

KIEL WORKING PAPER

**What Do We Really
Know About the
Transatlantic Current
Account?**



No. 2137 August 2019

Martin T. Braml and Gabriel J. Felbermayr

ABSTRACT

WHAT DO WE REALLY KNOW ABOUT THE TRANSATLANTIC CURRENT ACCOUNT?

Martin T. Braml and Gabriel J. Felbermayr

Do the U.S. have a current account surplus or a deficit with the EU? Since 2009, official sources disagree: The U.S. Department of Commerce claims a consistent U.S. surplus while Eurostat reports the opposite. International transactions are notoriously difficult to measure accurately, but the size of the transatlantic discrepancy is extremely substantial: over the last ten years, it has grown to accumulated 1 Trillion USD. In times of severe trade policy disagreements across the Atlantic, this gap is obviously problematic. This paper tries to dissect the transatlantic reporting gap. Two country-pairs – U.S.-UK and U.S.-Netherlands – account for almost the entire transatlantic discrepancy, which, in 2017, stood at about 180 billion USD. In the former case, national statistics on net services trade disagree by as much as 55 billion USD; in the latter case, there is a reporting difference in net primary income of about 60 billion USD. In contrast, data provided by the Bundesbank for the German-U.S. current account closely mirror U.S. data. Non-random measurement error and, possibly, deliberate manipulation seem to cause the observed discrepancies.

Keywords: Current Account, Statistical Discrepancies, Service Trade, Trade War

JEL classification: F14, F32, H26

Martin T. Braml

Ifo Institute – Leibniz Institute for
Economic Research at the University
of Munich;

Email:

braml@ifo.de

Gabriel J. Felbermayr

Kiel Institute for the World Economy;
Kiel University

Email:

felbermayr@ifw-kiel.de

Acknowledgements: The authors thank Jaques Fournier (Banque de France), Christopher A. Gohrband (BEA), Eva Hagendoorn (DNL), Annette Hayes (Irish Statistical Office), Carmen Picon-Agiular (ECB), Henk Prins (DNL), Caspar Siegert (BoE), Stefan Zeugner (EU Commission) and particularly Jens Walter and his team at the German Bundesbank for support in the data collection, sharing their expertise, and available exchange of ideas. We also thank our research interns Florentine Friedrich and Patrick Hoffmann for their excellent assistance. Martin T. Braml gratefully acknowledges financial support received from Senatsausschuss Wettbewerb (SAW) under grant no. SAW-2016-ifo-4.

“When a country (USA) is losing many billions of dollars on trade with virtually every country it does business with, trade wars are good, and easy to win. Example, when we are down \$100 billion with a certain country and they get cute, don’t trade anymore—we win big. It’s easy!”

U.S. President Donald Trump on Twitter (March 2, 2018)

“Economists have long recognized that the bilateral trade deficit is a misleading indicator [...]. However, the objections of the profession have not stopped the bilateral trade deficit becoming one of the key variables in U.S. trade disputes [...]. Because the bilateral trade deficit has real consequences on trade policies, we should definitely solve the technical problem of measuring it accurately.”

Feenstra et al. (1999)

“In assessing external balances, we note the importance of monitoring all components of the current account, including services trade and income balances.”

G20 Osaka Leaders’ Declaration (June 29, 2019)

1 Introduction

U.S. President Trump has made trade politics a key issue of his political agenda. He seems convinced, like many other politicians in the U.S. and elsewhere before him, that the vastly negative U.S. trade balance were evidence for the U.S. being taken advantage of by its trade partners. And he attempts to solve this “problem” by focusing on bilateral trade relations. Next to the U.S.–China relationship, the transatlantic link appears high up on the agenda of the President.

In this paper, we highlight very substantial discrepancies in the transatlantic current account. We contribute by *(i)* describing the dynamics of the bilateral position from the EU and U.S. perspective, *(ii)* dismantling the current account into its sub-accounts and their contribution to the overall discrepancy, *(iii)* decomposing the discrepancy into EU member state contributions, and *(iv)* providing tentative interpretations of our findings.

We argue that for all practical purposes, if one considers bilateral balances, a broad view on the current account is more adequate than a narrow one on goods trade. Borders between goods and services trade and primary income are becoming increasingly blurred. One reason is the increasing servicification of manufacturing (Lodefalk, 2013), another is the fact that whether an intangible service transaction appears in the primary income accounts or in the services accounts often depends only on tax treatment.

Economists, as the above quoted Feenstra et al. (1999) dismiss a trade policy strategy targeting bilateral positions as misguided, at least from a welfare theoretic point of view.

Of course, aggregate imbalances do matter, but they are mostly driven by the stance of fiscal and monetary policy. Moreover, bilateral balances are largely non-informative from a macroeconomic or welfare theoretic perspective; see Mankiw (2018) for an illustrative example: clearly, countries can run large bilateral trade surpluses or deficits despite their aggregate positions being in balance.

However, bilateral balances do matter politically. First, a country with a large deficit (the U.S.) or surplus (Germany¹) may want to take measures to address this imbalance, and this may well require a breakdown of the overall balance into bilateral components to guide policy. Second, bilateral balances are strong predictors for the relative costs of trade wars between two countries. As a consequence, the deficit country tends to have a stronger bargaining position than the surplus country. Therefore, it is irritating that official statistics fail to provide a consistent answer on the sign and size of the U.S.–EU current account balance.

There is relatively little academic research on bilateral positions. One rare example is Davis and Weinstein (2002) who argue that bilateral imbalances are either the result of aggregate imbalances or they may result from triangular trade, by which structures of comparative advantage and preference lead one country to export to one partner but not to the other, with importing patterns taking opposite shapes. They argue that the standard gravity models fail to convincingly predict any significant bilateral net trade positions; hence they talk about a “mystery of the excess trade (balances)”. Felbermayr and Yotov (2019) show that properly accounting for multilateral trade restrictiveness indices can solve the mystery.

We argue that patent boxes as well as other tax avoidance schemes make it profitable for multinational enterprises to shift intangible assets into low tax countries. This converts service exports, e.g., license fees and royalties, into primary income. Due to its R&D intense and export-oriented services sectors, this is particularly important in the case of the United States. Thereby, dividends on FDI and other corporate income become perfectly substitutes to exports and must be interpreted accordingly. Consequently, bilateral current account imbalances, rather than imbalances of goods trade, are best suited for highlighting the distribution of bargaining power in trade wars. This is why our analysis focuses on bilateral BoP statistics between the U.S. and the EU.

The fact that international mirror data often do not match has been long known. For example, the world’s current account with itself is notoriously unbalanced. Frankel (1975) already addresses potential channels why the world tends to run a current account deficit in the 60’s and 70’s. This debit-bias, however, has changed over time into a credit-bias in the early 2000s. Gros (2017) reports a recent current account surplus amounting to 300 bn USD per year.² As a potential reason for this credit-bias, Helbling and Terrones

¹ For an analysis of the German current account, cf. Bonatti and Fracasso (2013).

² Interestingly and surprisingly, he shows that the global current account imbalance is strongly correlated

(2009) argue that time lags in international transportation might lead to lagged recording of imports relative to exports; in a world of rapidly growing trade, global surpluses are then a necessary consequence. Of course, interstellar trade could explain a global surplus, a conjecture taken up by Krugman (2010) in a very humorous contribution drawing on Einstein’s Relativity Theory.

There is also some work on bilateral balances. Ferrantino et al. (2012) investigate the discrepancies in goods trade between the U.S. and China and link them to VAT fraud and tariff evasion. However, as we discuss in Section 2, goods trade statistics are not the predominant driver of the large transatlantic discrepancies. They are rather driven by services and primary income accounts. Cezar and Le Gallo (2019) outline that transatlantic bilateral discrepancies with respect to primary income can be traced to differences in accounting methods.

