GLOBAL DEVELOPMENT AND ENVIRONMENT INSTITUTE
WORKING PAPER NO. 14-03

The Trans-Atlantic Trade and Investment Partnership:

European Disintegration, Unemployment and Instability

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October 2014

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Abstract

According to its proponents, the Trans-Atlantic Trade and Investment Partnership will stimulate growth in Europe and in the US. Projections endorsed by the European Commission point to positive, although negligible, gains in terms of GDP and personal incomes. In a paradox, these projections also show that any gains in Trans-Atlantic trade would happen at the expense of intra-EU trade reversing the process of European economic integration.

Furthermore, recent literature has pointed out several problems in the most influential assessment of the TTIP's effects. Projections by different institutions have been shown to rely on the same Computable General Equilibrium model that has proven inadequate as a tool for trade policy analysis.

In this paper we assess the effects of TTIP using the United Nations Global Policy Model, which incorporates more sensible assumptions on macroeconomic adjustment, employment dynamics, and global trade. We project that TTIP will lead to a contraction of GDP, personal incomes and employment. We also project an increase in financial instability and a continuing downward trend in the labor share of GDP.

Evaluated with the United Nations model, TTIP appears to favor economic dis-integration, rather than integration, in Europe. At a minimum, this shows that official studies do not offer a solid basis for an informed decision on TTIP.

Acknowledgments

I am grateful to Alex Izurieta for his help in developing the key ideas behind this study. Thanks also to Ben Beachy, Kevin Gallagher, Todd Tucker, and Tim Wise for their insights and comments, and to Richard Kozul-Wright and Tom Kruse for continuing support.

Executive Summary

The European Union and the United States are currently negotiating the Trans-Atlantic Trade and Investment Partnership (TTIP), a major trade agreement intended to further integrate their economies.

As is common for trade agreements, TTIP negotiations have been accompanied by a series of econometric studies providing medium-term projections of the agreement's economic effects. In the EU, advocates have pointed to four main studies mostly projecting small net benefits for all countries involved and a gradual substitution of intra-EU trade with Trans-Atlantic trade.

Recent literature has shown that the main studies of TTIP are not a good basis for policy decision as they rely heavily on unsuitable economic models.

We offer an assessment of TTIP based on a different model and more plausible assumptions on economic adjustment and policy trends. Using the United Nations Global Policy Model we simulate the impact of TTIP on the global economy in a context of protracted austerity and low growth especially in the EU and US.

Our results differ dramatically from existing assessments. For Europe we find that:

- TTIP would lead to *losses in terms of net exports* after a decade, compared to the baseline "no-TTIP" scenario. Northern European Economies would suffer the largest losses (2.07% of GDP) followed by France (1.9%), Germany (1.14%) and United Kingdom (0.95%).
- TTIP would lead to *net losses in terms of GDP*. Consistent with figures for net exports, Northern European Economies would suffer the largest GDP reduction (-0.50%) followed by France (-0.48%) and Germany (-0.29%).
- TTIP would lead to a *loss of labor income*. France would be the worst hit with a loss of 5,500 Euros per worker, followed by Northern European Countries (-4,800 Euros per worker), United Kingdom (-4,200 Euros per worker) and Germany (-3,400 Euros per worker).
- TTIP would lead to *job losses*. We calculate that approximately 600,000 jobs would be lost in the EU. Northern European countries would be the most affected (-223,000 jobs), followed by Germany (-134,000 jobs), France (- 130,000 jobs) and Southern European countries (-90,000).
- TTIP would lead to a *reduction of the labor share* (the share of total income accruing to workers), reinforcing a trend that has contributed to the current stagnation. The flipside of its projected decrease is an increase in the share of profits and rents, indicating that proportionally there would be a transfer of income from labor to capital. The largest transfers will take place in UK (7% of GDP transferred from labor to profit income), France (8%), Germany and Northern Europe (4%).
- TTIP would lead to a *loss of government revenue*. The surplus of indirect taxes (such as sales taxes or value-added taxes) over subsidies will decrease in all EU countries, with France suffering the largest loss (0.64% of GDP). Government deficits would

also increase as a percentage of GDP in every EU country, pushing public finances closer or beyond the Maastricht limits.

- TTIP would lead to *higher financial instability* and accumulation of imbalances. With export revenues, wage shares and government revenues decreasing, demand would have to be sustained by profits and investment. But with flagging consumption growth, profits cannot be expected to come from growing sales. A more realistic assumption is that profits and investment (mostly in financial assets) will be sustained by growing asset prices. The potential for macroeconomic instability of this growth strategy is well known after the recent financial crisis.

Our projections point to bleak prospects for EU policymakers. Faced with higher vulnerability to any crises coming from the US and unable to coordinate a fiscal expansion, they would be left with few options to stimulate the economy: favoring an increase of private lending, with the risk of fueling financial imbalances, seeking competitive devaluations or a combination of the two.

We draw two general conclusions. First, as suggested in recent literature, existing assessments of TTIP do not offer a suitable basis for important trade reforms. Indeed, when a more realistic model is used, results change dramatically. Second, seeking a higher trade volume is not a sustainable growth strategy for the EU. In the current context of austerity, high unemployment and low growth, increasing the pressure on labor incomes would further harm economic activity. Our results suggest that any viable strategy to rekindle economic growth in Europe would have to build on a strong policy effort in support of labor incomes.

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European Disintegration, Unemployment and Instability

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1. Introduction

The European Union and the United States are currently negotiating the Trans-Atlantic Trade and Investment Partnership (TTIP), a major trade agreement intended to further integrate their economies. In today's low-tariff reality, TTIP focuses on removing *non-tariff* trade barriers between countries, such as differing standards set in the EU and in the US for given consumer goods and services[2]. The underlying logic is the same as in traditional liberalizations: reducing the costs of trade – whether eliminating tariffs or other impediments – is supposed to lead to a higher trade volume and overall economic benefits. Unfortunately, experience has shown that this appealing reasoning is often misleading.

As is common for trade agreements, TTIP negotiations have been accompanied by a series of econometric studies projecting net economic gains for all countries involved. In the EU, advocates have pointed to four main studies mostly projecting small and deferred net benefits alongside a gradual substitution of intra-EU trade with Trans-Atlantic trade. This leads the European Commission, TTIP's main advocate in Europe, into a paradox: its proposed policy reform would favor economic dis-integration in the EU.

TTIP might also lead to other serious consequences for the EU and its members. Recent literature has shown that the main studies of TTIP do not provide a reliable basis for policy decisions as they rely heavily on an unsuitable economic model.

In this paper we offer an assessment of TTIP based on a different model and more plausible assumptions on economic adjustment and policy trends. Using the United Nations Global Policy Model we simulate the impact of TTIP on the global economy in a context of protracted austerity and low growth especially in the EU and US. Specifically, we do not challenge existing projections of total trade expansion but we propose a different assessment of its impact on the economy.

We find that TTIP would lead to net losses in terms of GDP, personal incomes and employment in the EU. In particular, we project that labor incomes will decrease between 165 Euros and 5,000 Euros per worker depending on the country. We also project a loss of approximately 600,000 jobs, a continuing downward trend of the labor share and potentially destabilizing dynamics in asset prices.

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[2] The agreement's scope is defined in general terms in European Commission (2013). In official documents non-trade barriers are also called "technical".

Our projections point to bleak prospects for EU policymakers. Faced with higher vulnerability to any crises coming from the US and unable to coordinate a fiscal expansion, they would be left with few options to stimulate the economy: favoring an increase of private lending, with the risk of fueling financial imbalances, seeking competitive devaluations or a combination of the two.

We draw two general conclusions. First, as suggested in recent literature, existing assessments of TTIP do not offer a suitable basis for important trade reforms. Indeed, when a well-reputed but different model is used, results change dramatically. Second, seeking a higher trade volume is not a sustainable growth strategy for the EU. In the current context of austerity, high unemployment and low growth, requiring that economies become more competitive would further harm economic activity. Our results suggest that any viable strategy to rekindle economic growth in Europe would have to build on a strong policy effort in support of labor incomes.

