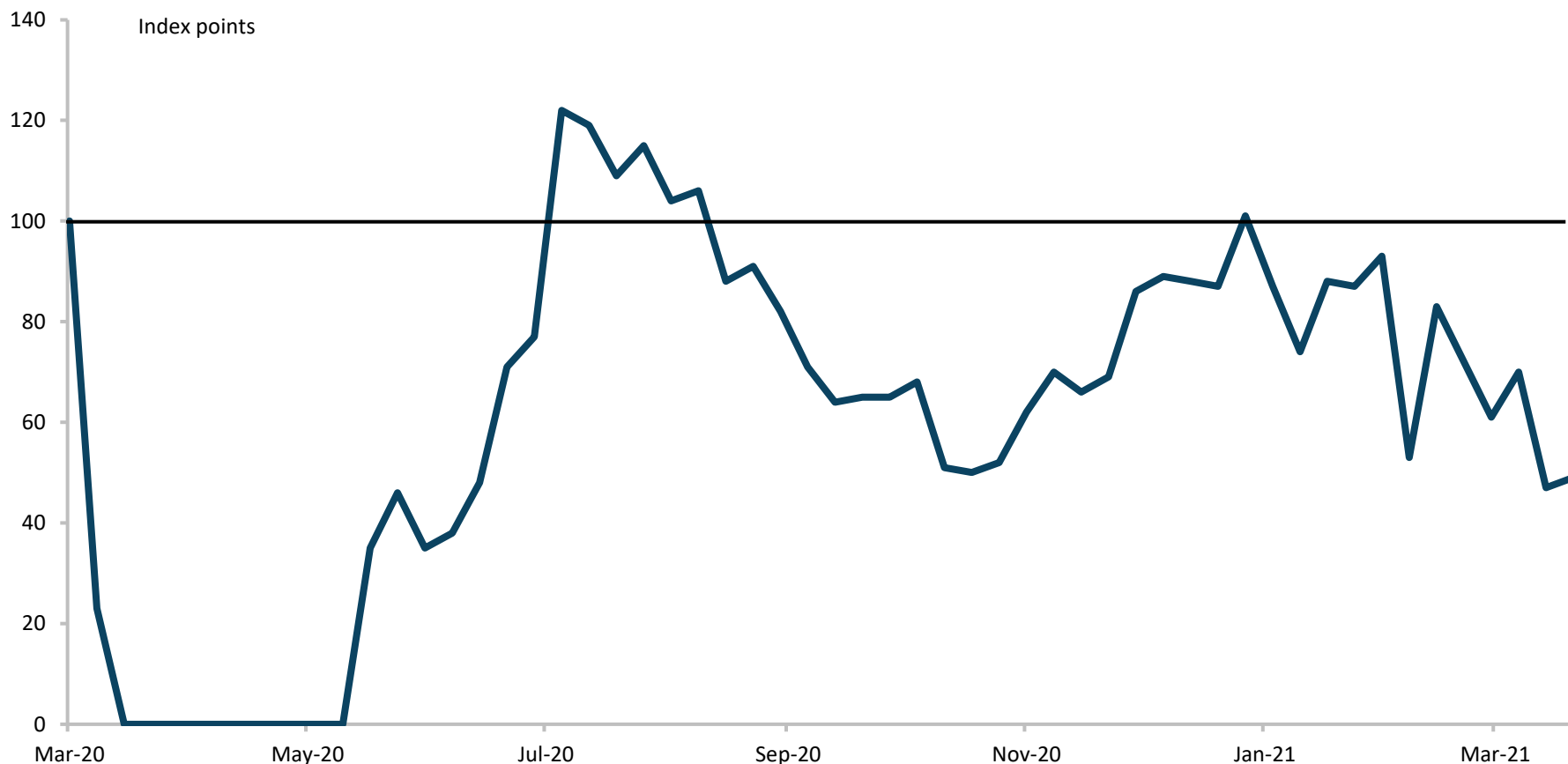
- We use [Poster](#) data that is shared with us internally.
- The data also have a weekly frequency.
- Calculations of the average number of working restaurants and turnover are made by Poster.



Data: weekly turnover of restaurants, March 15, 2020 = 100; number of active restaurants, March 15, 2020 = 100, weekly average, according to Poster data, Poster calculations.

