International Trade in Services: Structural Determinants of Balance of Services[1]

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Abstract

The paper aims to highlight the importance of services as an integral component of international trade and, in particular, to identify structural determinants affecting their balance. The analysis is made using panel regression for 1980 – 2016 and includes all the world countries. The text is based on approaches of international trade theory concerning specific features associated with services. Significant factors affecting the balance of services include the presence of foreign direct investment, financial sector development level, geographic factors, human capital stock and interaction between the balance of services and balance of goods.

Keywords: *international trade, balance of services, services*

JEL Classification: F14, F41, R12

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Introduction

Compared to international trade in goods, international trade in services may be less significant. Services contribute 29% and 17% of the total exports of goods and services of developed and developing economies, respectively (UNCTADstat, 2019). Although services are less frequently tradable in international trade, their importance continues to grow in developed economies and developing ones (Rojíček, 2012).

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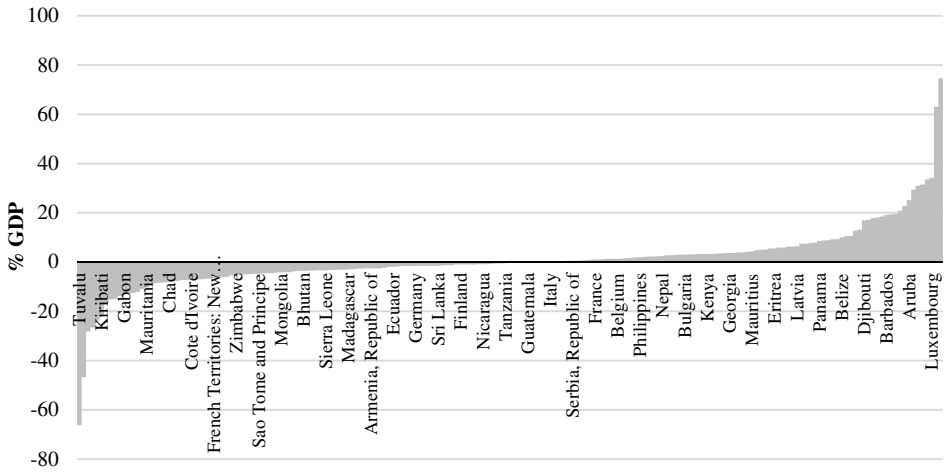
Although the balance of services receives less attention than the balance of trade and the current account, it is vital to many economies. Figure 1 shows the average balance of services for all the world economies from 1980 to 2016.

F i g u r e 1

Balance of Services



Note: The simple arithmetic mean of the balance for 1980 – 2016 is shown; annual data frequency, some data unavailable. The figure includes data on the balance of services of all countries of the world, but not all country names can be displayed due to the size of the figure. The number of countries having a surplus balance of services is 89 (out of 193 countries in the IMF – BOPS).

Source: IMF – BOPS (2020), UNCTADstat (2020), own figure and calculations.

When making a rough categorisation of countries by their mean balance of services for 1980 – 2016, the first quartile contains the least developed economies of the world, selected commodity exporters among developing countries, politically unstable economies or affected by war, and remote economies. These economies have a negative balance of services. It is challenging to capture standard features in the second and third quartiles. However, the third quartile contains a more significant number of advanced economies and economies with roughly balanced services. The fourth quartile includes countries with a positive balance of services and is dominated by small (island) economies considered tourist centres or financial and tax "havens".

Thus, Figure 1 indicates that one cannot use a simple direct relationship between the development level of an economy and its balance of services. The balance of services is determined by more structural factors than simply the development level of economies. This paper aims to highlight services as an equipollent component of international trade and, above all, to identify the main structural factors that formed the long-term balance of services in all the world's economies in the period 1980 – 2016.

The content of the article is as follows. The first chapter introduces services as an integral component of international trade, including their specific features, and offers a brief theoretical framework. The second chapter presents the approach to empirical verification, categorisation of services and data used. The third chapter describes variables used, formulates hypotheses and then offers results of empirical estimations, including a discussion of the results. The text ends with a brief conclusion, summing up the results.

1. International Trade in Services – Overview of the Literature and Theoretical Concept

1.1. Stages of Economic Development and Role of Services in International Trade

Former attitudes emphasised industry as one of the main sources of economic growth as it can increase productivity faster than services (Baumol, 1967). The typical stages of economic development featured the development of agriculture first, then the development of industry, and only later the development of services (Rostow, 1960). The generally perceived causality thus was that the development of an economy using industry is followed by the development of services (Ghani and O'Connell, 2014). On the other hand, some African economies were registered to skip the industry development stage and change their focus from agriculture straight to services (McMillan and Rodrik, 2011).