2. Existing Assessments of TTIP

Most assessments of TTIP predict gains in terms of trade and GDP for both the EU and US. Some also predict gains for non-TTIP countries, suggesting that the agreement would create no losers in the global economy. If this were the case, TTIP would be the key to a more efficient allocation of global resources, with some countries achieving higher welfare and all others enjoying at least the same welfare as before.

Unfortunately, as Raza and colleagues (2014) have shown, these desirable results rely on multiple unrealistic assumptions and on methods that have proven inadequate to assess the effects of trade reform. Furthermore, once the calculations are reviewed, it appears that several of these studies share the same questionable economic model and database. The convergence of their results is, therefore, not surprising and should not be taken as providing independent confirmation of their predictions.

2.1. Methodological Problems

Quantitative arguments in favor of TTIP come mostly from four widely cited econometric studies: Ecorys (2009), CEPR (2013), CEPII (2013) and Bertelsmann Stiftung (2013)[3]. CEPR has been very influential: the European Commission has relied on it as the main analysis of the economic effects of TTIP[4] going as far as presenting some of its findings as facts[5]. However, the EC's reference to CEPR as an "independent report" seems misleading since the study's cover page indicates the EC as the client for whom the study has been produced.. Ecorys was also commissioned by the EC as part of a wider project encompassing economic, environmental and social assessments (Ecorys, 2014).

[3] For simplicity, in the remainder of the paper all references to these studies are indicated as Ecorys, CEPR, CEPII and Bertelsmann respectively.
[4] CEPR figures prominently on the EC's webpage on TTIP (ec.europa.eu/trade/policy/in-focus/ttip/about-ttip, consulted on October 13, 2014). The EC also published a guide to the study's results (EC, 2013).
[5] See EC (2014), p. 2.

Methodologically, the similarities among the four studies are striking. While all use World Bank-style Computable General Equilibrium (CGE) models, the first two studies also use exactly the same CGE. The specific CGE they use is called the Global Trade Analysis Project (GTAP), developed by researchers at Purdue University[6]. All but Bertelsmann use a version of the same database (again from GTAP).[7]

The limitations of CGE models as tools for assessments of trade reforms emerged during the liberalizations of the 1980s and 1990s[8]. The main problem with these models is their assumption on the process leading to a new macroeconomic equilibrium after trade is liberalized. Typically, as tariffs or trade costs are cut and all sectors become exposed to stronger international competition, these models assume that the more competitive sectors of the economy will absorb all the resources, including labor, released by the shrinking sectors (those that lose business to international competitors). However, for this to happen, the competitive sectors must expand enough to actually need all those resources. Moreover, these resources are assumed to lack sector-specific features, so they can be re-employed in a different sector. Under these assumptions, an assembly-line employee of an automobile factory can instantly take up a new job at a software company as long as her salary is low enough. Supposedly, this process is driven by speedy price changes that allow an appropriate decrease of labor costs and, consequently, the necessary expansion of the competitive sectors.

In practice, however, this "full employment" mechanism has rarely operated. In many cases, less competitive sectors have contracted quickly while more competitive ones have expanded slowly or insufficiently, leaving large numbers of workers unemployed[9]. One need only look at the experience of Europe in the last decade to see that full employment does not re-establish itself even if job seekers are willing to work informally and at relatively low pay.

A critical point is that the distribution of gains and losses is rarely uniform within economies. If workers in competitive sectors may benefit from higher salaries, while those in shrinking sectors loose, the economy as a whole may be worse off. This is because in some countries domestic demand is mostly supported by the incomes earned in in traditional occupations. In practice, aside from their high social costs, these transitions have led to a drop of domestic demand that CGE-based calculations have often overlooked.

Moreover, most CGEs rely on misleading assumptions on the pattern of international trade, imposing a fixed structure on the market share that each country has in its export markets[10], and on a static analysis that does not explain how economies reach a new equilibrium. For example, when Country A expands trade with Country B, the rest of the

[6] For a history of GTAT, see https://www.gtap.agecon.purdue.edu/about/history.asp
[7] For an explanation of World Bank CGEs in historical perspective, see Taylor (2011).
[8] See Taylor and Von Arnim (2006), Ackermann and Gallagher (2004, 2008), Stanford (2003), Stiglitz and Charlton (2004), Gunter et al. (2005).
[9] See Polaski (2006) and references therein.
[10] See the analysis of Armington elasticities (i.e. how trade volume patterns respond to price changes) in Taylor and von Arnim (2006) and Ackerman and Gallagher (2008).

world's economies do not simply stand still. Countries C, D and E will find that they are more or less competitive in these markets as a result of the A-and-B trade changes. This effect is known as "trade diversion",[11] and has been a significant by-product of recent trade integration initiatives.[12]

Finally, the strategy chosen to simulate a "TTIP future" has a strong impact on the results. Ecorys assumes that so-called "Non-Trade Barriers" impose a given cost on trade and that TTIP can remove up to one half of them. CEPR and CEPII borrow this approach, but assume a lower share[13]. These barriers can include what other stakeholders refer to as consumer and environmental regulations. Phasing them out may be difficult and could impose important adjustment costs not captured by the models.

2.2. Empirical Results

All four assessments postulate multiple scenarios based on alternative assumptions on the share of removable non-tariff barriers. In all cases, cuts of at least 25 percent are required to generate visible gains. Results refer to the end of the simulation period in 2025 or 2027 depending on the study.

2.2.1. Trade

All assessments project large increases in bilateral US and EU exports. In CEPR and CEPII, US bilateral exports increase by 36.6 percent and 52 percent respectively in the long term[14], compared to 28 percent and 48 percent for the EU. According to CEPR, the net increase in total exports will be 8 percent in US and 5.9 percent in the EU (table 1).

However, in all cases, these increases in trans-Atlantic trade are achieved at the expense of intra-EU trade. Implicitly, this means that imports from the US and imports from non-TTIP countries through the US will replace a large portion of current trade among EU countries.

Table 1: Increase in bilateral and net exports by 2027

	CEPR		**CEPII**		**Ecorys**	
	Bilateral Exports	Net increase	Bilateral Exports	Net increase	Bilateral Exports	Net increase
EU	28.0%	5.9%	48.0%	7.6%	2.1%	0.9%
US	36.6%	8.0%	52.0%	10.1%	6.1%	2.7%

[11] See Lipsey (1957).
[12] See Clausing (2001).
[13] Bertelsmann uses a different strategy resorting to a gravity model (i.e. how the size difference and economic distance between countries affects bilateral trade flows) to estimate the trade effect of TTIP.
[14] In all cases, the "long term" simulation period covers up to 2025. In the remainder of this paper, "long term" indicates 2014-2025, unless otherwise indicated.

If these projections were true, higher trans-Atlantic interdependence would heighten the EU's exposure to fluctuations in US import demand. This is an under-examined consequence of certain patterns of trade liberalization. Even if higher exports were to bring higher demand and economic activity (a link that doesn't always work in practice, as discussed), more reliance on the US as an export market would also make the EU vulnerable to macroeconomic conditions in North America.

If Europe could effectively implement countercyclical policies, this greater interdependence would not necessarily be a problem. However, the EU's current institutional structure lacks a central fiscal authority while in practice preventing national governments, through the Maastricht treaty, from implementing any fiscal expansion.[15] This constellation of factors indicates that the TTIP might usher in a period of higher instability in Europe.[16]

The remaining two studies raise similar concerns. In Bertelsmann, aggregate figures for bilateral export increase and net increase are not readily available but results exhibit the same pattern as in other studies. While bilateral exports are predicted to increase by more than 60 percent for the EU and more than 80 percent for the US, intra-EU exports are expected to decrease between 25 and 41 percent. This implication raises the same concerns about vulnerability to US economic shocks as the other studies.

