Households’ digital purchases in the balance of payments

The purpose of the balance of payments is to measure all economic transactions conducted between residents and non-residents over a given period of time, thus presenting an overview of the economy’s various external trade links. This also includes cross-border digital trade. Digital services obtained by domestic households from foreign providers outside of Germany present a particular challenge here. Unlike in the case of enterprises, deliveries received by households usually remain far below the existing statistical reporting threshold in terms of value. In cooperation with the Federal Statistical Office, the Bundesbank has therefore developed an estimation approach to plug this gap in the balance of payments data. As from the 2014 reporting year, the results yielded by this approach are incorporated into the current account from 2019 onwards.

In the first instance, the selected two-step approach involves searching for existing freely available data sources for Germany’s total turnover. Here, a distinction is made between five market segments: video on demand services, audio on demand services, software purchase and use, online gambling and cloud services. In a second step, the share of foreign enterprises’ contribution to total turnover is determined in each case, as only this is relevant for the balance of payments.

Following this approach, digital purchases by German households from non-resident providers totalled around €5.8 billion in 2017. Although this accounts for only 2% of the expenditure on services recorded in the balance of payments, it still represents considerable growth – foreign digital purchases made by households have almost doubled since 2014. On balance, Germany’s current account surplus relative to gross domestic product was 0.2 percentage point lower in 2017 than if households’ digital purchases had been excluded.

From an international perspective, the German model is one of the first to attempt to capture such purchases in the balance of payments. The selected approach makes it possible to plug gaps in the official statistical data with freely available information, respond rapidly to new market developments, add new market segments at any time and supplement or swap data sources for market segments that have already been recorded. On the other hand, using freely available internet sources limits the extent to which quality checks can be conducted. It also makes the user reliant on publication decisions made by the sources themselves. This could potentially cast the provision of data for the official statistics into doubt. Ways of responding to these challenges still have to be devised. Cooperation with the data providers is of vital importance here.
Background

Digitalisation is also influencing international trade to an ever greater extent. As well as reducing barriers to market entry, it enables small and medium-sized enterprises, in particular, to market their services directly worldwide. From a consumer perspective, digitalisation is resulting in improved market transparency, which in turn is causing a shift in purchasing habits from domestic bricks and mortar retailers to online retailers domiciled abroad.

Furthermore, new digital services such as online shopping and the use of online software have emerged. The online provision of music, films and other content is still a relatively new market segment, too. These new digital services, directly provided by enterprises to final consumers, have thus far been insufficiently considered in the international trade statistics, the macroeconomic accounting systems utilised in the national accounts and the balance of payments statistics alike.

The reasons for this are essentially twofold. First, the value of such transactions is frequently below the national statistical reporting thresholds. In Germany, for example, cross-border services transactions only have to be reported if they exceed €12,500.1 Second, it is not generally possible for consumers to easily identify non-resident providers and their country of domicile. Households’ purchases of digital services from foreign providers have thus remained virtually unconsidered in the official statistics to date. However, as the purpose of the balance of payments is to give as complete a picture as possible of all transactions between resident entities and the rest of the world, this data gap must be closed.

There are several possible ways to close data gaps. These include the introduction of a new comprehensive official data collection method: a sample survey or a new evaluation of the data already available, for example. The Bundesbank, in cooperation with the Federal Statistical Office, has opted for the latter approach, as accessing existing data sources yields results comparatively quickly without imposing new reporting obligations on economic agents.

Conceptual framework

The international "Handbook on Measuring Digital Trade",2 a joint publication by the OECD, the WTO and the IMF, serves as the basis for the estimation approach. First, it describes the conceptual framework used to define digital trade and its dimensions; second, it provides an overview of existing national and international approaches to the measurement of such trade. As such efforts are still in their infancy worldwide, there are plans to update the electronic version of the Handbook on a regular basis. In this way, newly devised or improved methods can promptly be made available to a wide circle of statisticians and users.

The Handbook defines digital transactions as trade in goods and services that are digitally ordered, digitally delivered or platform enabled. Pursuant to this definition, households’ purchases of digital services from non-resident providers, which are the focus of this article, represent only a subset of digital trade.

Estimation approach

The estimation approach for households’ digital purposes uses freely available market data. In the absence of a single data source for all digital services, a variety of data sources are referred to, each of which usually covers only one particular market segment. Accordingly, the estimation approach differentiates between

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1 The legal basis is provided by Section 11(2) of the Foreign Trade and Payments Act (Außenwirtschaftsgesetz – AWG) and, building on this, Sections 67 et seq. of the Foreign Trade and Payments Regulation (Außenwirtschaftsverordnung – AWV).
digital services in five market segments: namely video on demand services, audio on demand services, software purchase and use, online gambling and cloud services.

Digital sales relevant to the balance of payments are estimated in a two-step process which is reliant on data being available for the years 2014 to 2017. First, total sales are determined for the individual market segments. In a second step, the share of foreign enterprises’ contribution to total turnover is determined in each case, as only this is relevant for the balance of payments.

Several problems emerge in practice. For instance, some of the data sources for individual segments overlap, with the result that payments may be counted twice. Other datasets also contain sales which were not generated online and which therefore do not count towards digital trade. In such cases, corrections must be made accordingly.