More recent approaches thus emphasise the service sector as an equipollent source of economic growth (Baldwin and Forslid, 2020) with the same productivity rate as the industry (Loungani et al., 2017). When assessing economies in terms of their (future) development, it does not matter whether an economy has developed industry; instead, structural factors are important (Eichengreen and Gupta, 2009).

Former opinions also supported the idea that mainly advanced economies can become involved in international trade in services. Technological changes have made the industry more capital-intensive and less demanding for the production factor of labour (Ghani and O'Connell, 2014). This "liberated" workforce can thus find jobs in the tradable service sector in developing economies. Thus, Loungani et al. (2017) point out that even developing economies can get involved in international trade in services to utilise their comparative advantage in cheap labour. Moreover, the export of services may be an appropriate form of economic diversification in times of the Dutch disease (Loungani et al., 2017), affecting an economy at any stage of its development.

1.2. International Trade Theory and Services

According to Krugman, Obstfeld and Melitz (2018), there are two main reasons for the emergence of international trade: (a) differences between economies (their sets of production factors or technologies) and (b) the existence of economies of scale. Differences between economies are highlighted as a reason for international trade by the well-known absolute advantage theory (Smith, 1776) and comparative advantage theory (Torrens, 1815; Ricardo, 1817), as well as the Heckscher-Ohlin model explaining the causes of comparative advantages (Heckscher, 1949; Ohlin, 1933).

Since international trade exists even among economies with very similar sets of production factors and technologies, which previous international trade models did not accent, the so-called new international trade theory produced models emphasising the existence of economies of scale in an imperfect competition environment (Krugman, 1979; 1980).

Copeland and Mattoo (2008) note that despite specific features of international trade in services, both "classical" international trade theories and more recent approaches can be applied to international trade in services. Jensen et al. (2005) conclude that producers of tradable services may form clusters to achieve better economies of scale. They are also one of the essential characteristics of the core-periphery model (Krugman, 1991), which can be applied to services, too (Robert-Nicoud, 2008). Thanks to properties similar to goods, services also can form global value chains (Miroudot and Cadestin, 2017), and different "parts" of services can be produced in other countries. These features lead to higher specialisation and economies of scale (Vašíček, 2008).

Stern (1984) and Bi, Alexander and Pei (2019) point out the mutual relationship between international trade in goods and services.

The relationship can be:

- *Complementary* – e.g., transport services, insurance, technical support (repairs, maintenance of supplied goods).
- *Substitution* – e.g., franchising, operating leasing, etc.
- *Without direct relation to goods* – e.g., (leisure) tourism.
- *Causal* – relations in international trade in goods imply international trade in services.

1.3. Increasing Tradability of Services

Some authors logically point out the difficulty of distinguishing between services and goods into tradable and non-tradable (Hoekman, 2017; Rojíček, 2012).

There are two determinants of tradability of a good/service: a) the value of trade costs (transport, barriers to international trade, etc.), and b) the share of human labour incorporated in the good/service (Baldwin and Forslid, 2020). Costs of international trade in services were relatively high compared to goods (Hoekman, 2017). That was caused by the frequent necessity of face-to-face contact between the service provider and customer and significant barriers to trade in services (Boz, Li, and Zhang, 2019). The share of human labour in services is high, and this production factor of labour often comes from advanced economies with higher wage rates. That is why many services were considered non-tradable.

Thanks to the changes of recent decades, however, many services have become tradable. Trade costs have decreased due to the possibility of using modern digital technologies, which, to some extent, substitutes for face-to-face contact between service providers and customers. Liberalisation in international trade in services, reducing the costs of service "transfer", is also high, even if it does not equal that for goods (Joy et al., 2018). Although it is difficult to replace the production factor of labour with capital in services, digital technologies make it possible to use cheap labour from developing economies, which export various services without moving itself.