5.3 Examples: Most affected industries – Railway ticket purchases

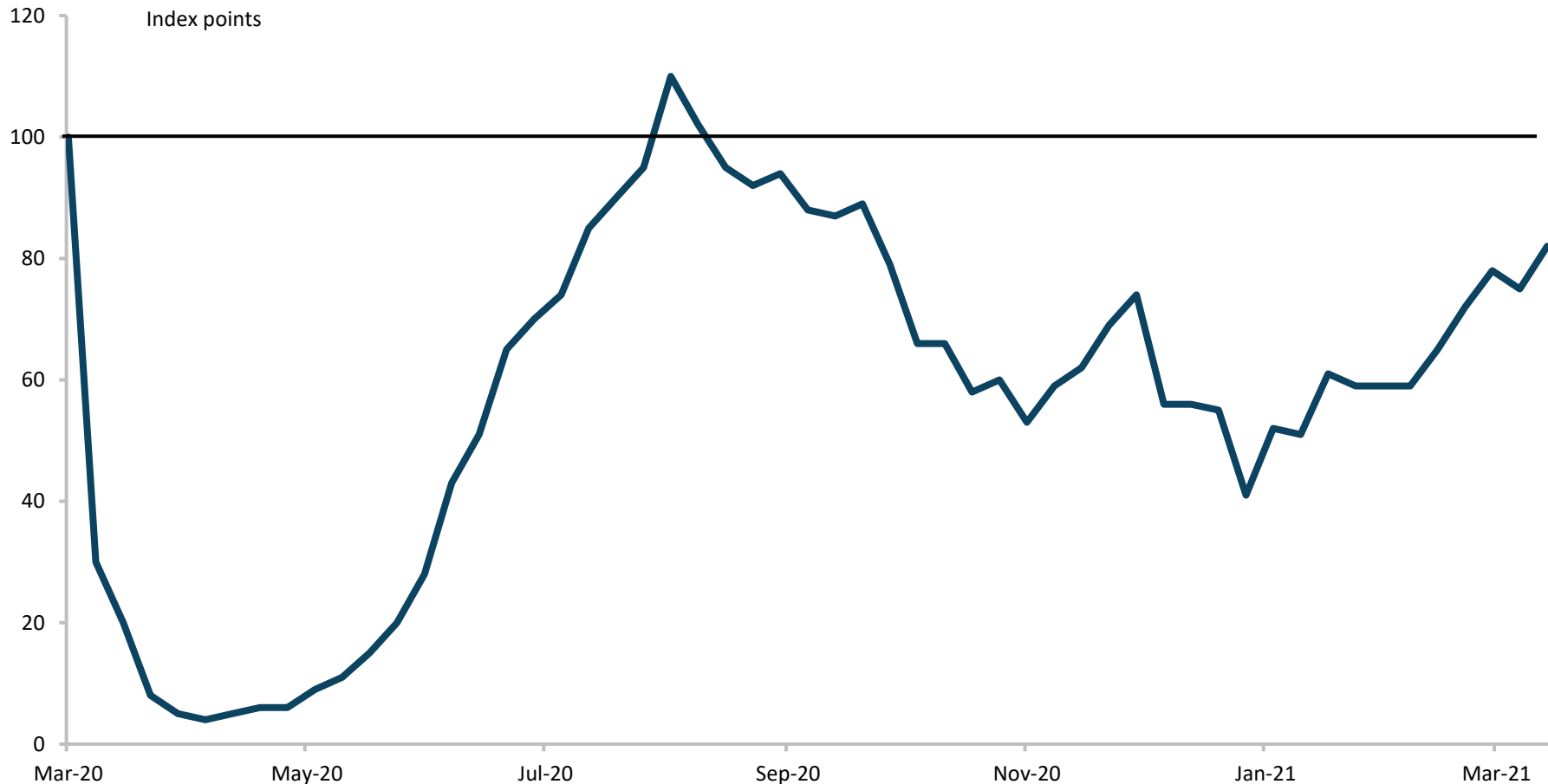
- We use data that is available on [Opendatabot](#).
- It provides the share of railway tickets purchased based on [Railwaybot](#) – a railway ticket search bot – and publish the data weekly.



Data: the number of train tickets purchased per week, March 15, 2020 = 100, according to railwaybot.com, Opendatabot calculations.

