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Comparing productivity growth across databases

Reitze Gouma and Robert Inklaar

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university of groningen / groningen growth and development centre

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There are currently four main databases that provide data on economy-wide multifactor productivity (MFP) growth for advanced economies. These databases are the Penn World Table (PWT),[2] The Conference Board Total Economy Database (TED),[3] the EU KLEMS database,[4] and the OECD Productivity Statistics.[5,6] In addition to information on growth of gross domestic product (GDP), developing data on MFP growth requires data on input of labour (accounting for improvements in schooling levels) and input of produced capital, such as buildings and machinery. The conceptual framework for growth accounting, on how to measure and aggregate data on inputs, is well-established and many individual pieces of data are readily available for advanced economies. Yet the four databases we compare here show notably different productivity growth rates for the same country and period.

For example, average annual MFP growth in Germany between 2000 and 2007 could be as low as 0.1 percent (TED) or as high as 1.1 percent (EU KLEMS), with growth rates of 0.5 percent for PWT and 0.8 percent for OECD. This full percentage point difference between the fastest and slowest MFP growth rate is not atypical for the eleven countries we compare in this note, on average the difference in growth rate between the database with the fastest and slowest reported growth is 0.9 percentage points. For each database, Appendix Table 1 gives an overview of the average annual 2000-2007 MFP growth as well as the countries' rank based on this growth average. From the table, we can also see that the *ranking* of average productivity growth is similar across databases.

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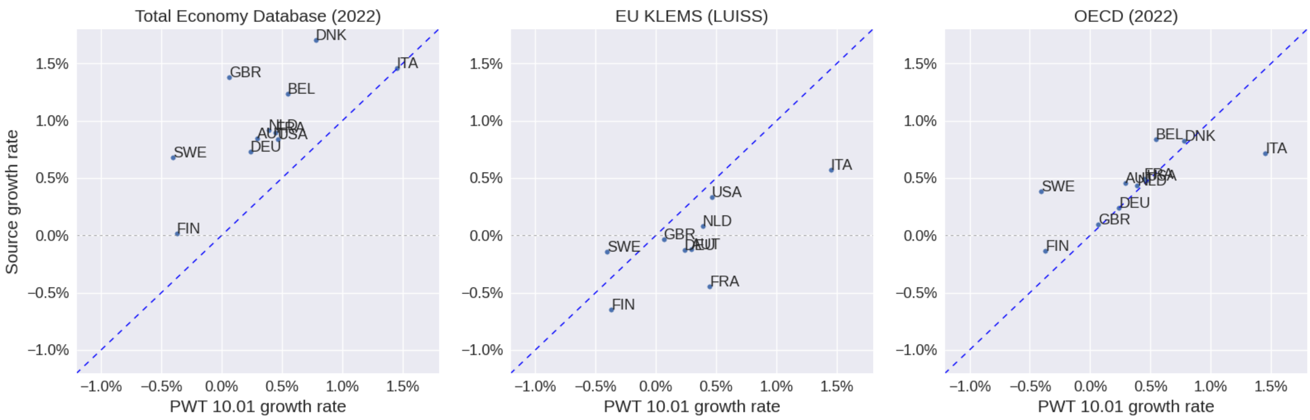
[1] We thank Pierre-Alain Pionnier (OECD), Robert Stehrer (WIIW) and Klaas de Vries (TCB) for helpful comments on a previous version of this note, without implicating them for anything written here.
[2] We use an adjusted version of the 10.0 PWT release, soon to be published as PWT 10.01. In this release the method for harmonizing investment deflators for ICT assets and normalizing to match aggregate investment deflators has been improved, see www.ggdc.net/pwt for details.
[3] April 2022 version https://conference-board.org/data/economydatabase/
[4] We use the 2021 version, released by LUISS Lab of European Economics, https://euklems-intanprod-llee.luiss.it/
[5] Downloaded on 19-05-2022, available at http://www.oecd.org/sdd/productivity-stats/
[6] The database by Bergeaud, Cette and Lecat at http://www.longtermproductivity.com/ could also have been included in the comparison, but to the best of our knowledge, it not widely used so far.

