

RESEARCH REPORT

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Gerd Schwartz

AfCFTA in a Rut – Can the Pan-African Agreement Regain Momentum?

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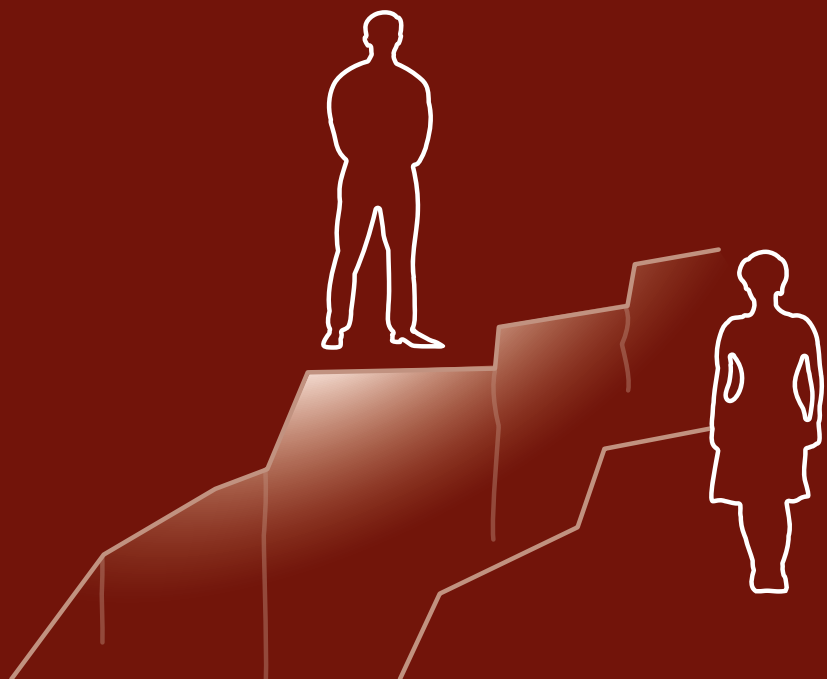
MACRO DATA INSIGHTS

Statistics Update

FOCUS

Mind Gender Gaps! How Men and Women Get Equal Working Opportunities and Wages

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Women's participation in the labor market is increasing and the gender pay gap is narrowing worldwide. Yet how fast and how profound the development takes place varies from one country to another. In Europe, there is still controversy as to whether the regulations introduced on pay transparency have made an effective contribution to reducing these differences. While more women are available on the labor market, their wage in some segments has not grown to the same extent. However, the discussion about the gender pay gap has broadened and become more differentiated: the aspect of the natural gender gap has been added, to which countries would gravitate in absence of legal regulations designed to reduce this gap. And there is a new discussion about the differences in pension payments between men and women. This edition of the CESifo Forum offers country-specific experiences as well as insights into these critical policy issues in selected countries.



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Mind Gender Gaps!

How Men and Women Get Equal Working Opportunities and Wages

Women's participation in the labor market is increasing and the gender pay gap is narrowing worldwide. Yet how fast and how profound the development takes place varies from one country to another. In Europe, there is still controversy as to whether the regulations introduced on pay transparency have made an effective contribution to reducing these differences. While more women are available on the labor market, their wage in some segments has not grown to the same extent. However, the discussion about the gender pay gap has broadened and become more differentiated: the aspect of the natural gender gap has been added, to which countries would gravitate in absence of legal regulations designed to reduce this gap. And there is a new discussion about the differences in pension payments between men and women. This edition of the CESifo Forum offers country-specific experiences as well as insights into these critical policy issues in selected countries.

Martha Ceballos, Annick Masselot and Richard Watt

Pay Transparency across Countries and Legal Systems

The undervaluation of women's work is the primary driver of the gender pay gap in developed economies (Milgrom et al. 2001 and Bennedsen et al. 2019). All countries in the EU, along with Australia and Canada, have some form of legislation which requires "equal pay for work of equal value" as is enshrined

in the International Labour Organisation (ILO) Equal Remuneration Convention of 1951 (CFR n.d.). But despite the efforts to enforce "equal pay for work of equal value," the gender pay gap has persisted in all modern economies to some extent (ILO 2018). In recent years, lack of pay transparency has arisen as a



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possible explanation. Ramachandran (2011) indicates that a lack of pay transparency provokes a disparate impact on women and people of color and that pay transparency allows workers to negotiate fair wages. Without transparent wage information, it might be realistic for a worker to realize her pay is unjust relative to her co-workers in the same position (i.e., equal pay for equal work), but it is significantly more difficult for a worker to realize she is not paid fairly relative to a worker in a different role who she probably has little contact with (i.e., equal pay for work of equal value). Therefore, workers need to be presented with transparent information about the pay of other comparable roles in their company for them to know if equal pay for work of equal value is in place. As Lobel (2020, 547) notes, “efforts to eradicate wage discrimination have failed in large part because of information asymmetries and difficulties in identifying and proving discrimination.” Part of the reason explaining why the gender pay gap has closed so slowly in the developed world is that companies have historically used their wage information asymmetry to make it difficult for employees to identify and act against pay discrimination. Thus, although pay equity legislation exists in some developed economies, it has not always been effectively enforced.

What is less well understood is the exact effect of legislating pay transparency. In particular, what are the effects of different types of pay transparency legislation upon the gender pay gap? There have been studies that are restricted to particular countries (e.g., Gulyas et al. 2021), who studied the case of Austria; and Bennedsen et al. 2019), who looked at Denmark), with contrasting results.¹ Part of the issue, of course, resides in the fact that pay transparency legislation is but one of a myriad of variables – cultural, economic, and legal – that affect the gender pay gap, and attempting to separate out all of the effects econometrically becomes overly complex. In the present article, we take a more simplified approach to this question. The bottom line is that, independently of all of the other possible interferences, pay transparency is legislated with the intention that it should reduce the gender pay gap to levels below that which would be achieved without the legislation. Essentially, the passage of a pay transparency law acts as a type of structural change that should show up as a decreased gender pay gap relative to not having the transparency regulations in place. In order to attempt to visualize this in a relatively simple manner, in this article we restrict our attention to a set of developed OECD countries with different experiences regarding gender pay transparency legislation. Our set of countries are,

¹ Gulyas et al. (2021) found that pay transparency had no effect on the gender pay gap in Austria, while Bennedsen et al. (2019) found that transparency decreased the Danish gender pay gap, even though the gap decrease was attributable to decreased wage growth of male workers rather than increased wage growth of females. Baker et al. (2019) also failed to find any effect of pay transparency on female earnings.

broadly speaking, similar in nature (at least in terms of economic and social development), and so our implicit assumption is that any variables other than the particular parameters employed related to pay transparency legislation are similar across our set of countries, and thus can be assumed to be held constant. Our intention is to consider the following general questions:

1. Does having some form of pay transparency law in place tend to reduce the gender pay gap to levels below those which might have reasonably been expected in absence of such a law?
2. Which particular elements of a pay transparency law appear to have the most effect upon the gender pay gap?
3. Can countries be grouped together according to the general parameters of their pay transparency legislation, and if so, which groups of countries appear to have employed the most successful pay transparency law?

The article proceeds as follows. In the next section, we detail the legislative experiences of the different countries that are included in our data set. The third section employs latent class analysis to group the different countries in our data set according to their gender pay gap and their pay transparency legislation. The fourth section posits a new perspective on the gender pay gap of non-legislating countries that leads to a theory (and indeed a value, at least for the countries in our data set) of a “natural rate” of the gender pay gap and a useful separation between countries with pay transparency legislation in place – those that out-perform the benchmark of not legislating, and those that under-perform relative to that same benchmark. Together with our latent class analysis groupings, this allows us to draw conclusions regarding the types of pay transparency law that appear to be more successful in the endeavor of reducing the gender pay gap. Finally, the fifth section concludes.

PAY TRANSPARENCY LEGISLATION EXPERIENCES

In recent years, organizations and governments have begun to acknowledge and highlight the issue of pay opacity, which has sparked efforts to create pay transparency measures in developed economies. The most significant of these measures was the EU 2014 Recommendation on encouraging member states to enact a range of transparency measures, but other measures in Canada and Australia have also been implemented (European Commission 2014). Measures in the EU revolve around employees’ right to request information on pay levels, requiring firms to report on the workforce gender pay gap, requiring firms to undergo gender pay audits, and to include equal pay in collective bargaining. Outside the EU, measures include prohibiting employers from blocking salary discussions and requiring employers to disclose to job

Table 1

Pay Transparency Measures to Ensure Equal Pay for Equal Work: An Overview

| Measure | Description | Example |
|---|--|---|
| Gender pay reports | Employers compile a report comparing average 'pay and other employment measures across different work positions in the organization. The data must be disaggregated by gender. This report is either handed to authorities or distributed among employees or employees' representatives. An additional obligation to publishing the report exists in some countries. | Australia requires firms to submit a report to the WGEA regarding: gender composition of the workforce, gender composition of governing bodies, equal pay between men and women, availability of flexible work practices, etc. In Canada employers must submit an equity plan to the Ministry of Labor. Portugal, Spain, the UK, Italy, Austria, Belgium, and Germany, among other countries, set out the duty to undertake the report. |
| Gender pay audits | Employers themselves, alone or involving workers representatives, must assess workforce wages, comparing wage setting processes across employees, including classification systems to detect discriminatory gender pay differences. Often firms are required to explain why differences exist and action plans should follow to correct any unjust gender pay differences. | In Finland, employers must analyze pay information disaggregated by gender across similar groups of employees. If gender imbalances are detected, the employer must analyze why these pay gaps occurred. Results should inform the equality plan that firms must complete. Sweden requires written pay audits. In Spain equal pay audits must be carried out as part of the equality plans. |
| Right to request information | Workers directly or through a worker's representative can ask employers to disclose pay information affecting the worker and co-workers in the same category. Often the criteria for determining wages are also included. | In Norway, workers can request information regarding co-workers' pay and the criteria used to determine their wages. Finland, Germany, and Spain also set down the right to request information. |
| Pay disclosure | Firms must disclose the pay range of a position to prospective employees. | Some states of the US, for instance California and Colorado, have set down the obligation to publish salary ranges in employment advertisements. |
| Gender pay discussion in collective bargaining | Equal pay and gender pay audits are included in collective bargaining discussions. | France, Belgium, Germany, Spain, and Finland have established the obligation to include equal pay measures in collective bargaining. Other countries promote the inclusion of equal pay in the tripartite social dialogue. |
| Employer preclusion to ask candidate's salary history | Employers are forbidden to ask for the prior salary of a prospective employee during the recruitment process. | This duty is established in some US states such as Maryland, Connecticut, Washington, California, and Colorado. |
| Equal pay certification | An independent body certifies that the employer has an equal pay system through an audit of the wage-setting process. | In Iceland, employers must obtain the equal pay certification. |

Source: Authors' own compilation.

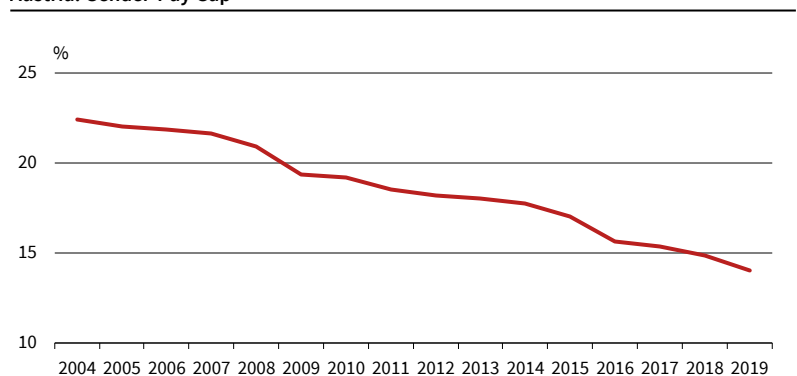
seekers the pay range for the job position.² The EU has also published a proposal for a new directive, which establishes mechanism directed to enforce pay transparency measures and put forward additional measures.³ Table 1 gives an overview of these measures along with specific examples from some countries.

Ironically, in many countries these measures are optional, meaning that in effect there is still no adequate enforcement of equal pay legislation, and employers are still able to use their informational superiority to make pay equity legislation difficult to enforce. One such case is Austria, where pay transparency reporting was implemented in 2014, but no enforcement mechanism or penalty was enacted. Two independent studies by Gulyas et al. (2021), and Böheim and Gust (2021) both found that the legislation had no effect on the gender pay gap or wages. This can be directly seen in the time-series of the Austrian pay gap (see Figure 1), in which no notable change in the trend is visible at or near 2014.

Meanwhile, Bennedsen et al. (2019) in their analysis of Denmark, Duchini et al. (2020) in their analysis of the UK, and Baker et al. (2019) in their analysis of Canada, all found that pay transparency decreases the gender pay gap and by a significant amount (between 10 percent and 20 percent in most cases). All of these countries had penalties to enforce their gender pay reporting, which suggests that enforcement must be forcefully binding otherwise employers risk continuing to favor price discrimination against women. This is most evident in the

Figure 1

Austria: Gender Pay Gap



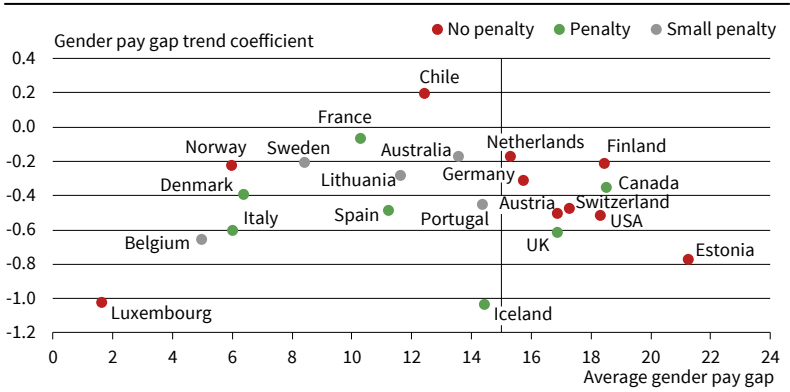
Source: OECD.

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² This is the case, for instance, in some states in the US, such as California, Colorado, Connecticut, Maryland, and Washington (Chrisbans and Patrick 2021).

³ Directive to Strengthen the Application of the Principle of Equal Pay for Equal Work or Work of Equal Value between Men and Women through Pay Transparency and Enforcement Mechanisms, COM(2021) 93 final, Brussels, 4.3.2021, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:percent3A52021PC0093>.

Figure 2
Gender Pay Report/Audit Penalty Regime



Source: OECD. © ifo Institute

UK, where originally a voluntary gender pay reporting scheme was implemented and only five eligible companies complied with the legislation (BBC 2015).⁴

If we take a wider view of pay transparency legislation among OECD countries, a negative association between pay transparency enforcement and the gender pay gap appears. The scatter plot in Figure 2 shows that, among countries that have an average gender pay gap below 15 percent and a negative time coefficient, or adjustment factor (i.e., the gender pay gap is decreasing over time), countries with some type of enforcement of their gender pay reporting legislation make up 83 percent of the sample. Whereas, among countries with average gender pay gaps above 15 percent, countries with enforcement mechanisms only make up 22 percent.⁵

Countries such as France and Iceland not only have reporting requirements but also correction requirements; that is, if an unexplained gender pay gap is found then it must be corrected. However, these countries do not appear to be particularly different from other countries in our sample. Neither the UK nor Denmark require employers to correct any identified pay gaps, but as mentioned before, the literature has found both countries to have effective implementations. This appears to indicate that giving workers information on gender pay equality is all that is truly required, and individual legal action by employees (or the threat of legal action by employees) is sufficient to induce compliance.

In short, considering all evidence, the picture is clear: pay transparency lowers the gender pay gap, but only with adequate enforcement.

⁴ To address the low implementation and enforcement of pay transparency measures, the EU has published a proposal for a directive that is currently being discussed in the European Parliament.
⁵ The gender pay gap data is sourced from the OECD (see <https://data.oecd.org/earnwage/gender-wage-gap.htm>) and described in the appendix. The penalty regime information is from a forthcoming ILO report on pay transparency measures (Massetot forthcoming). Small penalties are typically minor monetary penalties under EUR 5,000. The selection of countries included was determined by the available data on pay transparency law penalties. The data used is provided in full in the appendix to this article.

LATENT CLASS ANALYSIS

The fact that enforcement shows up as a critical element of an effective pay transparency legislation leads us to consider the more general question of whether there is any evidence to suggest certain measures work better in certain types of countries or if specific legal frameworks lend themselves to certain characteristics in pay transparency law. To answer this, we have employed a Latent Class Analysis (LCA) method on our dataset formed from legal analysis of the relevant pay transparency legislation in the different countries.⁶ We supplied the model with mixed continuous and categorical data regarding the average pay gap, variables describing the pay gap trend coefficient and how it changed before and after legislation, and some general variables regarding the type of pay transparency that a country implemented (i.e., the penalty regime, types of companies it applies to, etc.). The LCA technique identifies groups of countries that are “similar” according to characteristics of pay transparency law and the pay gap. Thereby, we can observe patterns or trends that suggest a relationship between pay transparency measures and the reduction of gender pay gap. While the LCA technique is not devoid of limitations, especially with a relatively small data set such as ours, it is still useful for the purpose of showing that pay transparency does have an impact on the pay gap, without considering other underlying causes and effects which would require further analysis.

Our LCA model identified 5 categories of countries, which appear to have significant legal meaning and are illustrative of the different categories of pay transparency in developed economies.⁷ We interpret the 5 categories to correspond to (1) Commonwealth law pay transparency, (2) countries without pay transparency law, (3) typical European pay transparency, (4) Germanic pay transparency, and (5) outliers. In Figure 3, we have recoded Figure 2 with the LCA categories for illustration. Since the model was also given variables indicating the effect pay transparency had on the gender pay gap, these groupings also partly reflect the success of the legislation.

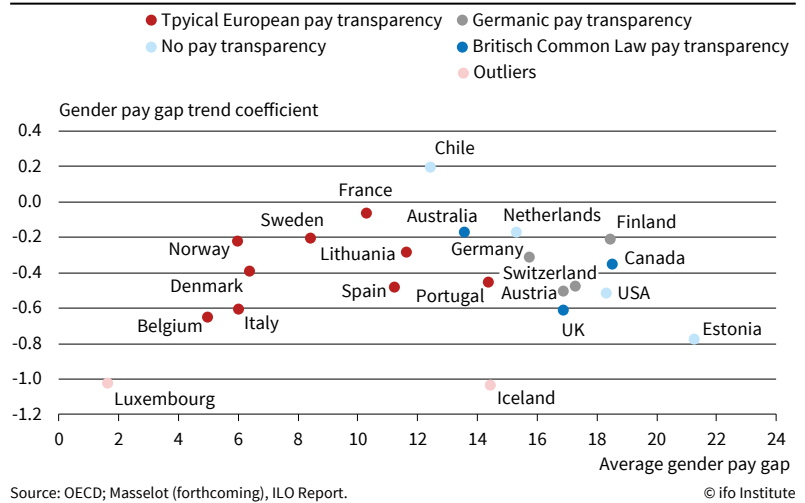
The model was not given any variables around the general legal characteristics of each country, so the fact that it has isolated Germanic civil law and Commonwealth law countries is highly relevant. Looking closely at Commonwealth law pay transparency implementations suggests a few key principles and characteristics:

⁶ LCA is a statistical technique that groups data according to their characteristics in a given dataset. It is an unsupervised technique which clusters data into relevant groups revealing an underlying hidden latent class to the researcher. This latent class can be informative in legal analysis as it can be used by the researcher to identify groupings of legal regimes and structures which otherwise might be ambiguous or difficult to find.
⁷ Information regarding the algorithm used can be found in the appendix to this article.

- Pay reports are the core pillar to Commonwealth law pay transparency legislation, with audits as a secondary measure or omitted entirely. Both Australia and the UK only implement pay reporting, and the Canadian system does have audits, but they are randomly applied and only target a minority of employers. However, in all systems the pay report process is robust and is designed to open discussion and critique from employees and the public. In Australia, the government explicitly provides employers with a comparison of their gender pay report versus a competitor benchmark, whereas in Canada employers are under the obligation to consult with employee representatives when writing the report. Meanwhile in the UK, pay reports are released publicly on each company’s website, which opens the report to critique and feedback.
- Pay transparency law only applies to large employers. Australia and Canada only require employers with 100+ employees to submit gender pay reports, and the UK only requires employers with 250+ employees to submit reports. In this regard, Commonwealth law pay transparency is similar to the Germanic model and fundamentally different to the typical European implementation (where the firm size caps are much smaller).
- Failure to comply with pay transparency reporting must be met with sanctions. In Canada the Ministry of Labor can impose fines on non-compliant companies, and in UK the EHRC can issue court orders and fines to ensure compliance. In Australia, employers are not explicitly fined, but can lose government contracts and financial assistance if they fail to comply (WGEA n.d.). In this respect, the Commonwealth law pay transparency laws are directly opposed to Germanic pay transparency (which has no sanctions for non-compliance) and more aligned with typical European pay transparency implementations (which typically have some sanction for non-compliance).
- Pay transparency in these countries appears to have had an effect on the trend of pay transparency, meaning that the legislation is likely to have been effective where implemented. Although both the UK and Australia had declining gender pay gaps prior to the enactment of the legislation, after the legislation was enacted the rate of the gender pay gap decline increased by around 0.5 percent to 2 percent more per year. The case of Australia in particular is quite visually stark and indicates the legislation may have had a significant effect (see Figure 4). Not enough time has passed to see the effect of the legislation in Canada.

Germanic pay transparency is another major grouping identified by the LCA model, and it included Germany, Austria, Switzerland, and Finland. Finland is an unexpected inclusion given it does not share a tradition

Figure 3
Pay Transparency Latent Class Scatterplot

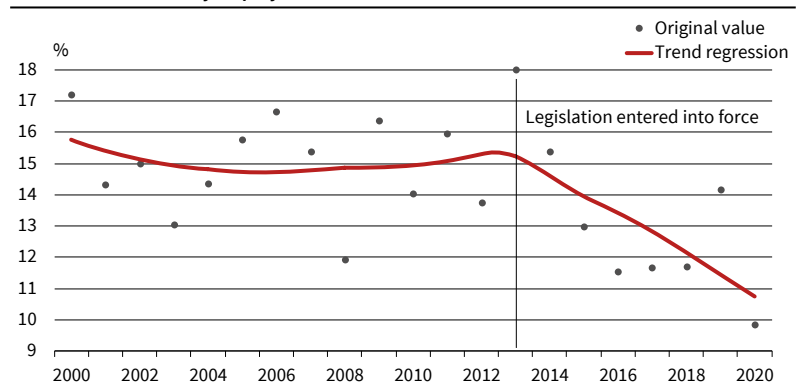


Source: OECD; Masselot (forthcoming), ILO Report.

of Germanic civil law (rather it is more aligned with Scandinavian civil law), and we find that in some areas it diverges from the rest of the Germanic group countries. However, potentially its inclusion is enlightening on how the law is applied in practice.