5.3 Examples: Most affected industries – Airline ticket purchases

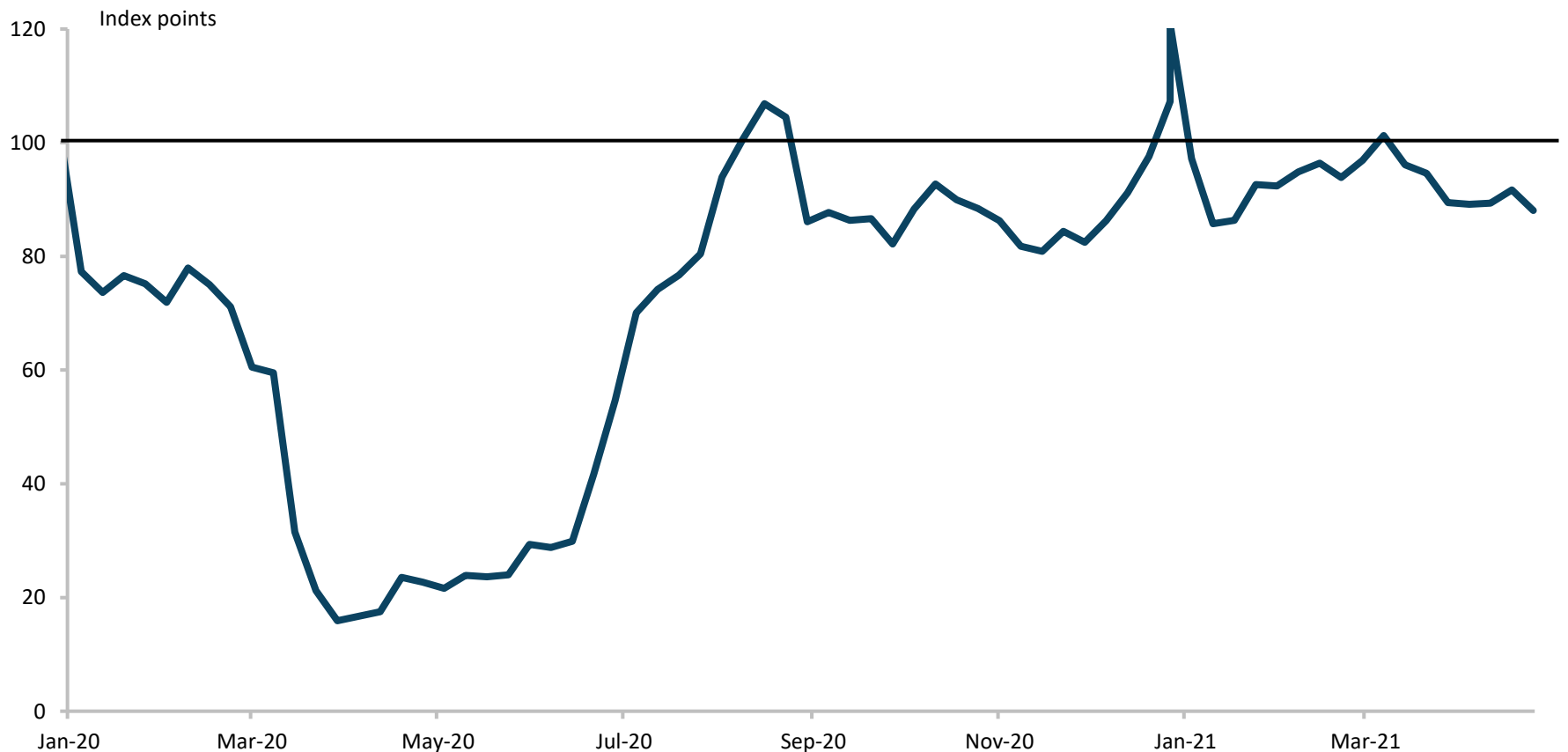
- For airline ticket purchases we use weekly data from [Opendatabot](#) as well.
- [Aviasales](#) data is used to count the share of airline ticket reservations.



Data: the number of airline tickets booked per week (both international and domestic flights), March 15, 2020 = 100, according to Aviasales.ua, Opendatabot calculations.