Finally, as noted above, the rest of the world does not stand still when two economies integrate. Applying Bertelsmann's percentages to recorded trade data with EU exports to the world as a whole, Raza et al. (2014) calculate that the overall impact of TTIP on EU global exports, including those to non-TTIP countries, would be negative. Furthermore, Felbermayr and Larch (2013) find that TTIP will have a negative effect on non-TTIP countries' exports, in a pattern observed after other trade agreements[17]. In other words, both exports and imports of non-TTIP countries are projected to decrease, with uncertain or negative net effects. CEPR and CEPII do not find negative effects on non-TTIP countries assuming *ad hoc* effects (spill-overs) that allow exports in the rest of the world to grow.

2.2.2. GDP and Personal Incomes

Given the small net effects on exports, most assessments predict small increases in TTIP countries' GDP (Table 2). In Ecorys, CEPR and CEPII, GDP increases less than 0.5 percent in both the EU and US. This means that, at the end of the simulation period in 2027, GDP would be 0.5 percent higher in a TTIP scenario than the baseline, non-TTIP scenario, implying negligible effects on annual GDP growth rates.

This is a defining aspect of the results: Ecorys, CEPR and CEPII point to a one-time increase in the level of GDP, not to an increase in the growth rate of GDP. Furthermore, this one-time increase is small and projected to occur only over the course of 13 years.

[15] Cameron (2012) argues that, even though EU member states favored a strong fiscal response to the crisis, they were unable to implement one because of coordination difficulties in the EU.
[16] On financial contagion within Europe and between US and EU, see Baele (2005).
[17] See, for example, Romalis (2007).

Bertelsmann reports higher figures (5.3 percent for the EU and 13.9 for the US), but provides little detail on the study's methodology. It is, therefore, unclear how the results compare to those of other studies.

Table 2: GDP increases by 2027

	Ecorys	**CEPR**	**CEPII**
EU	0.34%	0.49%	0.30%
US	0.13%	0.40%	0.30%

Furthermore, given the assumptions on spill-over effects, CEPR estimates that all regions of the world would benefit from long term GDP increases. However, Ferbelmayr and Larch (2013) indicate that this expectation contradicts previous experiences of trade agreements such as CUSFTA, NAFTA and MERCOSUR since these agreements typically affect the relative trade prices between members and non-members.

Despite the small projected increases in GDP, some studies suggest that TTIP might lead to large increases in personal incomes in the long term. In often-cited examples, Ecorys estimates that the average EU household would gain 12,300 Euros over the work life of household members, while CEPR estimates that the same household would earn 545 Euros more every year. However, as noted above, these estimates are misleading since the studies provide no indication of the distribution of income gains: they are simply averages. With EU wages falling as a share of GDP since the mid-nineties[18], it is far from certain that any aggregate gains will translate into income increases for households living on income from wages (as opposed to capital).

2.2.3. Employment

Finally, most studies are not informative on the potential consequences of TTIP on employment. While CEPII does not discuss employment effects, CEPR and Ecorys (2013) assume a fixed supply of labor. This amounts to excluding by assumption any consequences of TTIP on employment – wages are assumed to fall or rise enough to ensure that all workers remain employed regardless of the level of economic activity.

On the other hand, Bertelsmann predicts that TTIP will lead to the creation, in the long term, of approximately one million jobs in the US and 1.3 million jobs in the EU. However, these positive figures are strongly dependent on the period chosen in the estimation. Using data up to 2010, the authors estimate that economies where labor and labor income are more protected (for example by higher unemployment benefits) suffer from higher unemployment, concluding that any cost reductions introduced by TTIP would lead to positive employment effects in those countries. When more recent data is taken into account, this conclusion ceases to hold since *all* countries – not just those with stronger labor protection – appear to have experienced higher and persistent unemployment.

[18] See, for example, Estrada and Valdeolivas (2012).

3. An Alternative Assessment with the United Nations Global Policy Model

To obtain a more realistic TTIP scenario, we need to move beyond CGE models. A convenient alternative is provided by the United Nations Global Policy Model (GPM), which informs influential publications such as the Trade and Development Report.[19] The GPM is a demand-driven, global econometric model that relies on a dataset of consistent macroeconomic data for every country. Two features make the GPM particularly useful in the analysis of a large trade agreement.

Firstly, the model assumes a more realistic mechanism leading to macroeconomic equilibrium. All models that make these types of projections necessarily make assumptions on the way economies will stabilize after a policy change, which in this case is the introduction of TTIP. The most important difference between the GPM and the CGE models described Section 2 is that, in the GPM, the full-employment assumption is replaced by the Keynesian principle of "effective demand" (Keynes 1936, Chapter 3). This means that the level of economic activity is driven by aggregate demand rather than productive efficiency. Consequently, a cost-cutting trade reform may have adverse effects on the economy if the "costs" that it "cuts" are the labor incomes that support aggregate demand. Unlike in CGE models, changes in income distribution contribute to determining the level of economic activity. The absence of this mechanism in many commonly used models has often led to major errors in assessing the impact of trade reforms.[20]

Secondly, the GPM provides an explicit analysis of the macroeconomic workings of every world region. This, in turn, has two important benefits. It means that the model can provide well-founded information on the economic interactions among all regions, rather than just assuming that a given proportion of a country's income will be spent on imports from other countries. It also means that the GPM allows us to assess whether a given policy strategy is globally sustainable. For example, the GPM shows that, when sought by every country, a strategy of export-driven growth may lead to adverse consequences such as a net loss of trade.

A third valuable feature of the GPM is its estimation of employment. Using International Labor Organization data, the GPM specifies how a given change in GDP growth affects employment growth, and vice versa. A critical advantage of the specification used is that these growth-and-employment relationships (which economists call "Okun's relationships) are not constant over time. In this way, the GPM recognizes that different factors might affect the relationship between output and employment at different moments in history. Thus, the model is able to account for recent puzzles such as "jobless growth."

Given the large amount of data that must be processed to estimate and simulate the GPM, we keep the analysis tractable by aggregating some countries into blocs. With this, we lose specific analysis for these countries.

[19] See Cripps and Izurieta (2014) for further documentation on the model. For the latest example of UN policy simulations see UNCTAD (2014).
[20] Ocampo et al. (2009).

Despite its limitations, the GPM offers a useful perspective on the consequences of agreements such as TTIP. Indeed, it offers a "big picture" and insights into several important adjustment mechanisms that are often overlooked by other models.

3.1. Simulation Strategy: Global Implications of Existing Trade Projections

Our country aggregation leaves the world's largest economies as independent units. In the TTIP area, the United States, United Kingdom, Germany, France and Italy appear as stand-alone economies. The remaining countries are aggregated into two blocs: "Other Northern and Western Europe" (including Finland, the Netherlands and Belgium) and "Other Southern and Eastern Europe" (including Greece, Spain, Portugal and eastern European economies).

But European nations and the US are not the only countries in the world. One benefit to macroeconomic models is that we can estimate the effect of a policy change like TTIP on countries outside of the potential trade bloc. Accordingly, we are able to estimate how TTIP will affect individual countries like Argentina, Brazil, Canada, China, the Commonwealth of Independent States (CIS), India, Indonesia, Japan, South Africa and Turkey (which we count as independent units, much as we did with the US). All other countries are grouped into two blocs per continent.

As in other simulation exercises, we first project a baseline path for the economy of every country or country bloc from 2015 to 2025 in order to match previous studies. We then determine counterfactual values that are implied by the adoption of the TTIP. To determine the baseline, we use all information available on countries' past and present policies and spending patterns (Table 3). We use the same baseline assumptions as UNCTAD (2014). For example, we assume that governments in TTIP countries and in some non-TTIP countries will not reverse their commitments to fiscal austerity[21]. Therefore, even in the baseline scenario, we do not expect fiscal spending to expand aggregate demand even though historically this has been an important channel. This confirms a major advantage to GPM-type models that we noted above: they allow for greater realism about the likely path of policy in the foreseeable future. (For more information about how these assumptions on the path of different countries' policies were constructed, see UNCTAD, 2014).