Economists have urged politicians and statistical offices to invest in more international cooperation with the objective to improve data accuracy and consistency. For example, twenty years ago, Feenstra et al. (1999) urged for better international transaction data. Since then, progress made in certain areas has been frustrated by new technical problems triggered by technological and legislative change. Moreover, with the globalization process, data gaps have actually grown, both in relative and in absolute terms. There are international conventions regulating the accounting practices (the Balance of Payments and International Investment Position Manual 6 (BPM6) standard), but the rules leave scope for interpretation, and there is little supervision or enforcement of rules. This is increasingly problematic: in times of trade conflict, the enormous discrepancy between the U.S. and the EU data has “real consequences on trade policies”.

The paper is structured as follows: Section 2 documents recent events in the transatlantic trade spat and provides an aggregate picture of the EU and Euro Area current account vis-à-vis the US. Section 3 narrows down bilateral BoP positions at the member state level to identify contributors to the overall discrepancy. In Section 4, we discuss tentative results on the reasons for this multi-billion dollar gap. Finally, Section 5 concludes and gives some policy advices.

2 Transatlantic Differences on Trade and on Trade Data

2.1 The Up and Down of Transatlantic Trade Policy Tensions.

During his presidential campaign in 2016, Donald Trump made very clear that he sees as his duty to reduce the large U.S. deficit in goods trade with many countries and that

with the German current account balance.

tariffs would be the instrument of his choice. Next to China, his rhetoric targeted Europe, in particular Germany. Due to these statements, it became clear, that the negotiations for a Transatlantic Trade and Investment Partnership (TTIP), that the EU and the U.S. had been engaged in since 2013, would be discontinued. Since Donald Trump's inauguration as President of the United States, those negotiations have been in the freezer.

It took until March 8, 2018 for the U.S. president to sign into existence the first wave of tariffs, on steel and aluminum products, invoking Section 232 of the Trade Expansion Act of 1962, and arguing that imports of such goods caused severe national security concerns. The EU initially was exempted and tried frantically to avoid being hit. But from June 1st 2018 onwards, the U.S. has been applying tariffs of 25 percent and 10 percent on imports of European steel and aluminum products, respectively. The EU retaliated with tariffs on U.S. steel and aluminum products and on iconic American products such as Bourbon Whiskey, jeans, peanut butter or Harley-Davidson motorcycles.

This prompted the U.S. President to twitter "Based on the Tariffs and Trade Barriers long placed on the U.S. & its great companies and workers by the European Union, if these Tariffs and Barriers are not soon broken down and removed, we will be placing a 20% Tariff on all of their cars coming into the U.S. Build them here!" (June 18, 2018). Earlier, he had already commissioned a new Section 232 investigation into possible security concerns related to imports of cars. The EU made clear that it would retaliate much as it had retaliated on the first wave of tariffs.

At some surprise, during a meeting at the White House in Washington on July 26, Donald Trump and the President of the EU Commission Jean-Claude Juncker agreed to a moratorium on further tariffs. They announced the intention to close a free trade agreement in the near future that will include, amongst other things, full elimination of all industrial tariffs.³ Being asked for the reason of the breakthrough, Mr. Juncker replied to a leading German broadcaster:⁴

"I have tried several times to explain: if one sums up goods trade, services trade, and profits of multinational firms, the U.S. runs a surplus and we actually have a deficit. Trump has denied these figures until I could demonstrate that they originate from American statistics; after that, the conversation was much friendlier".

Even before the so called "Rose Garden Truce", on June 12, 2018, German Chancellor Angela Merkel rejected US critics on bilateral economic relations, referring to the US surplus once services are taken into account.⁵

Possibly, the President of the EU Commission had made use of an analysis by Felbermayr (2018) (from May 2018) which pointed out that the U.S. President's focus on goods trade neglects the fact that the U.S. runs a current account surplus vis-à-vis the European

³ EU Commission Press Release, accessed on November 20, 2018.

⁴ ARD Tagesschau, accessed on November 19, 2018. Author's translation.

⁵ Spiegel Online, accessed on November 19, 2018. Author's translation.

Union—despite a deficit in goods trade amounting to 153 bn USD in 2017. This deficit is offset by surpluses in service trade (51 bn USD), primary income (106 bn USD), as well as secondary income (10 bn USD). On May 30, 2018, an earlier version of this paper qualified this statement on the U.S. current account surplus with the EU (Felbermayr and Braml, 2018); official U.S. statistics provided by the Bureau of Economic Analysis prove a U.S. surplus of 14 bn USD.

Strikingly, however, according to EU statistics compiled by Eurostat, the statements by both President Juncker and Chancellor Merkel would be wrong as those data suggest the EU ran a current account surplus vis-à-vis the US amounting to 170 bn EUR (192 bn USD) in 2017. The corresponding statistical discrepancy accounts for 206 bn USD, nearly the size of the Portuguese economy. Revised EU statistics published on November 2018 reduced the suspected EU surplus to 154 bn EUR (174 bn USD).

Clearly, the fact that U.S. statistics, and not European sources, indicate a bilateral surplus for the U.S. has greatly supported the EU’s stance on the trade dispute. However, these very large discrepancies in bilateral current account figures bring up the important question about the true state of the transatlantic bilateral balance. Obviously, both sources—the U.S. BEA and Eurostat—cannot be simultaneously right.

2.2 The EU–U.S. Current Account

We start by presenting key facts on the transatlantic bilateral current account as reported by the US Bureau of Economic Analysis (BEA), an organizational unit of the U.S. Department of Commerce, as well as from Eurostat, the EU’s statistical unit which collects data from member states. As the BEA data is the most comprehensive data collection, it serves as reference point for our analysis. It contains bilateral accounts for many U.S. trade partners, providing information on trade in goods, trade in services, primary income (compensation of foreign factors of production) and secondary income (transfers of goods, services, income, or financial items without a quid pro quo).⁶ Our analysis is constrained by data availability and encompasses bilateral current account figures vis-à-vis the U.S. for a few EU member states only. For easy comparability, we look at all data from the perspective of the US and report all figures in US dollars.⁷

Figure 1 illustrates the core of the problem.⁸ It compares BEA data (left part) with their mirror images from Eurostat (right part). The messages told by these two figures could not be more contradicting: according to the BEA, the U.S. has run a current

⁶ We do not discuss secondary income accounts given their low economic relevance.

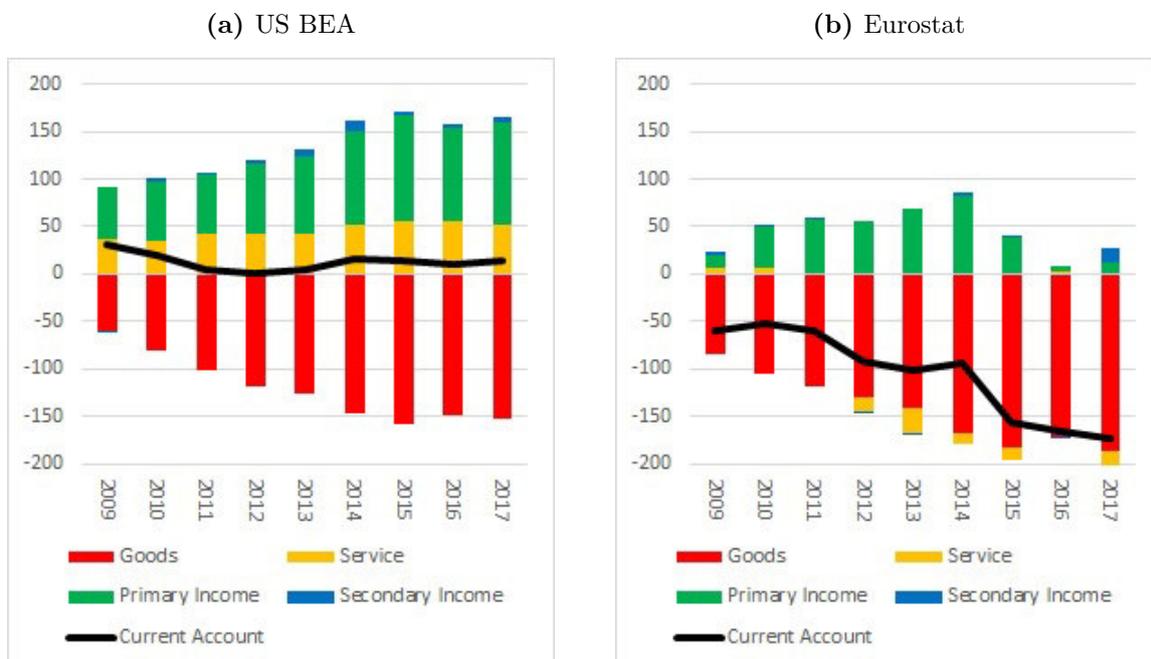
⁷ Balances data from European sources are translated from Euros into US dollars using the FRED data base. The time horizons under investigations differ due to data availability; we always have included as many observations as possible.