Modules of the estimation approach

Video on demand services give users instant access to video content of their choice. Users generally pay a subscription to access content. Other business models include transaction-based video on demand services, where customers pay providers to stream video content for a limited period or a limited number of times. The electronic sell-through model gives users the right to permanently access a video in exchange for a one-off download fee. The sales figures for this market segment are taken from a study carried out by the market research institution Gesellschaft für Konsumforschung (GfK) on behalf of the German Federal Film Board (FFA). The study puts total sales for video on demand at around €0.8 billion in 2017. To calculate the foreign share with relevance to the balance of payments, we use a regional breakdown of video on demand providers available on the market. According to this, just over one-third was attributable to cross-border transactions in 2017.

Audio on demand allows users to download music, audio books and other audio material.
from an internet provider, or to stream audio content. The Bundesverband Audiostreamelevision Medien (Federal Association for Audiovisual Media) puts sales for digital audio content at around €0.6 billion in 2016. On the basis of these data, sales of roughly €0.7 billion are projected for 2017. In contrast to the video on demand segment, digital audio content is mostly provided by non-resident providers. About 90% of the sales calculated for 2017 are therefore relevant to the balance of payments.

The purchase and use of software can be broken down into two sub-categories: mobile applications and video games for PCs or other games consoles. According to information from providers of app market data, sales for mobile apps on the German market amounted to roughly €1.2 billion in 2017. There are no data on the foreign share, but the app stores can provide a rough idea: for purchases from the Apple store, the foreign enterprise Apple is always the counterparty, meaning that all sales conducted there are relevant to the balance of payments. The situation is less clear-cut for purchases from Android stores, because this platform also sells third-party apps from domestic and foreign providers. Taking into account the world market shares of both app stores, as well as additional data, the foreign share probably comes to around 95%, which is roughly equivalent to €1.1 billion.

According to data provided by the Association of the German Games Industry (GAME), total spending on video games amounted to approximately €1.9 billion in 2017. This figure needs to be adjusted for the share of software that is not provided digitally. Moreover, in-app game purchases are deducted, since they are already included in the mobile applications segment mentioned above. According to GAME, the foreign share relevant to the balance of payments is 94%, resulting in remaining sales of just under €1 billion with relevance to the balance of payments for sales of games provided digitally.

Cloud services, which encompass a broad range of IT services such as extra storage space for hosting a website or backing up data, are usually provided by service providers over the internet. To calculate private domestic purchases of storage space from foreign providers, a model was developed based on data from the survey on the private use of information and communication technologies (ICT survey) carried out by the Federal Statistical Office. Prices for storage space were calculated by analysing website cloud service providers’ websites. Because the overwhelming majority of the internet providers are domiciled in Germany, only around 5% of cloud users buy storage from foreign providers. This figure comes to approximately €0.2 billion for 2017.

Overall results

On balance, digital purchases by German households from non-resident enterprises came...
to around €6 billion in 2017. Although this accounts for only 2% of the expenditure on services recorded in the balance of payments, it still represents considerable growth – digital purchases from abroad by households have almost doubled since 2014.

Online gambling is the market segment that generates the largest volume of sales with relevance to the balance of payments, with a share in total sales of over 40%. It is followed by purchases of video games and mobile applications for mobile phones, smartphones and tablets, which together account for 35%.

The level of the estimated expenditure and its dynamic growth underline how significant these purchases are to the balance of payments. Although the prices of the digital services purchased by households often amount to just a few euros or even merely a few cents, together, they actually add up to a considerable volume of service imports.

Germany’s current account balance directly reflects the estimated values for private purchases of digital services. The data gap concerns the expenditure side, in particular. On the receipts side, most of the revenue generated by German companies that provide digital services to private customers abroad is assumed to be captured, the reason being that, in practice, enterprises often also report micro amounts.

According to the estimates applied to the current account for 2014 onwards, private purchases of digital services reduce Germany’s current account surplus by between €3 billion and €7 billion. For instance, Germany’s current account surplus relative to GDP was 0.2 percentage point lower in 2017 than if households’ digital purchases had been excluded.

Conclusion

From an international perspective, the German model is one of the first to attempt to capture households’ digital purchases in the balance of payments. The figures obtained using this method provide an initial indication of the scale and dynamics. The granular approach selected allows market segments that were not previously included to be factored in, provided that the relevant sources are available. It is also relatively simple to supplement or exchange data sources for market segments that have already been captured.

The advantage of using freely available internet data is that data gaps in the official statistics can be closed quickly and cost-effectively.
However, there are also a number of disadvantages. For instance, there is a risk that the data provider in question will stop producing the data or stop making them available to the public. In addition, checking the quality of internet data is not necessarily a simple process, since most of the information is taken from the results of surveys that were not carried out by official bodies. Besides this, some of the information is only available with a time lag of several years, meaning that the data need to be extrapolated to the current end.

Added to this is the fact that the data that are freely available at present do not meet all the requirements of the balance of payments. They are not broken down by country, for example. Initial analyses show that a country structure of digital purchases cannot be identified on the basis of the current data sets. For this reason, the estimated sales are shown under the item “countries not identified”. Developing an appropriate method for breaking digital purchases down by country is a task that still needs to be tackled.

The approach presented here should be seen as the first step towards capturing internationally traded digital services in the official statistics. Many challenges remain. Cooperation with the data providers will play a key role in overcoming these challenges.

### List of references


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