The aim of this paper is to better understand the reasons for these differences, by comparing the different variables that go into the productivity growth comparison. We find that the MFP growth discrepancies are not driven by differences in the growth of GDP (for instance due to data vintage differences) or the growth of hours worked between the databases but are primarily driven by differences in the measured growth of capital services. Differences in the contribution from labour composition changes also lead to differences in MFP growth, but the size of those differences is generally smaller than for capital. The differences in the contribution of capital services across databases are illustrated in Figure 1 for selected countries. The contribution of capital services per unit of output for the TED, EU KLEMS and OECD databases is plotted against the PWT data. This contribution is calculated using the following equation:

$$con_k = \frac{\alpha}{1-\alpha}(dk - dy) \tag{1}$$

Where α denotes the two-period average share of capital compensation in value added, $dk \equiv \log(k_t / k_{t-1})$, denotes the log growth of the capital services index and dy denotes the log growth of the index of value added in constant prices. This contribution is based on a growth accounting decomposition where the endogenous accumulation of capital is (partly) accounted for, see, e.g., Fernald and Inklaar (2020).

Figure 1. Contributions of capital services per unit of output to labour productivity growth



In this note we dig deeper into these differences and investigate the potential causes. We focus on a set of nine Western European countries and the United States, since the underlying data for these countries adheres to the same SNA definitions, with a high level of statistical quality. Furthermore, we compare the results averaged for the period 2000-2007, a relatively recent period, which means differences in the statistical source material are minimized. The period is chosen to end before the Global Financial Crisis. This is to avoid a situation where differences in the vintage of National

Accounts data need careful attention. We find that (further) harmonisation of capital services data and methods would be helpful in reducing the differences in MFP growth between databases; compare Appendix Table 2 to Appendix Table 1. However, differences in choices on basic data, such as to use official estimates of capital stocks or estimate capital stocks from investment series, lead to a continued wedge between the databases.

1. Sources and Methodology

Each of the databases has published documentation regarding the data sources, as well as the methodology used to calculate the productivity statistics. In this note we will not give a full exposition of the growth accounting framework but focus on the key areas in which different methodological choices can and are being made by each database, specifically about the estimation of capital stocks and services. These choices, while motivated by economic theory and purpose of the analysis, are to some extent arbitrary and depend on subjective views on how productivity can best be measured. The current document can also be viewed as a sensitivity analysis with respect to these differences in methodological choices and differences in the sources and use of the data. The table below presents the references to the main published sources and methods documentation.

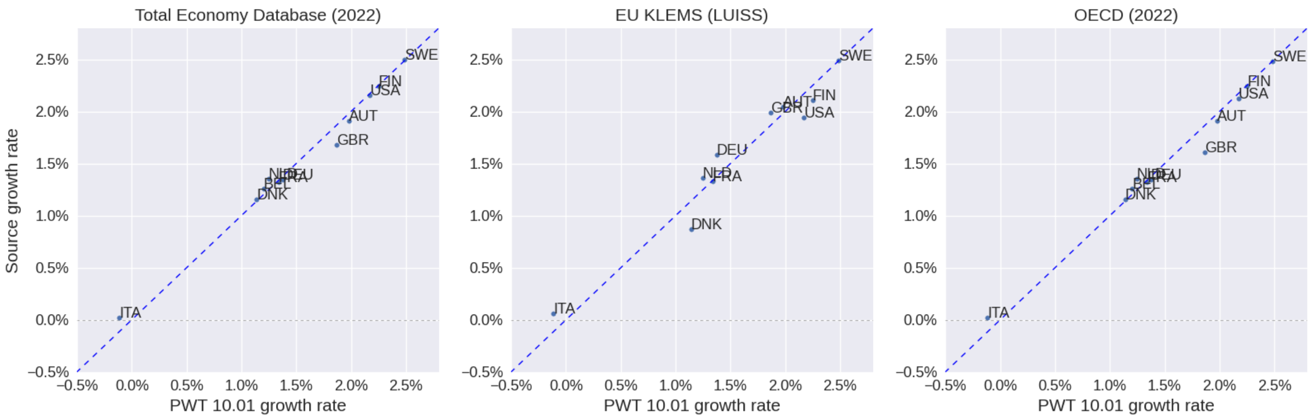
Table 1 References to sources and methodology documentation

Database	URL
PWT	https://www.rug.nl/ggdc/productivity/pwt/pwt-documentation
OECD	https://www.oecd.org/sdd/productivity-stats/
TED	https://conference-board.org/data/economydatabase/total-economy-database-methodology
EU KLEMS	https://euklems-intanprod-llee.luiss.it/documentation/