⁸ Differences to our previous findings in Felbermayr and Braml (2018) are due to the revision of Eurostat balance of payments data, which was published on November 19, 2018. To the best of our knowledge, we were the first to highlight the massive discrepancies in current account data between the United States and the European Union.

account surplus vis-à-vis the EU in every year since 2009, while according to Eurostat the opposite was true. Looking at sub-balances, for 6 years out of 9 in the period 2009-2017, the sign of the services balance has been inconsistent. According to the BEA, the U.S. net primary income balance has exceeded the number reported by Eurostat tenfold. The only account exhibiting a consistent pattern is the one that refers to goods trade. Even if absolute numbers reported by the EU are slightly higher, the time series are very highly correlated ($Corr = 0.98$).

According to the BEA, the cumulative U.S. surplus over this period amounts to 113 bn USD; the cumulative U.S. deficit according to Eurostat yields 957 bn USD.⁹ In less than a decade, more than one trillion dollars—the same value as the world’s most valuable firms—has gone lost in the transatlantic current account statistics.

Figure 1: The EU–U.S. Current Account: U.S. vs. EU Sources, bn USD



Note: Figures show balances; balances of Subfigure (b) are multiplied by minus 1 to reflect the “U.S. perspective”.

2.3 The Eurozone–U.S. Current Account

When we began our work, European current account data for the Euro Area vis-à-vis the U.S. was not available. A sub-account of the primary income account (“Primary Income, Investment Income, Portfolio Investment, Debit”) was missing. The U.S. mirror account amounted to 83 bn USD in 2017, a non-negligible number.¹⁰ Thus, we had no information on the Euro Area’s current account and could not, consequently, compare it with BEA

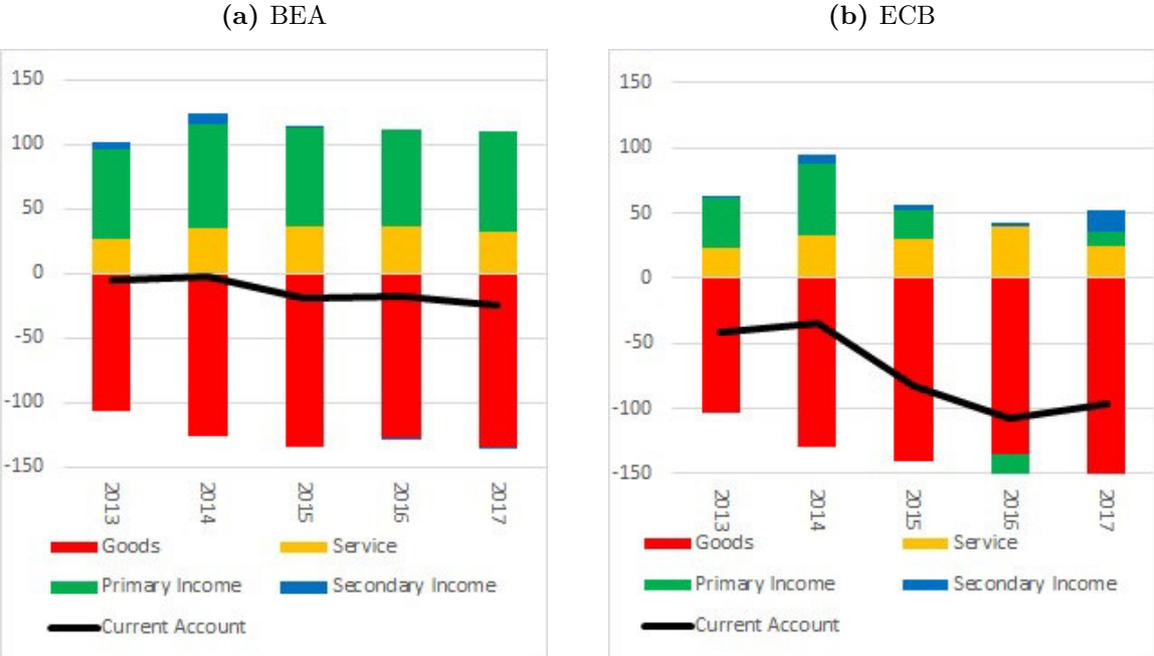
⁹ Current Prices.

¹⁰ For instance, other sub-accounts “Primary Income, Labor Income” are so small that they can be safely neglected for a rough comparison of two current account balances.

data. In October 2018, the ECB revised its current account data vis-à-vis the United States. In the course of this revision, the ECB finally published the missing account on portfolio investment debits. Hence, we are now able to compare those figures. As data was not available prior to 2013, Figure 2 shows only five periods.

For now we can report the following: (1) the goods accounts are broadly in line. (2) the same is true for services accounts. (3) By contrast, severe discrepancies appear regarding primary income accounts. The total current account discrepancy yields 72 bn USD. Thus, we can divide the EU–US discrepancy amounting to 188 bn USD in 2017 into 72 bn USD that occur bilaterally between the Euro Area and the U.S., and 116 bn USD that occur between non-Euro Area EU member states and the U.S.

Figure 2: Eurozone–U.S. Current Account, bn USD



Note: Figures show balances; balances of Subfigure (b) are multiplied by minus 1 to reflect the “U.S. perspective”.

3 Bilateral Discrepancies at the Member State Level

Eurostat balance of payments statistics are derived from national data.¹¹ Thus, in our next step, we take a closer look at important bilateral accounts, the objective being to identify the main sources of statistical discrepancies.

¹¹ Eurostat does not collect own data but processes data submitted by national statistical agencies or central banks. While Eurostat does conduct quality checks of national data, it has very limited means to enforce common standards.

3.1 On the UK–U.S. Current Account

We start with the United Kingdom (UK). The Euro Area accounts for 73 percent of the size of the EU economy; the UK accounts for 15 percent and hence for more than half of the non-Eurozone EU. As reported, the latter accounts for a discrepancy of 116 bn USD between EU and U.S. sources, i.e., 62 percent of the total EU–U.S. discrepancy. Given the UK’s importance in financial markets, which is relevant for both services trade as well as primary income, the UK is the most relevant non-Eurozone economy. In the UK, BoP data are compiled by the Office for National Statistics (ONS). Bilateral current account figures vis-à-vis major trade partners are available on a quarterly basis beginning in 1999.