[21] This seems necessary given recent remarks by the European Commission indicating the intention to enforce budget rules strictly (See, for example, http://www.ft.com/intl/cms/s/0/b1520212-3a8b-11e4-a3f3-00144feabdc0.html#axzz3G6zxUwwP and http://www.eurozone.europa.eu/newsroom/news/2014/09/eurogroup-moves-ahead-with-structural-reform-agenda/)

Table 3: Baseline Assumptions

	Labor Income Share of GDP (%)				Growth of Government Spending* (%)			Growth of Private Investment** (%)		
	1990	2012	Average 2015-19	Average 2020-24	1990-14	2015-19	2020-24	1990-14	2015-19	2020-24
Developed economies	60.5	56.1	55.5	55.2	2.0	1.1	1.1	1.1	3.0	3.2
United States	56.1	53.2	53.3	53.5	2.4	1.8	2.2	2.0	3.6	4.0
CIS	71.5	57.3	55.9	54.6	1.8	0.9	1.5	4.6	-0.7	1.7
Developing Asia	55.2	48.8	50.6	50.8	6.7	6.3	6.1	7.7	3.9	4.6
China	61.0	49.7	52.6	53.4	10.3	7.7	7.0	12.4	4.2	4.8
India	51.0	44.7	46.2	46.0	6.7	5.7	6.5	7.2	5.1	5.6
Africa	47.5	43.8	44.6	44.7	4.3	4.5	4.8	4.8	2.0	3.1
Latin America and Caribbean	51.8	49.6	49.8	49.1	4.3	2.3	2.5	3.2	1.7	2.9

Note: *Average annual growth of government spending in goods and services; ** Average annual growth of private investment.

In order to implement the TTIP scenario, we assume that the volume of trade among TTIP countries will initially expand at the pace indicated by the existing studies[22]. However, we do not rely on these studies for changes in net exports, which ultimately determine any changes in GDP. Instead, we calculate net exports changes taking into account the global feedbacks built into the GPM. Therefore, our simulation clarifies the implications of the "consensus" pattern of trade in terms of GDP, income distribution and non-TTIP trade. In the GPM, the impact of a given increase in trade is different from other models. As indicated above, such change affects the distribution of income ultimately feeding back into total demand and income.

Finally, we consider two specific mechanisms through which the European economy could adjust to these TTIP-induced changes in net exports. First, we assume that increased international competition will exert pressure on the real exchange rate. This might occur as firms in every country try to preserve their international competitiveness and increase efforts to reduce labor costs. It might also be the result of unemployment pressures and legislation that would redule total labor compensation. As a result, the

[22] The GPM does not include data on tariffs, so we cannot calculate the tariff equivalent of a reduction in trade costs and its impact on exports. Thus we take the approach of checking the implications of the changes in trade that have been estimated by previous studies. We express these increases in terms of each country's share in the import market of the others rather than in terms of export and import levels.

labor share of GDP would further decrease in Europe in a downward trend toward the lower US share, weakening aggregate demand.[23]Finally, this adjustment mechanism might also play out through a nominal devaluation. This might indeed help an economy gain higher market shares abroad, but it may also generate a race to the bottom at the end of which no country will have gained higher exports.

The second mechanism recognizes a policy strategy that has become central in recent decades assuming that, in order to stimulate flagging domestic demand, policy authorities may increase lending[24]. As a result, asset prices (including some financial assets) might increase, setting off the unstable dynamics that have become apparent after the 2009 financial crisis.

It is worth pointing out that each of these assumptions is model driven. Policymakers face choices about how and when to respond to trade-induced wage and demand pressures. The advantage of "effective demand" Keynesian models is that they make simplifying assumptions about the policymaking process that enable easier computations. While these models cannot predict the path that policymakers will actually take, they allow us to make reasonable projections about possible GDP, employment and income changes that are not achievable without the simplifying assumptions.

4. Simulation Results

Our simulation results paint a picture substantially different from that offered in existing studies, with TTIP leading to net losses in the EU in terms of all main variables (Table 4). It is important to note that all percent figures refer to the difference between the simulated scenario and the baseline scenario. In this sense they indicate the difference between two hypotheses on the state of the world economy in 2015 (TTIP is introduced or not introduced). In particular, the figures do not indicate annual increases or increases over 2014 values.

4.1. Net exports and GDP

Our simulations show that the assumed trade expansion among TTIP countries will cause a net export loss for all EU economies. Losses would be a drag on aggregate demand for all EU economies. Northern European Economies would suffer the largest decreases (2.07% of GDP by 2025) followed by France (1.9%), Germany (1.14%) and the UK (0.95%). On the other hand, US net exports would be higher by slightly more than one percent.

A likely explanation for how EU-US trade could expand while EU net exports to the world could decline is that, in the EU's stagnating economy, domestic demand for lower-value added manufactures – in which the EU is relatively uncompetitive – will crowd out higher-value added ones. Indeed, our figures show an increase of net exports in almost every other region of the world except Europe, suggesting that higher demand for low-value added product will lead to higher net imports from Asian and African economies

[23] For an explanation of the relationship between labor costs and the labor share of GDP, see Appendix A.
[24] Implicitly, we assume that policy authority can actually affect private bank lending.

and from the US[25]. Alternatively or additionally, TTIP could facilitate EU imports of manufactures assembled in the US with parts made in China and other regions.

Net exports are a key component of GDP. As such, the net loss of trade will directly lower EU countries' national income. Our simulations indicate small but widespread GDP losses for the EU, in a clear contrast with existing assessments. Consistently with our figures for net exports, Northern European Economies would suffer the largest GDP reduction (0.50%) followed by France (0.48%) and Germany (0.29%). GDP would increase slightly in the US (0.36%) while GDP increases in non-TTIP countries would be positive but negligible (approximately 0.1%).

Table 4. TTIP's long-term effects

	Net Exports	**GDP Growth**	**Employment**	**Empl. Income**	**Net Taxes**	**Depend. Ratio**
Units	% GDP	Diff between %	Units	EUR/employee	% GDP	Diff between %
US	1.02	0.36	784,000	699	0.00	-0.97
United Kingdom	-0.95	-0.07	-3,000	-4245	-0.39	0.01
Germany	-1.14	-0.29	-134,000	-3402	-0.28	0.75
France	-1.90	-0.48	-130,000	-5518	-0.64	1.31
Italy	-0.36	-0.03	-3,000	-661	0.00	0.02
Other Northern Europe	-2.07	-0.50	-223,000	-4848	-0.34	1.33
Other Southern Europe	-0.70	-0.21	-90,000	-165	-0.01	0.33
EU Total			**-583,000**			

Own calculations based on United Nations Global Policy Model. Figures are simulated gains and losses for 2025. Net Taxes are indirect taxes minus subsidies. Dependency Ratio is defined as ratio of total population to employed population.

4.2. Employment and Incomes

Following the reduction of net exports and overall economic activity, we project clear losses in EU employment and labor incomes. Recall that our model allows us to make employment projections, because it estimates the relationship between GDP growth and employment growth over several decades based on ILO data. This is compatible with a