Since the data sources for output and labour in the current set of countries are the National Accounts (NA), the data for these variables is very similar across each of the databases, as can be seen from Figure 2, which compares average annual labour productivity growth across the databases. This confirms our expectation that this is a period for which differences due to, for example, NA revisions are of secondary importance. Given this result in Figure 2, we focus on the data for the capital stocks and investment in the main text. In Appendix table 3 we also provide a comparison of differences in labour composition change. For most countries, the differences are smaller than for capital services though there are some remarkable results that would benefit from closer scrutiny.

The National statistical institutes (NSIs) for the countries in our comparison publish capital stocks by asset type in current and constant prices, which can lead to cross-country differences because the methods that NSIs use may differ. This could be a benefit, for example, if the service lives of assets would differ by countries and the NSIs would incorporate this country-specific information in their data. However, there may be too little country-specific data to motivate appropriate choices and, instead it could be that each NSI simply makes the set of measurement choices that they find appealing. Of course, even those databases that do harmonise capital stock calculation methods will still need to rely on official statistics on investment and (typically) investment prices, so harmonisation can only be taken so far. Furthermore, the official capital stock series reflect wealth capital stocks,[7] but when doing productivity analysis, we are interested in the productive capacity of the capital stock. So even when relying on official statistics for wealth stocks, methodological choices regarding user costs of capital will need to be made. In other words, the difference between databases is not one of 'harmonise or not' but the degree to which harmonisation takes place.

Figure 2. Average labour productivity growth for 2000-2007



The databases that estimate harmonised wealth stocks typically start out from an initial capital stock and build up the time series using investment series from the national accounts. The key elements in constructing productive capital stock estimates are:

- Choice or estimation of the initial capital stock
- The combined retirement/age-efficiency profile of assets, reflected in the depreciation rate
- Information on investment and asset prices

Table 2 below presents a stylized overview of the methods used by each of the productivity databases under consideration for their capital stock estimations. Investment at current prices and

[7]For an overview of the difference between productive and wealth capital stocks see: Measuring Capital – OECD Manual 2009

investment deflators are available from NA statistics, but for Information and Communication Technology (ICT) assets, the use of harmonized deflators based on better quality-adjusted price data for the US is often used. As can be observed from Table 2, PWT, TED and OECD all employ a version of the Perpetual Inventory Method (PIM) for constructing capital stocks. Table 3 gives an overview of the assets covered by each database, along with the (implied) geometric depreciation rates used. Note that OECD does not include residential structures or cultivated assets in productivity estimations. This leads to an inconsistency between the growth of output, which does include value added growth in the residential real estate industry, and the growth of inputs, which omits the key input in the residential real estate industry.

Table 2 Capital stock estimation, methodology overview

	PWT	**TED**	**OECD***	**EU KLEMS**
Initial capital stock	1950 capital/ output ratio[8] with long run PIM approach	Harberger steady-state assumption	Long run PIM approach, based on (confidential) historical GFCF data[9]	EUKLEMS takes the investment and capital stock series directly from EUROSTAT, for the derivation of the rental price, geometric depreciation is used, see table 3
Build up capital stock	Geometric depreciation rates, see table 3; half of current year's investment is depreciated	Geometric depreciation rates, see table 3	Hyperbolic age-efficiency profile; retirement profile normal distribution; average service life, see table 3.[10]	
Deflators	Investment prices, hedonic adjustments for ICT	Investment prices, special hedonic adjustments for ICT[11]	Investment prices, hedonic ICT deflators[12]	

TED, PWT and EU KLEMS calculate capital services from the capital stocks using an ex-post derived internal rate of return. This methodology is based on the work by Jorgenson (1963) and Jorgenson and Griliches (1967). OECD takes an ex-ante approach, computing an exogenous nominal rate of return (ENRR), following Annex 1 in Schreyer et al. (2003), where r is the constant (time-invariant) real interest rate and stands for the 5-year centred moving average of changes in the national

[8]https://www.rug.nl/ggdc/docs/pwt91_capitalservices_ipmrevision.pdf
[9]This information was received from bilateral exchanges with the OECD Productivity Statistics team
[10]https://www.oecd.org/sdd/productivity-stats/OECD-Productivity-Statistics-Methodological-note.pdf
[11]Byrne and Corrado (2019)
[12]Schreyer (2002); Colecchia and Schreyer (2002).