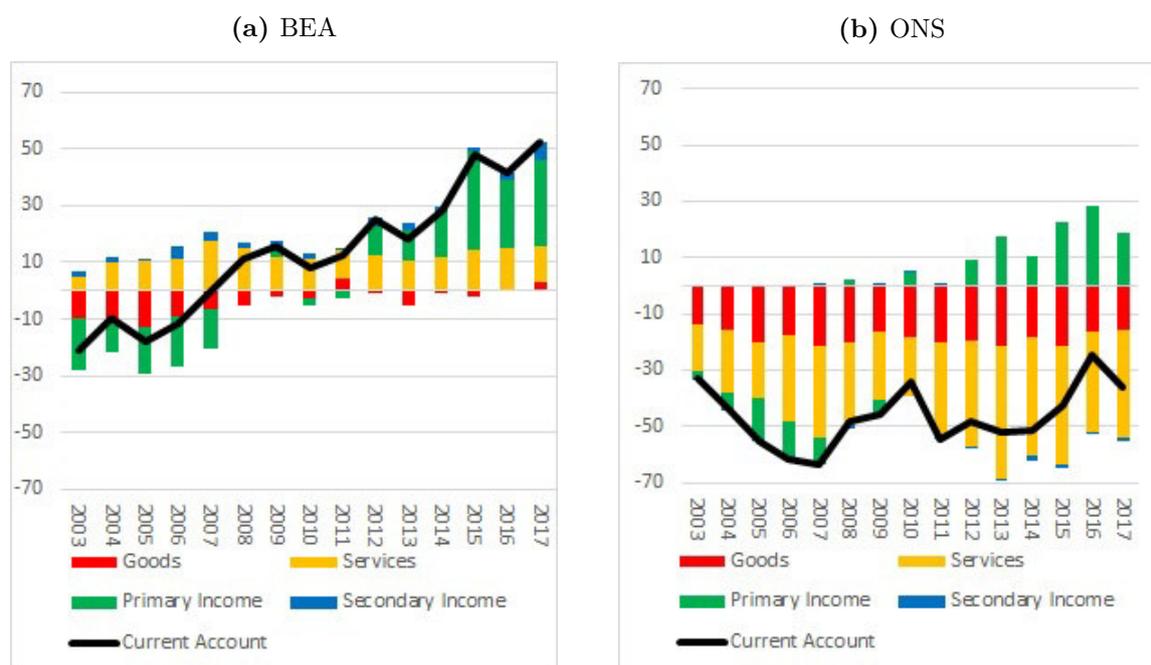
Figure 3 compares ONS and BEA mirror data. It provides several interesting insights. First and foremost, the total discrepancy is enormous: in 2017, it amounts to 88 bn USD: the sum of a U.S. reported U.S. surplus of 52 bn USD and a UK reported U.S. deficit of 36 bn USD. Whereas the balance follows a clear upwards trend with a zero-balance in 2007 and surpluses thereafter according to BEA, ONS reports a U.S. deficit of 30 to 60 bn USD throughout the entire period of observation. Most recently, data on goods trade do not match, neither in terms of dynamics, nor in terms of balance sign or in terms of magnitude. Interestingly, in the first years in our data set, the two sources almost perfectly agree on the balance of the goods accounts. The most severe inconsistencies are found in the services accounts; both countries report surpluses that roughly doubled over time. Services balances alone yield a discrepancy of 51 bn USD in 2017.

Second, primary income balance exhibits much more consistent dynamics. Despite some absolute discrepancies amounting to 11.6 bn USD in 2017, the co-movement of both sources over time is very high ($Corr = 0.91$). Hence, we can conclude that, in the UK–U.S. current account, services predominantly drive bilateral discrepancies. 88 bn USD, or almost half of the total EU–U.S. discrepancy can be traced back to the United Kingdom. Ironically, in the event of a Brexit, the accuracy of the EU–U.S. bilateral current account would improve substantially.

For the identification of other large contributors to the EU–U.S. discrepancy, two observations are in order: (1) as the UK accounts for roughly three quarters of the 116 bn discrepancy between the US and non-Euro Area EU member states, the other main contributors to the data gap must be found within the Euro Area. (2) As primary income imbalances make up the lion’s share of the total discrepancy, and given that the UK does not strongly contribute to these primary income imbalances, other large contributors must have close investment ties with the United States that result in large gross and net income flows. We suspect that profits of multinational enterprises located in the Netherlands and Ireland cause the large U.S. surplus in primary income. For the Netherlands, we directly observe this in the U.S. data; for Ireland we have do not have direct evidence.¹² The BEA

¹² Brad Setser has done research on the Irish current account and how it is shaped (or even distorted) by

Figure 3: UK–U.S. Current Account, bn USD



Note: Figures show balances; balances of Subfigure (b) are multiplied by minus 1 to reflect the “U.S. perspective”.

does not publish bilateral data vis-à-vis Ireland.¹³

the activities of multinational enterprises, cf. Brad Setser’s Blog, accessed on November 22, 2018.
¹³ the Irish position is hidden in the aggregate “other Euro Area”, which contains small Euro Area economies that are not separately listed elsewhere in the current account. Moreover, the Irish statistical office did not want to share their current account figures vis-à-vis the U.S. with the authors; however, upon request they have confirmed the existence of such data.

3.2 On the Dutch–U.S. Current Account

It has taken the authors some effort to get access to comprehensive bilateral current account data of the Netherlands vis-à-vis the United States. Interestingly, before we had started our investigations, all current account components available were online, except the primary income account. Now, these data are freely accessible via the Dutch National Bank’s (DNL) web site, too.

Figure 4 compares the official Dutch data with BEA data. A few things are noteworthy: the U.S. statistics show a slightly increasing goods balance, a constantly positive services balance since 2008, and a steeply improving primary income balance, which amounts to 69 bn USD in 2017. After all, the BEA claims a bilateral US current account surplus of 98 bn USD. According to Dutch statistics, the U.S. surplus is lower in the goods balance and higher in the services balance. This problem might arise due to classification problems in the field of contract processing, in which the BEA has not yet adopted BPM6 standards. Obviously, such distinction problems must leave the total current account unaffected. The large discrepancies stem from the primary income balance. According to Dutch sources U.S. primary net income fluctuates remarkably, which is unusual in times without major financial crises. During the last three years, the U.S. ran a surplus of 27 bn USD in 2015, a deficit amounting to 16 bn USD in 2016, and again a slight surplus worth 7 bn USD in 2017. The peaks in 2011 and 2014 (47 and 50 bn USD) stand out as well. Dutch data end in 2017 and report a U.S. current account surplus of 22 bn USD. The corresponding discrepancy yields 76 bn USD. This is slightly more than 100 percent of the total discrepancy between the U.S. and the Euro Area.¹⁴

The bilateral position between the U.S. and the Netherlands raises the question whether or not corporate profits are recorded correctly. The BEA discloses FDI income as the main source of U.S. primary income (Credit 76 bn, Debit 16 bn USD in 2017); the BEA reports U.S. FDI assets worth 847 bn USD and liabilities amounting to 355 bn USD.¹⁵ Dutch current account data do not allow for such a detailed breakdown of sub-aggregates. However, according to Dutch data, bilateral FDI stocks of the Netherlands and the U.S. net out each other (U.S. assets 775 bn USD, U.S. liabilities 780 bn USD). Hence, the misunderstanding regards Dutch investment positions in the United States, and not U.S. investments in the Netherlands. Upon our request, DNL officials admit that they underestimate primary income of U.S. multinationals. They also argue that primary income is generally underestimated so that the aggregate Dutch current account balance is not systematically mismeasured:¹⁶

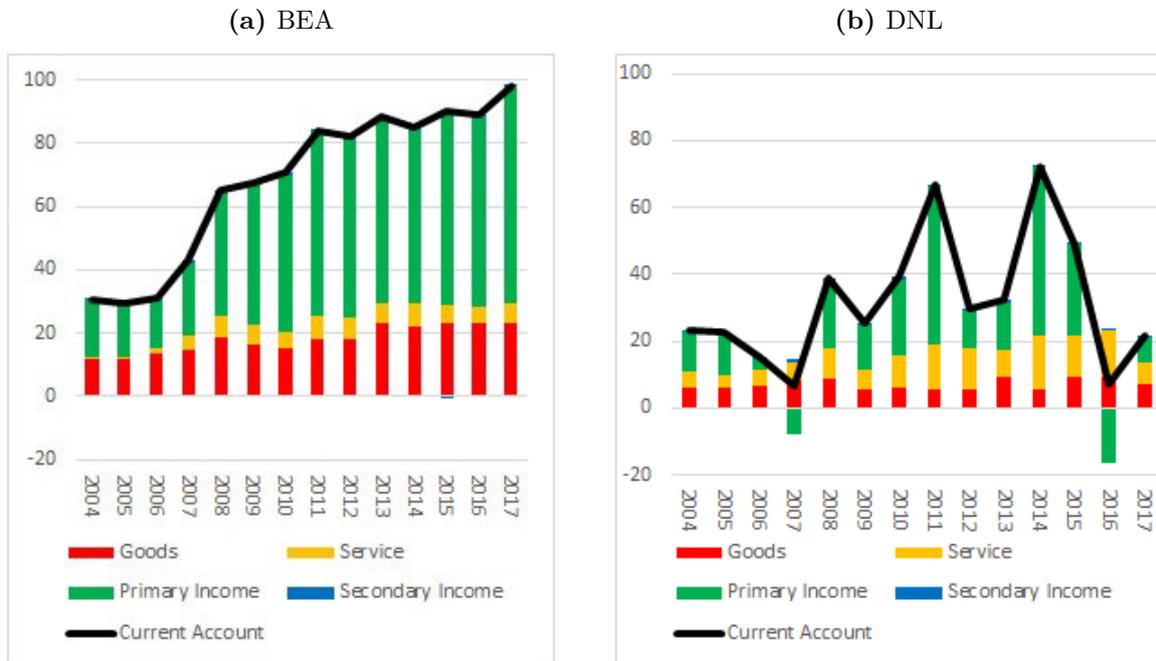
¹⁴ Mechanically, if national discrepancies occur in both directions (under- and overestimation of true figures) they cancel out. Thus, the total overall gross discrepancies of all Euro Area members with the U.S. can exceed the net discrepancy.