5.3 Examples: Most affected industries – Hospitality occupancy

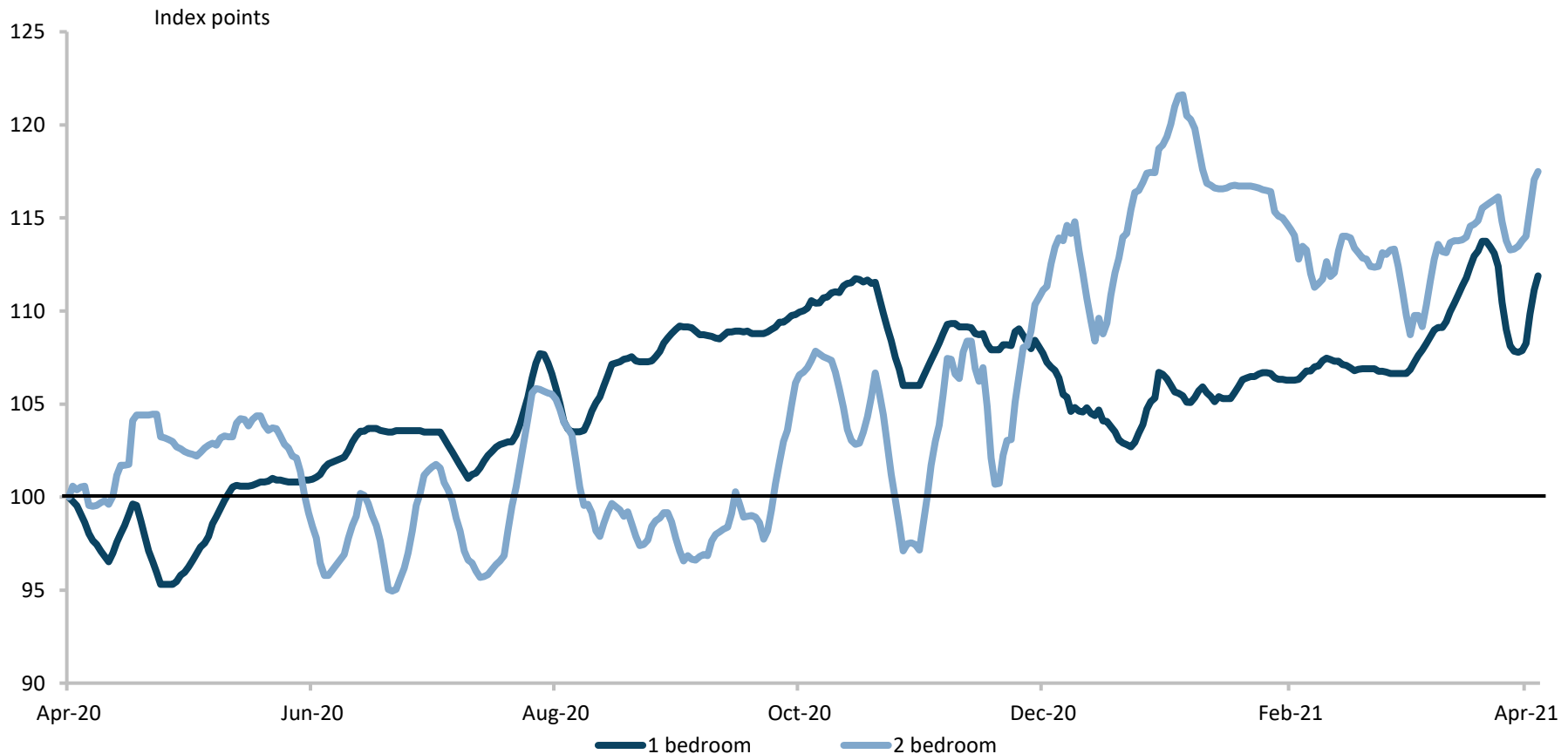
- We use the share of properties booked data from [Transparent](#) – a platform that tracks worldwide vacation rental statistics.
- The data have a weekly frequency and is shared with us within access to a personalized query.
- We compare all data points to the average of 2019.



Data: the number of properties booked per week, the average of 2019 = 100, according to Airbnb, Booking.com, TripAdvisor and Vrbo, Transparent calculations.