Consumer Price Index. All items are extracted from OECD MEI database.

Table 3. Geometric depreciation rates

Asset Code				Rate (%)			
OECD	**EU KLEMS**	**TED**	**PWT**	**OECD***	**EU KLEMS**	**TED**	**PWT**
N111321	IT	hard	IT	31.2	31.5	31.5	31.5
N111322	CT	com	CT	11.0	11.5	11.5	11.5
N1122	Soft	soft	SOFT	33.3	31.5	31.5	31.5
N1113O	OMach	nonITmach	OMach	11.4	13.1	12.6	12.6
N11131	TraEq	tra	TraEq	11.0	18.9	18.9	18.9
N1111	RStruc	str	RStruc	n.a.**	1.1	2.5	1.1
N1112	OCon	str	OCon	2.5	3.2	2.5	3.1
N1114	Cult	Not available	CULT	n.a.**	20.0		12.6
N1124	RD	Not available	RD	10.0	20.0		15.0
N112X	OIPP	Not available	OIPP	14.3	13.1		15.0

IT: information technology; CT: communication technology; SOFT: software; OMach: other machinery; TraEq: transportation equipment; RStruc: residential structures; OCon: other construction; CULT: cultivated assets; RD: research & development; OIPP: other intellectual property products.
*OECD reports the following average service lives in years:
IT 7; CT, OMach 15; OCon 40; Soft 3; RD 10; OIPP 7.
For the purposes of this note, service lives are converted to geometric rates using the Declining Balance Rates (DBR) from Fraumeni (1997). No DBR are available for Soft, RD and OIPP, they are assumed to be 1. DBR's used: IT 2.1832; CT and TraEq 1.65; OMach 1.715; OCon 0.8892.
** Not available in the OECD productivity database.

2. Comparisons of productivity

As discussed in the introduction we have chosen to take the average 2000-2007 average of the growth accounting results for each of the databases, for a set of ten western European countries and the US. In this section we compare the growth accounting results from each of the databases with the results from the Penn World Table. To assess the importance of different methodological choices, we recalculate the results for each of the databases, using four levels of methodological harmonization:

1. Comparing capital services contributions based directly on the capital services index and labour share $(1 - \alpha)$ from the database.
2. Recomputing capital services contributions based on reported capital stocks by asset and a harmonized ex-post capital services method, following the PWT methodology.
3. Re-estimating capital stocks using a harmonized PIM method, based on reported investment series by asset. From these series we calculate capital services contributions, as in 2.
4. Recomputing capital services contributions based on reported investment series by asset, using harmonized PIM stocks, as in 3, harmonized capital services method as in 2, and labour

shares from PWT.

We expect that each step of further harmonization will reduce the differences between the databases. To illustrate the differences, we show in Figure 3 scatter plots with comparisons of the other three databases to PWT for each of the four harmonization steps, in Table 4 we provide summary statistics associated with each scatter plot, namely the average difference and the square root of mean squared differences.

It should be noted that OECD PDB does not publish the productive stocks on which their capital services estimates are based. However, investment series used in PDB are available from table 8A in the OECD National Accounts (NA) database. Therefore, we use the wealth capital stocks by asset as reported in table 9A of the OECD NA database, for harmonization method 2. For methods 3. and 4. we take the 1995 stock values as the initial stock. These stocks include values for residential structures and cultivated assets, which are not included in OECD PDB.

Method 1, no harmonization

The first row of Figure 3 replicates Figure 1, comparing the growth contribution of capital services per unit of output to labour productivity growth across databases. These values have been derived directly from the reported growth of output, hours worked, labour and capital services, as well as the derived or reported shares of labour compensation in value added. We refer to this as the first method of recalculation (M1). The estimated capital contributions in TED are systematically higher than that of PWT, but also higher than the other 2 databases. Most striking are the growth contributions for the UK[13], Denmark and Sweden where the difference in contribution exceeds 1 percent and changes sign for Sweden. EU KLEMS reports capital contribution that are lower than those of PWT, apart from Sweden. Italy and France are the countries for which the largest differences can be observed, as seen by the vertical distance to the 45-degree reference line. Results for OECD are more in line with what PWT is reporting, although Sweden is again an outlier, changing sign from a negative contribution in PWT to a positive contribution in the OECD results. Similar to EU KLEMS, OECD also shows an almost full percentage point lower capital contribution for Italy than PWT. The results of three additional methods of recalculation, are shown in the other rows of Figure 3, which are discussed in the next sections. Table 4 reports the average growth difference and the square root of mean squared differences for each method by database pairing, giving us measures of deviation from the PWT 10.01 growth rates for each database.