1.4. Service Research Areas

Current empirical research in the area of international trade in services reflects the above specific features and highlights both the usual macroeconomic determinants (e.g., exchange rate development, GDP per capita at PPP, etc.; Bi, Alexander and Pei, 2019; Culiuc, 2014), geographic factors (Behar and Venables, 2010; Anderson et al., 2015), heterogeneity of the production factor of labour (van der Marel, 2011) and institutional quality of the economy (Bi, Alexander and Pei, 2019). Topics discussed in the context of international trade in services also include the importance of foreign direct investment for service provision (Hoekman, 2017), barriers to international trade in services (Boz, Li and Zhang, 2019) and the importance of services in an economy's development (Ghani and O'Connell, 2014).

Other papers follow the role of services in the global value chain (Miroudot and Cadestin, 2017). Numerous articles focus on a specific service category, e.g., tourism (Culiuc, 2014), transport (Behar and Venables, 2010; Limão and Venables, 1999) and services connected with modern technologies (Baldwin and Forslid, 2020).

However, these focus papers cover only some economies or some clusters of economies due to data availability.

2. Approach to Empirical Verification, Categorisation of Services and Data Used

2.1. Approach to Empirical Verification

With some simplification, there are two dominant approaches to empirical verification of determinants of international trade in services: One is (panel) regression based on the gravity model of trade (Anderson, 1979). This approach is typical of analyses of a single or several countries (Pham, Dao and Doan, 2014; Anderson et al., 2015). The crucial variable in this type of analysis is the distance between economies. However, Limão and Venables (1999), and van der Marel (2011), argue that distance does not play a significant role in services. This applies to services connected with modern digital technologies (Baldwin and Forslid, 2020).[2] Some authors prefer the latter approach to empirical verification of the balance of services determinants, namely "ordinary" panel regression. Ordinary panel regression is mainly used when analysing many countries (Bi, Alexander and Pei, 2019).

Given the extensive set of countries, panel regression was chosen for the econometric methods:

$$y_{jt} = \alpha + x_{jt}\gamma + \varepsilon_{jt} \tag{1}$$

where $\varepsilon_{jt} \sim idd\, N\left(0;\ \sigma^2\right)$, $j = 1, \ldots, m$ (i.e., country), $t = 1, \ldots, T$ (i.e., time).

The panel regression (1) is a so-called pooled model, which is insufficient in showing differences among observations within the panel. That is why two types of panel models are most frequently used: fixed-effects (FE) and random-effects (RE) models. In a FE model, differences between cross-section units (countries) are shown using an intercept, which is different for each observation *j*. A RE model is based on the fact that effects differentiating between cross-section units are random. The disadvantage of a FE model is that it cannot be used for variables constant in time; a RE model is better for that (Culiuc, 2014).

Suppose the assumption was that the unobserved cross-section specific effects are the same across the countries, that the residual component is not serially correlated and that all the explaining variables are strictly exogenous. In that case, the model could be estimated using the ordinary least square (OLS) method. However, these assumptions are probably not met in such a large panel of countries.

[2] The interim econometric estimates included a variable reflecting the distance between countries and the price of oil. However, both variables were insignificant. There is a lower importance of transport costs in the production of services on the international market and a decreasing trend of the need for personal contact in the case of providing services. Another reason for the results may be the fact that the demand for oil is not very price elastic.

Other effects may exist across countries that the regression cannot capture. Using fixed effects in an OLS regression with a lagged explained variable introduces a potential bias to the regression. Therefore, the regression equation estimations use the generalised method of moments (GMM), which eliminates the said shortcomings to a great extent. It is used a differentiated form of the GMM estimation using instrumental variables (IV), see Arellano and Bond (1991), marked in the estimations as GMM (AB). The validity of the model instrumental variables is verified using a test of serial correlation (second-order) of differentiated residues (Arellano Bond test, AB test). Testing validity of all orthogonality conditions for an overidentified model uses the Hansen (1982) J-test.

Some authors have certain reservations about the GMM. Mileva (2007) says that the GMM method is ideal for short time series panels and many countries. Attanasio, Picci and Scorcu (2000) maintain that with many periods above 30, the deviation in the FE estimates in comparison with IV/GMM is negligible. So FE should be preferred due to its higher accuracy. Meissner and Taylor (2006) regard the GMM method as "esoteric" and choose FE due to the number of periods analysed in their study (34 years). That is why the empirical section of the paper publishes RE, FE,[3] and GMM (AB) estimates simultaneously.

The stationarity of time series is tested using the usual approaches (Levin, Lin and Chu, 2002; Im, Pesaran and Shin, 2003). Appropriateness of the use of fixed and/or random effects is verified using a Hausman test (Hausman, 1978). Heteroskedasticity is tested with an LR test (cross-section and period tests); Greene (2018). Normality is verified with a Jarque-Bera test (Jarque and Bera, 1980). Table A1 in the appendix summarises the test results. Software used: EViews version 11.