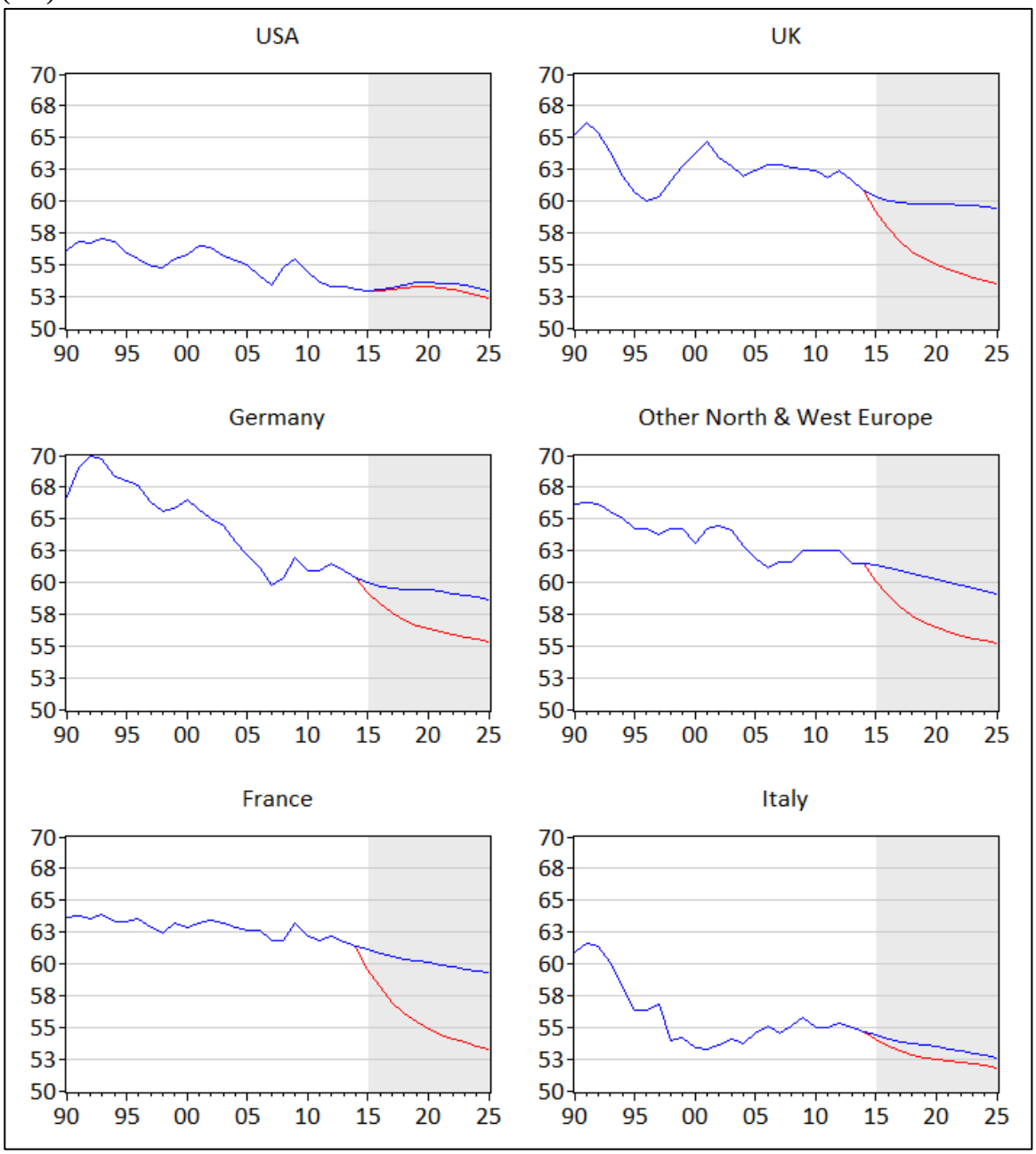
[25] In many models, greater within-trade agreement exports come along with lower global net exports. For instance, the U.S. government's official GTAP-based assessment of the US-Korea trade agreement projected this pattern. Compare Tables 2.2 and 2.3 in http://www.usitc.gov/publications/pub3949.pdf. This is an underexplored by-product of trade agreements, although one with potential macroeconomic costs.

tendency toward specialization in higher-value added, lower-employment-intensity products, which would lead to export and output gains in a few sectors while adversely affecting many others[26]. As a result, we calculate that the EU as a whole would lose approximately 600,000 jobs by 2025, most of which are in Northern Europe, France and Germany. By comparison, this is more jobs than the EU lost in the crisis years of 2010 and 2011 – clearly Europe must avoid another job loss of this magnitude even if gradual and spread over many years.

The loss of employment would further accelerate the reduction of incomes that has contributed to the EU's current stagnation. Indeed labor income will continue its steady decrease as a share of total income, weakening consumption and residential investment while likely exacerbating social tensions. The flipside of this decrease is an increase in the share of profits and rents in total income, indicating that proportionally there would be a transfer of income from labor to capital. The largest reductions will take place in UK (with 7% of GDP transferred from labor to profit income), France (8%), Germany and Northern Europe (4%), reinforcing a negative trend that has continued at least since the early 2000s (Figure 1).

[26] It is worth emphasizing that this is not a results of the model but a possible explanation of trends projected with it.

Figure 1: Income from Employment as % of GDP: Baseline (blue) and TTIP scenario (red).



To emphasize the difference between our results and existing estimates of employment impact, Table 4 includes the projected reduction of per capita employment income implied by the fall of employment and the labor share. As mentioned in Section 2, CEPR estimates that the annual income of the average household would increase in the long term by 545 Euros, while Ecorys projects an increase in working life income, again for the average household, of 12,300 Euros. Given the ongoing deterioration of income distribution, we chose to focus on working households, calculating the change in per capita employment income. Our results are clearly incompatible with both CEPR and

Ecorys. Indeed, we project losses of working incomes per capita ranging from 165 to more than 5,000 Euros. France would be the worst hit with a loss of 5,500 Euros per worker, followed by Northern European Countries (4,800 Euros), United Kingdom (4,200 Euros) and Germany (3,400 Euros). For a household with two working persons, the loss ranges from 330 to more than 10,000 Euros. By contrast, in the US there would be an increase of employment income.

The loss of economic activity and the weakening of consumption in the EU means that tax revenue will be less than it would have been in the absence of the TTIP. We estimate that the surplus of indirect taxes (such as sales taxes or value-added taxes) over subsidies will decrease in all EU countries, with France suffering the largest loss (0.64% of GDP or slightly more than 1% of total government budget). Government deficits would also increase as a percentage of GDP in every EU country, pushing public finances closer or beyond the Maastricht limits.[27]

The loss of employment and labor income will increase pressure on social security systems. Using GPM employment projections and UN population data we can calculate the economic dependency ratio, that is the ratio of total population to employed population. This indicates how many people are supported by each job, either through family relationships or social security contributions. According to our calculations, the ratio would increase throughout the EU announcing more troubled times for European social security systems. By contrast in the US, indirect taxes would not be affected while the economic dependency ratio would slightly improve.

4.3. Asset Price Inflation and Real Devaluation

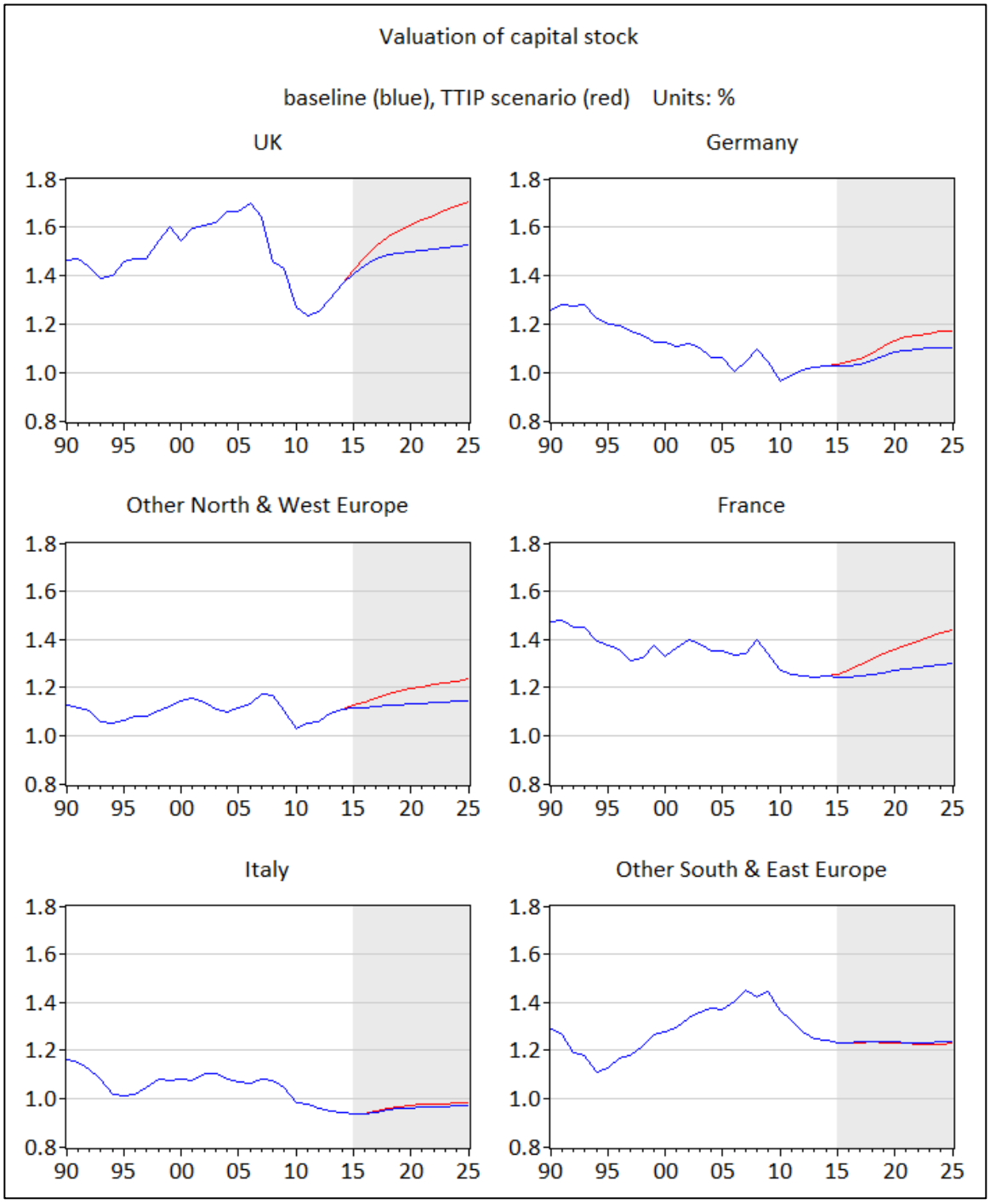
Policymakers will have a few options to adjust to the shortfall in national incomes projected by our study. With wage shares and government revenues decreasing, other incomes must sustain demand if the economy is to adjust. These adjustments have to be profits or rents but, with flagging consumption growth, profits cannot be expected to come from growing sales. A more realistic assumption is that profits and investment (mostly in financial assets) will be sustained by growing asset prices. The potential for macroeconomic instability of this growth strategy is well known.