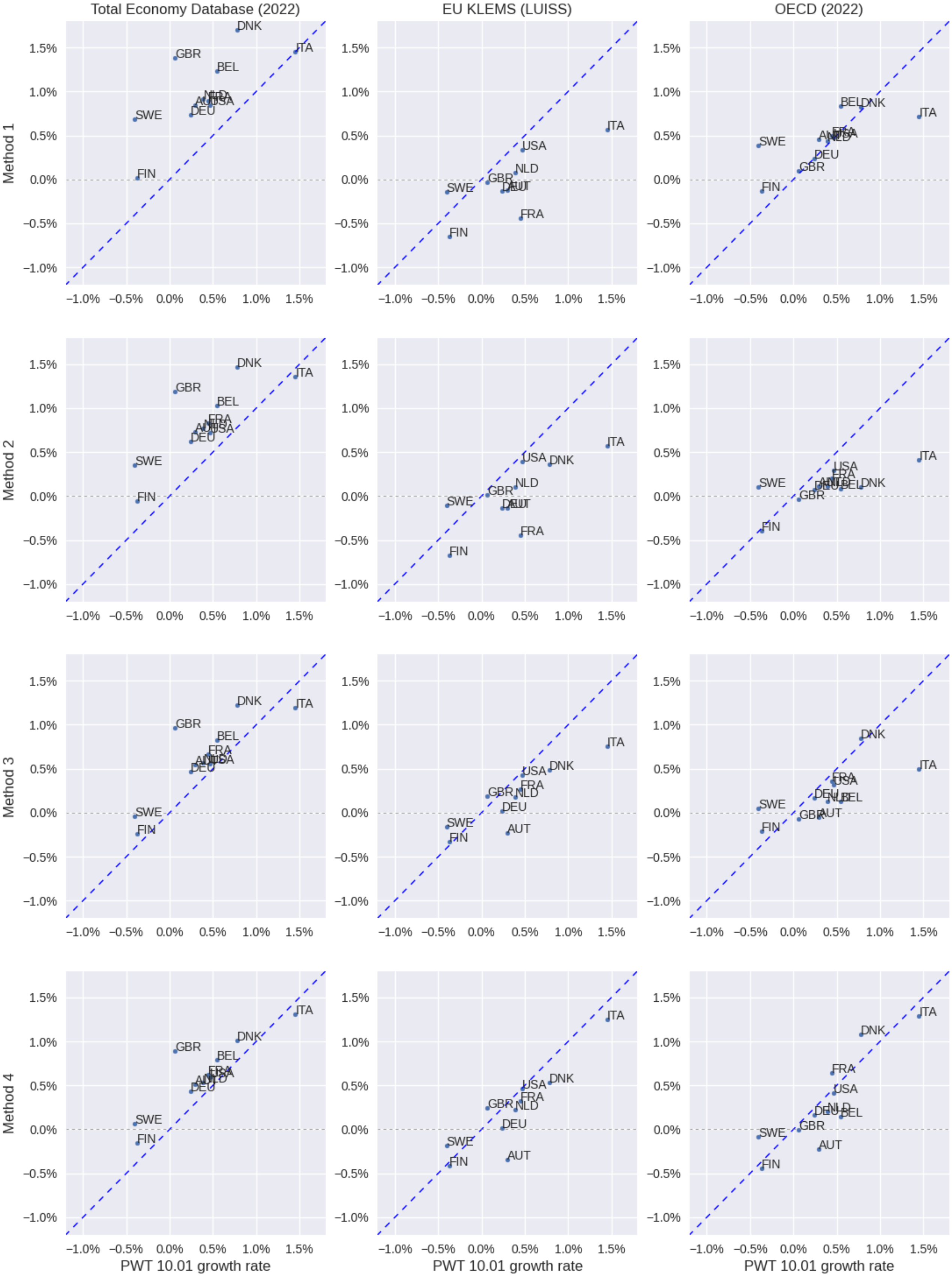
[13]There have been considerable revisions in the latest version of the ONS data, which can be found here: https://www.ons.gov.uk/economy/economicoutputandproductivity/productivitymeasures/datasets/multifactorproductivityexperimentalestimatesreferencetables