- Germanic pay transparency is largely characterized by soft-handed enforcement. In Germany, Switzerland, Austria, and Finland there are no provisions at all to penalize employers who fail to comply with the legislation. In the case of Germany, audits are explicitly voluntary, and employers can choose the evaluation criteria as they see fit.
- Typically, Germanic pay transparency is exclusively directed towards large employers. In Switzerland, Germany, and Austria only employers with 100+, 500+, and 150+ employees respectively, are included in the legislation—though, in Finland the legislation applies to employers with 30+ employees. However, given that the law is not enforced, this could be a distinction without a difference as there is little pressure on small employers with 30–50 employees to comply with the law.

Figure 4
Australian Gender Pay Gap by Year with LOESS Curve



Source: OECD.

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- Ironically, although the law is not strictly enforced, it tends to contain a wide range of provisions regarding reports, audits, and the right to information. Germany, Switzerland, and Finland include provisions for both reporting and audits. The Swiss government even went as far as to develop an application called “logib” for firms to use when conducting their audits. In Austria there is no audit requirement, but provisions regarding the employee’s right to information are included instead.
- It is difficult to disentangle small effects from no effect, but overall it does not appear that the pay transparency legislation was significantly effective in any of the countries in this category. However, there is some evidence that German legislation may have slightly increased the rate at which the gender pay gap fell.

The final major group identified by the model is the typical European implementation of pay transparency. This covers a broad range of European countries, including Romance-speaking Europe, parts of Scandinavia, and the Baltics.

- Typical European pay transparency tends to cover a much smaller number of employers than Commonwealth law pay transparency or Germanic pay transparency, and this is a nearly homogenous characteristic. In fact, out of the nine countries identified as in the typical European pay transparency group, eight have laws which apply at 50+ employees or below. Only Portugal is different from the others in this respect because it applies to publicly listed companies only.
- Enforcement of legislation is characteristic of these countries, with eight out of nine countries all having some kind of sanction for non-compliance. Only Norway differs from the rest in this regard, since it has no sanctions for non-compliance.
- There is no clear trend among the provisions enacted with broad differences among different countries. France, for example, has a strong reporting framework which is similar to that observed in Commonwealth law pay transparency, whereas Norway and Spain have a broad set of measures more characteristic of Germanic pay transparency countries.

The two other categories are no pay transparency and outliers. The outliers are two European countries with unusual systems and usually heavy declines in the gender pay gap even prior to any legislation. Both Iceland and Luxembourg saw declines of around 1 percent per year on average in their gender pay gaps well before any legislation was implemented. Luxembourg implemented a basic gender pay reporting framework in 2016 with no sanctions for non-compliance. Our

most recent gender pay gap data for Luxembourg indicates that gender pay gap was slightly negative in 2018 (meaning women earn more than men according to the OECD definition), but this could be part of a much wider existing trend in Luxembourg. On the other hand, Iceland has implemented one of the most comprehensive gender pay transparency laws in the world from 2021. The gender pay reporting and audit system is comprehensive, with companies being required to become pay equity certified every few years. Fines are large and can amount up to USD 385 per day of non-compliance. The legislation also has a broad net which applies to all firms employing 25+ employees. However, it is still too early to evaluate any effects of the legislation.

A “NATURAL RATE” THEORY, AND THE SUCCESS OF PAY TRANSPARENCY LEGISLATION

Our analysis of the different countries in terms of their gender pay gap and the rate of change of the gender pay gap (the scatter plots above) are suggestive of an interesting hypothesis and corresponding theory that also throws some light upon the success of pay transparency legislation. Just as such concepts as the “natural rate of unemployment” exist in an economy (the rate of unemployment that will occur naturally, without any policy interventions), so there could also be a similar concept related to the gender pay gap. That is, there could be a “natural” gender pay gap number to which countries would gravitate in absence of legal regulations and legislation designed to reduce the gap. Our graph is suggestive of exactly such a concept.

Notice that there are four countries in our dataset that have not legislated specifically on gender pay transparency, namely, Chile, the Netherlands, the US,⁸ and Estonia. Notice further that in the graphical space of the size of the gender pay gap and its rate of change (the scatter plots above), those four countries all locate very closely to a straight line with negative slope passing through the graph. Let us refer to this line as the “natural convergence line,” and we hypothesize that any developed country that does not legislate pay transparency will lie somewhere upon this line. As our best approximation to the natural convergence line, we use the ordinary linear least squares regression line through the points corresponding to the non-legislating countries here.

Under the hypothesis of the existence of a natural convergence line, and when that line has negative slope (in our graphical space), then we immediately arrive at a theory of the natural rate of the gender gap. A country such as Estonia, which is on the natural convergence line but which has a high gender

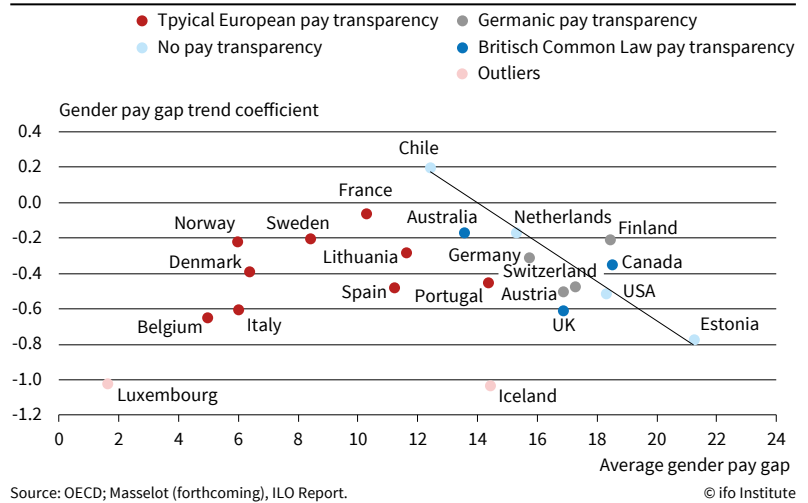
⁸ The US has no federal law mandating pay transparency measures. However, some individual states have very recently enacted pay transparency laws or are in the process of enacting pay transparency measures. The pay gap data used in this article is at the federal level, including states with and without pay transparency legislation.

pay gap, also has a high negative trend. This means that the gender pay gap in Estonia, while high, is falling rapidly. So long as Estonia does not legislate pay transparency (i.e., it remains within the group of non-legislated countries), it should therefore move upwards over time along the line, achieving a progressively smaller gender pay gap, but also a progressively smaller absolute value of the adjustment.⁹ Where would this process stop? When the country achieves the point at which the adjustment (or trend) is 0, then there would be no further changes in the gender pay gap (again, absent any legislation to force a change). Thus, the point at which the natural convergence line reaches the trend (or adjustment) value of 0, we obtain a “natural rate” for the gender pay gap. Using our dataset, the natural rate is about 14 percent.¹⁰

In short, given the hypothesis that if a country does not legislate pay transparency measures specifically designed to reduce the gender pay gap, then it will be confined to moving along a negatively sloped natural convergence line, and we get the theoretical result that over time its gender pay gap will converge to the natural rate.¹¹ Under the natural convergence line hypothesis, we can split our graph into two mutually exclusive sections, using the natural convergence line as the boundary between them. Countries that lie above and to the right of the line either have a gender pay gap that is larger than it needs to be given its rate of adjustment or it has a rate of adjustment that is insufficient given the size of its gender pay gap. Such a country is clearly doing worse than not legislating at all. On the other hand, countries that locate below and to the left of the line are clearly performing better than the benchmark of not legislating. Either their gender pay gap is lower than would be expected from doing nothing or their rate of downward adjustment is greater than would be expected from doing nothing, or both. Such countries are the success stories of pay transparency legislation. This is shown in Figure 5, in which the natural convergence line has been superimposed upon the scatter graph of the LCA country groupings.

As can be seen, there are only two countries that are underperforming relative to the natural conver-

Figure 5
The Natural Convergence Line and Pay Transparency Latent Class Scatterplot



Source: OECD; Masselot (forthcoming), ILO Report.

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gence line – Finland and Canada. All of the other countries, most notably, the entire set of countries that are within the class of “typical European pay transparency,” are well to the right of the natural convergence line.¹² This shows that in all of those countries, the pay transparency legislation is successfully reducing the gender pay gap below what it would otherwise have been.

CONCLUSIONS

Overall, our results suggest that pay transparency laws have a systematic impact on the reduction of the gender pay gap in countries that implemented wage transparency measures. This result appears through our groupings of countries according to similarities in their pay transparency laws and where the different groupings locate on our scatter-graphs of the pay gap data. However, the variation in the pay gap rate between countries with strong enforcement mechanisms, that is, with direct penalties for non-compliance, and countries with soft-handed approaches to non-compliance, indicates that the positive effect of effect pay transparency measures increase when it is accompanied by a credible enforcement mechanism. Optional and voluntary measures are largely not effective. That said, the evidence currently does not indicate that very harsh or heavy-handed enforcement is necessary, but some amount of pressure or drawbacks imposed upon non-compliant companies as a result of the failure are required to induce compliance.

Targeting legislation to large employers (i.e., 100+ employees) seems to be adequate in many cases

¹² While we do not provide such an analysis here, one way to rank the different countries according to their relative success in the graph is to simply use as the measure of success the length of the line joining a given country’s point with the natural convergence line, where the line is orthogonal to the natural convergence line. Such a line would show the minimum distance between the country’s location and the set of points that are (hypothesized as being) possible under no legislation.

⁹ Likewise, a non-legislated country that is above the adjustment of 0 point, such as is Chile, has a small gender pay gap, but a positive adjustment coefficient. That country would move downward along the line until it reaches the adjustment value of 0.

¹⁰ We take the natural convergence line to the ordinary linear least square regression line of the points corresponding to the countries that have no gender pay transparency law. In fact, the linear regression line for the four non-legislating countries is $y = 1.5418 - 0.1103x$ (where y is the trend, measured on the vertical axis, and x is the pay gap, as measured on the horizontal axis). This solves out for a natural rate of the pay gap of 13.97 percent.

¹¹ It is also interesting that three other countries, specifically Germany, Switzerland, and Austria, are also clustered quite close to the natural convergence line. That is, those three countries appear similar to what we might expect from a country that does not legislate pay transparency. It is no surprise that Germany, Switzerland, and Austria are three countries that, while they do legislate, do not include sanctions. This goes some way to showing the importance of sanctions for effective pay transparency legislation.

to have a large impact on the gender pay gap. However, it should be noted that all the Commonwealth law pay transparency countries in our sample had relatively high gender pay gaps prior to the legislation being enacted. Hence, countries with much smaller gender pay gaps may need to look to smaller private sector employers as well in order to see adequate results.

Countries with a robust right to information law were not identified as a relevant grouping by the LCA model and did not appear to have better pay transparency results than other countries. Therefore, in general, while there is an impact of the transparency measures on the reduction of the gender pay gap, sorting out which specific measures are more effective for lowering the pay gap is beyond this study and the statistical technique applied.

Finally, we have hypothesized the existence of a negatively sloped natural convergence line and therefore a theoretical natural rate for the gender pay gap, which is where countries that do not legislate pay transparency would converge to. This separates our data set into legislating countries that have been successful, in that their pay transparency regulations have had a notable impact on reducing the gender pay gap (and/or speeding the downward adjustment in the pay gap) relative to the benchmark of not legislating, and those that have been unsuccessful. Most of the European countries fall squarely within the successful group.

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APPENDIX

All of the data used for this article was sourced from the OECD website. Specifically, it was downloaded from <https://data.oecd.org/earnwage/gender-wage-gap.htm>. The raw data for each country covers slightly different time-series years for some countries. Also, in order to iron out spurious and non-observed effects, and to consider a relevant period of time over which pay transparency has come into force, we have taken a linear regression of the time series for each country. The regressions for all countries are for 2010 up to the latest year of available data for each country. The slope of that regression is our “trend coefficient” (vertical coordinate in the scatter plots). The pay gap coordinate (horizontal coordinate in the scatter plots)

is the average of the pay gap data for each country over the regression time period.

The data on pay transparency legislation was generated from our own research of each country. The full study will soon be made available as a forthcoming ILO document.

The full data set used in the article is given in the following table (the blue cells are the data used in the scatter plots, and the red cells are the pay transparency legislation data).

The LCA analysis was carried out using the Flex-Mix algorithm. Full details of the algorithm used, along with worked examples, can be found at <https://cran.r-project.org/web/packages/flexmix/vignettes/flexmix-intro.pdf>.

Table A1
Data Set

| Country | Ave. pay gap | Slope | Penalty | Reports | Audits | Information | Firm size threshold |
|-------------|--------------|-------|---------------|---------|--------|-------------|---------------------|
| Australia | 13.55 | -0.17 | Small penalty | 1 | 0 | 0 | >50 |
| Austria | 16.87 | -0.50 | No penalty | 1 | 0 | 1 | >50 |
| Belgium | 4.94 | -0.65 | Small penalty | 1 | 1 | 0 | 50 |
| Canada | 18.50 | -0.35 | Penalty | 1 | 1 | 0 | >50 |
| Chile | 12.41 | 0.20 | No penalty | 0 | 0 | 0 | Other |
| Denmark | 6.37 | -0.39 | Penalty | 1 | 0 | 0 | <50 |
| Estonia | 21.23 | -0.77 | No penalty | 0 | 0 | 0 | Other |
| Finland | 18.43 | -0.21 | No penalty | 1 | 1 | 1 | <50 |
| France | 10.27 | -0.06 | Penalty | 1 | 0 | 0 | 50 |
| Germany | 15.72 | -0.31 | No penalty | 1 | 1 | 1 | >50 |
| Iceland | 14.40 | -1.03 | Penalty | 1 | 1 | 0 | <50 |
| Italy | 5.98 | -0.60 | Penalty | 1 | 1 | 0 | 50 |
| Lithuania | 11.60 | -0.28 | Small penalty | 1 | 0 | 1 | 50 |
| Luxembourg | 1.62 | -1.02 | No penalty | 1 | 0 | 0 | 50 |
| Netherlands | 15.28 | -0.17 | No penalty | 0 | 0 | 0 | Other |
| Norway | 5.97 | -0.22 | No penalty | 1 | 1 | 1 | 50 |
| Portugal | 14.34 | -0.45 | Small penalty | 1 | 0 | 1 | Other |
| Spain | 11.22 | -0.48 | Penalty | 1 | 1 | 1 | 50 |
| Sweden | 8.39 | -0.20 | Small penalty | 0 | 1 | 0 | <50 |
| Switzerland | 17.24 | -0.47 | No penalty | 1 | 0 | 1 | >50 |
| UK | 16.84 | -0.61 | Penalty | 1 | 0 | 0 | >50 |
| US | 18.30 | -0.51 | No penalty | 0 | 0 | 0 | Other |

Source: Authors' own compilation.

Michelle Rendall

The Link between Gender Gaps and Employment Polarization



Michelle Rendall

is Associate Professor of Economics at Monash University and a CEPR research fellow. Prior to joining Monash University, she was an Assistant Professor at the University of Zurich and the University of Oslo. Her research in labor and macroeconomics focuses on human capital and gender issues.

The increase in employment shares both at the bottom and at the top of the skill distribution, combined with a decline in the middle, has been extensively documented for the US and many OECD economies since the 1980s. This observed employment polarization has become a well-known stylized fact (Autor et al. 2006; Acemoglu and Autor 2011; Autor and Dorn 2013; Goos and Manning 2007; Michaels et al. 2014; Goos et al. 2014). Less well known are the characteristics of employment polarization by gender, as polarization

is usually studied at an aggregate level. Nonetheless, when studying employment polarization, in Cerina et al. (2021) we also consider one of the most important and dramatic social phenomena of the 20th century: the rise in female labor force participation, coupled with a rise in broad college attainment and a closing of the gender wage gap.

Let us start with the gender wage gap. The closing of the gender wage gap has been accelerating since the 1980s in most OECD countries. Figure 1(a) shows the closing wage gap between the average male and female worker for Australia, Germany, Great Britain, New Zealand, Sweden, the US, and the OECD. While wage gaps persist, all countries pictured, with the exception of Sweden,¹ have seen a convergence in male-to-female wages. Within this set of countries, Germany, Great Britain, and the US had the biggest initial gaps and also the largest convergence. Interestingly, the timing of the gender wage convergence coincides with the rise in aggregate employment polarization.

Next, looking at the gender education gap shows even more remarkable gains by women. The share of female tertiary (i.e., university) graduates now outnumber male graduates in all six countries shown (Figure 1(b)). However, note that the closing pay gap from Figure 1(a) is not due to rising female college attainment, as the gender pay gap, irrespective of education, converged during this time (Guvonen and Rendall 2015).

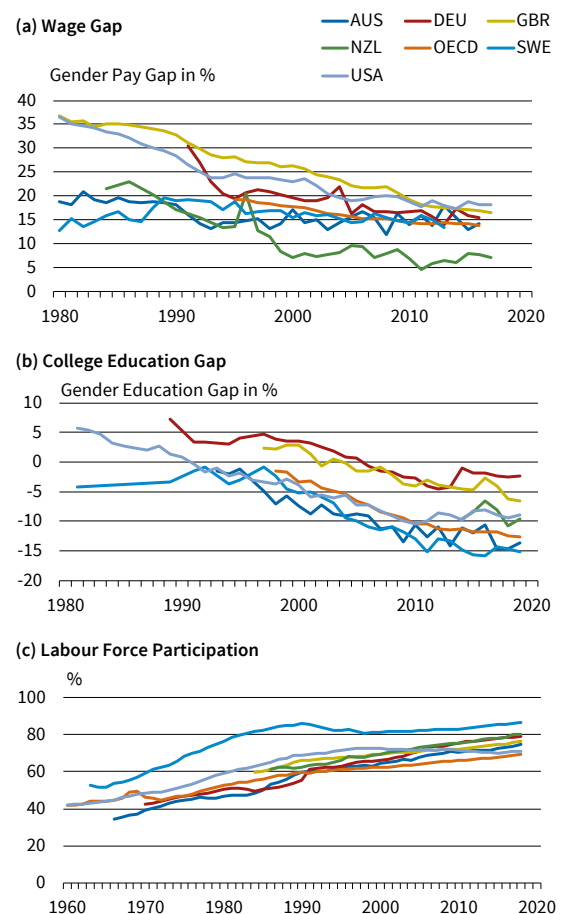
Moving on to labor force participation shows women entering the labor market at a basically constant rate since World War II (see labor force partici-

pation rates in Figure 1(c)). In contrast to the convergence of the gender pay and gender education gaps, this figure shows no marked trend-change around 1980 or thereafter.

Having detailed women's relative position in the labor market over time, I will highlight a number of novel facts on gender employment polarization for the US from joint research (Cerina et al. 2021).² Note, the change in aggregate hours worked at a given percentile

² We follow Acemoglu and Autor (2011); and Autor and Dorn (2013) in constructing employment polarization statistics for the US. First, we sort the population of occupations by their mean wage in 1980, which can be interpreted as a proxy for skills. We then construct occupation percentiles by weighting each occupation by hours worked in 1980. Next, we calculate, for each percentile, the change in the employment share in total working hours in the economy.

Figure 1
Gender Labour Market Evolution



Note: Panel 1(a) displays average male-to-female earnings over time. Panel 1(b) displays male minus female shares of college graduates in the population. A value of zero means men and women have equal shares of tertiary graduates, while a negative value shows that the percent of university educated women is above the male share. Panel 1(c) displays labour force participation rates of women.
Source: OECD. © ifo Institute

can be decomposed into the change in the employment share (in total employment) of females and the change in the employment share (in total employment) of males. Using this gender decomposition, we show that employment polarization in the US is mainly driven by women during the 1980–2008 period. Furthermore, while married women are mostly responsible for the increase at the top of the distribution, single women are mostly responsible for the increase at the bottom. Finally, we document that employment polarization is absent in the 1960–1980 period: the positive change in employment shares of women is homogeneous along the whole skill distribution, while that of men is increasing along the distribution. That is, prior to 1980 women enter the labor market equally across all occupation types, while men shift hours monotonically from low-paying to high-paying occupations.

What forces can reconcile the three converging gender gaps in education, employment, and wages with the aggregate-/gender-specific polarization trends between the pre- and post-1980 time periods? In providing an answer, I will show that technical change, favoring women’s comparative advantage, incentivizes highly educated women to shift from working at home (“homework”) to market work, setting off the forces to both generate employment polarization and converging gender gaps.

THE WORK WE DO, PAST AND PRESENT

I will begin by analyzing the evolution of the labor market across time, occupations, and sectors in greater detail, focusing on the US. Splitting the US employment distribution into sector-specific groups, from lowest to highest wage terciles by occupation in 1980, a distinct pattern of polarization across sectors emerges.³ Employment at the bottom and top terciles has been driven by growth in service occupation, while the de-

cline in the middle has been driven by manufacturing occupations. More precisely, in the bottom tercile, the ten occupations with the biggest employment growth from 1980 to 2008 are all in services, except construction laborers (see Table 1 for a list of top and bottom employment growth occupations by tercile). In the second tercile, seven out of the ten occupations with the largest decline are in manufacturing. Lastly, nine out of ten occupations with the largest employment growth in the highest wage tercile are in services. The exception are managers and administrators in manufacturing, which are similar to many high-wage, service-oriented occupations in terms of tasks and skills.

In the academic literature, the mainstream explanation for the decline of employment shares in the middle of the skill distribution is due to routine-biased technical change (Acemoglu and Autor 2011; Acemoglu and Autor 2012; Autor and Dorn 2013). The process of routinization makes workers employed in occupations containing a large share of routine tasks redundant, as the latter are taken up by computers and machines. The evidence provided in the literature suggests that these types of occupations are in the middle of the skill distribution in 1980. However, one less obvious observation to emerge from the list of occupations is that the service sector encompasses a large variety of occupations which require very different skill sets and education levels.

One particular type of low-wage, low-skilled service occupation is performing tasks easily done at home (highlighted in green text in Table 1). For the purpose of this article, we denote these services as substitutable or home services and refer to the remaining as (modern) services. In separating services by these two categories, and continuing with the sorting of occupations by 1980 wage terciles, a striking pattern emerges: only home services show positive growth in the lowest tercile, while all the growth in the highest wage tercile is driven by modern services (see Figure 2).

³ For details on the construction of wage terciles, see the note in Figure 2.

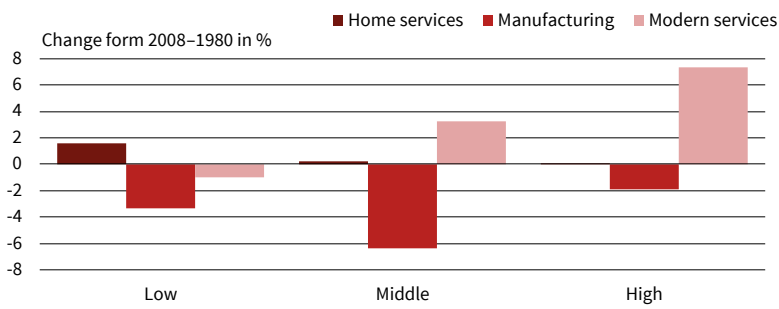
Table 1
Top-10 and Bottom-10 Occupations by Employment Growth

| Tercile 1 (Growing Occupations) | Tercile 2 (Shrinking Occupations) | Tercile 3 (Growing Occupations) |
|------------------------------------|--------------------------------------|------------------------------------|
| Health aides | Polishing workers | Computer analysts/scientists |
| Construction laborers | Telephone operators | Managers/administrators |
| Health aides | Printing machine operators | Managers/administrators |
| Child care workers | Welders and metal cutters | Primary school teachers |
| Cooks | Automobile mechanics | Financial managers |
| Kitchen workers | Laborers (not construction) | Other financial specialists |
| Teacher’s aides | Truck/tractor drivers | Legislators |
| Guards, doorkeepers | Production inspectors | Software developers |
| Welfare service aides | Administrative support jobs | Accountants and auditors |
| Stock/inventory clerks | Machine operators | Management analysts |

Note: Top 10 list of occupations by wage tercile. Occupations in Tercile 1 and 3 are occupations with highest employment growth from 1980 to 2008. Occupation in Tercile 2 are occupations with the largest fall in aggregate employment from 1980 to 2008. Occupations listed in blue are typical modern service sector occupations, occupations in green are home service occupations, and occupations in red are manufacturing occupations.