In this adjustment scenario, there would be a strong increase in asset prices where financial markets are more developed, especially in the United Kingdom, Germany, Other Western and Northern European Countries and France (Figure 2). Aggregate demand in these economies would be sustained by a recovery of the financial sector, stimulated by domestic landing and growing profits. However, it is critical to note that such growth would last only as long as asset prices keep growing, requiring ever-rising levels of lending. In the current context of weak commercial lending, this might require intentional policy interventions, such as further deregulation. This road to growth has been taken before and its risks have proven extremely high. During the most recent economic crisis, individuals and businesses quickly ran up unsustainable debts until

[27] These limits generally require budget deficits to stay under three percent of GDP.

generalized insolvency suddenly stopped economic activity[28]. Moreover, the extent to which deregulation is successful in increasing lending, rather than just reducing accountability in the financial sector, is not clear.

Figure 2: Asset Prices



[28] See Taylor (2010).

Of course, a run-up in asset prices is not the only policy and economic response to the drop in aggregate demand. But it appears to be slightly more viable than alternative adjustment mechanisms. For example, it is often suggested that an opportunity might come from real devaluation. Countries might be tempted to seek this alternative by way of a nominal depreciation, a reduction of real labor costs or both. In light of the discussion in section 3, the latter channel does not appear viable. This is because it would prove counter-productive when applied by many countries. In other words, if the incomes of workers in every country are reduced, the demand hole is dug even deeper. Moreover, the magnitude of the cuts required could be socially unsustainable after decades of falling labor shares. On the other hand, a substantial nominal depreciation of the Euro would probably trigger defensive depreciation in other currencies before any improvement in competitiveness is achieved.

According to our projections, a real devaluation would have some effect in Germany and France but nothing that might strongly stimulate aggregate demand (Figure 3). Furthermore, attempts at strong devaluations are often followed by a race to the bottom in which the trading partners of the country that devalues try to regain the lost ground by devaluing as well. But even when a race to the bottom does not happen, lasting periods of real devaluation might lead to the accumulation of external debts as Europe's deficit countries has experienced after 1999.[29]

To reiterate, our model requires some form of adjustment to compensate for the drop in aggregate demand. The precise path that future policymakers will choose (if any) is of course unknowable at present. But our model sheds light on the likely macroeconomic consequences of a TTIP-induced change in trade volumes, and also on the policy responses that are more or less likely to fill the demand gap.

5. Discussion and Conclusion

Existing studies on TTIP have focused on the impact the agreement would have on aggregate economic activity in member countries. They have done so based on detailed sectoral analyses of TTIP economies, but have neglected the impact of income distribution and other important dimensions of macroeconomic adjustment.

Our assessment of TTIP is based on the United Nations Global Policy Model, which has proven a convenient tool to estimate the impact of policy changes involving large areas of the world economy. Our simulation does not question the impact of TTIP on total trade flows estimated by existing studies. Rather we analyze their implications in terms of net exports, GDP, government finance, and income distribution.

Our analysis points to several major results. First, TTIP would have a negative net effect on the EU. We find that a large expansion of the volume of trade in TTIP countries is compatible with a net reduction of trade-related revenues for the EU. This would lead to net losses in terms of GDP and employment. We estimate that almost 600,000 jobs would

[29] See Flassbeck and Lapavitsas (2013).

be lost as a result of TTIP. Secondly, TTIP would reinforce the downward trend of the labor share of GDP, leading to a transfer of income from wages to profits with adverse social and economic consequences. Policymakers would face a few options to deal with this demand gap. Our model suggests that asset price inflation or devaluation could result, leading to higher economic instability.

In this paper we have focused on trade and its consequences, leaving the investment component of TTIP on the sidelines. Going forward, valuable insights could be drawn by further extending the analysis of TTIP's financial effects.

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Appendix A: Labor Share and Labor Cost

We show that *labor cost is equivalent to the labor share of GDP*. We start with the output-income identity:

$PX = wL + \pi PX,$

where P is the average price level, X is the aggregate level of output, w is the average wage, L the total number of hours worked and π is the profit share. Consequently, wL and πPX represent total wages and profits respectively. Rearranging, we obtain an expression for cost-based pricing:

$P = (1 + \mu) \cdot \frac{w}{},$

where μ is the mark up (related to the profit share by the relationship $\mu = \frac{\pi}{1-\pi}$) and the last term of the right-hand side is the nominal cost of labor per unit of output (the wage-productivity ratio or hourly wage divided by the units of output produced employing one hour of labor). Indicating labor productivity with ξ we can rewrite the latter as:

$$ULC_N = \frac{w}{\frac{X}{L}} = \frac{w}{\xi}.$$

If the profit share and, therefore, the mark-up are to remain constant, the only way to reduce the price of output and become more competitive is to reduce the unit labor cost. This can be done by cutting hourly wages or increasing productivity. In both cases, the consequences can be paradoxical.