Table 4. Standard deviations and average growth contribution differences (in %)

Comparison database:	**Total Economy Database (2022)**		**EU KLEMS (LUISS)**		**OECD (2022)**	
Summary statistic:	Average difference	(Mean sq. differences)$^{0.5}$	Average difference	(Mean sq. differences)$^{0.5}$	Average difference	(Mean sq. differences)$^{0.5}$
Method 1	-0.62	0.71	0.34	0.44	-0.09	0.35
Method 2	-0.47	0.55	0.34	0.46	0.26	0.45
Method 3	-0.26	0.37	0.18	0.31	0.16	0.38
Method 4	-0.25	0.33	0.13	0.25	0.06	0.26

Average difference: contribution from PWT 10.01 minus contribution from the comparison database
(Mean sq. differences)$^{0.5}$: square root of mean squared differences

Figure 3. Capital services contributions at 4 levels of harmonization



Method 2, recalculation of capital services with reported stocks

In the second step we harmonize the calculation of capital services growth starting from the reported capital stocks by asset type from each of the databases. For the calculation of capital compensation by asset type, we use the PWT geometric depreciation rates mapped to the assets of the other databases, shown in Table 3. The rates reported to have been used by the other databases are reported as a reference, and they are generally quite similar. Additionally, we use investment deflators in the calculations, even though for EU KLEMS implicit stock deflators are available.

The row for Method 2 in Figure 3 and Table 4 shows that the recalculation of capital services has not brought the results of TED and PWT much closer, but the average difference did decrease somewhat. The difference in capital services contributions for EU KLEMS and PWT have stayed the same compared to method 1, indicating EU KLEMS and PWT methodology for calculating capital services contributions are virtually identical. The recalculation based on reported stocks has resulted in more divergence of the OECD and PWT contributions. Clearly taking the wealth capital stocks from OECD NA database produces results quite different from using OECD's unpublished productive capital stocks. As noted above, OECD does not include Residential Structures in its measure of capital services. Therefore, part of the divergence from Method 1 to Method 2 can be attributed to the inclusion of Residential Structures in the capital services measure. Finally, as mentioned in section 1, there is a difference in the applied methodology for calculating capital services between OECD and the other databases, with OECD using an exogenous nominal rate of return, where PWT, TED and EU KLEMS use an endogenous rate.

These results imply that PWT, TED and EU KLEMS use a similar approach to calculating capital services, which is also what the documentation suggests.

Method 3, recalculation of capital services using PIM stocks

Going one step further in the harmonization of the calculation methods, we recalculate the capital stocks based on the investment by asset from the reported 1995 capital stocks, applying the Perpetual Inventory Method (PIM) in the same way across data sources. We apply the PWT method where half of the current years' investment is depreciated and use the PWT geometric depreciation rates as reported in Table 3.

The row for Method 3 in Figure 3 and Table 4 shows that the harmonized recalculation of capital services as well as the capital stock has brought the results of the databases closer together relative to Methods 1 and 2 for TED and EU KLEMS, and relative to Method 2 for OECD. For the TED the average difference in the capital growth contribution has been reduced by 0.21 percent compared to Method 2, but this is not immediately clear from the graph, which suggests that this convergence is spread over all countries. For EU KLEMS the results are also moving closer to PWT, as is visible from the plot, where the countries are moving closer to the 45-degree reference line. For the OECD the results are moving closer to the Method 1 results, with Italy still being an outlier.

Thus, harmonizing the calculation of the capital stocks across databases brings the results of each database closer to PWT. For EU KLEMS this could be expected given that they use statistical capital stocks, directly from the NSI's, without any harmonization. For OECD this method suggests that the harmonized PIM stocks come closer to OECD's own unpublished measures of productive capital stocks. For TED the increased convergence to PWT contributions is somewhat puzzling, given that the methods as presented in Table 2, as well as the depreciation rates in Table 3, for TED and PWT are quite similar.