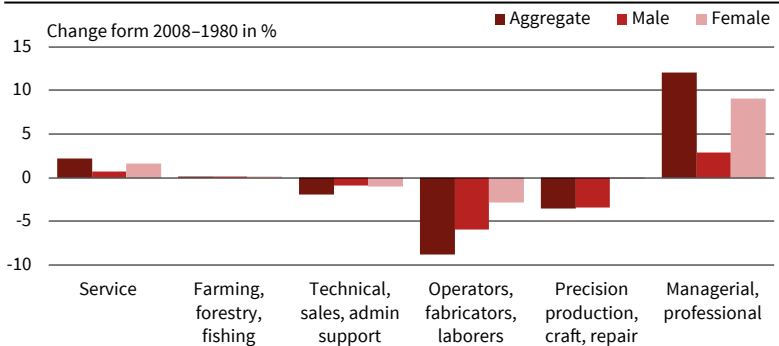
Source: US Census data 1980 and American Community Survey 2008.

Figure 2
Employment Polarisation across 1980 Wage Terciles (3-Sectors)



Note: Change in aggregate hours worked from 1980 to 2008 by 1980 wage terciles from US data. To compute wage terciles, occupations are sorted by their 1980 average wage rate and grouped into the three bins: bottom 33rd percentile wage occupations, middle 33rd percentile, and top 33rd percentile. The grouping of occupations is fixed over time, such that the set of occupations in each tercile remains unchanged between 1980 and 2008.
Source: US Census data 1980; American Community Survey 2008. © ifo Institute

Figure 3
Gender Differences across Occupations



Note: Occupations are assigned to one of ten broad occupations shown in the figure. Occupations are sorted left to right from lowest to highest 1980 wage rate.
Source: US Census data 1980; American Community Survey 2008. © ifo Institut

The aggregate trend of employment polarization is also confirmed across broad US Census occupation groups (ordered by their mean log hourly wage in 1980).⁴ The highest paid occupations (managerial, professional specialty occupations) are associated with the largest increase in the employment share (from 24 percent to 36 percent, a 50 percent increase). These occupations tend to require higher levels of cognitive, abstract, creative, problem solving, and social interaction skills. On the other hand, even the employment share of the lowest paid occupations (services) increases from 10.3 percent to 12.5 percent. This category includes jobs that involve assisting or caring for others.⁵ Service occupations are also those where manual tasks are more concentrated, which cannot be easily automated. At the same time, the remaining middle-wage occupation groups' employment shares decline between 1980 and 2008. This is particularly evident for the two groups of precision production craft and repair occupations (from

⁴ Details on how occupations are grouped can be found at the web page <https://usa.ipums.org/usaaction/variables/OCC1990#codes> section. Our results can also be compared to Table 1 in Autor and Dorn (2013). The main difference is that we aggregate occupations according to Census classification and add the gender dimension.

⁵ Occupations in this category include the following: food service workers, security guards, janitors and gardeners, cleaners, home health aides, child care workers, hairdressers and beauticians, and recreation occupations.

13.8 percent to 10.2 percent) and operators, fabricators, and laborers (from 21.8 percent to 13.0 percent), where routine tasks are highly concentrated and are, therefore, highly substitutable with computers. Thus, as extensively reported in the literature, the data by broad occupation groups is consistent with the routinization hypothesis.

CHANGES IN EMPLOYMENT OF MEN AND WOMEN

However, the broad occupation evidence shown in Figure 3 is also consistent with the mechanisms proposed in my recent work (Rendall 2017; Cerina et al. 2021). More specifically, the increase in labor force participation by high-skilled women after 1980, due to skill-biased technological change, plays a key role in driving employment polarization. The first element to emphasize is the remarkable differences between men and women in the dynamics of the employment shares among different occupational groups. Such differences can only partly be captured by a general level effect, where women increase their total employment share by 6.7 percentage points (with a corresponding decrease for men), as the changes in the employment shares are highly asymmetric along the skill distribution. In particular, women more than double their employment share in occupations at the upper tail of the distribution (from 8.2 percent to 17.3 percent), while the male share increases by less than 20 percent (from 15.8 percent to 18.7 percent). On the other extreme, the only other group of occupations where women increase their employment share is in low-wage services. Here the female employment share grows by almost 30 percent (from 5.4 percent to almost 7 percent) compared to only 13 percent for males (from 4.9 percent to 5.6 percent). These service occupations are concentrated in sectors producing services, which are highly substitutable to household production (especially childcare workers, gardeners, cleaners, home health aides). Additionally, some of these jobs (especially food service workers, security guards, janitors) also support the jobs of high-skilled workers, making them complementary to the highest paid occupations. In summary, occupations requiring predominately cognitive and manual skills have grown mostly from increased participation by women at the extremes of the skill (wage) distribution.

TECHNOLOGICAL PROGRESS AND WOMEN'S COMPARATIVE ADVANTAGE

While many studies have shown that increasing human capital demand (and investment) can explain male wage divergence across education groups over the last decades (see, for example, Becker 1994; Juhn et al. 1993; Guvenen and Kuruscu 2010), the same theory has not been applied to the study of time-varying gender gaps. In Cerina et al. (2021), we show that the differential patterns of employment shares of men and

women can be accounted for by a model of skill-biased technological change (SBTC) in which educated women initially devote a high fraction of their time to home production. In fact, US Census data shows that educated women spent a much higher fraction of their working time at home (51 percent) relative to men (17 percent) in 1980. By fostering an increase in the labor market hours of skilled women, SBTC accounts for most of the increase of employment shares at the top of the skill distribution. This increase indirectly generates additional demand for low-skilled labor and a consequent increase in the lower tail of the distribution through two different channels. First, the reduction in home production generates the need for the household to replace home services with some substitutes provided in the market – a consumption spillover. Second, the increase of high-skilled labor, by production complementarity, generates an additional demand of low-skilled labor within the economy that is needed to support the productivity of the former (see also Eeckhout et al. 2014). As the change in employment shares at the top and the bottom of the skill distribution is positive, the change of employment shares in the middle turns out to be negative. Through these mechanisms, SBTC within a structural change environment is then able to explain both the increase in the upper and lower tails of the skill distribution. Compared to women, men in 1980 already allocate most of their time to the labor market, so the emergence of SBTC does not affect their home/market labor choice.

The importance of the SBTC channel in explaining employment polarization during the 1980–2008 period is further emphasized by out-of-sample counterfactual exercises performed in Cerina et al. (2021). In this work, we tested the predictions of the model running backward from 1980 to 1960. The model accounts for the absence of any polarization pattern, both at the aggregate and at the gender-specific level during this period. Since the only relevant difference between the 1960–1980 and the 1980–2008 periods is the absence of SBTC, this exercise confirms that the latter is a primary driver of employment polarization.

Lastly, returning to wages, recent work shows that the link between employment and wage polarization is substantially weaker than previously thought. For example, Hunt and Nunn (2019) highlight the limitations of the occupation-based approach to measuring rising wage inequality over time. However, in Rendall (2017), I show that women benefit from increasing returns to brain over brawn given their comparative advantage, that is technological change has had a positive effect for women's wages.

POTENTIAL POLICY IMPLICATIONS

Much of the recent political discourse has focused on how to return middle-wage manufacturing jobs to developed economies. However, with every tech-

nological advancement there are winners and losers. The results above suggest that employment polarization in the US is largely generated by a differing gender-specific pattern of employment shares along the skill distribution. This implies that any policy intervention aimed at reducing the overall pattern of employment polarizations should carefully consider the various demographic groups that are contributing to this phenomenon. Reversing employment polarizations could have a negative impact on gender equality in the labor market.

Looking ahead, while technological change has reduced gender inequality, among other impacts, women still earn less than men and work more hours in the home (see Cerina et al. 2021 and references therein). Moreover, it has been shown that the gender gap widens as women become mothers (Kleven et al. 2019). This aligns with decades of research repeatedly showing that the current gap is not primarily due to the popularized idea of discrimination or labor market biases. One remaining obstacle is that many high paying jobs either have long and unpredictable hours (Goldin 2014) or penalize workers for taking extended career breaks (Rendall and Rendall 2015). Both these issues are still hard to reconcile with caring for children or extended family. The pandemic and working from home might help shrink this gender division, but it is too early to determine whether the flexible work trends will remain in place beyond the pandemic.

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Boryana Ilieva and Katharina Wrohlich*

Gender Gaps in Employment, Working Hours and Wages in Germany: Trends and Developments Over the Last 35 Years

In the past decades, gender gaps in the labor market have been decreasing in Germany as well as in many developed countries of the world. In particular, educational attainment and the labor force participation rates of women have been rising, and horizontal and vertical segregation on the labor market has become less pronounced (Goldin 2006; Blau and Kahn 2007, 2006 and 2017). However, the rate of gender convergence in the labor market has been decreasing. Moreover, gender gaps in certain dimensions of the labor market, such as in hours worked remain high. This most likely hampers the further decline of the gender pay gap.

In the following, we describe the development of male and female employment rates, part-time employment rates as well as wages over the last 35 years for West Germany. We show that there has been a strong convergence in employment rates of men and women over this period of time. Female employment rates have increased strongly, from about 50 to about 75 percent, while male employment rates have remained fairly stable at about 90 percent. The gender gap in hours worked, however, has remained constant at a very high level of 40 percentage points in the same period of time. The development of the gender gap in wages has also lagged behind the convergence in employment rates, declining only by a third. The large gender gap in part-time work in combination with the part-time penalty in hourly wages is contributing to the persisting gender gap in wages.

EMPIRICAL EVIDENCE

Data

We use data from the German Socio-Economic Panel (GSOEP) study for the entire time range of the panel that is currently available. It spans the period from 1984 until 2019. We base the plots and calculations discussed below on the data for individuals who are part of the labor force and aged 25 to 55. We exclude civil servants, self-employed, pensioners, and persons in education, training, military, and community service. We further exclude disabled individuals and apprentices. We distinguish between full-time and part-time employees, where our definition of part-time

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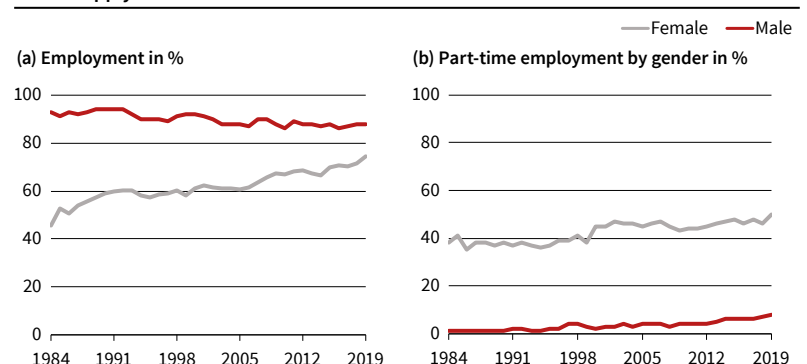
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employees includes persons in marginal employment. The classification into full-time or part-time employment is based on the self-reported information of the respondents. Finally, the sample we analyze does not include individuals for whom we miss information on any of the following characteristics which are key for our analysis: gender, East/West Germany indicator, part-time employment indicator.

Hourly wages are not readily available in the SOEP data. We calculate hourly wages for each individual in the sample by dividing the person's gross monthly income from employment by their contractual working hours. We, in turn, obtain monthly values for each person's working hours by multiplying the hours SOEP respondents state to work per week by 4.33 weeks. We trim the highest and lowest percentile off of the wage distribution in order to exclude

Figure 1
Labor Supply^a



^a Each graph plots employment rates as a percent share of labor force participants in Germany in the respective year. Source: SOEP-36; weighted sample. © ifo Institute

outliers. Monetary values are presented in their 2019 equivalents. Calculations are performed using the consumer price index values in *y11101*.

Employment and Working Hours

The gender gap in employment has been declining strongly over the last 35 years in West Germany (Figure 1, Panel (a)). While the employment rate of men has decreased slightly, from just above 90 percent in the mid-1980s to slightly below 90 percent in 2020, the employment rate of women has increased by more than 25 percentage points in the same period of time. 35 years ago, the employment rate of women was around 50 percent. In the year 2020, it is almost 75 percent, and thereby currently among the largest in OECD countries (OECD 2017). The gender gap in employment rates, which has been higher than 40 percentage points in the mid-1980s, has thus dropped by more than half and amounts to about 15 percentage points in 2019.

In contrast to the remarkable convergence in male and female employment rates, the gender gap in working hours has remained fairly constant over time (Figure 1, Panel (b)). While part-time employment has been increasing for men (from below 1 percent in the mid-1980s to about 8 percent in 2020), it has also been increasing for women (from 39 to 50 percent in the same time period). The part-time employment rate of women thus has been constantly higher than the part-time rate of men, by about 40 percentage points. Thus, while the female employment rate is relatively high compared to other OECD countries, the part-time employment rate among women is also very high (OECD 2017).

Wages

The evolution of the wages of men and women has been following a roughly parallel path since the mid-1980s (see Figure 2, Panel (a)). A period of rather strong wage increases from the mid-1980s until the late 1990s has been followed by a period of wage stagnation until the early 2010 years, followed again by a period of wage increases in the past couple of years. Women’s wages have been catching up moderately over this period: The raw gender pay gap has been declining in this period by 10 percentage points, from about 30 percent in the mid-1980s to about 20 percent in 2020 (Figure 2, Panel (c)). Compared to the decrease in the gender employment gap, which has dropped by more than half, the decrease in the gender pay gap falls behind, dropping only by a third.

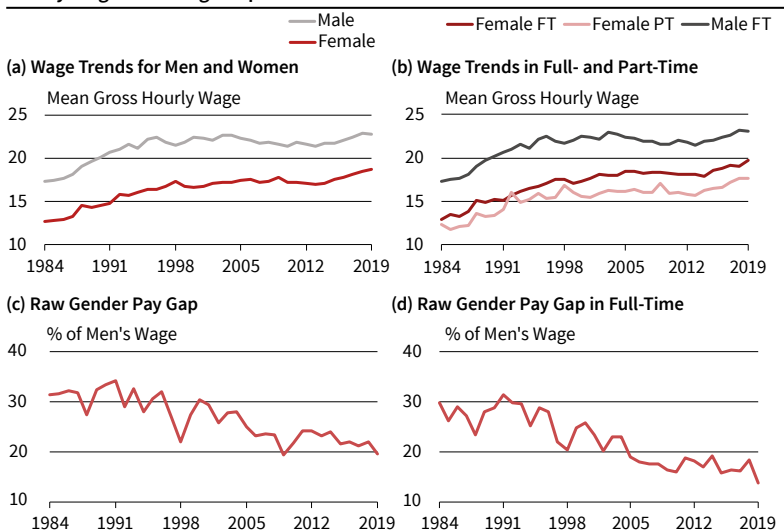
Many studies have shown that women’s wage trajectories over the life cycle often start diverging downward from men’s in association with the arrival of children (Goldin 2006; Bertrand et al. 2010; Correll et al. 2007; Goldin 2014). After children are born, women exit the labor force, remain unemployed, and start earning lower wages compared to men (Kuziemko et al. 2018; Kleven, Landais, Posch, Steinhauer and Zweimüller 2019; Kleven, Landais and Sogaard 2019; Berniell et al. 2020; Lim 2017). In a life-cycle framework Adda et al. (2017) find that the child penalty even predates the birth of the first child as mothers-to-be select into forms of employment associated with lower pay on average already years in advance. In addition, while working men are almost always employed full-time, many women work part-time after children are born, and many women never resume working full-time until they reach retirement age (Schrenker and Zucco 2020). Several empirical studies show that part-time employed individuals earn not only lower monthly salaries but also lower hourly wages. This phenomenon is referred to as “part-time penalty” and has been discussed in, e.g., Goldin (2014); Manning and Petrongolo (2008); Blundell et al. (2016); Gallego Granados (2019). The high prevalence of part-time work among women in combination with the part-time penalty in wages might thus partly explain the strong persistence of the gender pay gap.

A raw part-time penalty is also observed in the SOEP data (Figure 2, Panel (b)). Hourly wages of part-time working women have been below the wages of full-time working women over the whole observation period. From the year 2000 on, an increase in the difference between wages for full-time and part-time working women can be observed.¹ Moreover, we observe that the decrease of the difference between the wages of (all) men and the wages of full-time working women has been more pronounced than the overall decrease in the gender wage gap. This finding is confirmed when looking at the gender pay gap among

¹ We refrain from showing wages for part-time working men due to the limited number of observations in this group.

Figure 2

Hourly Wages and Wage Gaps



Note: Panel (c) plots the raw gender wage gap in gross hourly wages in percent; it effectively represents the difference between the lines plotted in panel (a) divided by the level of male wages and multiplied by 100; Panel (d) plots the raw gender wage gap between the wages of full-time employed women and the average wage of men; it effectively represents the difference between the blue and the red line plotted in panel (b) divided by the level of male wages and multiplied by 100. Monetary values are deflated and presented in 2019 EUR equivalents. Source: SOEP-36; weighted sample. © ifo Institute

full-time workers only: this gap has been decreasing from about 30 percent to below 14 percent in the past 35 years, while the overall gender pay gap is still at about 20 percent.

CONCLUSION

Our empirical analysis shows a strong convergence in male and female employment rates in West Germany over the last 35 years. The gender employment gap has dropped by more than a half, from 40 percentage points in the mid-1980s to 15 percentage points in 2019. This convergence, however, has not been paralleled by the development of weekly working hours of men and women. The gender gap in part-time employment has remained constant at a very high level over the whole observation period. In 2019, the part-time employment rate of women amounts to 50 percent, while the part-time employment rate of men is about 8 percent. Further, our analysis has shown some convergence in male and female hourly wages. The gender wage gap has dropped from about 30 percent in the mid-1980s to about 20 percent in 2019. The convergence in wages has thus lagged behind the convergence in employment rates - the former falling by about a third, while the latter has been falling by more than half.

One of the reasons that the gender wage gap is still considerably high is the large gender gap in working hours. Many empirical studies have shown evidence for a part-time penalty in hourly wages. We also find that wages by part-time workers stay below those of full-time workers over the whole observation period. Moreover, we show that there has been a stronger decline in the gender wage gap among full-time workers (from 30 to 14 percent) than the gender wage gap among all workers (from 31 to 20 percent).

If policy aims at promoting gender equality in the labor market and reducing the gender wage gap, policy measures that incentivize a more equal sharing of market and care work among men and women should be considered. In particular, reforms of the joint income taxation of married couples could en-

hance gender equality in the labor market. Moreover, abolishing the tax and social security exemptions of marginal employment and increasing the partner quota within the parental leave scheme could promote gender equality even further.

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Alexandra Niessen-Ruenzi and Christoph Schneider

The Gender Pension Gap in Germany – Reasons and Remedies



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Increasing longevity has put the statutory pension scheme in Germany under pressure. In an international comparison, Germany belongs to the countries with the highest life expectancy.¹ Combined with fertility rates below the reproduction level, this means that fewer people will be funding a larger demand for pension payments in the future. This puts the sustainability of the statutory pension scheme at risk and increases the probability of poverty in old age.

According to data from the federal statistical office, the risk of old-age poverty is particularly pronounced for women.² Men in Germany live to an average age of 78.6 years and women live to an average age of 83.4 years.³ Thus, whatever amount of wealth women have accumulated until retirement has to cover almost five more years. Unfortunately, however, women often accumu-

late less wealth for retirement than men. This holds true for pension wealth as well as net asset wealth.⁴

Based on a broad database on wage income obtained from the Institute of Employment Research (IAB), to which all German businesses must report, we have estimated each employee's statutory pension entitlements and found that the gender pension gap for the first pillar of the German pension system, the statutory pension scheme, amounts on average to 26%. This gap can be considered as a lower bound and has been found to be even larger for the second and third pillars of the pension system, i.e., company pension schemes and private pension provisions. A report by the Federal Ministry for Family Affairs, Senior Citizens, Women and Youth finds that the gender pension gap is almost 60% if all three pillars of the pen-

sion system are considered.⁵ Comparing this number to other member states of the EU, Germany belongs to the Top 3 countries with the highest gender pension gap (European Institute for Gender Equality 2015).

In this article, we focus on the gender pension gap for statutory pensions, as statutory pension entitlements cover by far the largest fraction of employees (83%) and retired individuals (81%) in Germany (Bundesministerium für Arbeit und Soziales 2016). In addition, they account for most of the income of people over 65 in Germany, while private pensions and the company pension scheme are voluntary benefits and depend highly on an individual's life situation. In this article, we first quantify the gender pension gap. Then, we discuss two of its major determinants: the "motherhood penalty" and the gender investment gap. We conclude with suggestions on how the gender pension gap can be closed.

QUANTIFYING THE GENDER GAP FOR THE STATUTORY PENSION SCHEME

Our analysis is based on a large representative random sample of all German employees, stratified according to establishment size, industry, and federal state (Linked-Employer-Employee-Data of the IAB (LIAB)) Thus, selection problems and missing information on employment histories are not a major concern. For each individual, the employment biographies including all observations on employment and benefit receipt (according to Book III of the German Social Code), are reported in the LIAB. The number of unique individuals in our sample with all necessary information available that are used for our estimation is 1,800,185, and our sample period is from 1993 to 2014. We use information on benefit receipts for maternity protection and parental leave to identify interruptions of employment due to childbearing.

To determine the gender pension gap, we first compute each employee's statutory pension entitlement based on the aggregated number of pension points ("Rentenpunkte"), which the individual is entitled to at the end of 2014. From these, we derive the monthly pension that the individual would obtain in retirement based on the point value of EUR 33.05 ("Rentenwert") on January 1, 2020. The gender pension gap is then defined as the percentage difference between the average monthly gross pension of all women and the average monthly gross pension of all men:

¹ <https://www.prb.org/wp-content/uploads/2020/07/letter-booklet-2020-world-population.pdf>.

² <https://de.statista.com/infografik/19906/risiko-fuer-altersarmut-in-deutschland-nach-geschlecht/>.

³ Federal Statistical Office: Periodensterbetafel 2018/2020 https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bevoelkerung/Sterbefaelle-Lebenserwartung/Publikationen/_publikationen-innen-periodensterbetafel.html.

⁴ Groiß et al. (2017) report an average gender wealth (net assets) gap of EUR 40,599 (31,631) or 32% (22%) for women living in couple (single) households in Germany.