¹⁵ The most recent figures are those of 2016. Values according to historical-cost basis.

¹⁶ This may well be the case; for our purposes it suffices to notice that the Dutch data probably underestimate U.S. primary income, and this leads to an underestimation of the U.S. surplus relative to the

“Regarding the differences between the US and NL: it is likely that NL underestimates the primary incomes to the US (and that the US figure is therefore better). On the other hand, NL also underestimates the primary incomes from other countries (DE in the example), so that the current account balance of the Netherlands is not distorted.”¹⁷

Figure 4: Dutch–U.S. Current Account, bn USD



Note: Figures show balances; balances of Subfigure (b) are multiplied by minus 1 to reflect the “U.S. perspective”.

3.3 On the German–U.S. Current Account

The German Bundesbank provides quite detailed data on bilateral current account positions. Figure 5 illustrates the German–U.S. current account balances. The comparison between German and American official data exemplifies that, even in the presence of some discrepancies in absolute levels, dynamics as well as magnitudes can very well be in line between major trade partners that report a very large number of transactions.¹⁸ Since the good comparability of German and U.S. data is relatively persistent over time (and also appears at the quarterly level), one can rule out methodological differences as a reason for the large EU–U.S. discrepancies. Even if the ECB and the BEA interpret BPM6 differently at some points, the Bundesbank, which complies with ECB standards,

EU.

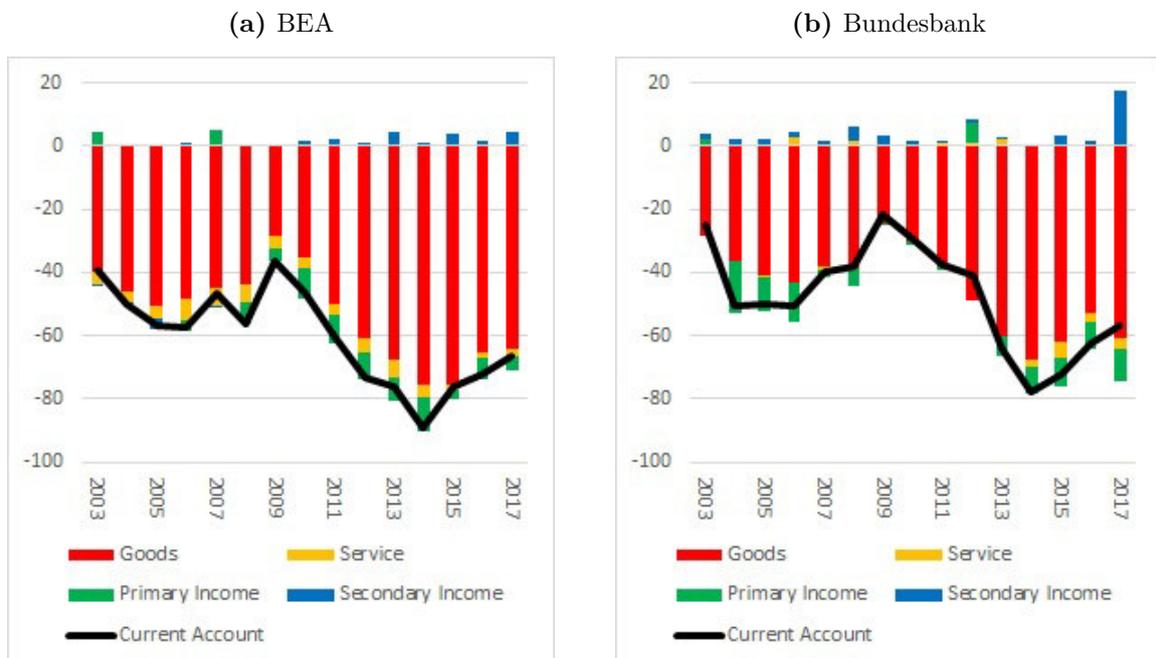
¹⁷ Personal email correspondence, received on October 25, 2018, subject: “Dutch Balance of Payment – Dossier: 4930”.

¹⁸ The U.S. is Germany’s largest trade partner (246 bn Euro in 2018 of services and goods exports and imports together); Germany is the 5th largest U.S. partner with a reported total turnover of 252 USD in 2018.

and the BEA do not come to substantially different results for the German–U.S. current account.

The high degree of co-movement of the two statistics allows drawing two conclusions only: either, both the BEA and the Bundesbank report correctly and both their data reflect economic ties accurately. If so, we have no reason to doubt the capability of the BEA to also correctly report current account figures with other EU member states. The second possible solution: both the Bundesbank and the BEA are wrong and systematically misreport in a way that creates similar outcomes. This seems highly unlikely. In our opinion, the main take-away of this picture is that the Bundesbank validates U.S. data. Hence, if one wants to blame the BEA for being the origin of the misreporting with respect to the UK and the Netherlands, he or she owes an answer on how U.S. data can be so accurate with respect to Germany.

Figure 5: German–U.S. Current Account, bn USD



Note: Figures show balances; balances of Subfigure (b) are multiplied by minus 1 to reflect the “U.S. perspective”.

3.4 On Other Bilateral Accounts

We have invested substantial time into understanding data provided by Banque de France. We are grateful for the bank for sharing its data and hosting us in Paris, but the details of our work have to remain confidential. However, we can say so much: The French data is in line with the BEA; hence, France does not appear responsible for exceptionally high bilateral discrepancies with the U.S.

Italy is another country for which the BEA provides separate bilateral accounts. We

have not been successful in entering into constructive discussions with Banca d'Italia. However, the descriptive exercise presented above shows that we are able to attribute large shares of the bilateral EU–U.S. discrepancies to only two countries, namely the Netherlands and the United Kingdom. This does not mean that Italian data necessarily match those of the U.S., but the likelihood for Italy to be a major source for discrepancy is low.

The source of discrepancy in the Dutch case is the primary income account, in the UK case it is services. This is not surprising given that the Netherlands are by far more attractive for corporate profit shifting than the United Kingdom, which is traditionally Europe's biggest player in financial services.

4 Attempts towards Interpretation

The question whether the U.S. has a current account surplus with the EU or the other way round is politically sensitive; the above quote from the G20–Summit Declaration of 2019 shows this quite clearly. Moreover, as discussed above, the transatlantic data gap is large, systematic and persistent. Thus, one should not dismiss it as pure measurement error.

This is not to say that measurement issues do not loom large. They do; in particular with respect to services and primary income, where the country of residence of transaction parties are hard to ascertain. However, in case of pure measurement error, discrepancies should average out over time and space. This is not the case. There are two other explanations that warrant investigation. First, EU countries and the U.S. could apply different accounting rules to the same transactions. Second, even if they apply the same formal rules, there is substantial leeway in how exactly to apply them.