Method 4, recalculation of capital services using PIM stocks and PWT labour shares

In a final attempt to bring the results closer together and harmonize the methods of calculation one step further, we apply the PWT labour shares, instead of the reported shares. The application of PWT labour shares has only a small impact on the comparative results of TED and EU KLEMS, although the capital services contribution for Italy has moved much closer to the PWT result for EU KLEMS.

For OECD, using the PWT labour share, reduces the square root of mean squared differences to 0.26 percent, the lowest value across the four methods. This is mainly due to the effect this adjustment has on the outliers in the previous three methods. Italy has moved up to the PWT level of capital services contribution and has been completely removed as an outlier. To a lesser extend the same can be said for Sweden, comparing Method 1 and 4. Conversely, results for Austria and Denmark now diverge a bit more from PWT, as compared to Method 1, but since their results were more comparable to PWT to begin with, this has less effect on the square root of mean squared differences.

This suggests there are considerable differences in the calculations of the labour share across these databases. Table 5 shows the average share of labour compensation in Value Added for the 2000-2007 period, and indeed confirms this finding. As shown in the bottom row, OECD reports a labour share that is on average 15 percent higher than PWT, for this set of countries. The higher OECD labour share could partly be explained by a low ex-ante estimate of capital compensation. OECD defines the labour income share as the share of labour costs in the total of labour and capital costs, instead of value added. Since their measure of capital compensation is calculated using an ex-ante nominal rate of return, capital and labour compensation do not necessarily sum to value added. TED reports labour shares that are roughly similar to PWT, and EU KLEMS is in the middle between PWT and OECD.

Table 5. Average 2000-2007 average share of labour compensation in value added (in %)

	PWT10.01	Total Economy Database (2022)	EU KLEMS (LUISS)	OECD (2022)
AUT	57.5	54.9	66.0	72.0
BEL	61.5	59.7		75.6
DEU	62.3	59.9	67.1	71.4
DNK	63.6	56.3	65.9	72.1
FIN	56.7	52.1	63.2	74.8
FRA	61.7	58.7	67.1	76.1
GBR	59.6	56.0	64.5	78.7
ITA	50.5	53.2	62.8	72.7
NLD	60.9	57.5	67.3	74.6
SWE	53.0	49.1	54.7	69.1
USA	62.0	65.8	65.0	77.0
Average	59.0	56.6	64.4	74.0

Comparing the results in Figure 3 and Table 4 for Methods 1 and 4, shows that increasing the harmonization of calculations across databases does bring the results of these databases closer together for the selected countries. For EU KLEMS the downward bias compared to PWT has been removed. For the TED, the harmonization methods have reduced the average difference by 0.37 percent. However, in all four harmonization methods TED contributions are generally higher than for PWT. This can be traced back to the application of alternative hedonic ICT investment deflators, which results in a significantly lower aggregate price inflation of investment as can be seen from Table 6. This in turn leads to higher capital stock growth and therefore higher capital services growth.

Table 6. Average 2000-2007 growth of aggregate investment prices (in %)

	PWT10.01	Total Economy Database (2022)	EU KLEMS (LUISS)	OECD (2022)
AUT	0.8	0.7	1.5	1.5
BEL	1.0	0.4		1.7
DEU	0.0	0.0	0.3	0.3
DNK	1.3	0.1	2.1	2.1
FIN	1.9	2.1	2.3	2.3
FRA	1.8	1.5	2.3	2.3
GBR	1.9	-0.7	2.2	2.7
ITA	2.0	1.1	2.5	2.5
NLD	1.7	0.6	2.2	2.2
SWE	0.8	-0.6	1.4	1.5
USA	2.1	1.5	2.1	2.1

3. Conclusions

As is noted by frequent users, there are considerable differences between the data in different productivity databases. The reasons for these discrepancies are methodological, statistical, as well as country-specific in nature. The previous section has shown that differences are smaller when applying a harmonized methodology in calculating capital growth contributions to labour productivity growth. However, differences partially remain, particularly the TED data show higher growth rates, which have been traced back to the use of alternative deflators for ICT assets.

As was mentioned in the introduction, Appendix Table 1 shows that the rankings of countries based on their average MFP growth rates is quite similar for this set of countries, despite the sizable differences in average MFP growth. Appendix Table 2 shows the same information based on the recalculated MFP growth rates using Method 4. It can be seen that after harmonization, the order of countries based on their average productivity growth rates is also quite similar across these databases.