5.4 Examples: Housing rent prices

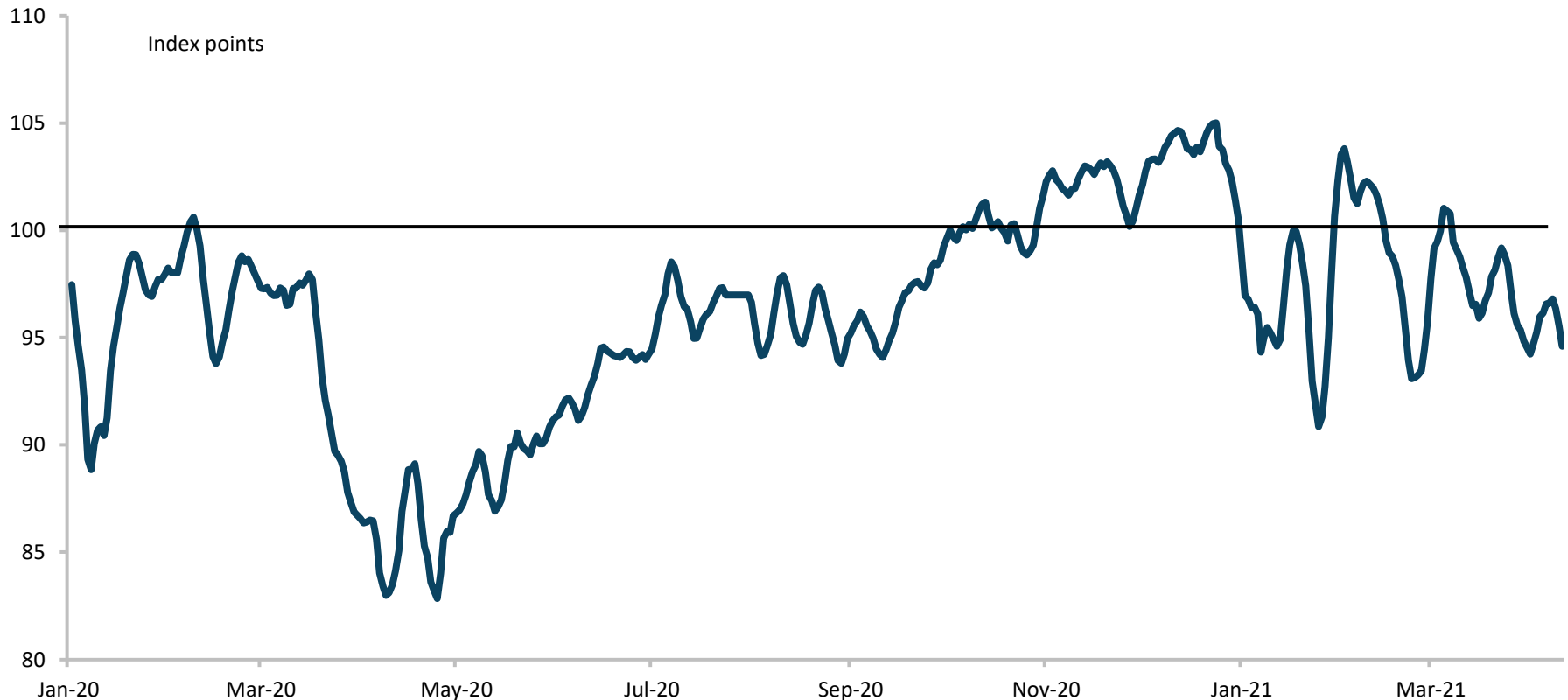
- We use [Lun](#) public data to track changes in rent prices.
- Lun publishes daily data on median rent prices of apartments in Kyiv.
- We calculate the 7-day moving average and transform the data, so the baseline for each group equals 100.



Data: daily median prices of apartments in Kyiv, 7-day moving average, average for the first week of April 2020 = 100, according to the data from the portal [lun.ua](#), CES calculations.