For very good reasons, there are international conventions governing the construction of the balance of payments. The current incarnation of those rules is the Balance of Payments Manual 6 (BPM6). All EU countries and the U.S. are committed to the BPM6, but not all provisions are applied. For example, the U.S. do not apply the standard on contract processing (Howell et al., 2017); this might blur the proper statistical distinction between goods and services accounts but still leaves the overall current account balance unchanged. Similarly, the fact that U.S. multinationals make use of differences in EU corporate tax policies cannot explain the aggregate current account imbalances; from an accounting perspective, a conversion of services receipts into primary income leaves the aggregate current account positions unaffected, changing the composition of the balance sheet only but not its overall length.

Hence, to understand the discrepancies, we must identify types of measurement error without offsetting counter entries in the current account. Chesson et al. (2018) highlight several reasons that might cause bilateral discrepancies in the UK services statistics with

the U.S. For instance, the U.S. includes the Crown Dependencies to the UK economic territory, which are excluded by British official statistics.¹⁹ Moreover, both the UK and the U.S. have a traditional orientation towards services. Gross services as well as primary income flows might be inflated due to high economic activity in the financial hubs of London and New York City. These two current account components are particularly error-prone. However, other countries with high exposure to gross financial flows, e.g., many bond market clearing houses located in Belgium or Luxembourg, do not cause such severe discrepancies. So, it is probably not sufficient to point towards financial centers to explain the puzzle.

Probably more important, as with all accounting practice, there exists substantial leeway to interpret the rules in one way or the other. A systematic interpretation of rules with the objective to minimize primary income receipts (in the EU) or to maximize net trade (in the presence of a mercantilistic bias in the U.S.), can explain the results highlighted in the previous section. But why should countries lean in one way or in the other? One way to produce educated guesses is to ask the “Cui Bono” question: who benefits from a specific interpretation of rules? Before we ask that question, we look more deeply into the scope for manipulation in the services and the primary income accounts.

4.1 Measurement Issues and Statistical Discretion: Services

For historical reasons, statistical regimes in the EU differ by member state, and various reasons suggest that data quality for goods trade is better than for services trade. First, due to its lower economic relevance in the past, efforts have primarily been made on establishing international standardization for goods trade and less so for services trade.

Second, because tariffs are not imposed on services, only goods imports are a source of government income. Hence, ensuring a high quality of statistical recording of goods crossing international borders has always been in the interest of governments.²⁰

Third, data quality increases in the average size of transactions due to de minimis thresholds below which transactions are exempted from reporting requirements. Most recently, a trend of dis-intermediation has been observed: in the past, exports mostly were business-to-business transactions; nowadays, the intermediary, e.g., a domestic importer, is becoming obsolete as consumers and firms directly order from foreign suppliers, often in very small quantities. When trade mainly consists of large business-to-business transactions, there is no systematic export bias. However, when trade becomes more and more business-to-consumer, an increasing export bias will become prevalent, as the exporting company does record the cross-border transaction while the importing consumer does not. In a case where low value transactions are performed with high frequency, statistics

¹⁹ The Crown Dependencies are the Isle of Man and the Bailiwicks of Jersey and Guernsey.

²⁰ But less so in a customs union like the EU where 80 percent of tariff revenue is absorbed by the central budget and only 20 percent remain in the collecting member state.

systematically under-report true import figures. Thus, e-commerce is a growing challenge for statisticians especially in the correct recording of services transactions.

According to German foreign trade legislation, every transaction worth more than 12.500 EUR must be reported to the Bundesbank. On this basis, it compiles German services trade statistics. Subsequently, all payments below this threshold go missing in statistical recording. Furthermore, statistical practice does not follow a unified framework in the EU. This is best exemplified by comparing German and British practices: whereas German statisticians fully cover all transactions above a certain threshold, British authorities conduct a survey based on a partial census and then project national figures.

U.S. multinational enterprises are often located in the Netherlands or Ireland, from where they serve the entire EU single market. Consider the following example: a German resident pays for a movie accessed via iTunes. As Apple Europe is located in Ireland, this is technically a German services import and accordingly an Irish services export. As Apple Ireland is owned by U.S. residents, this transaction generates positive U.S. primary income (assuming that it was a profitable transaction). When Apple Ireland reports this transaction to Irish statisticians, bilateral German-Irish services accounts deviate due to non-reporting in Germany. Data support this claim: according to Eurostat, Germany has a self-reported bilateral deficit in its services trade with Ireland amounting to 4.7 bn EUR, while the mirror account reported by Ireland shows an Irish surplus of 6.7 bn EUR, which is 43 percent above the German number. Helbling and Terrones (2009) argue similarly with respect to the global services surplus. These low-value transactions for digital services are increasingly important and may distort bilateral services accounts in the EU.²¹ However, the external position vis-à-vis the U.S. is thereby unaffected.

With respect to the UK–U.S. services discrepancy, we record the following: in the past 15 years, there was no single year in which both sides reported at least the same sign of the balance. If e-commerce becomes a problem for statistical recording nowadays, it clearly cannot have been the reason for misreporting over the entire period under investigation. As these two economies both host important hubs for global financial markets, it is plausible to locate the reason for the discrepancies in the financial services trade; this is also hypothesized by Howell et al. (2017). Large market places such as the City of London or Wall Street provide access to liquidity for any kind of financial transactions to financial intermediaries around the globe; the provision of liquidity is economically an insurance service and the risk premium contributes to the income of the service provider, e.g., the London Stock Exchange or the NYSE.²²

²¹ The relevant firms (Amazon, Apple, Facebook, Google, Microsoft, Netflix) are all located in Ireland, Luxembourg, and the Netherlands. Services provided by those companies include software licenses, cloud storage, streaming services, et cetera.

²² Note that many financial transactions themselves are not accountable in the current account at all. Selling Pound Sterling against the Dollar only changes the composition of international investment positions. Accountable in the current account, however, would be profits and losses that could materialize for either party involved.

However, it is unclear how this kind of services can be reflected in bilateral current account figures. The value of the market-place increases in the number of its participants due to network externalities. Hence, the partner-country attribution of such profits is not straight-forward. Consider the following: when one breaks down the British financial services exports, which arise from the providing a market-place, to different countries according to the size of gross flows, the U.S. would certainly be assigned a great portion. This is not only because U.S. residents conduct their businesses in London, but is also due to transactions that are conducted via U.S. financial intermediaries in which no American capital is involved. Hence, the “fair share” for the U.S. could be overdrawn.²³ The same holds true vice versa for U.S. services exports to the UK and may explain the excess surpluses that both countries claim to run bilaterally. With respect to the aggregate EU–U.S. services discrepancy, the Eurostat report on the transatlantic discrepancies in services trade notes the following:

“Further, US financial services exclude financial intermediation services indirectly measured (FISIM), and US insurance and pension services exclude pension services. These deviations from the BPM6 standard result from a lack of available source data. (...) Interestingly, US-reported financial services exports consistently exceed EU-reported imports. Therefore, if the United States were to introduce a measure of FISIM, it would further exacerbate this asymmetry.” (Howell et al., 2017)

4.2 Measurement Issues and Statistical Discretion: Primary Income

Methodological differences. There is widespread consensus among statisticians that primary income balances are particularly prone to bilateral discrepancies. In the case of FDI income, the bone of contention is its geographical assignation: are dividends of foreign-owned firms assigned to the location of their ultimate beneficiary, or to the location of the immediate counter-party? The underlying problem is equivalent to the Rotterdam effect in goods trade.²⁴ The BPM6 seems quite clear and recommends the following for the preparation of international investment positions:

“Partner data on asset positions are classified to the partner economy according to the residence of the issuer, not other factors such as the place of issue, the residence of a guarantor, or the currency of issue. Similarly, partner data on liability positions are classified according to the residence of the holders. In practice, identification of counter-party for securities positions, income, and transactions is difficult for various reasons, including that (a) the issuer is not always aware of current holders of securities, (b)

²³ If the world consists of countries with similarly important financial hubs, this overestimation would net out. In fact, the financial industry is relatively concentrated in very few financial centers.