⁵ <https://www.bmfsfj.de/bmfsfj/service/publikationen/gender-pension-gap-82286>.

$$\text{Gender pension gap} = 100\% - \frac{\text{Average monthly gross pension of women}}{\text{Average monthly gross pension of men}}$$

It is interpreted as follows: the larger the gender pension gap, the lower are monthly gross pension payments of women compared to those of men.

To get an estimate of the size of the gender pension gap in Germany and its sensitivity to the type of calculation, we compute several versions of the pension gap that vary in methodology and assumptions. We find that results do not differ much across different definitions of the gender pension gap.

First, we look at all employees in the IAB database for which we can estimate statutory pension entitlements. Across age cohorts, the equal weighted average gender pension gap is 25.97%, while the average gender pension gap weighted by the number of observations in each age cohort is 26.05% (see Table 1).

Second, as we do not observe the entire employment history of older employees in the IAB database (it only starts in 1993) we assume that their employment history in early years is the same as the one we observe for younger cohorts of the same age and gender. The advantage of this approach is that we can more accurately estimate each individual's pension claim; however, our result rests on the assumption that we can impute missing data from comparable employees. Our calculation for this approach yields a gender pension gap of 22.52% (equal weighted average) and 22.88% (age weighted average).

Finally, we restrict our observations to the group of "mid-career" professionals, who belong to the age interval of 25 to 49 years. For these individuals, retirement planning and saving is arguably most important; as they should a) have sufficient income to save for retirement, b) have a sufficient amount of time left to start building up retirement wealth. Depending on the calculation approach, the gender pension gap for this group varies between 16.71% and 17.97%.

REASONS FOR THE GENDER PENSION GAP

While the reasons for the gender pension gap are manifold, they can be broadly summarized as follows. First, women generate less income than men, which mechanically leads to lower wealth levels in retirement. Second, even if women had the same

amount of money than men to build up wealth for retirement, they show different investment patterns, which make it more difficult for them to generate the same amount of wealth for retirement than men.

The first observation is usually referred to as the gender pay gap. According to the Federal Statistical Office, the unadjusted gender pay gap in Germany amounted to 18% in 2020.⁶ As individual income is the driving force of statutory pension entitlements, this pay gap translates to a pension gap of similar size.

A major determinant of the gender pay gap is motherhood. After the birth of a child, parents receive financial support from the state for a maximum of 14 months to care for their newborn. The amount of this assistance depends on previous earnings and is between 65% and 67% of net income, up to a maximum of EUR 1,800 per month.⁷ Many parents take advantage of this support so that one or both parents can initially care for their child at home without having to work additionally. This period is noted by the statutory pension insurance as a payment period and contributions are made to the statutory pension insurance. After this period at the latest, employment must be resumed. At this point, mothers more often than fathers decide to switch from a formerly full-time position to a part-time job. In 2019, the part-time rate of women with minor children in the household was over 66% percent, while only about 6% of men with minor children held part-time jobs.

One reason for the choice to switch from full-time to part-time employment is that in Germany, the traditional extended-family model, according to which multiple generations are living in the same house or at least close by and grandparents are strongly involved in raising the child, has become less common (see Schöninger 2020). The basic care for young children on a day-to-day basis is usually either provided by one of the parents (mostly the mother) or by a childcare facility. However, childcare facilities often do not offer full-day care for young children either, which poses a challenge to both parents working full-time.

In addition, strong social norms, particularly in West Germany, according to which a child is better off if the mother stays at home and takes care of

⁶ https://www.destatis.de/DE/Presse/Pressemitteilungen/2021/03/PD21_106_621.html.

⁷ Source: <https://www.elterngeld.de/>.

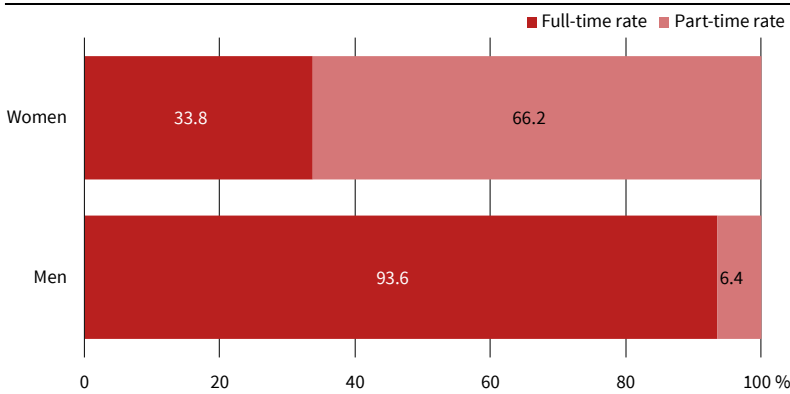
Table 1

Average Gender Pension Gap in Germany (Statutory Pension Scheme)

| | Equal weighted gender pension gap | Age weighted gender pension gap |
|---|-----------------------------------|---------------------------------|
| All employees with IAB employment history | 25.97% | 26.05% |
| All employees in IAB including imputed values | 22.52% | 22.88% |
| Mid careers (age 25–49) with IAB employment history | 17.30% | 17.97% |
| Mid careers (age 25–49) including imputed values | 16.71% | 17.26% |

Source: Niessen-Ruenzi and Schneider (2019).

Figure 1
Full-Time and Part-Time Rates of Employed Men and Women with Minor Children in 2019



Source: Federal Statistical Office, ID 38796, August 2020.

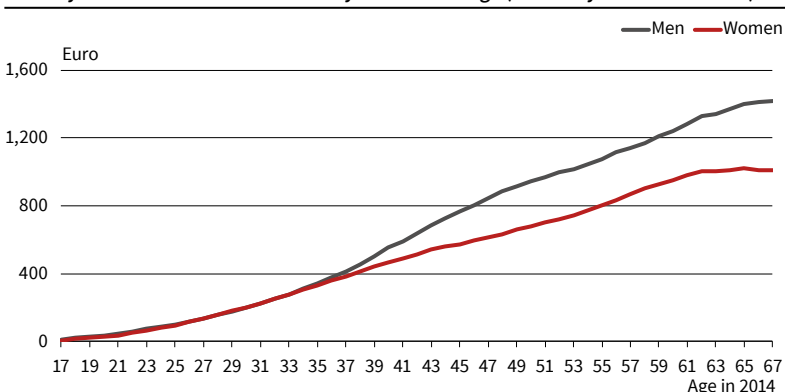
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the family, put a constraint on mothers' employment choices. These norms are not only shared by the older generation. According to the 18th Shell Youth Study of 2019, 65% of women between 12 and 25 years of age would like to work part-time at most – and 68% of young men would like the same of their partner – if they started a family and had to care for a child. That is, even among young people there still is a strong opinion that in a relationship with a small child, the woman, not the man, should scale back her job and that the man should provide for the family. Ten percent of survey respondents even prefer the full male breadwinner model, i.e., that the husband solely provides for the family and the wife stays completely at home with the child.

In addition to gender norms as an explanation for increased part-time rates among mothers compared to fathers, it is of course important to note that men, on average, earn higher wages than women. Thus, in an effort to maximize household income, more mothers choose part-time employment compared to fathers.

The reduction in working hours of new mothers is of course accompanied by a reduction in wages and thus automatically also by a reduced entitlement to pension payments. This can also be observed in our data: while we do not observe a significant gender pension gap for employees below 35 years of age,

Figure 2
Monthly Gross Pension Entitlements by Gender and Age (Statutory Pension Scheme)



Source: Authors' calculations.

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the gender pension gap gets larger for older age cohorts. The literature has used the term “motherhood penalty” to describe the drastic changes regarding women’s wages and career development after giving birth. They suffer a penalty relative to non-mothers and men in the form of lower perceived competence and commitment, higher professional expectations, lower likelihood of hiring and promotion, and lower recommended salaries (Correll et al. 2007). These changes are likely to contribute to the growth of the gender pension gap in this time period as well.

Figure 2 shows gross monthly pension entitlements of men and women for each age group in our sample. The graph is based on all IAB employees, including those that do not have their entire employment history recorded by the IAB. For these individuals, we again impute values based on comparable employees in terms of age and gender.

We observe that expected monthly gross pension entitlements are very similar for both female and male employees until the age of 35. If women and men remained on the same wage trajectory, they would receive similar pension payments accordingly. However, starting roughly at the age of 35, men acquire significantly more pension points than women and thus expect higher gross pension payments upon retirement. The most likely reason for this pattern is that people usually start families in their thirties. In 2020, according to the Federal Statistical Office, the average age of the mother when giving birth to the first child was between 31 and 32 years (while fathers were on average 35 years old).

Since women are more likely than men to reduce their labor force participation or work only part-time after they gave birth to a child, the gender pay gap starts to develop in this age cohort as well (Chhaoc-hharia et al. 2021), eventually increasing the gender pension gap.

But even if women had the same income than men and thus the same budget to build up wealth for retirement, gender differences in investment behavior make it more difficult for women to accumulate the same amount of wealth over their lifetime than men. The so-called gender investment gap describes the fact that women are much less active in financial planning, stock market participation, and retirement saving than men. According to the German Stock Institute (DAI), 22.6% of men, but only 12.5% of women held stocks in 2020.⁸ This finding mirrors results in Charness and Gneezy (2012). Collecting and analyzing data from 15 different experiments, the authors find that men on average invest 79.5% of their endowment in risky assets, while women only invested 48% in risky assets. This gender difference is explained by the fact that women are on average more risk averse than men, which has been shown for various life domains, including financial decision-making (Byrnes et al. 1999).

⁸ German Stock Institute: Aktionärszahlen 2020 (dai.de).

Table 2

The Gender Gap in Stock Market Participation in Germany (Share Savers Aged 14 and Older)

| Year | Number of share savers (in 1,000) | | Share savers as a percentage of the population | |
|------|-----------------------------------|--------|--|--------|
| | Male | Female | Male | Female |
| 2020 | 7,869 | 4,481 | 22.6% | 12.5% |
| 2019 | 5,811 | 3,842 | 18.8% | 11.7% |
| 2018 | 6,417 | 3,897 | 20.7% | 11.8% |
| 2017 | 6,269 | 3,792 | 20.2% | 11.5% |
| 2016 | 5,663 | 3,313 | 18.2% | 10.0% |

Source: Deutsches Aktieninstitut (2020).

However, the average annual return that can be achieved if one invests in the German stock market over a 30-year period, which should approximately be the benchmark if money is invested for retirement, is about 8 percent.⁹ Women's portfolios forgo this return opportunity if they shy away from the stock market. This is particularly challenging in times of low interest rates and increasing inflation, which we are currently experiencing in Germany. In December 2021, consumer prices in Germany rose by 5.3 percent compared to the same month last year.¹⁰ In this market environment, retirement savings under the exclusion of the stock market will almost certainly result in lower amounts of wealth in old age. The cautious investment behavior of women accelerates the problems arising from their lower income: the gender investment gap contributes to the gender pension gap. In line with this view, studying the defined contribution pension allocation decision among employees in the US, Sunden and Surrette (1998) have found that women invest a relatively greater share in low-risk assets.

PATHWAYS TO CLOSE THE GENDER PENSION GAP

Closing the gender pension gap requires women to save more for retirement than men. But how much more do they have to save? In the following, we have assumed that employees enter retirement at the age of 67 and that they have on average 15 more years to live. Given a gender pension gap of 26%, an average woman (in our sample) needs an extra amount of EUR 25,179 in real terms if she aims to close this gap when entering retirement.¹¹ If we assumed an annual inflation rate of 1.5% and that the average woman has 25 years left until retirement, the extra amount needed is about EUR 36,500.

The exact amount that a female employee has to save during employment if she wants to close the gender pension gap depends on two important factors. First, it depends on how much time a woman has left to save money for retirement. Female employees who start saving early on in their employment history

need to save less (per month) than those who start rather late. The reason is not only that they have more time to save money, but also that they benefit more from compound interest. Second, the necessary saving amount depends on the expected return on her investment and eventually their willingness to invest in more risky assets.

In Table 3, we calculated for various age cohorts: how much the average female employee would have to additionally save each month if she wants to close an average gender pension gap of 26% and lives for another 15 years after retirement. According to the BVI Yearbook 2018 obtained from the website of the Bundesverband Investment and Asset Management (BVI), balanced funds delivered an average annual return of 3% in the time period of 2000–2016.¹² The BVI also reports that in 2019, a global equity fund delivered an average annual return of about 5%. To accommodate different levels of risk appetite among female investors, we performed our calculations for an annual return of 3% and 5%, respectively.¹³

The pattern of saving amounts conditional on age that are needed to close the gender pension gap under-

¹² https://www.bvi.de/uploads/tx_bvibcenter/BVI_Jahrbuch_2018_final_Internet.pdf.

¹³ It is important to note that all calculations above assume that the gender pension gap remains the same over time for a given age cohort. However, it is likely that the gender pay gap increases with age. Therefore, we think of our results as a lower bound for each age cohort.

Table 3

Monthly Savings Amount Needed (by Age) to Close the Gender Pension Gap

| Women's age | Monthly savings amount in euro needed | | Fraction of annual income that needs to be saved | |
|-------------|---------------------------------------|----------|--|-------|
| | 3% | 5% | 3% | 5% |
| 20 | 42.08 | 23.72 | 2.7% | 1.5% |
| 25 | 47.81 | 29.00 | 2.0% | 1.2% |
| 30 | 55.01 | 35.82 | 2.1% | 1.4% |
| 35 | 64.36 | 44.87 | 2.4% | 1.7% |
| 40 | 77.05 | 57.37 | 3.1% | 2.3% |
| 45 | 95.34 | 75.61 | 3.7% | 3.0% |
| 50 | 124.19 | 104.59 | 4.7% | 4.0% |
| 55 | 176.77 | 157.61 | 7.0% | 6.2% |
| 60 | 303.92 | 286.02 | 12.4% | 11.7% |
| 65 | 1,064.88 | 1,054.49 | 91.5% | 90.6% |

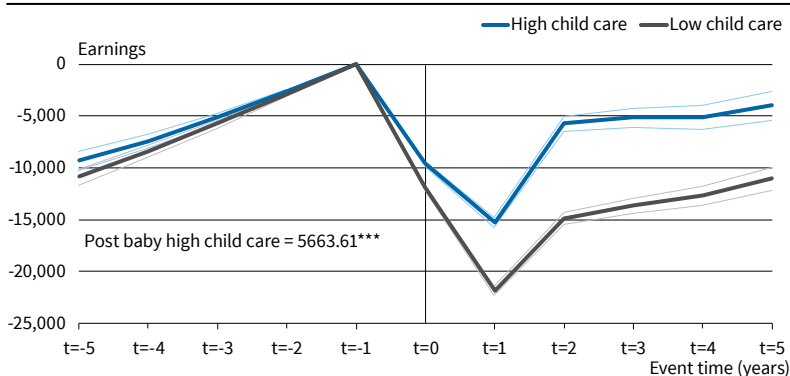
Source: Niessen-Ruenzi and Schneider (2019).

⁹ <https://www.dai.de/rendite-dreiecke/>.

¹⁰ Federal Statistical Office: "Verbraucherpreisindex und Inflationsrate," January 2022.

¹¹ In all calculations, we assumed for simplicity that no further investments are made upon retirement and that the above-mentioned amount of money is equally distributed across months until death.

Figure 3
Public Child Care and the Gender Pension Gap in Germany^a



^a N (High child care) = 243,008; N (Low child care) = 216,424.
Source: Chhaochharia et al. (2021).

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line the importance of starting retirement savings early on in life. As discussed before, this does not seem to be a major issue for women before their child-bearing age. Afterwards, female labor supply reduces significantly, and the gender pay gap as well as the gender pension gap increase. One way to mitigate the negative impact of motherhood on women’s wages and eventually pensions is to improve public childcare provision. In Chhaochharia et al. (2021), we show that the availability of childcare substantially reduces women’s earning losses after giving birth and also impacts the other factors of the so-called “motherhood penalty.”

In an event study surrounding the birth of the first child in $t=0$, we show that mothers who live in counties with low childcare provision experience an additional 25% decline in earnings relative to mothers in counties with high child-care provision. This decline is almost fully realized by the second year after the birth of the child, persists in the medium term, and translates to a EUR 5,664 lower earnings penalty of per year for mothers in high childcare counties (Figure 3).

We also find that mothers in counties with high childcare provision are more likely to return to work early after starting a family and they are also more likely to be promoted in their job than women in counties with a low childcare provision. Thus, public childcare provision seems to be key in reducing gender inequalities, including the gender pension gap.

In addition, financial education is another key to closing the gender pension gap. Hasler and Lusardi (2017) show that women on average have less financial knowledge than men. Women are aware of this difference: in a representative survey among 1,600 Germans that we conducted in 2018, 51.4 percent of female respondents (fully) agree that they feel insecure when it comes to investment topics. At the same time, however, there is no clear superiority for either gender in terms of the ability to deal with money or financial topics. When women deal with financial topics, there is no significant gender difference in the quality of

portfolios (Marinelli et al. 2017). Increasing financial literacy among women is thus important to close the gender investment gap and to eventually mitigate the gender pension gap.

CONCLUSION

A substantial gender pension gap in Germany of about 26% on average (only considering the statutory pension scheme) still exists. The explanations for this substantial gap are multifaceted and therefore also need to be tackled by different policies. Two of the main reasons for the gender pension gaps we identify are (1) the “motherhood penalty,” which manifests in more part-time employment and less career opportunities for women after having children. This leads to lower income and subsequently lower wealth. (2) the “gender investment gap,” which describes women’s reluctance to invest in the stock market, reducing their asset returns. Eliminating the motherhood penalty requires long-lasting social change towards equal attitudes to working mothers and fathers, more full-day childcare facilities (also for young children), and eventually a more equal distribution of paid work and care work among women and men. Eliminating the gender investment gap requires financial education. Women need to become aware of the gender pension gap and they need to actively get engaged with financial planning and wealth accumulation for their retirement.

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René Böheim and Sarah Gust

The Austrian Pay Transparency Law and the Gender Wage Gap

The European Commission (2013) calls the lack of equal pay between women and men among its European member states one of the most problematic areas. The Austrian (20 percent) and the German (raw, i.e., not corrected for differences in observed characteristics) gender pay gaps (19 percent) are above the EU's average of 14 percent. Pay transparency and more information about relative pay has become a popular tool among politicians to tackle the gender pay gap (European Commission 2021). Many EU member states did not follow an earlier recommendation for transparency measures (European Commission 2017). In March 2021, the European Commission presented a proposal for binding pay transparency measures (European Commission 2021). Among the proposed measures are the right of employees to obtain information on the wage levels, the employers' duty to report the wage levels, wage audits at firms, or making equal wage part of the collective bargaining process. The new proposal also includes the right to compensation for pay discrimination and aims at facilitating access to justice (European Commission 2021).

Several countries, however, have already implemented pay transparency measures. Early adopters were the Scandinavian countries, Italy, Austria, Belgium, and France. Germany, Lithuania, and the UK followed later (Aumayr-Pintar 2018). Canada and the US also have different pay transparency laws. Estonia, Ireland, the Netherlands, Portugal, and Spain have prepared drafts for a transparency legislation, but the laws have not yet been passed.

Austria introduced a wage transparency law in 2011, which requires firms with more than 1,000 employees to provide their employees with a wage report every two years. A report must at least give the number of men and women in each remuneration group and their mean and median wages. Employees must not communicate the results with third parties and employers may sue employees for breach of confidentiality.

In our study (Böheim and Gust 2021), we analyzed the effect of the Austrian pay transparency law on men's wages, women's wages, and the gender wage gap. Austria was among the first countries in Europe to introduce pay transparency. This allowed us to study medium run effects as wages often need time to adjust. We also assessed if the law affected other labor market outcomes such as firm growth, turnover, and the share of female employees.

We find no evidence that the Austrian pay transparency law reduced the gender pay gap. Our results

are in line with Gulyas et al. (2021), who also studied the pay transparency law in Austria but focused on smaller firms which were subject to the law from 2014 onwards.

FROM AN ECONOMIC PERSPECTIVE, IT IS NOT CLEAR WHAT TO EXPECT FROM PAY TRANSPARENCY

The goal of political decision-makers is the reduction of gender wage gaps. However, from an economic perspective, the expected effects of wage transparency requirements on wages are not clear a priori. Wage transparency might decrease information asymmetries in the wage bargaining, if employees have limited information about the wage structure in the firm or about their outside options in other firms. Information asymmetry allows firms a wage-setting power in the bargaining process. Increasing wage transparency could thus lower the wage setting power of firms, which could lower the wage gap if it were the result of different labor supply elasticities by men and women (Hirsch 2016).

Biasi and Sarsons (2020) suggest that women tend to be less aware of their colleagues' wages than men. If this asymmetric information about wage distributions is the cause for gender wage gaps, women could benefit from more transparency, and more transparency could narrow the gender wage gap. However, Cullen and Pakzad-Hurson (2021) show that wage transparency reduces the individual bargaining power of employees. Under transparency, raising individual wages can lead to costly renegotiations from other employees. To avoid this, employers adjust their bargaining strategy and do not grant any wage raises in the first place. Cullen and Pakzad-Hurson (2021) suggest that transparency laws lead to 2 percent lower wages in the US. Moreover, since wage reports do not link wages to the productivity of employees, a reported wage gap could increase the wage gap if the most productive employees of the



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supposedly underpaid employees leave the firm or if men and women renegotiate their wages differently (Baker et al. 2019).

The empirical evidence suggests that wage transparency reduces wage gaps in firms. In Canada and Denmark, transparency laws increased wages for women and led to a smaller gender wage gap (Baker et al. 2019; Bennedsen et al. 2019). Duchini et al. (2020) show that the UK pay transparency law increased the probability that women are hired in above-median wage occupations and decreased real wages for men. Thus, for these countries pay transparency reduced the gender wage gap.

THE AUSTRIAN PAY TRANSPARENCY LAW

The law requires firms of different sizes to provide wage reports. In 2011, when the law was announced, it affected firm with more than 1,000 employees. We focus on the large firms as these firms were unexpectedly subject to the law. Firms with 500 or more employees have had to publish reports since 2012. Since 2013, firms with 250 or more employees have also been required to publish wage reports, and since 2014, firms with more than 150 employees. These smaller firms might have anticipated the requirements as the law was announced in 2011 and adjusted the wages earlier. The firms have to submit the report to the works council or, if there is no works council, to all employees within the first quarter following the reporting year (Österreichischer Gewerkschaftsbund 2011). The wages of part-time employees have to be projected for full-time employment and the wages of employees who are employed less than one year to annual employment. The mean and median wages must be aggregated to at least five employees due

to data protection reasons (Österreichischer Gewerkschaftsbund 2011).

If the employer does not provide a wage report, the works council or, in the case no works council exists, an employee may take legal steps at the Labor and Social Court to enforce their inspection and control rights (Österreichischer Gewerkschaftsbund 2011). This can lead to coercive penalties for the employer but, to the best of our knowledge, there has been no corresponding case. The Federal Ministry for Education and Women (2015) assessed the compliance of firms with the wage transparency law based on interviews of managers, employees, and work councils. According to their assessment, most firms stuck to the legal minimum of reporting.