Judging by these rankings, the user will arrive at more or less the same comparative economic performance from PWT, OECD, and TED, even though TED reports notably lower MFP growth, due to a higher capital contribution. EU KLEMS seems to be the odd one out with a few striking anomalies. The most notable example is Sweden, which PWT, OECD and TED rank as one of the fastest-growing countries while in EU KLEMS, Sweden ranks near the bottom. Appendix table 3 shows that the contribution of labour composition for Sweden in EU KLEMS is 1.9 percentage points higher than the contribution in PWT, which explains the low MFP growth value. The difference for Germany (third place in EU KLEMS, sixth of the other databases), would also lead very different conclusions regarding comparative economic performance.

These differences in MFP growth rates are a cause for concern, especially because it is hard for a typical user to trace some of the differences, let alone make a reasoned choice between databases. Yet each database developer has arguments and reasons for the measurement choices they make, and it is not our aim to suggest that some of those choices are necessarily better than others. Instead, our aim with this note has been to highlight some of these differences and illustrate how harmonizing some of these choices can help reduce the differences, thereby demonstrating the importance of particular measurement choices. We do not claim to be exhaustive in this analysis, as there are more detailed levels at which harmonisation of capital calculations could be attempted. Furthermore, choices regarding data and methodology for labour input and labour composition also contribute to differences in measured MFP growth and we have done no more than highlight those differences.

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5. Appendix

Appendix table 1, Average annual MFP growth and country ranking 2000–2007, method 1

	PWT10.01		Total Economy Database (2022)		EU KLEMS (LUISS)		OECD (2022)	
	rank	average growth (%)	rank	average growth (%)	rank	average growth (%)	rank	average growth (%)
SWE	1	1.3	2	0.7	8	0.1	2	1.4
FIN	2	1.1	1	1.0	1	1.6	1	1.8
USA	3	0.9	3	0.6	6	0.8	3	1.3
GBR	4	0.8	8	-0.1	4	1.0	4	1.2
AUT	5	0.7	4	0.5	3	1.1	5	1.1
DEU	6	0.5	5	0.1	2	1.1	6	0.8
NLD	7	0.3	6	-0.1	7	0.6	7	0.7
FRA	8	0.2	7	-0.1	5	1.0	8	0.6
BEL	9	0.1	9	-0.2			9	0.3
DNK	10	0.0	10	-0.4			10	0.2
ITA	11	-1.2	11	-1.2	9	-0.4	11	-0.5

Appendix table 2, Average annual MFP growth and country ranking 2000–2007, method 4

	PWT10.01		Total Economy Database (2022)		EU KLEMS (LUISS)		OECD (2022)	
	rank	average growth (%)	rank	average growth (%)	rank	average growth (%)	rank	average growth (%)
SWE	1	1.3	2	1.1	9	0.1	2	1.4
FIN	2	1.1	1	1.2	1	1.3	1	1.5
USA	3	0.9	3	0.8	5	0.6	4	1.1
GBR	4	0.8	6	0.2	4	0.8	5	1.0
AUT	5	0.7	4	0.7	2	1.1	3	1.2
DEU	6	0.5	5	0.3	3	1.0	6	0.7
NLD	7	0.3	7	0.1	6	0.5	7	0.7
FRA	8	0.2	9	0.1	7	0.4	9	0.4
BEL	9	0.1	8	0.1			8	0.7
DNK	10	0.0	10	0.0	8	0.2	10	0.0
ITA	11	-1.2	11	-1.0	10	-0.7	11	-0.6

Appendix table 3. Growth contribution differences of labour composition (in %)

	Total Economy Database (2022)	EU KLEMS (LUISS)
AUT	0.41	0.06
BEL	0.15	
DEU	-0.15	0.24
DNK	0.30	0.41
FIN	0.28	0.36
FRA	-0.04	0.24
GBR	0.02	0.13
ITA	0.04	0.57
NLD	-0.19	0.07
SWE	0.10	-1.90
USA	-0.04	-0.14
Average difference	0.08	0.00
(Mean sq. differences)$^{0.5}$	0.20	0.66

Average difference: contribution from PWT 10.01 minus contribution from the comparison database
(Mean sq. differences)$^{0.5}$: square root of mean squared differences
OECD PDB does not provide estimations of labour composition