²⁴ Inflated Dutch trade statistics due to the importance of the port of Rotterdam. Goods are unloaded in the Netherlands, but final consumption occurs somewhere else in Europe.

transactors in securities markets may not be aware of the identity of the counterparty, and (c) security holders may be unaware that income on securities positions may be payable by a financial intermediary that created a “short” or reverse position in the security rather than by the issuer of the security.” (BPM6 § 4.152)

However, when it comes to BoP transactions, the BPM6 deviates from the above stated principle and gives national statisticians notable degrees of freedom:

“For balance of payments transactions, the partner attribution could be made on the basis of the parties to the transaction (namely, the buyer and the seller, the so-called transactor approach), or for assets owned, the residence of the issuer (the so-called debtor creditor approach). In these cases, it is acceptable to adopt a convention for partner attribution of assets owned based on the residence of either the counterparty to the transaction or the issuer.” (BPM6 § 4.154)

From a technical point of view, the direct transactor approach better suits the fundamental logic of BoP statistics. Also, for goods trade recording, the final consumption does not matter, but the intermediate trade flow does. When considering data collection, the direct transaction approach seems to be simpler and less error-prone due to better observability. In particular, for financial outflows (debit accounts), the location of the final counter-party is hard to identify. If one thinks of a subsidiary in Germany owned by a Dutch holding, ultimately controlled by a New York based investment fund, whose shareholders are spread around the globe, the correct geographic assignation of corporate profits is not straight-forward (and the length of the chain of intermediaries has increased in practice). On the other hand—and acknowledging these complexities—the ultimate beneficiary principle is economically preferable over bilateral figures that are blown up by transitory flows that cancel out multilaterally. And, therefore, trade statistics would be considerably more telling if they were based on value added and consumption and not on gross flows. Whatever approach is applied has no impact on a country’s overall current account. However, bilateral accounts become incomparable when reporting methods differ across countries. Hence, the uncoordinated application of different reporting principles is the biggest threat to data reliability.

In contrast to financial outflows, financial inflows (credit accounts) are much easier to trace. Thus, central banks as well as statistical offices exchange mirror data based on credit accounts for the proof of consistency with their debit data. However, as the large and persistent discrepancies in EU–U.S. primary income account demonstrate, current levels of coordination are clearly largely insufficient. Moreover, the exact data compilation is still not transparent and information thereof is frequently contradictory. For example, some statisticians have reported to the authors that bilateral primary income flows are based on imputed values by simply assuming investment income is equally distributed as investment stocks (which, in turn, are based on the ultimate beneficiary principle). Then, of course, also BoP statistics mix the ultimate beneficiary and the direct transactor

approaches.²⁵ The BEA and the DNL have both confirmed to compile their BoP statistics based on the transactor approach. Hence, we can rule out methodological differences being the source for this very large discrepancy with respect to primary income.

Tax avoidance and tax fraud. The valuation of corporate profits highly depends on national tax legislation, which is not harmonized among EU member states. Stock repurchases, retained earnings, the effect of patent boxes, value adjustments for brand names, hypothetical depreciation of intangibles, or the capitalization of R&D expenditures all pose the very fundamental question of what a profit, from an economic point of view, actually is. However, as multinational enterprises generally comply with standard international accounting rules (IFRS or U.S. GAP), a certain degree of international harmonization can be assumed. Of course, legal issues will have an impact on primary income accounts and make them prone to error (de Haan and Haynes, 2018), but by the mere fact that Euro Area–U.S. discrepancies mainly occur between the Netherlands and the U.S., this can hardly be the only reason.

Corporate tax planners have set up schemes to locate specific legal entities of multinational enterprises in certain countries with the aim of tax base erosion and profit shifting. These nested corporate structures—think of the famous “Double Irish with a Dutch Sandwich”—lead to situations in which corporate profits are not taxed anywhere, because either tax authority assumes taxability for the other country. Using such legal fictions, firms become tax residents of nowhere. Often, third countries (tax havens outside the EU and the U.S.) are part of this game as well, which obviously leads to distorted bilateral primary income figures between the EU and the U.S. If the BEA assigns profits to Dutch or Irish subsidiaries of U.S. MNEs, while the Netherlands and Ireland may either not report these profits at all or assign them to third parties, such as the Bahamas, Bermuda, or Cayman Islands, bilateral distortions naturally occur. Zucman (2013) has estimated that 8 percent of global financial household wealth—mainly located in tax havens—is statistically not recorded. This would obviously have effects on BoP statistics.

4.3 Some Speculative Answers to the ‘Cui Bono’ Question

Economic statistics are important for policy making, domestic as well as international. Governments sometimes fall prey to the temptation to massage data and statistics to suit their purposes. There is ample anecdotal evidence for such behavior, from the case of Greece misreporting data relevant for its accession to the European Monetary Union to the frequent attempt to embellish government deficit figures before elections (Reischmann,

²⁵In the earlier version of this paper, we have also highlighted that bilateral investment positions reveal discrepancies in similar magnitudes (Felbermayr and Braml, 2018). Thus, all calculations based on investment stocks need to be interpreted with great caution, too.

2016; Jong-A-Pin et al., 2012).²⁶

Data on international transactions may be subject to similar pressure. In many countries, a positive current account surplus is a matter of national pride, a deficit of shame. Economists criticize such positions, but this mercantilistic bias is hard to root out. Sometimes, politicians might be interested in high deficits if it suits their narrative of national decline. The Trump administration, e.g., has attempted to change the calculation method for the U.S. trade deficit in a way that it would have lowered export figures (thereby overstating the trade deficit, in particular with certain countries like Mexico).²⁷

Even if statistical offices enjoy high degrees of independence, such bias can lead officials to systematically overstate exports and underestimate imports. Such a bias should affect all sub-accounts of the current account equally, except the secondary income account, where a negative balance indicates international generosity, or a low dependence on foreign aid.²⁸ Obviously, such a bias causes discrepancies in balance of payments statistics and creates excess surpluses. Nevertheless, assuming such a bias is constant over time and across countries, it cannot explain why the bilateral discrepancy increases over time (in the case of the UK) or why notable discrepancies occur only between certain countries (UK–U.S., Netherlands–U.S. but not Germany–U.S. or France–U.S.).²⁹

Who has incentives to exaggerate or understate the EU–U.S. bilateral current account data? In the following we briefly look at the U.S. and at the EU with the largest bilateral data discrepancies. Quite clearly, in the U.S., at least since the Reagan administration and very strongly so under the current President, the political narrative is that the country is treated unfairly by its trade partners, including the European ones. A current account surplus reported by the BEA therefore undermines the credibility of this narrative and undermines the bargaining power of the White House. So—if at all—the U.S. has an incentive to under-report their current account vis-à-vis the European Union but not to over-report.

Things might be different in the Netherlands, which we have found to be quantitatively important for the overall discrepancy. The existence of a highly negative Dutch

²⁶ Cf. Report of the EU Commission on Greek Government Deficit and Debt Statistics, January 2010, accessed on August 3, 2019.

²⁷ The Wall Street Journal has first published an article (*click here*, accessed on August 3, 2019) that described the proposed reform. Accordingly, re-exports (exports of imported goods) should be removed from export statistics. Peter Navarro, Director of the Office for Trade and Manufacturing Policy, stresses the point, also published in the Wall Street Journal (*click here*, accessed on August 3, 2019), that this measurement would better reflect bilateral economic relationships. Principally, the authors would agree with him since this accounting method resembles what is called “trade in value added”. However, the proposed reform was inconsistent as it does not similarly adjust for imports (removal of re-imports), and would have overstated the U.S. trade deficit. One could suspect that the reform proposal was either amateurishly elaborated, or intentionally misleading.

²⁸ E.g., the secondary income account typically consists of development aid and contributions to international organizations. Thus, donors (negative balance) may want to claim even more donations than the actual ones, while receivers (positive balance) may want the opposite.