2.2. Categorisation of Services and Their Statistics

The *General Agreement on Trade in Services* (GATS), enacted by the World Trade Organization (WTO) and in force since 1995, is of fundamental importance for the definition and, most importantly, categorisation of services in the area of international trade; see WTO (1994a; b) for details. The *Manual on Statistics of International Trade in Services 2010* (MSITS), co-published by several international organisations, offers a summary approach to international trade in services (United Nations, 2012). The MSITS introduces the *Extended Balance of Payments Services Classification* (EBOPS). The 6th edition of the Balance of Payments and International Investment Position Manual published by

[3] Since the paper attempts to accent differences between economies, not changes in time, our empirical estimates tend towards the use of fixed effects for countries.

the International Monetary Fund (IMF, 2009) is a frequent primary source of definition and classification of services for analytical purposes.

Exports and imports of total production traditionally measure foreign trade in goods and services (see the previously mentioned concept IMF, 2009). However, there is another way foreign trade can be estimated – in terms of value added. This method captures how much value added is imported, by whom, and how much domestic value added was exported. See Heuser and Mattoo (2017) and Miroudot and Cadestin (2017) for the role of services in the global value chain (GVC) based on the concept of value added.

Various databases capturing the importance of services within the GVC were created, such as the OECD (2021) or Timmer et al. (2015). The OECD (2021) database contains data only for OECD members and several other economies (66 economies) and only since 1995. The databases presented in Timmer et al. (2015) cover 43 countries and model the rest of the world from 2000 to 2014. Therefore, these resources do not cover the whole period and all countries that are the subject of this article. Moreover, Loungani et al. (2017) note that the IMF database based on IMF (2009) is the only source of harmonised data for services, including developing countries. This paper employs the IMF (2009) concept to capture the increasing importance of developing countries.

IMF (2009) recognises 12 categories of services. Therefore, some articles analysing a limited group of countries focus on a selected part of the international trade in services (e.g., tourism, etc.). However, given the data availability, it is usual that papers analyse the entire balance of services without any detailed categorisation. This is particularly evident when analysing larger panels of countries over long periods (as is the case in the present paper).

2.3. Data Used

The paper uses the period 1980 – 2016 (depending on data availability), with annual data frequency, including all world economies (i.e., a maximum of 193 out of the 195 countries recognised by the United Nations). Variables are usually captured as shares in the gross domestic product in per cent. Other variables are shown as shares in the total. Various quantitative indices are applied to capture qualitative attributes of an economy or its part.[4] Dummy ("zero-one") variables are created to describe the invariable characteristics of economies.

All the data, including indices and background information for dummy variables, come from publicly available databases: IMF – WEO (2020), World Bank (2020a): World Development Indicators, UNCTADstat (2020) are used for general

[4] These data types are usually published with considerable delay. That is why the paper only analyses data up to 2016.

macroeconomic data (GDP etc.); IMF – BOPS (2020) for data related to balance of payment; Portland State University (2018) for data on climate zones; World Bank (2020a): World Development Indicators and UN Database (2020) for population education status, financial market development status; World Bank (2020b): World Government Indicators and Fraser Institute (2020) for indices of institutional quality; UN Database (2020) for geographic data; UNESCO (2020) for the number of entries on the World Cultural and Natural Heritage List. Table A2 in the appendix provides basic descriptive statistics.

3. Description of Variables, Formulation of Hypotheses, Empirical Estimates and Discussion

3.1. Variables in the Model – Description and Hypotheses

The estimates use the share of the balance of services in GDP in per cent (*SERV*) as the independent variable. Although UNCTADstat (2019) points out the growing importance of international trade in services in developing economies, services still play a more important role in developed ones. This is due to comparative advantage configurations, such as high human capital stock, suitable institutional environment, etc. The variable GDP per capita at PPP in constant prices (*GDPc*) can be expected to have a positive coefficient value. As for the real effective exchange rate (*REER*) index, its numerical growth (real appreciation) can be expected to harm the balance of services due to a possible loss of competitiveness in the international market (Pham, Dao and Doan, 2014).