We can obtain real unit labor cost dividing the nominal cost by the price level:

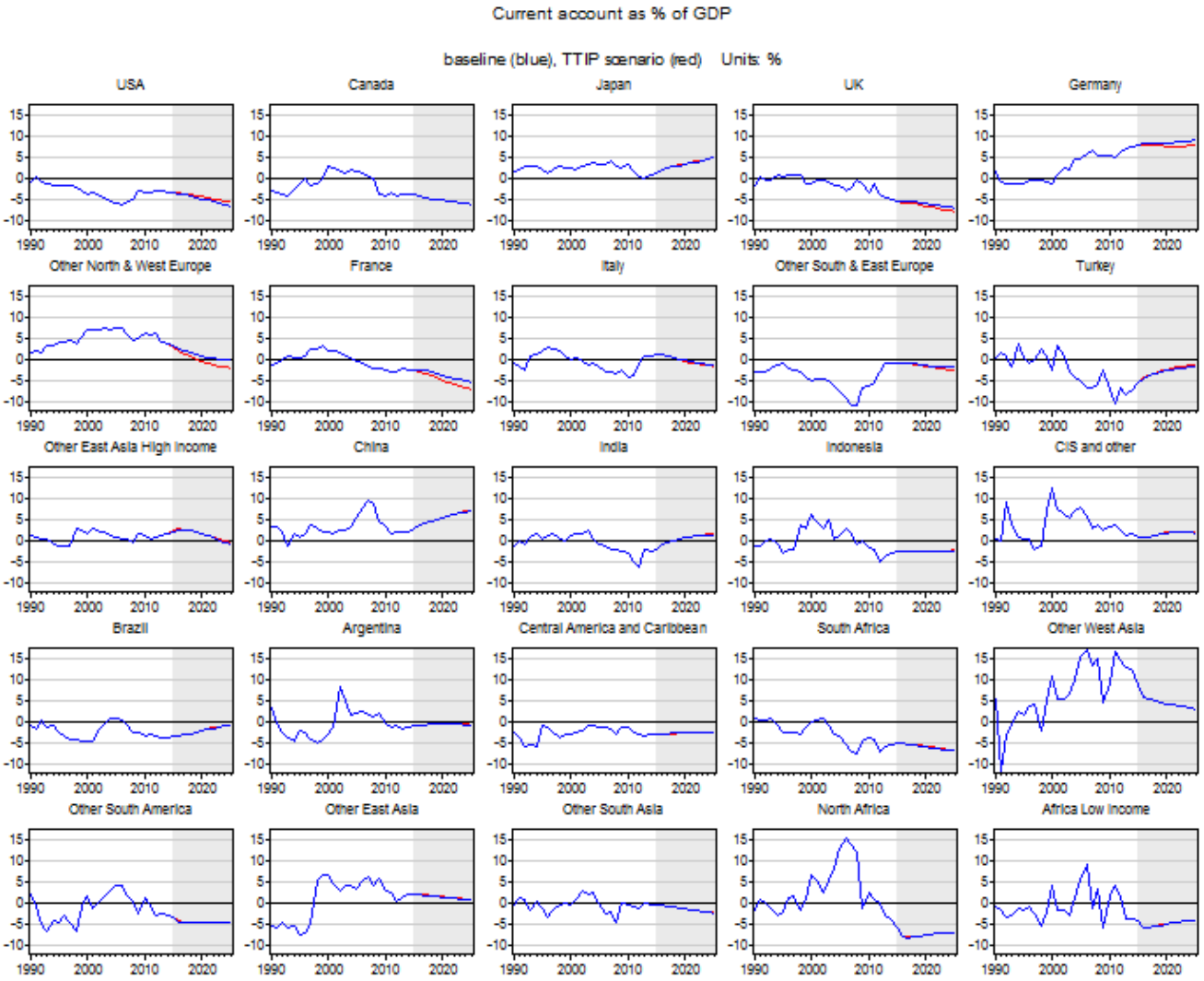
$$ULC_R = \frac{w}{P(\frac{X}{L})} = \frac{\omega}{\xi},$$

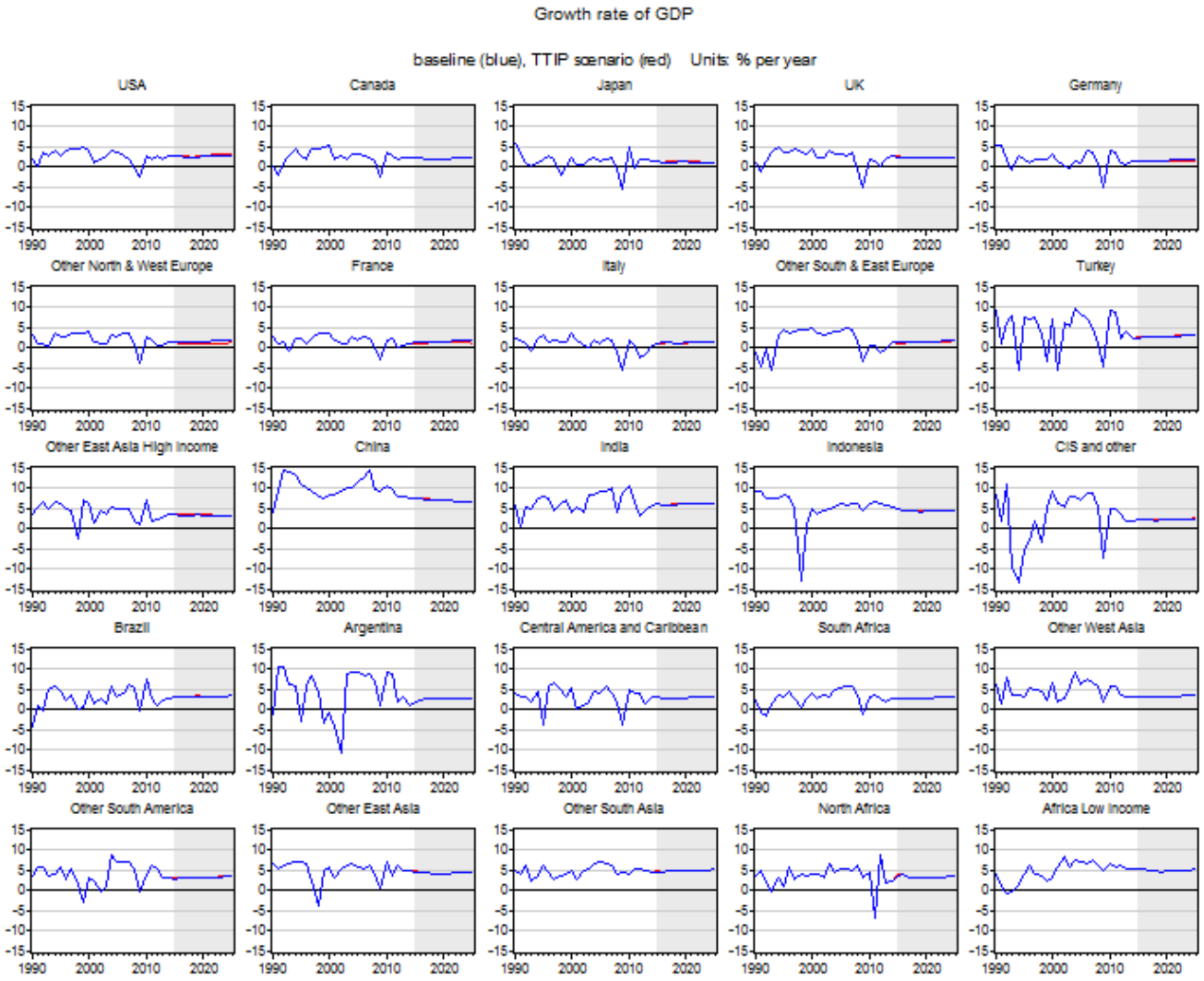
where ω is the real wage. But the first equality can also be restated as:

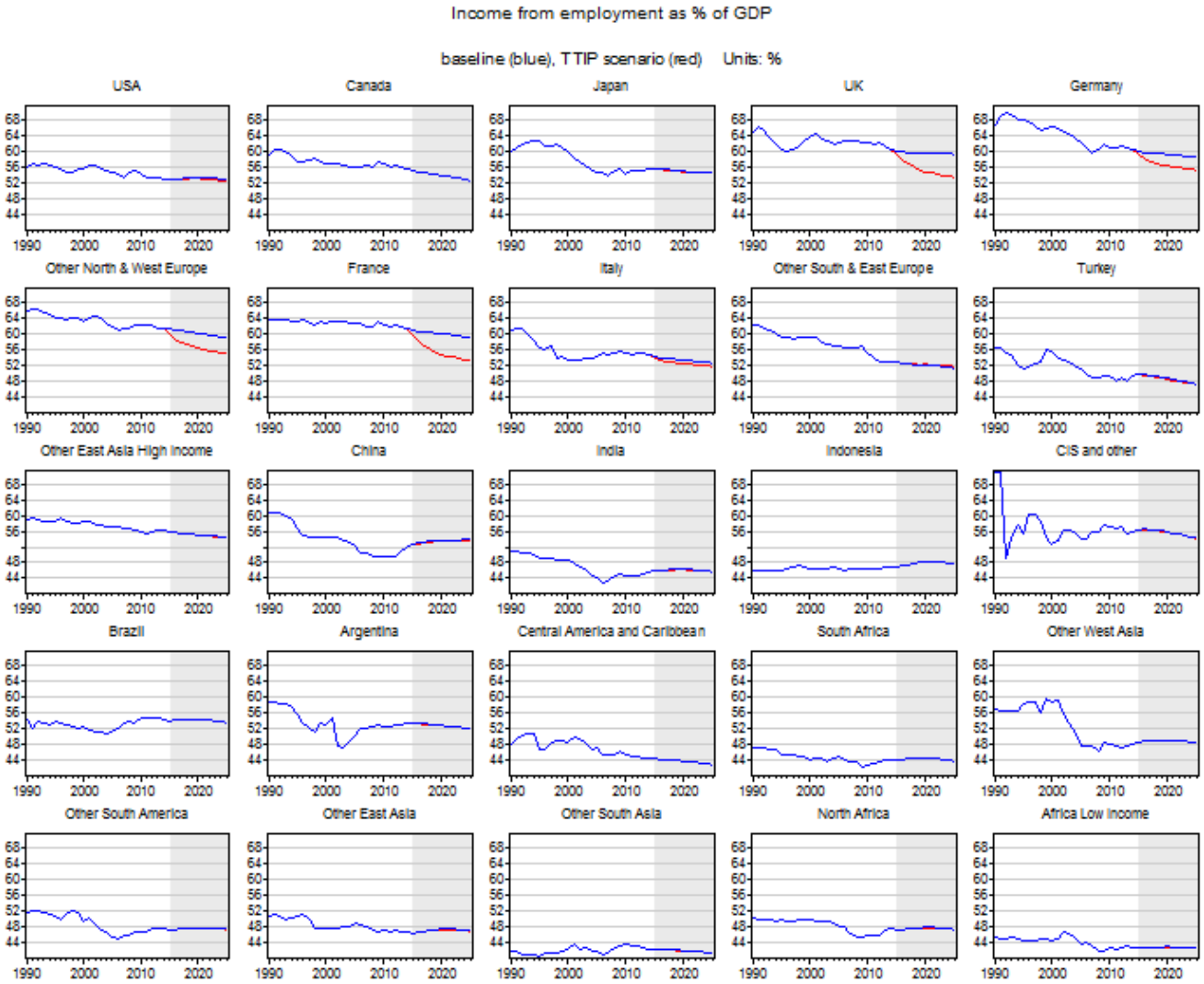
$$ULC_R = \frac{w}{P(\frac{X}{L})} = \frac{wL}{PX} \equiv \psi,$$

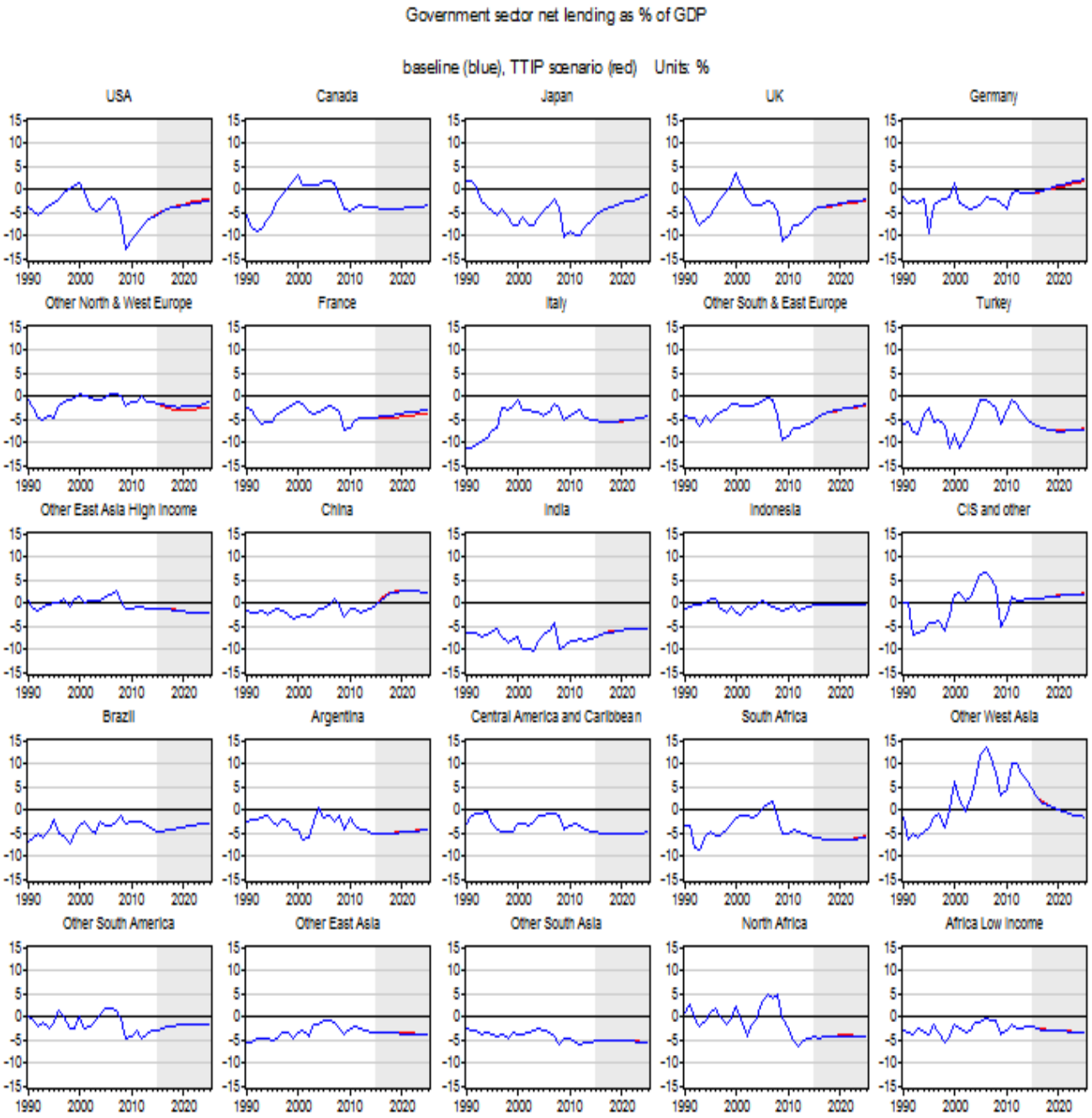
which shows that real unit labor cost is equal to the ratio of the wage bill to the value of output, that is the wage share ψ.

Appendix B: Other Simulation Results




Growth rate of GDP
baseline (blue), TTIP scenario (red) Units: % per year
USA
Canada
Japan
UK
Germany
Other North & West Europe
France
Italy
Other South & East Europe
Turkey
Other East Asia High Income
China
India
Indonesia
CIS and other
Brazil
Argentina
Central America and Caribbean
South Africa
Other West Asia
Other South America
Other East Asia
Other South Asia
North Africa
Africa Low Income


Income from employment as % of GDP
baseline (blue), TTIP scenario (red) Units: %
USA
Canada
Japan
UK
Germany
Other North & West Europe
France
Italy
Other South & East Europe
Turkey
Other East Asia High Income
China
India
Indonesia
CIS and other
Brazil
Argentina
Central America and Caribbean
South Africa
Other West Asia
Other South America
Other East Asia
Other South Asia
North Africa
Africa Low Income


Government sector net lending as % of GDP
baseline (blue), TTIP scenario (red) Units: %
USA
Canada
Japan
UK
Germany
Other North & West Europe
France
Italy
Other South & East Europe
Turkey
Other East Asia High Income
China
India
Indonesia
CIS and other
Brazil
Argentina
Central America and Caribbean
South Africa
Other West Asia
Other South America
Other East Asia
Other South Asia
North Africa
Africa Low Income

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