5.5. Examples: Electricity consumption

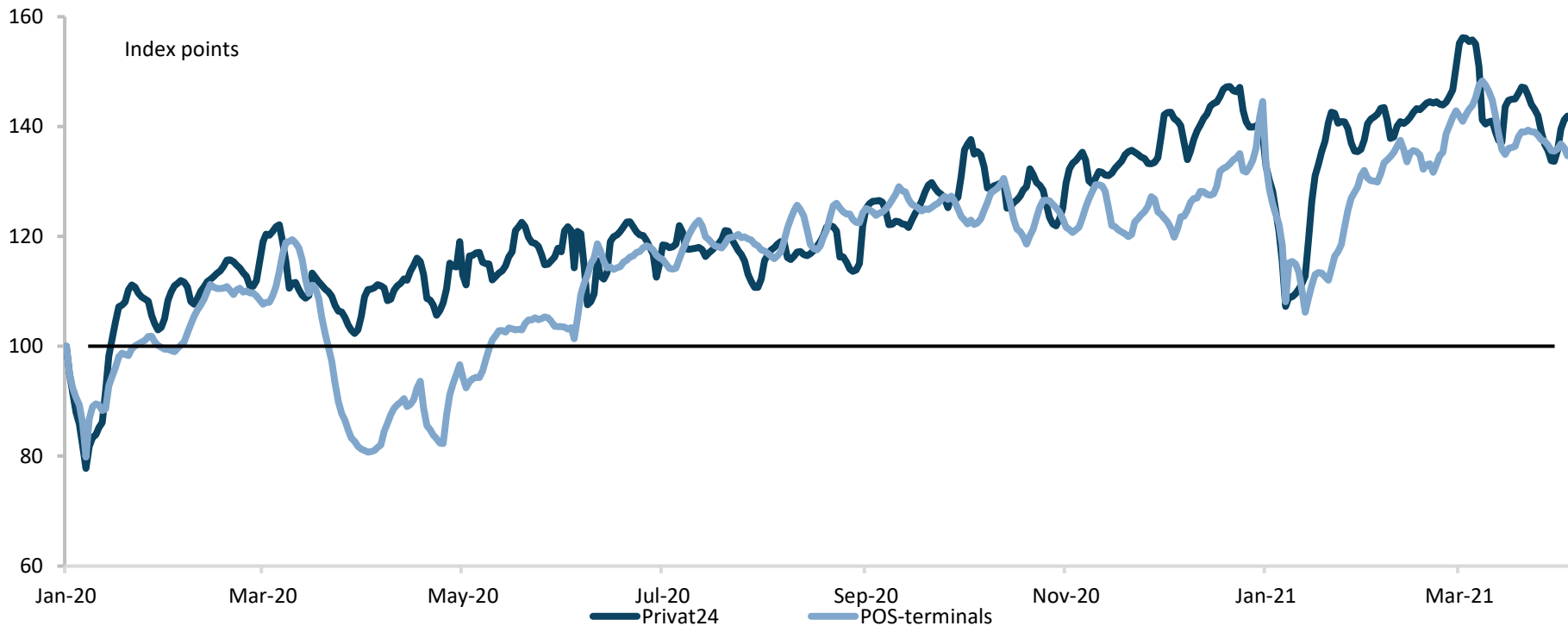
- We download the daily electricity consumption data from the [Ukrenergo website](#) and adjust it for temperature using linear regression.
- We download temperature data from the [Meteopost website](#).
- We count a 7-day moving average and compare all data points to the average of 2019.



Data: temperature-weighted electricity consumption, 7-day moving average, compared to the average of 2019, Ukrenergo data, Dragon Capital and CES calculations.