Furthermore, the estimate shows year-on-year growth in real GDP (*gGDP*), in %, which is expected to have a negative relationship with the balance of services – growing GDP means growing demand for imported services, reflected negatively in the balance of services. However, it is appropriate to include the GDP growth variable in the period $t + 1$ [$gGDP(+1)$]. It is expected to have a positive effect on the balance of services. In the current period, exports of services increase. So, households, firms, etc., receive additional income, leading to GDP growth in the next period.[5]

The balance of foreign direct investment lagged one period (*FDI*, ratio to GDP in per cent, balance of payment data) should positively affect the balance of services. FDI means greater competition in the market, and an inflow of new technologies and human capital, followed by a positive impact on the balance of

[5] The variable GDP growth in the previous period was also included in the interim econometric estimates, but proved insignificant. Therefore, this variable was not included in the estimates shown in this article.

services (Hoekman, 2017). Moreover, FDI means the long-term presence of service providers in local markets, giving them knowledge about the needs.

Many authors point out the importance of the institutional environment. Institutionally more advanced economies trade more (Dollar and Kraay, 2003); some authors consider the quality of institutions another comparative advantage (Nunn and Trefler, 2013). This is even more significant in the case of service provision. A stable political environment with a good institutional framework (*GOVE*, index) favours the implementation of modern digital technologies so needed to develop modern services (Eichengreen and Gupta, 2009). Therefore, it is expected to affect the balance of services positively (the higher the index, the higher the balance of services).

Although the services sector is becoming more capital-intensive due to technological advances, it is still often difficult or even impossible to substitute capital for the production factor of labour. That is why the labour market regulation plays a significant role in service provision (*WORK*, index). A positive relationship between the index and the balance of services can be expected. Given the importance of the production factor of labour, we can also expect a positive effect of the university-educated population on the balance of services (*AEDU*, the share of tertiary graduates in the active working population, in per cent). The estimate includes a variable capturing persons with primary education (*BEDU*, percentage share of persons with primary education in active working population). It cannot be determined *a priori* whether the effect of persons with primary education on the balance of services is positive or negative. This labour force is necessary for "traditional" services (hotels, restaurants, retail, etc.) with lower added value and more difficult productivity increases. However, it need not be the case in "modern" services with higher added value and a potential higher productivity growth – there is a high demand for university-educated employees.

Boz, Li and Zhang (2019) highlight the importance of financial market development in the context of international trade in services, which is why the estimate also includes the variable *FIN* (share of credit provided to the private sector in GDP in per cent) as an approximate description of financial sector development.[6]

Tourism development incentives include heritage sites included on the UNESCO World Cultural and Natural Heritage List (*UNSC*, the ratio of the number of entries per 1,000 square kilometres of a particular country, in %). It can be expected that the higher the number of heritage sites on the List, the more

[6] Estimates not published herein also apply the Chinn-Ito index (Ito and Chinn, 2021) for financial market development; it measures the *de iure* financial openness to the world. The results were similar to the variable *FIN*. Other variables describing the financial market development status were not available to such an extent in the databases used.

tourism services are offered by the economy, which should have a positive impact on its balance of services (Culiuc, 2014).[7]

Geographic factors play an essential role in international trade. *LOCK* denotes a landlocked country. The general assumption is that landlocked countries tend to have a lower balance of services. This happens because of the (usually) less developed tourism owing to the absence of an ocean or sea shore (Culiuc, 2014) and higher transport costs associated with overland transport of goods compared to maritime (Behar and Venables, 2010). The variable *ISL* denotes small islands (up to 50,000 km^2). On the one hand, they can be expected to tend towards exports of services associated with tourism, due to easy access to the sea/ocean and a sense of "exoticism" (uniqueness) of the island; see Culiuc (2014) for details. Smaller islands also have a higher probability of being "tax havens" (Dharmapala and Hines, 2006) with international trade in financial services.

On the other hand, these islands have to import a substantial part of their goods, increasing transport costs, which burdens the balance of services (Limão and Venables, 1999). Thus, the effects of the small island status on the balance of services cannot be assumed *a priori*. Climate conditions play an essential role in some services, notably those associated with tourism (Culiuc, 2014). Therefore, the estimate includes the variable *CLIM,* describing the percentage of the country's territory in a tropical, dry and Mediterranean climate according to the Köppen-Geiger climate classification. A larger part of the country area in these climate zones should be associated with a higher balance of services.