METHOD AND DATA

To analyze the effects of the Austrian pay transparency law we used administrative data from the Austrian Social Security Database (ASSD). These data contain detailed information on employees' earnings and employment history (Zweimüller et al. 2009). For the analysis, we used 23,085 firm-year observations for the years 2009 to 2017.

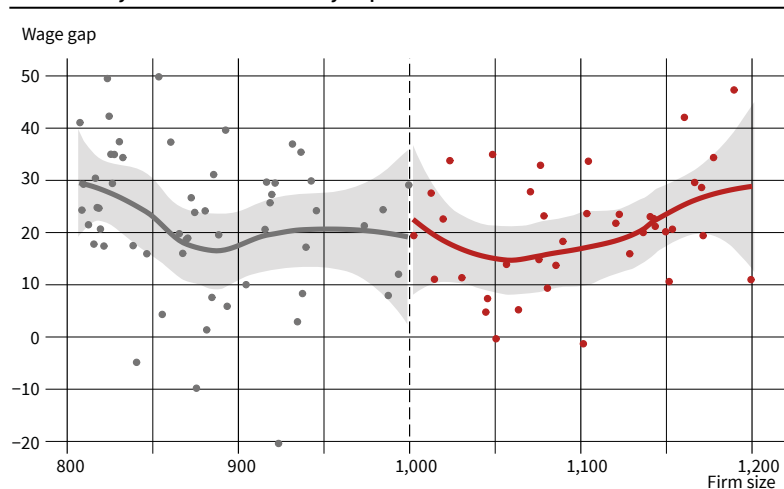
For each step in the staggered introduction, the law defines a clear cut-off in the firm size. We used a regression discontinuities design (RDD) to estimate the causal effects of the law on wages and the gender wage gap (see, e.g., Lee and Lemieux (2010) for details on the RDD). In the RDD, we defined firms just above the cut-off as treated observations and firms just below the cut-off as control observations. Under certain assumptions, a RDD allows estimating the average treatment effect (ATE) of whether a firm is required to publish a wage report or not on outcomes of interest. In addition to wages and the gender pay gap, we also analyzed the impact on firm growth, employee turnover, and the share of women in each firm.

We focused on firms that were first affected by the law, because for them the law came most surprisingly. Although firms just below and just above the arbitrary cut-off are likely to be similar, there might still be small, systematic differences between the treatment and the control observations. To control for that, we also used a difference-in-discontinuities design (Grembi et al. 2016) which combined the RDD with a difference-in-difference model.

THE AUSTRIAN PAY TRANSPARENCY LAW WAS LARGELY INEFFECTIVE

Figure 1 descriptively shows the median gender pay gap in firms with 1,000–1,199 employees that had to publish a wage report for the first time in 2011 in comparison to firms with 800–999 employees. We do not see different gender pay gaps by whether a firm was just above or just below this threshold.

Figure 1
Discontinuity Plot for the Gender Pay Gap



Note: The graph presents the regression discontinuity for the year 2011. The vertical line represents the cut-off of 1,000 employees and each dot is the median value in that bin. Firms with less than 1,000 employees are the control group (gray line). Firms with more than 1,000 employees are the treated group (red line). The gray area is the confidence interval. The graph shows that there is no significant difference (discontinuity) in the gender pay gap between these two groups. Note that we chose a fixed bandwidth in this figure for visualization only. In our model we run a local linear regression with a data driven bandwidth parameter.
Source: Böheim and Gust (2021). © ifo Institute

We also do not see a significant difference if we consider wages for men and wages for women separately. The estimations of the RDD and the difference-in-discontinuities models, along with several robustness checks, confirm this pattern. As there are fewer large firms than smaller and medium sized firms in Austria, we repeated our analysis for smaller firms that were affected by the law in later years. For firms with 150 employees, we also analyzed effects until 2017. Each of these estimations shows no significant effect of the transparency law on the gender wage gap.

It is likely that employees may find it difficult to renegotiate their wages in the short-term upon learning about the firm's wage distribution. We therefore repeated the analysis and focused on newly hired employees who are perhaps more flexible when negotiating their wages. The information on wages and the distribution of wages within the firm might be more salient for the firms' managers, if not for the job applicants. For the firms that hired new employees in 2011, we estimated that women had greater wages in firms just above the threshold than in firms just below the threshold. However, these results are not robust to alternative specifications. For these firms, we also found that the share of women decreased in 2011 compared to slightly smaller firms, which could be related to the finding that wages for women increased.

The transparency law could have impacted on other labor market outcomes. For example, if the law increased firms' costs, we expect treated firms to grow less than untreated firms. Transparency laws could change the employees' turnover if they are positively or negatively surprised about their firms' wage structure. In particular, women might decide to leave firms if they feel they are treated unfairly. We did not find any evidence that the law had an effect on firm growth or turnover.

WHY DID THE AUSTRIAN PAY TRANSPARENCY LAW HAVE LITTLE EFFECTS?

There are a couple of explanations why the pay transparency reduced the gender pay gap in other countries but not in Austria. However, we have not been able to test these hypotheses empirically. One reason could be that the employees do not know that the reports exist. A survey by the Federal Ministry for Education and Women (2015) found that 70 percent of the employees did not know about the policy and the reports. Many respondents indicated that the reports are not informative. We cannot rule out that the law affected only a particular group of employees, such as employees in the top of the wage distribution, because we cannot verify this with the data we have.

In other countries, such as in the UK and Canada, wages are posted publicly online while in Austria the

reports are only shared internally. This may limit any effect to the within firm gender pay gap. However, a large part of the Austrian gender wage gap is due to the wage gap between firms and between industries, which this law does not target (Gulyas et al. 2021).

In Austria, 99 percent of the employees are under collective bargaining. Cullen and Pakzad-Hurson (2021) found that the wage effects of pay transparency are likely to be close to zero if a large share of the workforce have wages set by collective bargaining.

The current Austrian pay transparency law does not include any consequences if the reports reveal unequal wages. In Switzerland, firms which have large gender wage gaps can be excluded from public contracts (Vaccaro 2018). The Austrian law demonstrates that it is important how transparency requirements are formulated and enforced.

We do not find an immediate response of the gender wage gap to the introduction of the transparency law. It is, however, possible that such changes require more time than the relatively short post-reform period that we are able to study. Over time, as firms hire new employees, we might observe a narrowing of the gender wage gap due to more transparency or because gender wage differences get more attention.

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Ariane Hegewisch and Eve Mefferd

(Un)Equal Pay in the United States and Policy Solutions to Make a Difference

October 21, 2021, marked Latina Equal Pay Day in the United States (Mefferd and Hegewisch 2021). The date was set based on the earnings of Latinas who worked full-time year-round in 2020 and whose median annual earnings were just 57 percent of those of White non-Hispanic men.^{1,2} Translated into working days, this gender earnings ratio means that Latinas had to work almost 22 months to earn the same amount that White non-Hispanic men earned in just 12 months. If anything, this estimate of gender, racial, and ethnic earnings differentials underestimates the extent of inequality in the US labor market because of the disproportionate impact of the Covid-19 related recession on women in the lowest paid jobs. Job losses and cutbacks in hours were highest in low-paying service jobs in leisure, hospitality, and retail – jobs that are predominantly held by women – and employ a disproportionate number of Black, Latina, and/or Native American women (Hegewisch and Mefferd 2021b; Liebler 2015).³ As a result of these changes in the composition of the full-time work during the Covid-19 pandemic, the gender earnings ratio improved between 2019 and 2018, whether looking at all women and men or at women of different racial and ethnic backgrounds compared to White non-Hispanic men.⁴

The Covid-19 pandemic has resulted in an increased focus on gender and racial inequality in the United States. It has brought to the fore struc-

tural inequalities in access to employment, education, and healthcare, and economic security more broadly (Hardy and Logan 2020; Mizota and Darity 2020), and has highlighted the pernicious impact of such pre-existing inequality on outcomes during Covid-19, including higher death rates for communities of color (Artiga et al. 2021; Reeves and Rothwell 2020). It has also led to growing awareness of the impact of gender inequality in paid and unpaid work on women's earnings and the factors causing such pay inequalities, including the undervaluation of work predominantly done by women, the lack of child care and elder care supports, and discrimination. Efforts to address these inequalities characterize the policies pursued by the administration of President Biden, including attempts to build a better care infrastructure in the United States that provides access to quality child and elder care to those who need it and also ensure that those who provide such care – many of whom are women of color – receive good pay and benefits. At the same time, there are increased efforts to directly address unequal pay and discrimination through statutory innovation and enforcement.

This paper begins with a brief historical overview of equal pay in the United States and research on the factors which contribute to the wage gap. It will then turn to recent legislative and policy initiatives at the state and federal level aimed at addressing the persistence of the wage gap in the US economy.

PROGRESS IN CLOSING IN THE GENDER WAGE GAP IN THE UNITED STATES HAS STALLED, PARTICULARLY FOR WOMEN OF COLOR

Pay discrimination by gender and race has been illegal in the United States since the passage of the 1963 Equal Pay Act and of Title VII of the Civil Rights Act of 1964. The Equal Pay Act provides that men and women working in the same establishment must be paid equally for equal work; Title VII of the Civil Rights Act provides a broader scope for protection against



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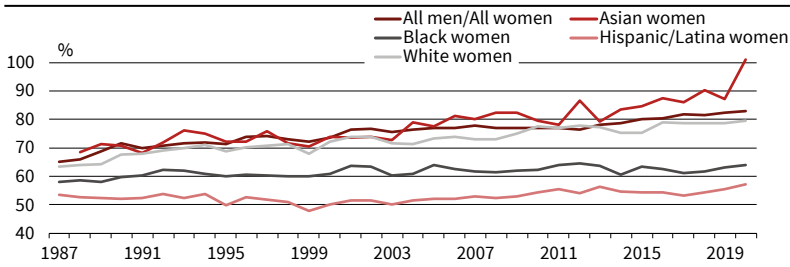
¹ The focus on full-time year-round workers reflects a long-standing convention among advocates highlighting gender earnings inequality, reflecting partly the historical availability of data (the US Census began publishing annual earnings estimates for full-time year-round workers in the early 1960s while weekly and hourly earnings estimates became only available from 1979 onwards). The annual earnings data additionally best capture commissions and bonuses paid on an annual basis and include self-employed workers; thus, while weekly earnings measures tend to include a larger number of workers, particularly of women workers who are more likely to work part-time or part-year than men, they arguably provide a more comprehensive measure of gender differences in earnings.

² White non-Hispanic men are taken as the reference group for gender and racial/ethnic comparisons by the equal pay advocacy community in the United States because they are the dominant group in the labor market.

³ See also Holder et al. (2021). Between 2019 and 2020, the number of full-time women workers in service occupations – the occupations with the lowest median earnings – fell by almost 19 percent and that of men by 15 percent, while the number of full-time women working in management occupations slightly increased by 1.5 percent and stayed unchanged for men (Hegewisch and Mefferd 2021c).

⁴ The gender earnings ratio based on median annual earnings for full-time year-round workers rose from 82 to 83 percent for all women and men between 2019 and 2020; for full-time year-round working women compared to White non-Hispanic men, it rose from 55 to 57 percent for Latinas; 63 to 64 percent for Black women; 78.7 to 79.4 percent for White non-Hispanic women, and, most markedly, from 87 to 101 percent for Asian women; see Hegewisch and Mefferd (2021b). Earnings dispersions within the group of Asian Americans are particularly marked, reflecting substantial differences in educational attainment and economic outcomes by national origin (Bahn and Sanchez Cumming 2021).

Figure 1
Earnings Ratio in Median Annual Earnings, Full-Time Year-Round Workers, Compared to White Non-Hispanic Men



Note: Earnings are reported in 2020 dollars. Between 2002–2020, the category for the White non-Hispanic population is “White Alone, Not Hispanic,” before 2002, the category is “White, Not Hispanic.” Between 2002–2020, the category for the Black population is “Black Alone,” before 2002 the category is “Black.” From 2002–2020, the category for Asian population is “Asian Alone,” before 2002 the category is “Asian and Pacific Islander.” Those who are Hispanic or Latino/a can be of any race. Source: IWPR analysis based on US Census Bureau (2021), “Historical Income Tables: Table P-38. Full-Time, Year-Round Workers by Median Earnings and Sex,” Current Population Survey, <https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-income-people.html>. © ifo Institute

discrimination, both by including race and national origin (and with later amendments and complementary laws, age, and disability) and by including all aspects of employment, from hiring and recruitment, to promotion, access to training, and benefits (USEEOC 1997). Additionally, since 1965 when Executive Order 11246 was passed, firms receiving federal contracts have to take affirmative action beyond non-discrimination on the basis of race, color, religion, sex, or national origin to achieve equal representation and equal pay in their workforce (USDOL n.d.).⁵

Since the passage of the Equal Pay and Civil Rights Acts, the wage gap has narrowed substantially, from 61 percent in 1960 to 83 percent in 2020 (Hegewisch and Mefferd 2021a). Progress in closing the wage gap was more pronounced during the 1980s and early 1990s than in this century. This reflects a number of factors, such as access to the birth control pill and hence greater control over when and how many children to have, the opening up of educational opportunities, particularly to professional careers in medicine and the law, and pro-active enforcement of anti-discrimination legislation (Goldin and Katz 2002; Goldin 2014; Blau and Kahn 2017). While pay discrimination in the United States never included a formal right to comparable worth or equal value, in the 1980s many US states implemented comparable worth approaches to public sector workforces, resulting in significant increase to women’s pay (Hartmann and Aaronson 1994; Killingsworth 2002). Change in the gender wage gap also reflected the stagnation of wage growth for men, as a result of industrial decline and anti-union policies (Blau and Kahn 2017). While real earnings continued to rise for women on average – albeit from a much lower base, and never surpassing men’s – Black women’s earnings were particularly impacted by deindustrialization because they were more likely than other women to work in manufacturing, including in better paid union jobs (Ahmed and Hegewisch 2021; Scott et al. 2022).

⁵ Approximately a one-fifth of the workforce is covered by these regulations which apply beyond just those employees working on a particular federal contract to all employees of the firm.

From the mid-1990s to the present day, change in the wage gap has been slower despite women surpassing men at all education levels (Hegewisch and Williams-Baron 2017; Hegewisch and Hartmann 2014). Indeed, the largest wage gaps are observed at the highest levels of education. Black women are particularly likely to see lower returns to educational attainment (Budig et al. 2021). Figure 1 shows change in the gender earnings ratio for all women and men and for women of the largest racial and ethnic groups compared to White men from 1987 onwards.⁶ It shows that progress towards pay equity has been particularly slow for Black and Hispanic women. Indeed, if progress in closing the gender earnings ratio continued at the same rate as it has since 1985, it would take Hispanic women almost 200 years – until 2206 – to reach equal pay with White non-Hispanic men, Black women over a hundred years, to 2133, and White women almost four decades, until 2058 (Sun and Hayes 2021).

The gender and racial/ethnic earnings ratios shown in Figure 1 only include those workers who work full-time year-round. Because women are more likely than men to work part-time or part-year, and because working in lower-wage service jobs, such as in leisure and hospitality, retail, child care and elder care, often makes it particularly difficult to find full-time year-round employment (Shaw et al. 2016), the full-time year-round wage gap data underestimates the underlying gender wage gap. When all women and men with earnings are included, the wage gap widens substantially, from 83 to 73 percent in 2020.⁷ This effect has been particularly visible during the Covid-19 pandemic when median annual earnings increased for women because of the disproportionate impact of the Covid-19 pandemic on low-wage jobs in the service sector (Hegewisch and Mefferd 2021b). The effect has been most extreme for Asian women whose overall level of educational attainment is much higher than that of White non-Hispanic men and who are particularly likely to work in professional jobs, but who also constitute a high number of women in the lower-wage service occupations that were most impacted by the pandemic (Tucker 2020).

The wage gap grows even larger when calculated over a number of years, capturing women’s greater likelihood to take time out of the labor market for caregiving. Over a 15-year period, from 2000 to 2015, women’s earnings only account for 49 percent of men’s (Rose and Hartmann 2018). One reason for this gap is the lack of accessible and affordable child care in America. Half of US families live in a child care

⁶ 1987 is chosen here because data for Asian women was not published until then; it should be noted that the definition of Asian American women adopted by the US Census Bureau when publishing earnings data does not include Native Hawaiian and Other Pacific Islanders, although advocacy groups typically do see themselves as part of one AAPI group (see, for example, <https://www.api-gbv.org/resources/census-data-api-identities/>); the median earnings of the latter are substantially lower, and adopting the more inclusive definition leads to a lower gender earnings ratio.

⁷ Authors’ calculations based on Table A-7, Shridher et al. (2021).

desert, areas where the supply of licensed child care providers is insufficient to meet the local need, with even higher rates for Hispanic families and American Indian and Alaska Native families (Malik et al. 2018). Given the gender wage gap, it typically makes more economic sense for mothers rather than fathers to cut back their time in paid work to provide family care (Hegewisch and Williams Barron 2017).

OCCUPATIONAL SEGREGATION AND DISCRIMINATION ACCOUNT FOR THE LARGEST SHARE OF THE WAGE GAP

The wage gap in the United States is not easily explained by a single factor; instead, it is comprised of the overlap between occupational segregation, gender differences in hours of work, devaluation of “women’s work,” discrimination, and other issues (Blau and Kahn 2017; Goldin 2014).

The biggest factor behind the gender wage gap is occupational and sector segregation. That is, the fact that women tend to work in different occupations and industries from men and that occupations and industries which primarily employ women tend to have lower earnings than those that primarily employ men.⁸ Differences in the gender distribution across occupations and sectors account for just over half of earnings differences between women and men (Blau and Kahn 2017). Jobs primarily done by women are often culturally and economically undervalued, despite the fact that the training and education required for lower-paid, women-dominated jobs are often comparable to those required for better-paid, male-dominated jobs (Addison et al. 2015; Hegewisch et al. 2016). After considerable progress in occupational integration during the 1980s and early 1990s, further integration – and further progress towards pay equity – slowed down substantially, partly a reflection of the rapid expansion of female-dominated jobs in health and eldercare (Hegewisch and Hartmann 2014). With the exception of Asian women, occupation and sector integration has slowed down for women of all major racial and ethnic groups, and for women of each group it is a major contributing factor to the gender wage gap (Hegewisch and Hartmann 2014; Alonso-Villar and del Rio 2017; Bahn and McGrew 2018; Bahn and Sanchez Cummings 2021).

Over time, occupational segregation has become more important in accounting for earnings differences, while other factors such as education, time in the labor market, or rates of unionization have become less important (Blau and Kahn 2017). While a reduction in discrimination – or the unexplained wage gap – played a significant role in the narrowing of the overall wage gap (explaining 58 percent of the change between 1980 and 2010, with most of the change occurring at the beginning of the period), discrimination

still accounts for a very substantial 38 percent of the total (Blau and Kahn 2016; Blau et al 2021).

Women experience discrimination based on their intersectional identities, including but not limited to gender, race, ethnicity, motherhood status, and immigration status. Taking Hispanic and Latina women as an example, the unexplained portion of the wage gap with White non-Hispanic men represents over half the total race-gender wage gap (55 percent). Furthermore, the wage gap for Hispanic or Latina women is greater than the sum of racial and ethnic or gender effects alone (Bahn and McGrew 2018).

US POLICY APPROACHES TO TACKLE PAY DISCRIMINATION

There has been no major reform of the federal Equal Pay Act (EPA) since it was passed in 1963. Since 1997, the Paycheck Fairness Act has been introduced to Congress each year to update the legislation, so far unsuccessfully. Most recently, the Paycheck Fairness Act of 2021 passed in the House of Representatives but a vote in the Senate was blocked by Republicans (Carrazana 2021). The Paycheck Fairness Act would increase financial remedies for pay discrimination, aligning it more closely with the remedies available under Title VII of the Civil Rights Act, and would clarify the permissible legitimate, job-related reasons for justifying pay differences. It would protect workers against retaliation for discussing their salaries and prohibit employers from requiring salary history information as part of the hiring process. Lastly, it would expand the protected classes of the 1963 Equal Pay act to include pregnancy, sexual orientation, gender identity, and sex characteristics (National Partnership for Women and Families 2021).⁹

State and local efforts have had more success.¹⁰ Equal pay legislation of the last few years has focused on four main areas: pay transparency; limiting the use of salary history questions in the recruitment process; expanding the worker characteristics that are explicitly protected from discrimination, and measures to strengthen pay data collection, monitoring, and oversight.

Pay Transparency

Research suggests that lack of transparency over pay decisions is a major contributor to bias and discrimination and that greater transparency and accountability can reduce gender earnings disparities.¹¹ A 2010 national survey found that the majority of workers reported that they were prohibited or strongly dis-

⁹ See the full bill, <https://www.congress.gov/bill/117th-congress/house-bill/7>.

¹⁰ For a comprehensive list of equal pay laws in the US states, see Robinson-Dorn (2021); see also National Women’s Law Center (2020) for an overview of issues addressed in state laws.

¹¹ For a review of the literature and one of the few organizational case studies, see Castilla (2015).

⁸ See Hegewisch and Hartmann (2014) for a review.

couraged from discussing their pay with colleagues, with women more likely to do so than men (Hayes and Hartmann 2011). Only 1.5 percent of the close to 70,000 discrimination charges received by the US Equal Employment Opportunity Commission (EEOC) concern pay discrimination (all discrimination charges have to be lodged with and reviewed by the EEOC before an individual can bring a lawsuit against their employer) (USEEOC 2021). Key to lifting up the issue of pay secrecy was the case of Lilly Ledbetter, a supervisor in a tire plant, who after two decades of suspicion was only able to finally challenge her discriminatory pay when she received an anonymous note with pay slips from a male colleague. She lost her discrimination case on a technicality – remedied in the Lilly Ledbetter Fair Pay Act of 2009, the first law to be signed by former President Obama – yet that law failed to address the pay secrecy practices that prevented her from challenging her discrimination earlier (Kim 2015).

Since 2010, over a dozen states have passed pay transparency legislation to prohibit employers from retaliating against employees for discussing their pay. A 2017/2018 national survey found that while these laws had reduced the number of workers who were contractually prohibited from discussing their pay, it did not significantly increase the number of workers who felt that they were freely able to do so, or indeed, worked for an employer where pay rates were publicly available (Sun et al. 2021). On the other hand, in an earlier 2010 survey women were more likely than men to work in organizations with restrictive pay practices. The lack of impact likely reflects lack of information as much as lack of enforcement. A 2015 analysis, on the other hand, found higher earnings and lower-wage gaps for women in states with pay transparency laws (Kim 2015). It is not clear how far the measured impacts are attributable to pay transparency laws directly or instead reflect the characteristics of states more likely to pass such laws, including the greater likelihood of having better work-family supports.¹²

Complementing laws facilitating employees' access to pay data are efforts to improve pay data collection and monitoring from employers. The EEOC added reporting requirements on pay ranges to its existing mandated reporting requirements from employers; pay data were collected in 2017 and 2018 and are currently under review (following an attempt to stop such collection during the Trump administration).¹³ Reporting requirements support other wage gap reduction initiatives because they provide a basis for accountability and enforcement and provide useful aggregate data for equal pay scholars; importantly, individual firm data are not published. Laws in California and Illinois require employers to report pay data to the state government to ensure gender pay

equity in a method similar to existing federal-level EEO-1 reporting requirements (Hastings 2021).