5.6. Examples: Bank payments

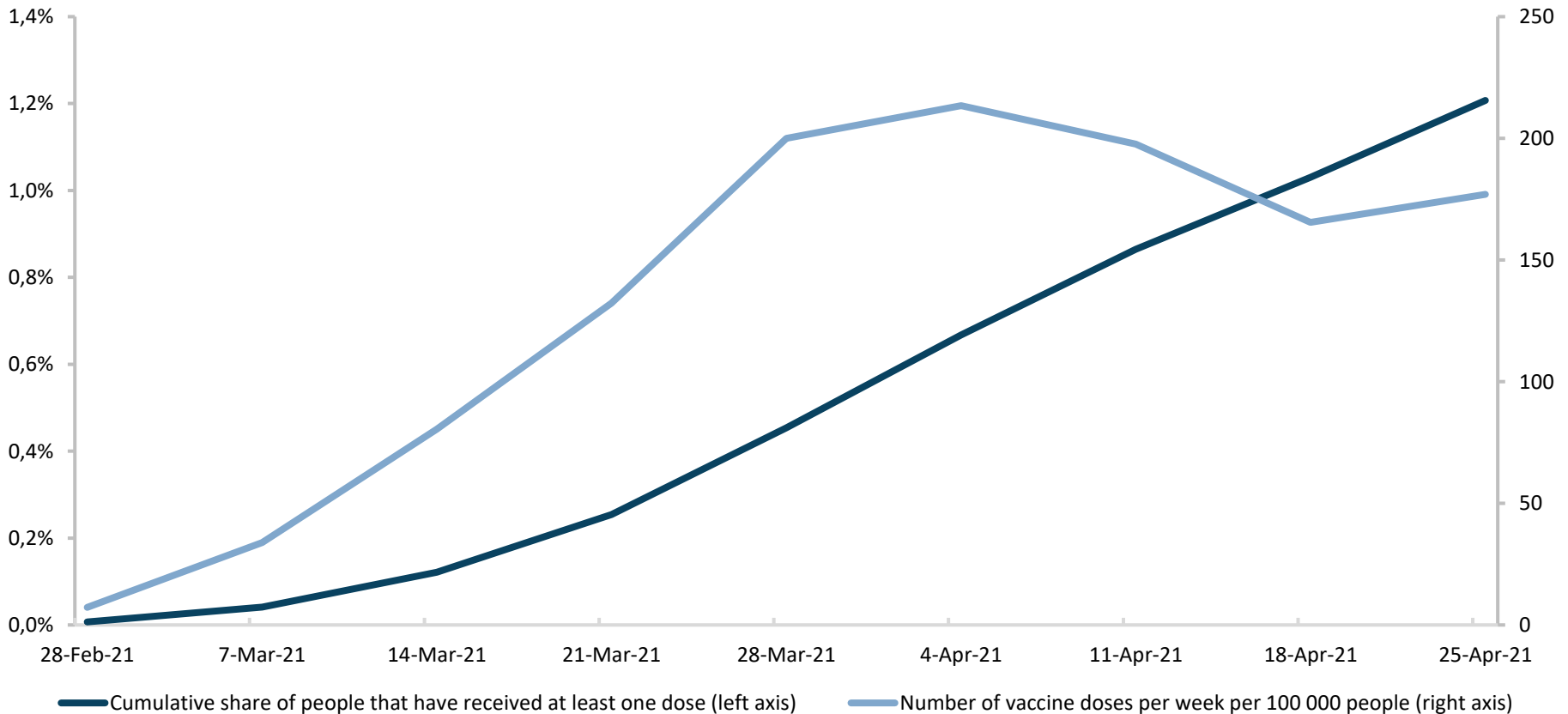
- [PrivatBank](#) shares with us their daily data every week.
- We calculate the 7-day moving average to smooth the data and change the baseline so that first week of 2020=100.
- We track two indicators:
 - Number of unique transactions via POS-terminals
 - Number of unique transactions via Privat24 online app.



Data: the number of unique contacts through POS-terminals and Privat24, 7-day moving average, first week of 2020 = 100, according to PrivatBank data, CES calculations.