Stern (1984) and Bi, Alexander and Pei (2019) point out the relationship between the balance of services and goods. If this relationship is complementary, the variable balance of goods (*GOOD*, shown as share in GDP, balance of payment data) can be expected to correlate with the balance of services positively. If the relationship is causal in the sense that international trade in goods drives growth in trade in services, the balance of goods lagged one period (*GOOD* (–1)) should affect the balance of services positively (Bi, Alexander, and Pei, 2019).

3.2. Empirical Estimates and Discussion of Results

Table 1 sums up the estimated results.

As for the variable GDP per capita (*GDPc*), the estimates did not provide convincing results regarding the general assumption that advanced economies have a higher balance of services.

[7] If this tourism is not only for leisure but also for business (MICE tourism, i.e., Meetings, Incentives, Conferences/Conventions, Events/Exhibitions), there is a high probability of a positive impact not only on balance of services but also on balance of goods because new business contacts are made during such business meetings (Culiuc, 2014).

T a b l e 1

Estimate Results

	RANDOM	FIXED	GMM AB
CONS	–0.225 (0.772)	7.403*** (2.132)	
SERV(–1)	0.859*** (0.015)	0.668*** (0.119)	0.606*** (0.054)
GDPc	0.002*** (0.001)	0.002 (0.002)	0.002* (0.001)
REER	–0.006** (0.002)	–0.005** (0.002)	–0.006*** (0.001)
gGDP	–0.049** (0.021)	–0.033** (0.014)	–0.005** (0.002)
gGDP(+1)	0.071*** (0.020)	0.025*** (0.009)	0.150*** (0.011)
FDI(–1)	0.112*** (0.011)	0.073** (0.029)	0.013** (0.007)
GOVE	0.011** (0.006)	0.007* (0.004)	0.029*** (0.006)
WORK	0.028** (0.010)	0.201** (0.090)	0.230* (0.110)
AEDU	0.023* (0.013)	0.042** (0.020)	0.043** (0.020)
BEDU	0.004* (0.002)	0.005** (0.002)	0.004** (0.002)
FIN	0.102*** (0.020)	0.108** (0.050)	0.136*** (0.040)
UNSC	–0.002 (0.001)		
LOCK	0.124** (0.054)		
ISL	0.150** (0.059)		
CLIM	0.062*** (0.022)		
GOOD	0.043*** (0.017)	0.102*** (0.023)	0.134** (0.058)
GOOD(–1)	0.016** (0.009)	0.045** (0.023)	0.022* (0.010)
No. of observations adj R^2 F-test (p-value) Durbin-Watson Hausman test (p-value) AB test (p-value) Hansen J-test (p-value)	5,790 0.842 201.449 (0.000) 1.993 5.564 (0.135)	5,790 0.914 63.811 (0.000) 1.526	5,790 0.089 (0.929) 2.211 (0.819)

Note: Standard errors are shown in parentheses. *, **, *** – statistically significant at the 10%, 5% and 1% significance levels, respectively. The Hausman test results make it possible to apply both FE and RE. The FE model applies fixed effects for countries. Both the AB test and the Hansen J-test have the expected *p-value*, i.e., the null hypothesis that the model instruments are non-correlated with residues is not rejected. There is no second-order serial correlation between the first differences in residues.

Source: Own calculation in Eviews 11.

Considering service heterogeneity, services can be classified into *traditional, ordinary services* (e.g., restaurants, retail, tourism) and *modern services* associated with advanced technologies (e.g., financial, communication, etc.); see

Eichengreen and Gupta (2009). Traditional services can be exported by less developed economies, and modern services can be exported by advanced as well as developing economies (Baldwin and Forslid, 2020). Thus, disregarding the world's least developed economies, it cannot be maintained that only an advanced economy can be a major exporter of services.

The coefficients of *REER*, *gGDP* and *gGDP*(t + 1) showed the expected results: real appreciation is connected with a loss of international competitiveness, and growing GDP entails a worse balance of services. GDP growth in the period t+1 is associated with a previous increase in the balance of services. The positive impact of the lagged variable *FDI* on the balance of services was confirmed. Potential other effects associated with FDI inflow (e.g., decreased balance of primary income, etc.) remain left aside.

Among other factors and their impact on the balance of services, the most visible is a stable political environment with a good institutional framework (*GOVE,* index). Another major factor increasing competitiveness in the international service market is the regulation of the labour market (*WORK,* index). The positive effect of both indices on the balance of services was confirmed. Given the importance of the production factor of labour and high human capital stock in service provision, the positive effect of *AEDU* is not surprising. A positive impact on the balance of services eventually prevailed even among employees with primary education (*BEDU*), who find jobs, particularly in the provision of traditional services or modern services of a routine nature (some call centres, etc.); see Baldwin and Forslid (2020).