Salary History Bans

The most recent innovation in state-level legislation is setting limits or prohibiting the use of prior salary information during the recruitment and selection process. In the United States, a job candidate's starting pay typically is set at their prior salary plus a percentage increase. Where prior salaries are tainted by discrimination, as is typically the case for women or people of color, such practices exacerbate wage gaps. Twenty states and twenty-one localities have introduced such bans, including prohibiting retaliation against workers who refuse to provide their salary history, limiting salary history questions to the job offer stage, or requiring employers to provide pay ranges on job postings (Hartmann 2021). The City of New York has recently gone further by passing a bill which requires employers with four or more employees to make salary ranges (minimum and maximum salaries/wage rates to be paid to an employee hired for the position) public on all job postings. The same requirements apply for transfer or promotion opportunities provided to current employees (New York City Council 2022; Lucente Sterling 2021; McShane 2022).

Data suggests that pay transparency can be of particular help to groups that are historically underpaid, like women and people of color, by reducing the need for workers to negotiate for salaries and increasing their ability to make informed decisions during the job application process (Lalljee 2021). Using comparisons between localities with and without salary history bans, several evaluations have found a positive impact on the earnings of women and minorities.¹⁴ Research also suggests that there has been an increase in the voluntary posting of pay ranges with job announcements (Bessen et al. 2020).

The positive impacts of pay transparency are already demonstrated in the public sector, where the practice is more common (Bahn and McGrew 2018). One study found that at organizations where women feel pay is transparent, women's average pay is approximately equal to men's, while the gap persists in non-transparent organizations (Payscale 2021). There is now considerable research from the United States and elsewhere finding that pay transparency, during recruitment and within the employment relationship, leads to reduced gender wage gaps; yet such effects are primarily achieved by capping or limiting the pay of the highest earners (who are predominantly men) rather than by lifting up the pay of most women.¹⁵ While greater equity in itself can be a desirable goal, it also suggests that other redistributive measures

¹² Hegewisch and Williams Baron (2017) find that states with better work-family supports have lower gender wage gaps.

¹³ See National Academy of Science (2021).

¹⁴ See Sun et al. (2022) for a compilation of recent research on salary history.

¹⁵ See Sun et al. (2022) for a compilation of recent research.

may be needed to improve women's earnings and economic security.

Beyond these, state laws are also targeting the expansion of the classes or individual characteristics that are protected under existing equal pay laws to include identities such as gender identity, race, age, sexuality, religion, and country of origin. Some of these laws also expand the definition of equal pay to "comparable" rather than "equal" work (Folger-Hartwell et al. 2021; Rigby 2021).

POLICIES TO TACKLE UNEQUAL PAY BEYOND DISCRIMINATION

The current political moment in the US presents great opportunity for supporting women's entry into non-traditional careers. The US Infrastructure Bill which was passed in November 2021 allocates one trillion US dollars to development and maintenance of physical infrastructure. The bill is projected to create and support up to 15 million jobs in construction over the coming decade, jobs which are often high-wage with strong benefits and paid training, particularly if they are union represented (Carnevale and Smith 2021). Women only make up 4 percent of the construction workforce in the United States (300,000 women in 2020), but federal diversity goals and funding (like the US Department of Labor Women's Bureau's WANTO grants) have helped increase women's representation in states with proactive policy initiatives (Hegewisch and Mefferd 2021e). The Infrastructure Bill presents a prime opportunity to set and enforce stronger diversity expectations to ensure that women and people of color get their fair share of new jobs. The recently issued Gender Strategy by the Gender Policy Council highlights the White House's commitment to increasing women's access to better jobs and mandates government agencies to prepare detailed and measurable goals for achieving change (Whitehouse Gender Policy Council 2021).

Work-family support policies are another important part of the wage gap equation. Without policies like paid family and medical leave and affordable and accessible child care, women's wages will continue to trail behind those of men in the United States. While the Family and Medical Leave Act (FMLA) entitles workers in the public sector and those working for private companies with at least 50 employees to take up to 12 weeks of leave, employers are not required to provide pay during that period. Furthermore, the FMLA only protects cases of a serious health condition, military deployment or military-related health conditions, or birth, adoption, or new foster care responsibility (USDOL 2015). Expanding paid leave, work flexibility, and child care provisions will allow women to enter more men-dominated occupations, where before they had to sacrifice such financial opportunities to choose a more female-dominated occupation that provided greater work-family supports and flex-

ibility. It also allows more women to enter the labor force or work more hours (Addison et al. 2015; Hegewisch and Williams-Baron 2017). Raising the minimum wage and increasing union representation so more workers are protected by union wage floors will also raise women's wages significantly and serve to close the wage gap, due to women's overrepresentation at the bottom of the wage scale (Hegewisch and Williams-Baron 2017).

The companion to the Infrastructure Bill, which is still going through the legislature with an uncertain fate at this article's time of writing, is the Build Back Better Act, which would fund social infrastructural investment. The original proposal includes universal free preschool, investment in child care and elder-care, and expansion of the Child Tax Credit, among other initiatives (US White House 2021). Passing the bill would mean tremendous benefits to American families and would make great strides in addressing many of the issues that contribute to the wage gap, including women's disproportionate care burden.

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The Gender Wage Gap in Japan – the Glass Ceiling Phenomenon

The gender gap is one of the most serious and persistent challenges in the Japanese labor market. In 1986, the *Equal Employment Opportunity Act* aimed to



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achieve gender equality in the labor market by providing both equal opportunity and treatment between men and women in all aspects and every stage of employment. Since then, it has been revised several times to increase its rigor, and this was followed in 2015 with the *Act on the Promotion of Female Participation and Career Advancement in the Workplace*, which recognized that tackling the issue of work-life balance is necessary to make inroads into the challenges facing women as they advance in their professional lives. Despite these legislative efforts, however, numerous gaps remain between

men and women in the Japanese labor market including the labor force participation rate, working style (regular versus part-time), wages, the proportion of workers in management positions, and education and training opportunities, to name a few. This paper focuses on the gender wage gap in Japan because wages are a broad-based labor outcome relevant to all workers.

CURRENT SITUATION IN JAPAN

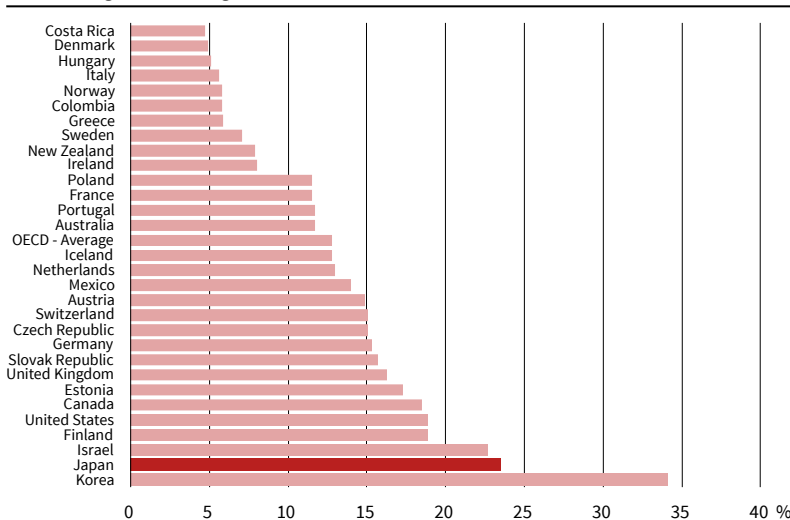
Japan is well-known as a country with large gender disparities, and Figure 1 shows that it has the second largest gender wage gap among all OECD countries after South Korea. However, as in many industrialized countries, the gender wage gap has been converging in Japan over time. Figure 2 shows the change in the gender gap in average monthly scheduled wages from 1990 to 2019, based on the annual Japanese Ministry of Health, Labor and Welfare (MHLW) *Basic Survey on Wage Structure* which provides the most reliable nationwide data on wages in Japan. We see that the gender wage gap decreased from 39.8 in 1990 to 25.7 in 2019, a substantial one-third reduction over the past 30 years.

However, looking only at the gender gap in average wages hides some interesting dynamics taking place under the surface. Figure 3 shows the gender wage gap not at the mean as in Figure 2, but *throughout the wage distribution* from the 5th percentile (P5) to the 95th percentile (P95) for the most recent 2015 data and each decade between 1980 and 2010. The gap is defined here as the difference in the log of hourly wages between men and women to show percentage differences, and a large value in the lower tail means that the gender wage gap is large among workers with low-paying jobs, while a large value in the upper tail indicates a large gap among highly-paid workers. From Figure 3, we can observe two main trends. First, the gender wage gap has narrowed from 1990 to 2015 at each percentile of the distribution, for the highest and lowest paid workers and everyone in between. The gender gap in 2015 is the smallest in the past 30 years for everyone. That is the good news.

However, the second major trend is that the shape of the gender wage gap has shifted over time. While in 1980 the gap was relatively flat except at the extremes, in 2015, the gender gap has a positive slope, which indicates that it is more pronounced at higher wages. The difference between P10 and P90 is a substantial 14 percentage points, but 10 percentage points of that difference occurs between P50 and P90 while only 4 occurs between P10 and P50. This means that the gender wage gap is much more prevalent in the upper half of the wage distribution than in the lower half.

Thus, by simply looking at the *raw* data as shown in Figure 3, the gender wage gap appears to be narrowing in recent years, especially for those earning a low wage. However, as this trend is also partially a

Figure 1
Gender Wage Gap among OECD Countries, 2018^a



^a The percent gender wage gap is defined here as the difference between male and female median wages divided by male median wages for full-time workers.
Source: OECD employment database.

reflection of changes in women's education level and years of service, an accurate “apples-to-apples” view of the gender wage gap over time must take these factors into account.

UNEXPLAINED GENDER WAGE GAP AND SUBTLE BARRIERS

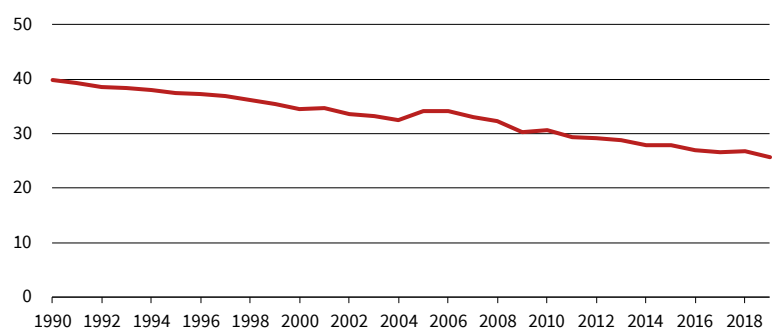
University enrollment and years of service at one's employer have both been rising for women in Japan, though they have still not reached the level of men. Since human capital, which includes such things as education, years of service to an employer, and experience in the labor market, impacts productivity and thus wages, an analysis of the gender wage gap must account for differences in human capital. Therefore, what we should focus on is not the *raw* gender wage gap but the wage gap that remains even after taking into account any gender differences in human capital. We call this gap the *unexplained* gap.

An unexplained gap observed at the upper or lower tail of the wage distribution suggests the existence of subtle barriers such as a *glass ceiling*, the invisible barrier that prevents women from obtaining high-ranking and high-wage jobs in business, government, and academia. If there were no such barrier, then there would be no observed difference between high-income men and women after controlling for gender differences in human capital. For example, suppose that even after controlling for human capital we see that the wages of the top 10% of wage-earning men are higher than the top 10% of wage-earning women. What does this mean? One interpretation is that, for reasons other than gender differences in human capital, women do not have access to the same high-paying jobs as men. Thus, even though the top 10% of wage-earning women are doing well relative to other women, an unexplained gender gap in the upper part of the wage distribution shows that there might be a glass ceiling holding them back from being rewarded at the same rate as men. A similar phenomenon occurs at the lower tail of the wage distribution. In this case, the gender wage gap is referred to as a *sticky floor*, whereby low wage-earning women earn less than men as they become trapped in low-paying jobs.

This unexplained gap can be estimated by using a *decomposition* econometric technique that separates the gender wage gap into two parts: one that results from *compositional effects* that are explained by gender differences in human capital (the *explained* gap), and one that results from wage structure effects that are not explained by differences in human capital (the *unexplained* gap), which is our focus here.

Until recently, due to methodological and computational limitations, estimates of the gender wage gap were restricted to that of average wages through a method known as the Oaxaca-Blinder technique. The strong interest in the gender wage gap by labor economists has led to an extensive worldwide litera-

Figure 2
Gender Gap in Mean Wages in Japan^a

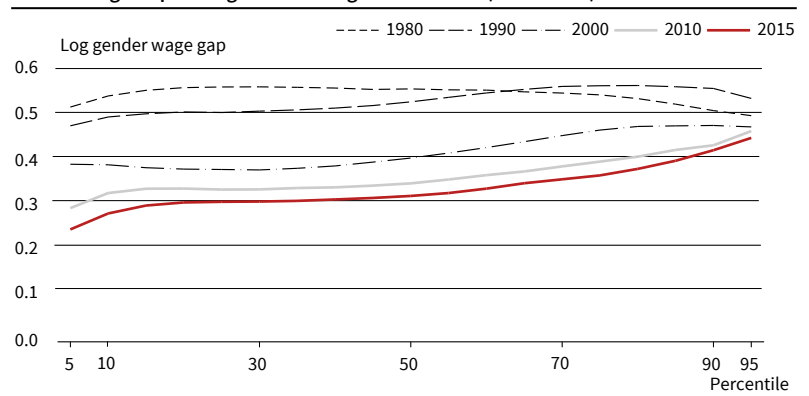


^a The value is calculated by $\frac{((\text{male monthly average wage}) - (\text{female monthly average wage}))}{(\text{male monthly average wage})} \times 100$ for full-time workers.

Source: MHLW Basic Survey on Wage Structure.

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Figure 3
Gender Wage Gap throughout the Wage Distribution (1980–2015)



Source: Hara (2018); MHLW Basic Survey on Wage Structure.

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ture on this gap at the mean of the wage distribution, including in Japan (Kawaguchi 2005; Miyoshi 2008). But while this has been informative, it provides information only on the wage outcomes of the *average* worker of each gender, with no insight into the experiences faced by the majority of workers. However, thanks to improvements in computational power and analytical methods, decomposition *throughout* the wage distribution has now become possible, so we can now estimate the explained and unexplained gaps at each percentile of the wage distribution to reveal phenomena that could not be grasped by a decomposition at the average alone. The groundbreaking paper by Albrecht et al. (2003) has led to a growing interest in the gender pay gap across the wage distribution because of its more comprehensive view of the gender gap and insight into tail-end phenomena such as the sticky floor and glass ceiling. In the remainder of this article, I will present the main results from Hara (2018), which is the first study in Japan examining the gender gap throughout the wage distribution to identify where the gender wage gap is most serious.

GLASS CEILING IN JAPAN

Before presenting the estimation results, I will first briefly explain the technique used in Hara (2018). Al-

though there are several methods used to estimate the unexplained gender wage gap throughout the wage distribution, we used the Recentered Impact Function (RIF) regression method proposed by Firpo et al. (2009) and micro data from *the Basic Survey on Wage Structure* (BSWS) covering more than a million workers in Japan. The estimation also controlled for differences in a range of human capital variables.¹ In addition, since the wages of workers at different firms vary beyond what can be explained by worker characteristics, we controlled for establishment fixed effects. Further, using a method proposed by Mundlak (1978), we estimated the unexplained gap *within an establishment* because we noticed that phenomena such as the sticky floor and glass ceiling are more prevalent *within* an establishment than *across* establishments in Japan. In other words, the gender gap is greater when women are placed in lower-paying jobs within a company than when they take a job at lower-paying companies. From this point on we will focus on the more salient gap, which is the unexplained gap *within* an establishment.

Figure 4 shows the unexplained gap within an establishment every 5th percentile from P5 to P95 using data each decade from 1980 until 2015. As in Figure 3, the estimated value is the percentage difference in men’s and women’s hourly wages, so the larger the value on the vertical axis, the larger the unexplained gender wage gap.²

Focusing on 2015, and examining the unexplained gender wage gap at the tails of the distribution compared to the mean, on the left side we see an unexplained gender wage gap at the 20th percentile of 15.4%, which is more than two percentage points³ larger than the 12.5% gap at the 50th percentile, indicating a relatively large wage gap between low-wage

¹ Following the typical Mincer wage equation, these include schooling, years of service, years of service squared, potential labor market experience, and potential experience squared.

² Short-time workers are excluded from this analysis because the BSWS does not survey their academic background.

³ Following Arulampalam et al. (2007), a difference of two percentage points was used as the criterion to determine if the gap was large.

men and women, or what is known as a *sticky floor*, though we also notice that this does not seem to apply to those workers at the very bottom of the wage distribution. Now turning to the right side, the gender gap increases at an accelerating rate from the center of the distribution toward the upper tail. The wage gap between men and women at the 90th percentile (the top 10%) is 25.7%, a difference of 13.2 percentage points from the gap at the mean, which indicates that the gender wage gap between top earners is large, strongly suggesting the existence of a *glass ceiling* in Japan.

Much of the research on this topic has been conducted in Europe, East Asia, and Latin America, and studies of Europe have found glass ceilings in many countries and sticky floors in some. Arulampalam et al. (2007) have shown that while only Italy and Spain have a sticky floor, many countries have a glass ceiling restraining female workers.⁴ Additionally, Albrecht et al. (2003) noticed that the gender gap in Sweden is widening rapidly at the top of the distribution and concluded that a glass ceiling may be forming. As for East Asian countries, Chi and Li (2008) have provided strong evidence of sticky floors in Chinese urban areas and Cho et al. (2014) found glass ceilings in South Korea. In Latin America, from among the twelve countries studied, Carrillo et al. (2014) found glass ceilings in some countries, sticky floors in others, and both phenomena in still others.⁵ In general, glass ceilings are widely observed in the literature in both developed and developing countries, but sticky floors are observed in fewer and typically developing countries. However, Figure 4 shows that both a glass ceiling and a sticky floor have been observed in Japan even recently.

Looking at trends over time, we also see in Figure 4 that the difference in the unexplained gender wage gap between the bottom and middle of the wage distribution has been decreasing since 1990, which suggests a weakening of the sticky floor, but the difference between the top and middle of the distribution has been increasing, indicating that the glass ceiling is becoming more pronounced over time.

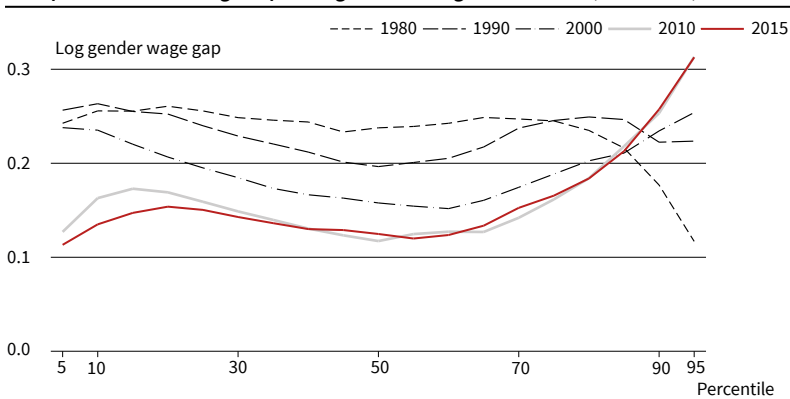
Why has the glass ceiling become so prominent recently? We might naturally assume that this is due to a difficulty for women to become managers but, according to published statistics,⁶ the number of women in managerial positions is now larger in Japan than ever before. To investigate this further, we estimated the gender gap for six different positions within a firm, again controlling for gender differences

⁴ Arulampalam et al. (2007) have shown that glass ceilings are observed in Austria, Belgium, Great Britain, Denmark, Finland, France, Germany, Ireland, and the Netherlands.

⁵ A glass ceiling has been observed in Argentina, Brazil, Paraguay, and Uruguay; a sticky floor in Bolivia, Chile, and Peru; and both a glass ceiling and a sticky floor in Colombia, Costa Rica, Honduras, Mexico, and Venezuela.

⁶ The proportion of women in managerial positions was 3.1% in 1990 but rose to 14.3% in 2019 (Japanese Ministry of Health, Labor and Welfare *Basic Survey on Wage Structure*).

Figure 4
Unexplained Gender Wage Gap throughout the Wage Distribution (1980–2015)



Source: Hara (2018); MHLW Basic Survey on Wage Structure.

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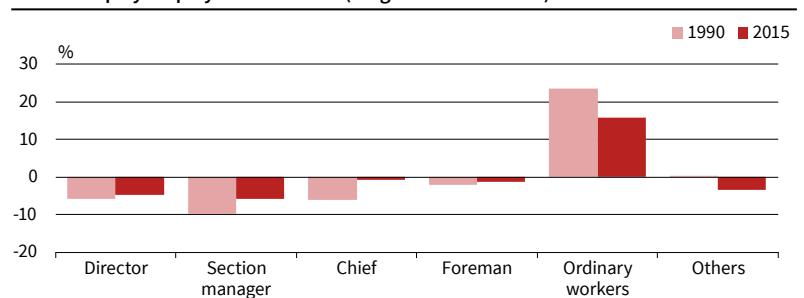
in human capital. Figure 5 shows the percentage point gender difference in the probability of holding each position, with a negative value meaning that the probability of being in that position is larger for men than for women. It is clear that the only position that women have a greater chance of holding than men is that of ordinary worker, while women are less likely to hold any of the managerial positions of director, section manager, chief, and foreman. Recall that we have accounted for differences in human capital, so these are “apples to apples” comparisons between workers of equal human capital. Next, comparing the data from 1990 and 2015, we see that the differences are smaller in absolute value in 2015 but the overall pattern has not changed substantially. In other words, while it still remains more difficult for women to be promoted than men, there is clear evidence of improvement since 1990. What might be causing the prominent glass ceiling?

One possible explanation is the “swimming upstream” phenomenon proposed by Blau and Kahn (1997) in which women are swimming hard against the stream but they cannot finish the climb because of the force of the backwash they are struggling against. A version of this is thought to have occurred in Japan. In the 2000s, it became easier for women to be promoted to managerial positions than in the 1990s, but it seems that the returns to management positions might have increased for men but decreased for women due to a shifting scarcity premium, leaving women relatively less rewarded for their increased upward mobility. In Japanese companies, there are two types of positions: core positions and non-core positions. For example, there are *star* posts or fast-track positions to which future executive candidates are assigned and relatively unimportant posts that are managerial positions in name only. Based on the results of our analysis, it is highly likely that women in Japan tend to be assigned to the latter type of post.

Other studies report similar results. Sato et al. (2019), using HR data from a Japanese company in the manufacturing industry, found that while a wide range of experience in the workplace increases a woman’s probability of promotion, it does not necessarily lead to higher wages, suggesting that women accept promotions to positions that are not accompanied by a substantial wage increase. Booth et al. (2003) also report this situation in the UK, where women are promoted at about the same rate as men, but the wage increase associated with promotion may be smaller, suggesting that for male and female workers in the same position, female workers might be stuck at the bottom of the wage scale for that position.