²⁹ But the export bias may explain why the world as a total runs a trade surplus with itself.

primary income balance vis-à-vis the U.S. is grist to the mill of all those who criticize the Netherlands for their corporate tax practices. Consequently, the Netherlands may have an incentive to under-report investment income liabilities. It is hard to prove such a claim, of course, but our discussions with DNL officials have tentatively confirmed our view.

The United Kingdom is not commonly known as tax haven to the same degree as Ireland or the Netherlands. However, the UK applies special tax rates on patent income, which reduces corporate tax rates from 21 to 10 percent; nevertheless, the UK patent box scheme is less generous than others (Alstadsæter et al., 2018).

Can over-reporting be in the interest of Ireland? For confidentiality reasons, Irish officials did not want to share their bilateral BoP data vis-à-vis the U.S. with us. First, in case Ireland would not contribute to these discrepancies, an incentive exists to relax confidentiality clauses and disclose the relevant figures. Second, bilateral balance of payments data with large economies as the U.S. are data on a very aggregate level; why should these data remain confidential at all? And even when there are large gross transactions of single corporations, which would justify confidential treatment, at least the balance cannot reveal any private information. Moreover, Eurostat compiles and publishes bilateral BoP data of all EU member states with each other; why would this data be less confidential? To the authors, confidentiality is a threadbare argument.

The OECD together with G20 has come up with an action plan on corporate taxation with the objective to lower tax avoidance by multinational enterprises. Countries such as Ireland, the Netherlands, and the United Kingdom have signed up to the so-called BEPS Agreement,³⁰ and, therefore, political considerations might play an important role with respect to bilateral current account figures as they ultimately highlight all cross-border transactions.

Please note that our claims above are tentative presumptions, based on rational considerations that are plausible to us. We have raised questions that we believe are important, but we do neither claim completeness nor ultimate truths. The discrepancies in bilateral current accounts, as well as the global surplus, is still one of the most important empirical puzzles in the international economics literature, which needs to be solved urgently.

5 Concluding Remarks

This paper contributes by illustrating magnitudes and dynamics of statistical bilateral EU–U.S. balance of payment discrepancies. From 2009 to 2017, EU and U.S. sources have disagreed by an cumulative sum of more than 1000 USD. The transatlantic data gap is mainly due to services trade and primary income. Taking all available data into account, we can show that the EU–U.S. current account discrepancies are, by and large, driven by

³⁰ Base Erosion and Profit Shifting Agreement. For an overview, see Avi-Yonah and Xu (2017).

two countries: the United Kingdom and the Netherlands. In contrast, official European data is in line with U.S. data for other EU member states, most notably Germany and France. Hence, there is no reason to believe that methodological differences between EU and U.S. authorities with respect to data compilation have caused these discrepancies. In the case of the Netherlands and the U.S., methodological differences (ultimate beneficiary vs. direct transactor approach) also can be ruled out according to consistent information provided by the relevant authorities.

In times of trade conflicts inspired by mercantilistic thinking, the suspicion that U.S. data better reflect “the truth” may be politically advantageous from an EU perspective. However, it also highlights severe problems in official European statistical data. This incapacity is best testified by officials from the Dutch National Bank who report that “*the US figure is therefore better*”.

According to *The Economist*, which has discussed global discrepancies in an article in 2011, “*rich countries trade statistics tend to be more reliable than those of emerging economies, where data collection is less developed*”.³¹ In light of our analysis, this claim looks mistaken since the EU and the U.S., two developed entities, are the origins of very severe discrepancies. These are too large and too persistent to be dismissed as random measurement error. If the discrepancies are due to methodological differences between EU member states in exploiting leeway in international rule books, one might be questioning who has incentives to make use of this possibility. One possible explanation might be that tax haven countries have every interest to downplay their huge primary income debit positions. This may also explain the missing political willingness in some countries to resolve the poor data situation.

As long as data quality does not substantially improve, the quality of quantitative research in international trade and macroeconomics, as well as that of research-based policy advice necessarily suffers. Our advice to the EU and its member states: first, improve data compilation and preparation particularly in the field of e-commerce and services trade. Second, take actions on tax havens to both curb tax avoidance and improve data quality with respect to primary income accounts. Third, increase transparency and get rid of meaningless confidentiality clauses that keep bilateral national current account positions undisclosed. Fourth and finally, hope that President Trump will continue trusting American statisticians more than European ones.

³¹ *The Economist*, November 12, 2011, accessed on December 20, 2018.

Bibliography

- Alstadsæter, A., Barrios, S., Nicodème, G., Skonieczna, A. M., and Vezzani, A. (2018). Patent Boxes Design, Patents Location, and Local R&D. *Economic Policy*, 33(93):131–177.
- Avi-Yonah, R. S. and Xu, H. (2017). Evaluating BEPS. *Erasmus L. Rev.*, 10:3.
- Bonatti, L. and Fracasso, A. (2013). The German Model and the European Crisis. *JCMS: Journal of Common Market Studies*, 51(6):1023–1039.
- Cezar, R. and Le Gallo, F. (2019). Is the European Union Really in Surplus vis-à-vis the United States? *Banque de France Eco Notepad*.
- Chesson, A., Marilyn, T., and Haynes, J. (2018). Asymmetries in Trade Data – Diving Deeper into UK Bilateral Trade Data.
- Davis, D. R. and Weinstein, D. E. (2002). The Mystery of the Excess Trade (Balances). *American Economic Review*, 92(2):170–174.
- de Haan, M. and Haynes, J. (2018). R&D Capitalisation: Where Did We Go Wrong? In *The Challenges of Globalization in the Measurement of National Accounts*. University of Chicago Press.
- Feenstra, R. C., Hai, W., Woo, W. T., and Yao, S. (1999). Discrepancies in International Data: an Application to China-Hong Kong Entrepôt Trade. *American Economic Review*, 89(2):338–343.
- Felbermayr, G. J. (2018). Beobachtungen zur US–Leistungsbilanz. *ifo Schnelldienst*, 71(9):31–33.
- Felbermayr, G. J. and Braml, M. T. (2018). On the EU–US Current Account. *EconPol Policy Report*, (7).
- Felbermayr, G. J. and Yotov, Y. (2019). From Theory to Policy with Gravitas: A Solution to the Mystery of the Excess Trade Balances. *CESifo Working Paper*, forthcoming.
- Ferrantino, M. J., Liu, X., and Wang, Z. (2012). Evasion Behaviors of Exporters and Importers: Evidence from the US–China Trade Data Discrepancy. *Journal of international Economics*, 86(1):141–157.
- Frankel, J. (1975). Is There Trade with Other Planets? *International Monetary Fund*.
- Gros, D. (2017). Is Germany’s Current Account Surplus Bad for the World Economy? *CEPS Commentary*, 27 July 2017.
- Helbling, T. and Terrones, M. E. (2009). From Deficit to Surplus: Recent Shifts in Global Current Accounts. *World Economic Outlook*, pages 35–39.
- Howell, K., Obrzut, R., Nowak, O., et al. (2017). Transatlantic Trade in Services: Investigating Bilateral Asymmetries in EU–US Trade Statistics. Technical report, Bureau of Economic Analysis.
- Jong-A-Pin, R., Sturm, J.-E., and De Haan, J. (2012). Using Real-Time Data to Test for Political Budget Cycles. *CESifo Working Paper Series*.
- Krugman, P. (2010). The Theory of Interstellar Trade. *Economic Inquiry*, 48(4):1119–1123.
- Lodefalk, M. (2013). Servicification of Manufacturing—Evidence from Sweden. *International Journal of Economics and Business Research*, 6(1):87–113.

- Mankiw, N. G. (2018). Surprising Truths About Trade Deficits. *The New York Times*, page BU4. [Online; accessed January 7, 2019].
- Reischmann, M. (2016). Creative Accounting and Electoral Motives: Evidence from OECD Countries. *Journal of Comparative Economics*, 44(2):243–257.
- Zucman, G. (2013). The Missing Wealth of Nations: Are Europe and the US net Debtors or net Creditors? *The Quarterly journal of economics*, 128(3):1321–1364.