The financial sector development status (*FIN*) positively affects the balance of services in the results. Still, other effects of the financial sector development status on the balance of payments (or economy) are ignored. A well-developed financial sector connected with an inappropriate allocation of (foreign) capital may lead in the long run to reduced competitiveness of the economy with a negative impact on the balance of payment as a whole (Milesi-Ferretti and Blanchard, 2011).

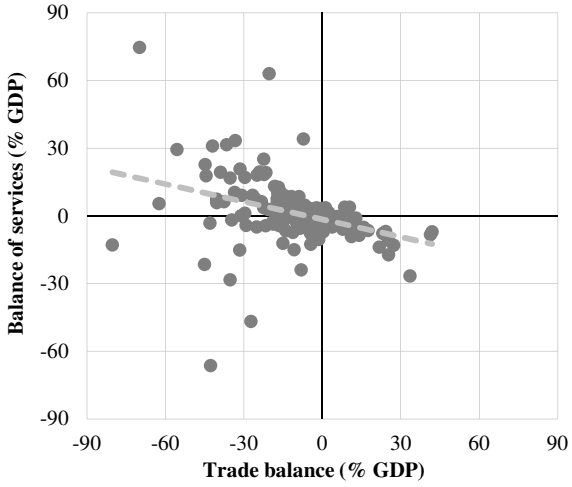
The negative and insignificant value of the variable capturing entries on the UNESCO World Cultural and Natural Heritage List (*UNSC*) is surprising. The number of entries on the List positively affects economic growth (Piotrowski, Arezki and Cherif, 2009). The highest numbers of entries on the List are typically located in large countries such as China, India, Mexico, Germany, the UK and some European Mediterranean countries (France, Spain, Italy). In these countries, tourism is an integral part of the economy but not the dominant source of foreign income (compared to small island economies with minimal entries on the List). Moreover, some countries (China, Germany, and the UK) are significant exporters of tourism services.

The landlocked country status (*LOCK*) brings expected results. The status means a lower balance of services due to the absence of one of the main tourism incentives: access to the sea or ocean, and higher road transport costs compared to sea transport. It may be complemented by dependence on surrounding economies (quality of their transport infrastructure and access to a port), increasing transport costs even further (Behar and Venables, 2010). As mentioned above, small island economies have a comparative advantage in terms of tourism (Culiuc, 2014) and provision of financial services, mainly if located near big financial centres (Dharmapala and Hines, 2006) on the one hand. Still, on the other hand, they suffer increased transport costs because they import considerable quantities of necessary goods (Behar and Venables, 2010). Judging by the positive sign of the *ISL* coefficient, the former effect prevailed. The impact of tropical, dry and Mediterranean climate (*CLIM*) on the balance of services is positive as expected.

Except for the Mediterranean zone, tropical and dry climates are usually located "near" the equator (in other words, between the Tropics of Cancer and Capricorn) according to the Köppen-Geiger climate map. Many small areas are also situated in those zones, e.g., islands in the Caribbean, Indian Ocean or Oceania. On the other hand, areas near the equator and small islands do not have well-developed export-oriented (manufacturing) industries (Gallup and Sachs, 2000). The estimated results quoted above and previous research would indicate an inverse relationship between the balance of services and the balance of goods. Although the same theoretical framework can be applied to international trade in both services and goods, (entirely?) different determinants exist probably for goods and services. That is suggested in Figure 2 herein.

F i g u r e 2

Average Balance of Trade and Balance of Services, 1980 – 2016



Note: The simple arithmetic mean of the balance of trade and balance of services for 1980 – 2016 is shown; annual data frequency, some data unavailable. All available countries of the world. The light grey dashed line marks the linear regression straight line (although intending on dependent and independent variables makes no sense here).

Data source: IMF – BOPS (2020), UNCTADstat (2020), own image and calculations.

It is interesting to analyse the mutual relationship between the balance of goods and services. The estimates showed that goods and services are in a complementary relationship (see positive coefficient of *GOOD*); see Baldwin and Lopez-Gonzales (2015). Thus, even though Figure 2 and some of the variables (*ISL, CLIM*) "tempt" us to conclude an inverse relationship between the balance of goods and services, such comments have to be made with caution. It is also confirmed that the balance of goods positively affects the balance of services (see the positive coefficient of *GOOD*(–1)).