To explore this interpretation, I conducted an additional analysis of the returns to the six employment positions discussed above by gender for 1990 and 2015. When workers are promoted to a higher rank position, wages usually increase in what is known as

Figure 5
Gender Gap by Employment Position (Large Establishments)^a

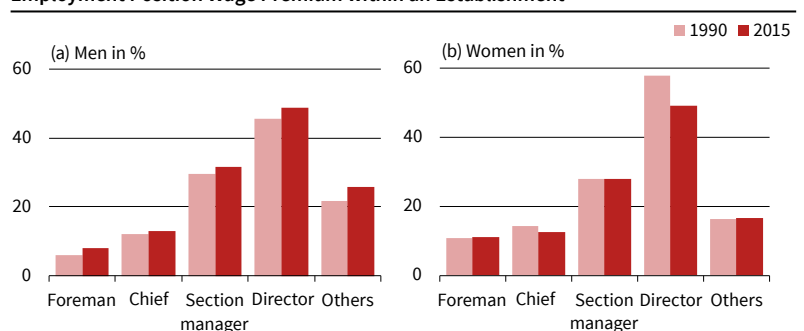


^a The figure shows the gender gap in the probability of being in a given position within a large establishment employing more than 100 workers of both genders after controlling for gender differences in human capital. A negative value means that the probability for men is larger than for women, and vice versa. Ordinary workers are those not in managerial positions. All values are 1% statistically significant except for the value of others in 1990, which is not statistically significant.

Source: Hara (2018); MHLW Basic Survey on Wage Structure.

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Figure 6
Employment Position Wage Premium within an Establishment^a



^a The figure shows the wage premium (in percentage) for each managerial position above that of ordinary workers after controlling for gender differences in human capital. All values are 1% statistically significant except for the value of women’s foreman in 2015, which is a 5% statistically significant.

Source: Hara (2018); MHLW Basic Survey on Wage Structure.

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the employment position premium. Figure 6 shows the wage premium (percentage) for each managerial position above that of an ordinary worker. Again, we have controlled for any gender difference in human capital. Although we can see that women, like men, receive an employment premium as they get promoted, this premium has increased for men from 1990 to 2015 but has decreased for women – just as more women are being promoted into managerial positions. It thus seems likely that the recent prominence of the glass ceiling in Japan is due to an increase in the gender gap in the employment position premium.

CONCLUSION

This article has focused on the gender wage gap, a prominent gap in the labor market and one which remains important even as progress has been made in mitigating gender gaps in other working conditions because a gap in wages is a gap in the compensation for labor.

So far, we have seen that while a sticky floor still exists in Japan, it has become somewhat less tacky for the lowest wage earners at least. Meanwhile, a glass ceiling has become prominent in Japan in recent years and so eliminating this gap should now become the focus of policy. How to do this, of course,

depends on the mechanism causing the phenomenon. Our initial hypothesis that it is due to the difficulty women face in being promoted to managerial positions was not supported empirically. Instead, further investigation revealed that it could be caused by a decrease in the employment position premium, or the increase in wages from promotions, received by women over time.

As mentioned above, the 2015 *Law for the Promotion of Women's Activities* was enacted to promote the advancement of women in their professional lives. Currently, employers with 301 or more full-time workers are required to objectively monitor⁷ and quantitatively track one or more of the items specified in the law regarding working conditions for women.⁸ Among these, the percentage of female workers in management positions is stipulated as a *mandatory* item.⁹ Employers are also required to set numerical targets for improvement and put them into action based on the monitoring results. Evidence-based policy requires good data, and so obtaining objective quantitative information about the problem is an important first step. However, our results suggest that eliminating the glass ceiling will require more than merely paying attention to simple numerical targets such as the proportion of workers in managerial positions by gender. Mitigating this problem will require a more comprehensive analysis based on direct observation of the gender wage gap within any given position over time.

⁷ The law will be extended to employers with 101 or more employees on 1 April 2022.

⁸ There are over 20 items, including the proportion of female workers to total employees, the proportion of female new employees, education and training by gender, assignment to jobs by gender, and differences in average length of service between genders, to name a few.

⁹ <https://www.mhlw.go.jp/content/11900000/000594316.pdf> (in Japanese).

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Gerd Schwartz

Germany's Planned Public Investment Push: Fiscal Dilemmas and Missing Dimensions*

Public investment has been kept “low for long” in Germany and the resulting public infrastructure deficits are seen as a major bottleneck for the country's economic growth and development.¹ For the last two decades, Germany has kept its public investment levels much below those of many of its European partners,² and, specifically, it failed to advance investments in key “future-oriented” areas (e.g., related to its digital transformation, energy transition, and aging).³ Bending to public pressure, previous federal governments occasionally asked expert commissions and scientific councils to advise on increasing investment, including public investment, and discussed key problems and reform needs for public infrastructure.⁴ Yet, and notwithstanding some procedural improvements to improve efficiency,⁵ little was done to advance the volume of public investment in key sectors. As a result, there has been a common view that Germany continues to have a large overall “infrastructure hole” (The Economist 2021), and both domestic and international observers have been urging fast action to increase public investment.⁶ At the same time, there has also been a view that two decades of underinvestment have left the country with an urgent need for

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¹ See, for example, Roth and Wolff (2018), Spiegel (2013), or Dullien et al. (2020). Similarly, Hellwig (2021) provides some stark indicators of such bottlenecks: for example, traffic congestions, measured in kilometers of traffic jams, increased fivefold during 2002–2018. Also, in a 2018 survey by Institut der Deutschen Wirtschaft, 72 percent of the companies surveyed indicated that deficits in Germany's road infrastructure had an adverse impact on business processes, up from 64 percent in 2013.

² Germany's public investment (i.e., public gross fixed capital formation plus transfers to public enterprises by all levels of government) has remained well below its key European partners for the last two decades. While most EU countries have maintained public investment in the range of 3–4 percentage points of GDP, in Germany it has been hovering around 2 percent of GDP. The situation is particularly dire at the municipal level, where public net fixed capital formation has been negative for almost two decades. See OECD (2020), country data retrieved from <https://data.europa.eu> (2021), Fuentes Hutfilter et al. (2016), or Hüther and Jung (2021).

³ For example, the 2021 “Digital Riser” Report (European Center for Digital Competitiveness 2021) sees Germany in second-to-last place in Europe in the area of digitalization and in third-to-last place among its G20 peers. Similarly, the OECD's Digital Government Index (2020a) sees Germany well below the OECD average.

⁴ See Expert Commission Report (2015) or BMWi (2020).

⁵ An example is the still recent introduction of a mandatory e-procurement system for all public supply and service contracts awarded by federal authorities and, increasingly, at the state level.

⁶ See OECD (2020b), IMF (2021a), or Fuest (2021), which advised to frontload public investment and speed up planning and approval processes for investments, much along the lines of the Koalitionsvertrag (2021).

ABSTRACT

Germany's new coalition government, in place since December 2021, has called for a decade of “investment into the future,” an ambitious public investment push, focused on achieving climate neutrality, fostering digitalization, advancing science and education, and improving infrastructure. Yet, the government has also committed to refraining from tax increases and returning to its fiscal anchor (a constitutionally mandated “debt brake” that has been suspended for 2020–2022), and it has not indicated cuts in other spending items that could make room for increased investments. How does this hang together? Part of the answer lies in doing as much as possible before the debt brake bites again in 2023, and part of it lies in scaling up existing extrabudgetary mechanisms to circumvent the self-imposed fiscal and budgetary confines. Yet, without a more comprehensive approach, one that combines innovations in infrastructure financing with a clear accounting of fiscal risks and significant reforms in public investment governance, the government's ambitious public investment push is likely to fizzle out.

further significant administrative reforms, including addressing a lack of administrative capacities related to public investment (OECD 2020b).

THE PLANNED PUBLIC INVESTMENT PUSH

The new coalition government promises to change all this and has called for a “decade of investment into the future,” to be fueled by much higher public investment. The “coalition treaty” (*Koalitionsvertrag*),⁷ which provides the basis of operations for the new government and was issued by the three governing coalition parties in late November 2021, paints a vision of Germany's rapid investment-led modernization. Specifically, the investment decade is to focus on cli-



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⁷ See *Koalitionsvertrag* (2021).

mate protection, digitalization, education & research as well as infrastructure. Public investment is to remain the key avenue for achieving this, and the *Koalitionsvertrag* offers significant additional resources for different sectors. On climate change, for example, it calls for an “instant program” (*Sofortprogramm*) to support adaptation measures in different sectors (including traffic, construction and housing, energy, industry, and agriculture). More generally, it promises to make sufficient financial resources available for the federal and state levels to foster climate adaptation measures and for the municipalities to strengthen investments in climate resilience.⁸ The *Koalitionsvertrag* also aims to quickly put in place (i.e., in the first year of the new administration) all decisions to allow for a “fast, efficient, and goal oriented” implementation of investments (public or private) and, more specifically, promises to cut by “at least half” the duration of investment-related administrative processes and procedures.

The public investment push is to be achieved while keeping the existing fiscal anchors in place. Like its predecessors, the new coalition government views Germany as Europe’s “stability anchor” and is keen to safeguard the country’s European leadership in terms of “financial solidity.” The government debt brake (*Schuldenbremse*), which has been guiding fiscal policy making in Germany since 2011 and has helped to keep a lid on spending (including public investment), is viewed as the main tool for this.⁹ Hence, the *Koalitionsvertrag* promises to reinstate the *Schuldenbremse* as of 2023. Indeed, Germany achieved a remarkable reduction of government debt prior to the Covid-19 pandemic, bringing it down from about 81 percent of GDP in 2010 to 59 percent in 2019. This is in sharp contrast to some other EU countries: France and Germany, for example, had broadly similar government debt ratios until about 2010, but, by 2019, France’s government debt had ballooned to 98 percent of GDP. Germany’s debt reduction owes much to the *Schuldenbremse* and the resulting budgetary restraint (including in terms of public investment and military spending), although it was also facilitated by low interest rates and a strong growth in tax revenues.

Also, there are no new taxes or tax increases on the horizon to facilitate a public investment push, and, if anything, the *Koalitionsvertrag* promises various forms of new tax relief. New wealth taxes (*Substanzsteuern*) or major tax increases (except, perhaps, for selected engine fuels) do not feature in the agenda of the new government. To the contrary: the *Koali-*

tionsvertrag envisions various forms of new tax relief, including via a “super deduction” (*Superabschreibung*) for climate- or digitalization-related investments by firms; slower-than-planned increases in pension taxation; and higher tax allowances for education & training as well as for personal savings. As a result, the new government seems to pin its hopes for additional tax revenue on “a more intensive fight” against tax evasion and tax avoidance as well as more oversight of corporate tax planning, supported by a better digitalization of the tax administration and a simplification of the personal and corporate income tax systems.

Similarly, there are no concrete spending cuts planned to make room for the planned increase in public investment. The *Koalitionsvertrag* includes a general reference to expenditure cuts and reductions in unused expenditure allocations to increase the budgetary space for future-oriented investments. It is not clear, however, where this could come from: apart from a commitment to increase fiscal space by reducing subsidies and expenditures that are “superfluous, ineffective, and harmful to the environment and climate,” the *Koalitionsvertrag* is silent on specific policy actions to reduce spending. Instead, the new government seems to rely mainly on strengthening fiscal management and transparency, including by introducing performance budgeting (“to assess the effectiveness and efficiency of policies and create additional fiscal space”) and putting in place a federal asset registry.

FOREBODING FISCAL DILEMMAS ...

By and large, it is unlikely that a major public investment push can be pulled off based on the “doing the same but much better than before” approach that is set out in the *Koalitionsvertrag*. Government budgets in most advanced economies have been suffering increasingly from “social dominance” (Schuknecht and Zemanek 2018), where rapidly growing social expenditures (e.g., for health care and pensions) in the wake of an accelerating trend of population aging and the high political costs of reforming social spending have resulted in a dramatically reduced space for discretionary spending. This is also true for Germany, where federal social spending has increased by about 4.5 percentage points of GDP over the last 30 years.¹⁰ To a large extent this has come at the expense of discretionary spending, particularly public investment, and, with no end to population aging in sight, it is unrealistic to find enough wasteful federal discretionary spending to make room for additional investment spending. Similarly, improving tax collection will, at least initially, cost much more money than it brings in, since tax administrations need to be strengthened before any additional revenues can be collected.

⁸ The overall investment program is large, amounting to at least 1.3 percentage points of GDP annually, although it falls short of the estimated 2.5 percentage points of GDP in investments that would be needed to achieve the governments climate-related goals alone (Krebs and Steitz 2021 and Krebs et al. 2021).

⁹ The *Schuldenbremse*, which is part of Germany’s basic law (*Grundgesetz*), has been suspended for 2020–2022. Put in place again as of 2023, as the *Koalitionsvertrag* promises, it would limit net borrowing (*Nettokreditaufnahme*) by the federal level (Bund) to 0.35 percentage points of GDP and prevent the states (Länder) from any net borrowing.

¹⁰ See OECD Social Spending Data Base (<https://www.oecd.org/social/expenditure.htm>) and OECD (2020c).

This suggests that achieving a rapid investment-led modernization of Germany would either require abandoning or circumventing some of the fiscal commitments of the *Koalitionsvertrag*. With higher taxes and more government debt off the table, and no obvious low-hanging fruits for large spending cuts, it is unclear where the additional financial resources for an investment-led modernization can come from. Even though there seems ample spare for increasing the efficiency and effectiveness of existing investment spending, this will take time.

For now, the new government has started to exploit the budgetary instruments readily at its disposal. It fully understands the dilemma it faces in pulling off a public investment push within the fiscal confines it has set for itself and has embarked on using all existing borrowing appropriations ahead of 2023, when the debt brake will bite again. As one of its first actions, it re-appropriated for use in 2022 and beyond, unused 2021 borrowing authorizations related to the Covid-19 pandemic, amounting to 60 billion euros (1.7 percentage points of GDP), which it will park in an extrabudgetary vehicle, a reshaped “Climate and Transformation Fund” (KTF), previously known as the “Energy and Climate Fund” (EKF).

The new government has also indicated it will circumvent its budgetary confines by relying more heavily on existing extrabudgetary tools. This includes both permanent and ad-hoc mechanisms. The *Kreditanstalt für Wiederaufbau* (KfW), a fully state-owned bank, features particularly large in the new government’s agenda: it is to become more of an “innovation and investment agency;” a major “co-risk capital provider” for the private sector (“particularly for artificial intelligence, quantum technology, hydrogen, medicine, sustainable mobility, bio economy, and circular economy”); a provider of financial support for private-sector climate adaptation measures (e.g., against flooding) and for “age-appropriate living” and “barrier reductions”; a more prominent provider of financing for buying shares in cooperative housing projects; and the steward of a new “Transformation Fund” to achieve climate neutrality. In this context, the new government has also indicated that it will strengthen the KfW’s own capital base. In addition, the new government will also continue the previous government’s provision of ad-hoc support to enterprises, particularly via its large (600 billion euros) economic stabilization fund (*Wirtschaftsstabilisierungsfonds, WSF*)¹¹ that was created in 2020 in the context of the Covid-19 pandemic to offer capital injections and guarantees to companies. Accordingly, in January 2022, it agreed to provide to a large retail chain new net resources amounting to 0.2 billion euros.

It can be argued that heavy reliance on the KfW to help fuel the government’s investment and modernization agenda risks overloading the agency and

lacks credibility. While Germany is no stranger to institutional innovation and financial engineering to pursue public policy objectives, recent undertakings have been timid: apart from ad-hoc decisions, like the creation of the *WSF* in 2020, Germany has largely avoided financial innovation to create fiscal space for public investment. There are no large public special purpose vehicles along the lines of Austria’s ASFINAG¹² that are provided with their own non-tax financial resource base (in ASFINAG’s case, road tolls); there is no dedicated infrastructure company or agency that could tap into private capital to finance public infrastructure¹³ or be tasked with the development of platforms and frameworks to develop public infrastructure as an asset class to attract institutional investors; the new government has also explicitly ruled out a larger role for public-private partnerships (PPPs), confining these to selected single projects.¹⁴ The *Koalitionsvertrag*’s statement that “core responsibilities of the state are to be implemented and financed by the state” suggests that institutional or financial innovations are not necessarily in the making. One may ask: will the KfW really be able to do more things, on a much larger overall scale, and more effectively than possible alternative institutions? It seems that, without some further innovation, the government’s public investment and modernization agenda seems unlikely to advance as planned.

Admittedly, the new government has little to build on when it comes to a domestic consensus on the financing framework needed to support its ambitious investment and modernization agenda. Most prominently, in 2020, a report by the Scientific Council of Germany’s Ministry of Economics and Energy (BMWi) is long on discussing problems and reform needs related to public investments but short on offering new ideas or solutions for financing it. Specifically, the report offered three options for financing additional public investment: (i) introducing a Golden Rule (i.e., basically exempting public investment from the relevant fiscal constraints); (ii) defining a minimum level for public investment; and (iii) setting up investment promotion agencies (*Investitionsfördergesellschaften, IFGs*) that would enjoy selective exemptions from issuing debt (BMWi 2020 and Hellwig 2021). While the first two options were rightfully discarded, as they could easily be subject to manipulation, the report also poured cold

¹² ASFINAG (*Autobahnen- und Schnellstraßen-Finanzierungs-Aktiengesellschaft*) is an independent public company that handles planning, construction, operations, and the collection of highway tolls under the general supervision of Austria’s Transport Ministry (Nauschnigg 2015).

¹³ Earlier proposals (in 2016–2017) to create an *Infrastrukturgesellschaft* would have been like Austria’s ASFINAG, except that it would have been allowed to issue debt to fund itself rather than having an own non-debt resource base like ASFINAG. These proposals have not been pursued further.

¹⁴ In 2016, about 50 percent of all public authorities surveyed indicated high reservations against PPPs (Hammerschmid et al. 2016). This is unlikely to have changed much since. With administrative structures that are not supportive of PPPs, a policy to foster PPPs would also have to overcome major administrative obstacles.

¹¹ See Bundesrepublik Deutschland, Finanzagentur GmbH (2021).

water over the third option.¹⁵ It suggested to consider IFGs in the form of specialized government agencies, i.e., fully funded by the government and unable to create additional fiscal space either by issuing debt or attracting private capital.¹⁶

Whatever form the financing mechanisms and institutions for a major public investment push will ultimately take, they will require assuming new fiscal risks, and discussions on these have not even started. All forms of fiscal additionality, budgetary or extrabudgetary, entail additional fiscal risks. Many of these risks come in the form of contingent liabilities that may (or may not) turn into actual liabilities for the government. For example, what is the likelihood that a government guarantee will be called? The real question to be asked is how much fiscal additionality is the government willing to provide, for what purpose and in what form, and at what additional fiscal risk? To date, notions of fiscal risk have been absent from discussions on increasing public investment in Germany. Yet, getting a better handle on fiscal risks is crucial: ultimately, the new government's ability to identify, analyze, manage, and disclose the fiscal risks that will accompany its ambitious public investment push will be a key element in determining its success or failure.

... AND MISSING INSTITUTIONAL DIMENSIONS

To implement its planned investment push, the new government will not only need to come to grips with its fiscal dilemmas but also with Germany's large public investment governance deficits. Public investments have frequently faced major cost overruns that are largest in the information & communications technology sector (131 percent) and smallest in the transport sector (32 percent) – see Kostka and Anzinger (2016). While cost overruns in public infrastructure projects are common elsewhere as well – on average countries lose over one-third of the potential benefits from infrastructure investment due to inefficiencies (Baum et al. 2020) – Germany seems particularly ill-prepared for a major increase in investment spending. It lacks a multi-year public investment plan to set out a clear national vision and has no institutional framework in place that would ensure implementation of such a vision. Instead, Germany's investment institutions in all stages of the investment process (planning, allocation, financing, and implementation) are fragmented across different levels of government and sectors, sometimes non-existent, and often under-resourced.¹⁷

¹⁵ The Council report argues that “outsourcing expenses from the core federal budget would contradict the principles of transparency and budget unity” and goes on to state that, “if debt-financing of the activities of the IFGs was to be viewed as desirable, national and European fiscal rules should be changed instead of trying to circumvent the existing rules by diverting from fundamental budget principles” (BMW 2020).

¹⁶ That is, the advantages of the IFGs would mostly be non-financial, as discussed by Hellwig (2021), and go more in the direction of being “centers of competence” that could help to improve governance.
¹⁷ See Anheier et al. (2016) for details.

These governance deficits are likely to become even more apparent as public investments are scaled up; they should be addressed with some urgency. The new government could start by putting in place a permanent body to oversee and support the governance reform process. This could either take the form of a government agency like an IFG (as a center of competence without own budgetary powers but fully financed by the federal budget) or as a permanent advisory body within its Council of Economic Advisors (*Sachverständigenrat*) that would be tasked with making recommendations to the government. There is no absence of proposals for strengthening Germany's investment institutions.¹⁸ A good way to get the ball rolling again would be with an independent assessment – the prime candidate of which would be the IMF's “Public Investment Management Assessment” (PIMA), a comparative framework for assessing public investment governance that has been applied by almost 70 countries worldwide, including many advanced economies, to improve their relevant public institutions (see IMF 2021b or Schwartz et al. 2020). Strengthening investment governance would help make public investment more efficient and effective, without which the resources dedicated to the country's public investment-led modernization would be wasted in part.

CONCLUSIONS

Will Germany's new coalition government be able to pull off its planned public investment push and create a decade of investment into the future? This article suggests that it may, but not without solving its foreboding fiscal dilemmas and tackling the country's public investment governance deficits in a decisive fashion. This requires a more comprehensive approach than what the new government currently seems to have in mind, one that combines innovations in infrastructure financing with a clear accounting of fiscal risks and significant reforms in public investment governance. Without these, that is, without trying out new ways for doing old things, Germany's public investment push will likely fizzle out and the decade of investment into the future would become a missed opportunity.

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Jonas Böschemeier, Feodora A. Teti, Jan Cernicky and Gunter Rieck Moncayo

AfCFTA in a Rut – Can the Pan-African Agreement Regain Momentum?

ABSTRACT

Existing high tariffs and non-tariff trade barriers on the African continent prevent greater intra-African integration. The Pan-African Free Trade Area (AfCFTA), which has been in force since January 2021, aims to generate sustainable growth through greater trade integration on the continent. However, the chances of the agreement's success are still unclear: while the targeted tariff liberalizations could drastically reduce trade costs, it remains questionable whether they will be implemented as planned – lessons from the past indicate great difficulty. Moreover, complex rules of origin allow protectionism through the back door. The next few years will be decisive for the AfCFTA: if member states succeed in implementing the agreement's measures in a disciplined manner, the result could be an integrated African market; however, our analysis leaves very little optimism as structural issues impose major challenges.

Since January 2021, trade under the ambitious pan-African free trade agreement (AfCFTA, African Continental Free Trade Agreement) has officially commenced. The launch of the trade agreement, which covers all but one African state,¹ was cautiously observed by the

¹ Eritrea is the only African country that has not yet signed the AfCFTA treaty (as of January 2022).



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public and seen as an important step and opportunity to improve the regional integration and economic development of the African continent. However, it was also met with considerable scepticism and criticized for its mere symbolic importance.