5.7. Examples: Vaccinations

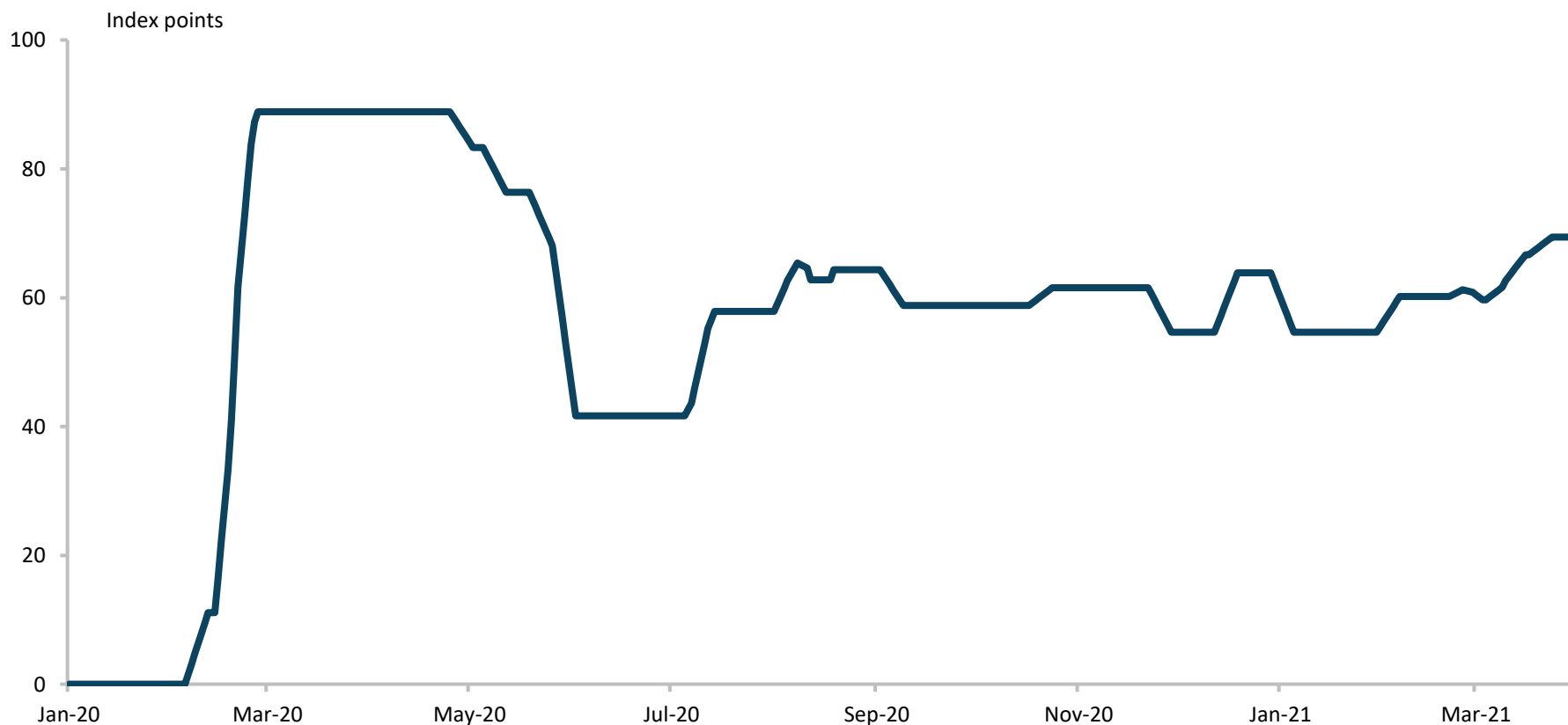
- We use the data published in the [Ministry of Health portal](#) to track the share of the total population of Ukraine that received at least one vaccine dose and the number of vaccine doses administered per 100 000 people over the past week.
- Also, such data for the whole world can be found in [Our World In Data](#).



Data: COVID-19 vaccinations, share of people that have received at least one dose, number of vaccine doses administered per 100 000 people over the past week, according to Ministry of Health data, CES calculations.

5.8. Examples: Lockdown stringency index

- We use [Oxford Government Response Index](#) daily data as it is a composite measure based on nine indicators, including school closures, workplace closures, and travel bans.
- The data is of good use to compare how lockdown stringency affects all the other sections we track.
- We download the row data and count the 7-day moving average to smooth it.



Data: COVID-19 stringency index, rescaled to a value from 0 to 100 (100 = strictest), 7-day moving average, according to "A global panel database of pandemic policies (Oxford COVID-19 Government Response Tracker)".

6. Next steps

- In our Activity Tracker in Ukraine, we track the specific indicators that are most relevant for providing a real-time measure of economic activity in our country, so that the list of indicators can change country-wise.
- For establishing a tracker in countries of Eastern Europe and Central Asia, we suggest the following:
 1. A list of indicators relevant for real-time tracking of activities
 2. A list of data sources that meet the data source principles we described above.
 3. A list of alternative indicators if suggested indicators are not available

About the German Economic Team



Financed by the Federal Ministry for Economic Affairs and Energy, the German Economic Team (GET) advises the governments of Ukraine, Belarus, Moldova, Kosovo, Armenia, Georgia and Uzbekistan on economic policy matters. Berlin Economics has been commissioned with the implementation of the consultancy.

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