Conclusion

Analysis of determinants of current accounts or issues of international trade has not put sufficient emphasis on separate analysis of the balance of services, even if said balance is essential for some economies, including developing ones. This neglect was historically caused by the relatively low importance of services in international trade due to their low tradability, caused, among other factors, by a low degree of technological development. Many services have become tradable in recent decades thanks to the development of modern digital technologies.

The lower importance of services is also associated with the formerly less established definition and categorisation of services. Availability of statistics on services was also worse compared to goods. However, these shortcomings have been recently eliminated, and international trade in services is becoming a separate topic of discussion. Therefore, due to the growing importance of international trade in services, it is now appropriate to deal with structural factors affecting the balance of services.

Our analysis of structural determinants affecting the balance of services was made using panel regression for the period 1980 – 2016 and included all the world countries. The text was based on approaches of international trade theory concerning specific features associated with services. On the one hand, significant factors affecting the balance of services include the presence of foreign direct investment, financial sector development level, geographic factors, human capital stock and interaction between the balance of services and balance of goods. On the other hand, the development of the economy measured by GDP per capita in PPP does not play a significant role, as previous views on this issue might suggest.

There are two problematic aspects regarding the variable GDP per capita in PPP. Firstly, the economies with the highest GDP per capita in PPP may not yet be included in the world's advanced economies. Advanced economies are those where the level of industrialisation, sufficient infrastructure and suitable living

conditions also play an important role. Thus, the only criterion for classifying a country as an advanced economy is not the amount of GDP per capita in the PPP. See the example of exporters of oil, natural gas, etc., who achieve some of the highest GDP per capita in PPP but are not considered advanced economies. Secondly, some factors enabling the intensive involvement of economies in international trade in services mentioned in the text of the article "outweigh" the element of economic development. And it does not matter whether these are advanced economies or economies with the highest GDP per capita in PPP. An example is the economically underdeveloped islands located in a suitable climate zone (e.g., tropical, subtropical), which focus on exporting international tourism services.

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Appendix

Table A1

Test Results

	Levin, Lin and Chu (2002)		**Im, Pesaran and Shin (2003)**	
	Statistic	*p-value*	*Statistic*	*p-value*
SERV	–6.416	0.000	–7.939	0.000
GDPc	–18.992	0.000	–22.973	0.000
REER	–13.300	0.000	–19.070	0.000
gGDP	–46.517	0.000	–47.295	0.000
FDI	–19.912	0.000	–21.915	0.000
GOVE	–22.244	0.000	–9.316	0.000
WORK	–10.606	0.000	–5.983	0.000
AEDU	–4.933	0.000	–3.264	0.001
BEDU	–15.682	0.000	–5.081	0.000
FIN	–9.432	0.000	–7.467	0.000
UNSC	–	–	–	–
LOCK	–	–	–	–
ISL	–	–	–	–
CLIM	–	–	–	–
GOOD	–14.790	0.000	–15.437	0.000
	Statistic	*p-value*		
Hausman test	5.564	0.135		
			Statistic	*p-value*
Heteroskedasticity LR test – Cross-Section Test			2.062	0.668
Heteroskedasticity LR test – Period Test			1.867	0.287
	Statistic	*p-value*		
Jarque-Bera test	1.181	0.553		

Source: Own calculation based on Eviews 11.

Table A2

Descriptive Statistics

	Mean	**Median**	**Maximum**	**Minimum**	**Std. Dev.**	**Observations**
SERV	0.822	–0.383	133.697	–66.334	13.148	5,790
GDPc	12,099.600	4,081.038	113,165.100	85.205	17,165.500	5,790
REER	117.986	100.960	3,522.141	18.735	120.445	5,790
gGDP	3.559	3.707	147.973	–66.657	6.398	5,790
FDI	–3.053	–1.462	187.998	–265.916	10.878	5,790
GOVE	49.421	49.231	100.000	0.000	28.937	5,790
WORK	6.193	6.215	9.725	1.837	1.496	5,790
AEDU	79.809	80.421	100.000	43.774	6.447	5,790
BEDU	47.436	47.806	93.625	13.961	15.365	5,790
FIN	41.185	28.486	312.019	0.005	39.103	5,790
UNSC	4.867	1.276	48.760	0.000	8.499	5,790
GOOD	–9.035	–6.479	226.092	–80.210	17.948	5,790

Source: Own calculation based on Eviews 11.