In this paper, we want to shed some light on the potential for liberalization, the current state of negotiations, and arising problems of the implementation. We start our analysis with a few facts about African trade, which is strongly oriented toward extra-continental partners, in particular the European Union (EU), the United States, and China. Thus, African countries trade predominantly with partners that are very distant compared to their immediate neighbors. Such an orientation is unusual, as trade costs with countries that are geographically close are usually lower than those of extra-regional partners.

Besides colonial history, which continues to influence political and social structures as well as infrastructure today (Bonfatti and Poelhekke 2017), we identify the African trade policy landscape to favor this development. While African exporters are largely exempt from EU and tariffs of the United States, intra-African trade in particular is still subject to high tariffs, despite some regional trade agreements. In addition, non-tariff barriers (NTBs) such as long waiting times at the borders or corruption play a major role. Intra-African trade still holds substantial untapped potential, and its strengthening can pose an important tool to improve the economic development in Africa (Ornelas 2016). The high barriers to trade imply potentially trade-creating effects for a pan-African agreement: the AfCFTA might serve as the policy instrument to foster intra-African trade. The aim of the agreement is to liberalize trade within Africa and generate sustainable economic growth.

Although ambitious in scope, the AfCFTA is running into major problems concerning the implementation. As of January 2022, the agreement has been ratified by 39 of the 54 signatory states. However, since the beginning of the pandemic negotiations were prolonged and many key aspects of the agreement, such as tariff schedules and rules of origin, are not yet finalized. Thus, despite having officially launched, trade under the agreement is effectively not possible.

This paper presents two potential explanations for the little enthusiasm for free trade in Africa. First, we ask if lower expected tariff revenues might be the reason for the difficulties in concluding the AfCFTA. While many African countries depend significantly on tariff revenue as a source of income, due to the low current levels of trade within Africa, we do not expect tariff revenues to be reduced drastically once the AfCFTA is up and running. Instead, we identify political economy motivations to be much more difficult to align across the numerous African countries. Focusing first on other trade deals that include more important trade partners for African firms might be a way to overcome the deadlock: if African countries agree to tariff concessions vis-à-vis important trade partners like the EU it might be easier in the future to also advance trade liberalization on the continent.



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PATTERNS IN INTRA- AND EXTRA-AFRICAN TRADE

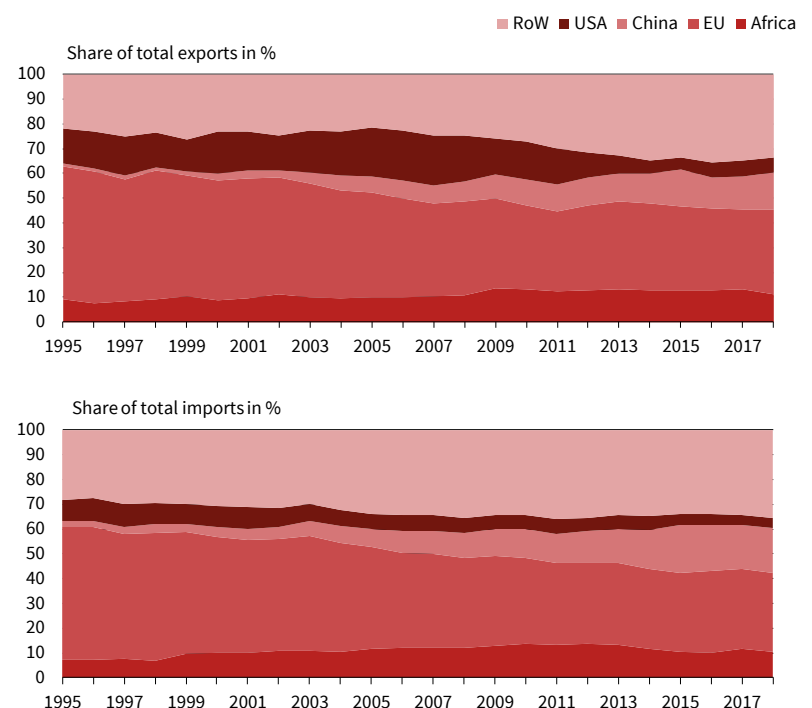
In the first step, we analyze Africa's trade in terms of trade partners and check for sectoral differences. Figure 1 displays the development of African trade flows with its most important trade partners since 1995. For the entire period, the EU is the most important trade partner of African states. In 2018, the EU has accounted for about one-third of both exports and imports. Especially the North African Maghreb states are strongly intertwined with the European production network; 54% of North African exports and 42% of its imports are due to trade with the EU. Over time, it is noticeable that with the rise of China the EU is losing much of its importance as a trade partner. In 1995, the EU still accounted for about half of African trade, while China's trade share was practically nil (exports: 1%, imports: 2%). By 2010, these ratios had changed substantially and today, China is Africa's most important trade partner after the EU, accounting for 15% of exports and 18% of imports.

Like the EU, the US has also lost market share over time and only accounted for about 5% of African trade in 2018. Most notable is the reduction in exports, which can be partially explained by the increased importance of India as a destination market. Despite the geographical proximity and numerous regional trade agreements, intra-African trade currently still only plays a minor role. In 2018, intra-African trade accounted for 11% and 10% of total African exports and imports, respectively. These shares have therefore barely changed since 1995 (exports: 9%, imports: 7%), indicating that previous attempts at integration on the continent had only moderate success. The purpose of the AfCFTA is now to reverse this trend and to improve the intra-continental trade integration.

A look at the main sectors shows large differences between exports and imports as well as across trade partners (Figure 2). African exporters do their main business by selling raw materials and minerals to extra-continental partners. These include ores, oil, stones, glassware as well as various metals and metal products. The dominance of commodities is particularly noticeable in the exports to China: 91% of the value of all exported goods is accounted for by raw materials and minerals.

Figure 1

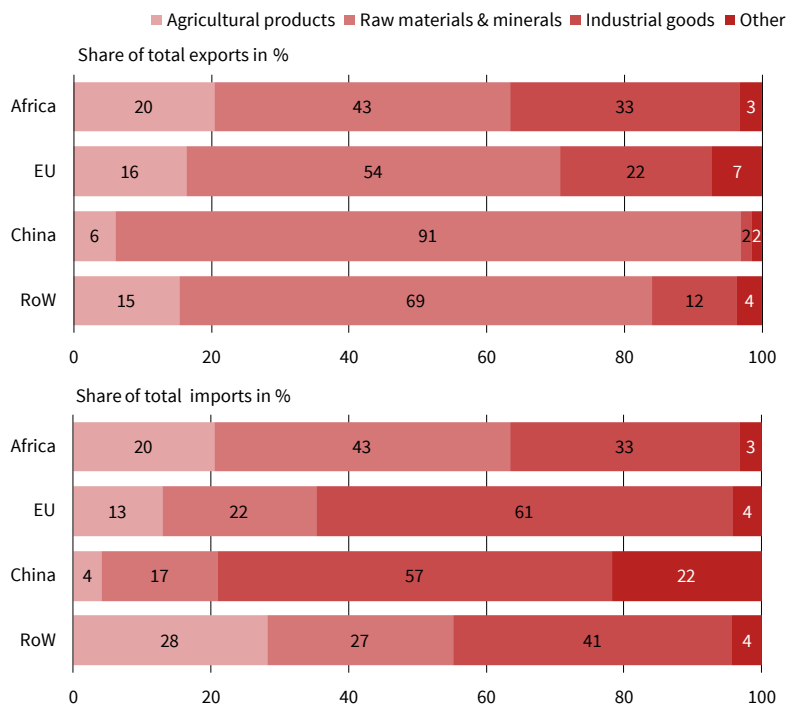
Trade Flows between African Countries and Their Trade Partners



Source: Comtrade; Gaulier and Zignago (2010).

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Figure 2
Sectoral Structure of Trade Flows within Africa and with Selected Trade Partners



Source: Comtrade; Gaulier and Zignago (2010).

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In 2019, 83.3% of African countries met the threshold of a commodity-dependent country with more than 60% of exports being commodities (UNCTAD 2021b). This high concentration of trade leads to a strong dependency on extra-continental partners for African economies, as foreign demand for African commodities and minerals is a crucial driver for the economic development of Africa. If business activity in China and the EU slows down, Africa will also be adversely affected. Besides expanding the export portfolio to other sectors, stronger diversification of potential buyers could reduce this risk.

Imports are also highly concentrated but in a different sector: 61% of total imports from the EU and 57% from China are industrial goods. Moreover, industrial goods are also the most important group among imports from the rest of the world (RoW); however, the distribution is not as skewed as for the two biggest trade partners (industrial goods: 41%, agricultural goods: 28%, raw materials and minerals: 27% and other goods: 4%). Although raw materials and minerals play a major role in intra-African trade as well, trade among African states is more diversified than with extra-continental partners. Hence, supply bottlenecks among European and Chinese suppliers pose a substantial risk for African countries since there is a strong dependence on industrial goods from abroad. In conclusion, the African economy could become more robust through trade diversification, both on the demand and supply side.

Our analysis so far shows that African trade is deeply oriented toward extra-continental partners,

in particular the EU, China, and the US. Intra-African trade, on the other hand, only plays a minor role and has not been able to gain in importance relative to other trade partners since 1995. Furthermore, African companies mainly export commodities and minerals and import industrial goods. This concentration makes the African economy highly vulnerable to disruptive factors abroad. In contrast, intra-African trade is more diversified and contains untapped potential (Böschmeier and Teti 2021). Strengthening intra-African trade could therefore promote the emergence of new industries and lead to a diversification of the African economy, making it more resilient to adverse shocks.

CURRENT AFRICAN TRADE POLICY

Most countries trade primarily with their neighbors or states in close proximity (Head and Mayer 2014). Hence, the low levels of intra-African trade remain a mystery specific to the continent, indicating high trade costs between African regions which could potentially be addressed by trade policy measures. We next analyze to what extent the high costs can be reduced by policy makers and to what extent the AfCFTA agreement will contribute to an improved trading environment.

The Existing Trade Policy in Africa: Unambitious and Complicated

Within the African Union (AU), which covers all African states and leads the negotiations of the AfCFTA on an international level, there are eight officially recognized Regional Economic Communities (RECs). They are the building blocks of the AU and aim to promote economic and political cooperation at a regional level. The RECs are listed in the first column in Figure 3, the number of member states is in parentheses. There is quite a bit of overlap among the member states, as some countries are part of multiple RECs. Kenya, for example, is part of four RECs (EAC, COMESA, CENSAD, and IGAD).

Not all RECs necessarily have trade-liberalizing measures in place. For example, the economic community IGAD, which incorporates eight North-Eastern African states, has been planning a trade agreement for many years. However, because most members are also part of the COMESA-FTA, which already promotes free trade, negotiations for an additional agreement have stalled. The second column of Figure 3 lists regional trade agreements in Africa that aim to liberalize trade in addition to political and economic cooperation. Of the 55 African states, 47 belong to at least one – and some to several – regional trade agreements. These can be divided into two groups: free trade agreements (FTAs) and customs unions.

Both types of regional trade agreements intend to completely eliminate tariffs and non-tariff trade

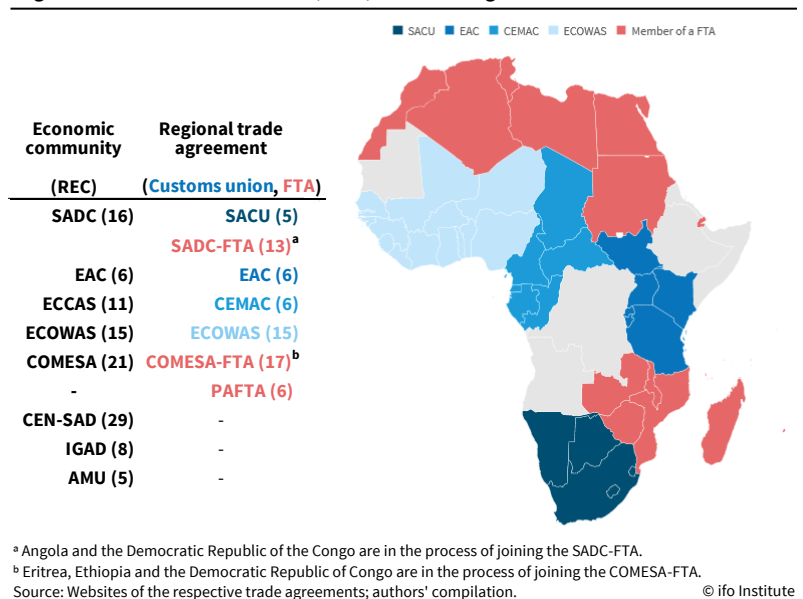
barriers between member states. Nevertheless, there are also major differences between the two regarding the relationship with third countries. While countries in an FTA keep autonomy over trade policy, members of customs unions agree on common external tariffs (i.e., the tariff imposed on third countries) and commit themselves to only negotiate trade agreements with third countries jointly. Such a close cooperation of trade policies is only possible if the political will for deep integration exists; customs unions often represent the first step of further integration process.² Table A1 in the appendix provides a list of all African countries and a mapping to their respective regional agreements.

There are three FTAs in Africa: two as part of an REC (the COMESA-FTA in the East and the SADC-FTA in the South) as well as the PAFTA (Pan-Arab Free Trade Area) between six North African countries and the Middle East.³ Similar to the RECs, memberships in regional FTAs also overlap: for example, Egypt is part of both PAFTA and the COMESA-FTA. Countries that are not members of any customs union but are part of an FTA are marked in red in Figure 3.

The members of customs unions represent those countries that intend to pursue deeper integration. The Economic Community of West African States (ECOWAS) in the West is the largest customs union in terms of number of members, while the Southern African Customs Union (SACU) in the South, led by South Africa, is the most economically powerful grouping of countries. The East African Community (EAC) in the East and the Central African Economic and Monetary Community (CEMAC) in Central Africa both have six members. The four customs unions are shown in blue in Figure 3.⁴ Besides trade policy, advances have been made to integrate economies through monetary unions, e.g., the francophone UEMOA (French: Union économique et monétaire ouest-africaine). Although monetary unions require an even stronger commitment than customs unions and foster economic integration as well, their mandate does not include trade policy, which is why they were not included in Figure 3.

Figure 3 demonstrates that the numerous trade agreements in Africa are very regional in nature. De-

Figure 3
Regional Economic Communities (RECs) and Trade Agreements in Africa



spite individual countries being in multiple agreements simultaneously, no comprehensive trade agreement exists between the respective blocs. The segmented trade policy can at least partially explain the low level of inter-regional integration of the African economy. The pan-African agreement, AfCFTA, aims to close this gap by reducing trade barriers between regions.

The overlapping trade agreements make the trade policy situation in Africa complicated and pose a major challenge for exporters, as they are faced with different regulations simultaneously. Thus, a unification and harmonization of the trade policy situation in Africa holds great potential. However, the AfCFTA does not intend to replace existing regional agreements but instead to build on them and co-exist next to them. The opportunity to reduce the existing chaos in trade policy on the African continent was therefore missed.

While no African country is part of more than one customs union at the same time, there are instances of members of a customs union also being part of a separate FTA. For example, all EAC countries except Tanzania are members of the COMESA-FTA. Instead, Tanzania is part of the Southern SADC-FTA and Eswatini is the only SACU member, which is part of the COMESA-FTA as well. This practice undermines the commitment to a common trade policy, the key characteristic of every customs union, indicating weaknesses in the practical implementation of customs unions in Africa.

High Tariffs within Africa

The elimination of intra-African tariffs is an important tool of the AfCFTA to liberalize trade. To evaluate the positive trade creation effects of a continental-wide

² The customs union EAC, for example, intends to create a monetary union after the successful implementation of a single market with free movement of goods, services, capital, and workers with the eventual goal of a political federation with a common foreign and defence policy. The customs union, in force since 2005, was the first stage of this integration process, which has been stagnating ever since.

³ The following countries are part of an FTA: COMESA-FTA: Burundi, Comoros, Egypt, Eswatini, Djibouti, Kenya, Libya, Madagascar, Malawi, Mauritius, Rwanda, Seychelles, Sudan, Tunisia, Uganda, Zambia, and Zimbabwe; SADC-FTA: Botswana, Eswatini, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Tanzania, Zambia, and Zimbabwe; PAFTA: Algeria, Egypt, Libya, Morocco, Sudan, and Tunisia.

⁴ The following countries are part of a customs union: ECOWAS: Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo; SACU: Botswana, Eswatini, Lesotho, Namibia, and South Africa; EAC: Burundi, Kenya, Rwanda, South Sudan, Tanzania, and Uganda; CEMAC: Cameroon, Chad, Equatorial Guinea, Gabon, and the Republic of Congo.

Table 1

Average Bilateral Tariffs (in %) and Existing Regional Trade Agreements in Africa in 2017

| Export | Import | South | | East | | Central | | West | North | EU | USA | China | MFN |
|---------|-----------|---------------|----------|------|---------|---------------------------|-----------|--------|-------|--------------------------------|-----|-------|-----|
| | | SACU | Non-SACU | EAC | Non-EAC | CEMAC | Non-CEMAC | ECOWAS | | | | | |
| South | SACU | 0 | 1 | 6 | 8 | 8 | 4 | 8 | 8 | 3 | 8 | 8 | 8 |
| | Non-SACU | 2 | 2 | 3 | 4 | 10 | 6 | 10 | 8 | 7 | 10 | 10 | 10 |
| East | EAC | 6 | 1 | 0 | 3 | 13 | 8 | 13 | 10 | 13 | 13 | 13 | 13 |
| | Non-EAC | 15 | 8 | 7 | 10 | 16 | 14 | 16 | 13 | 16 | 16 | 16 | 16 |
| Central | CEMAC | 17 | 17 | 17 | 17 | 1 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| | Non-CEMAC | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| West | ECOWAS | 12 | 12 | 12 | 12 | 12 | 12 | 4 | 12 | 11 | 12 | 12 | 12 |
| North | | 13 | 9 | 9 | 6 | 13 | 13 | 13 | 2 | 8 | 12 | 13 | 13 |
| EU | | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 5 | 5 | 5 |
| USA | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 4 | - | 4 | 4 |
| China | | 9 | 5 | 4 | 1 | 6 | 6 | 5 | 9 | 11 | 11 | - | 11 |
| | | Customs Union | | | | FTA between all countries | | | | FTA between selected countries | | | |

Note: The figure shows bilateral (unweighted) average tariffs between African regions and with individual selected trading partners. Tariff data describe the year 2017, trade agreements include all those notified to the WTO (as of date: September 9, 2021).

Source: Teti (2020); WTO; authors' compilation.

tariff elimination, we need to understand which tariffs currently still exist and which countries will be affected the most by a collective elimination of tariffs. For example, trade between Namibia and South Africa (both SACU members) is completely free of tariffs and trade between Egypt and Kenya is also largely liberalized. The AfCFTA will therefore primarily reduce trade costs between countries that are not yet in a joint agreement.

Table 1 shows the average tariffs between the different African regions and with the most important extra-African trade partners in 2017. We distinguish between five different regions and show the tariffs incurred for those regions. We also differentiate between the respective regional trade agreements.⁵ The rows and columns indicate the importer and exporter, respectively. The table can be read as follows: SACU members impose an average tariff of 1% on imports from other Southern countries that are not in the customs union SACU (first row, second column) while trade among SACU countries is free (first row, first column).

The coloring of the cell indicates whether a trade agreement exists and, if so, what type it is. The four customs unions SACU, EAC, CEMAC, and ECOWAS are marked blue. The dark red cells mark that an FTA exists between all countries in the respective two regions (e.g., the SADC-FTA includes all SACU and non-SACU countries in the South). Light red cells instead indicate that an FTA exists between at least one pair of countries in the two different regions. In most cases, these occur due to overlapping memberships of individual countries.

The last column displays the average most-favored nation (MFN) tariff. The MFN tariff is the tariff

⁵ The regional classification of African countries can be found in Table A1 in the appendix.

that countries impose on all WTO members; thus, a lower tariff between two regions implies that a regional trade agreement is in place. SACU has an MFN tariff of 8% on imports from countries without any joint trade agreement. Only the tariffs towards other Southern African countries have been mostly eliminated. Imports from EAC countries are subject to an average tariff of 6%. As previously mentioned, this slightly lower tariff between the regions does not reflect a trade agreement en bloc, i.e., a trade agreement between all SACU and EAC members. Instead, the difference results from individual states having overlapping memberships in FTAs: Tanzania (EAC) is part of the SADC-FTA, in which all SACU countries are also members, and Eswatini (SACU) is a member of the COMESA-FTA, in which all EAC countries (except for Tanzania) are members.⁶

A closer look at the intra-regional tariffs shows that these are significantly lower than the MFN tariff in most regions. Almost complete trade liberalization is achieved within the customs unions SACU, EAC, CEMAC, and ECOWAS. The SADC-FTA is the reason for the low bilateral tariffs among all Southern countries and the low tariffs in North Africa are created by PAFTA. Only Non-EAC and Non-CEMAC countries demonstrate a high regional tariff of 10% each.

Especially inter-regional trade holds potential for a pan-African elimination of tariffs. The MFN tariff is at a high level in all African regions and must be paid

⁶ For some combinations, it is noticeable that the import tariffs do not differ from the MFN tariffs despite being highlighted in light red (e.g., between Non-CEMAC and Southern or Eastern countries). The Democratic Republic of the Congo (DRC), which represents the Non-CEMAC countries together with São Tomé and Príncipe, has been negotiating to join the COMESA-FTA and SADC-FTA since 2016 and has therefore preferential market access to its respective partners. In contrast, the DRC has not yet reduced tariffs vis-à-vis the other countries in the COMESA-FTA as well as SADC-FTA. On the one hand, this may be due to longer transition periods for the DRC. On the other hand, it may also reflect a delay in data reporting.

in most cases when trading between regions. An exception is the on average lower tariff between Eastern and Southern Africa, which is based on overlapping memberships in the SADC and COMESA trade agreements. The slightly lower tariffs between the North, South, and East compared to the MFN tariff result from the COMESA-FTA that includes four North African countries. In West and Central-Africa, no inter-regional agreements exist to date. African countries must always pay the MFN tariffs on their exports to West and Central-Africa, which is particularly high for CEMAC countries with 17%. Similarly, exports from ECOWAS and CEMAC to other regions are also taxed with the MFN tariff. The high tariffs between regions impede intra-African trade and can partially explain the strong regional orientation of trade.

The high intra-African tariffs are particularly striking if compared with the tariffs of the most important non-African trade partners. Exports of African companies to the US and the EU are either completely tariff-free or are only marginally taxed; even the import tariffs of China for African exports are below the Chinese MFN tariff. This is primarily due to unilateral trade agreements, such as the “Everything-but-Arms” initiative of the EU or the “General System of Preferences,” which grants developing countries preferential market access to industrial countries. However, bilateral agreements, i.e., agreements in which African countries also grant tariff-free access to their markets, play a significant role for individual trade partners as well. The EU, in particular, is increasingly involved in African trade policy and seeks to deepen existing unilateral trade agreements and to negotiate additional bilateral free trade agreements. Currently, bilateral FTAs exist with the SADC-FTA in the South and with some North and West African countries.⁷ In contrast, the US only has a bilateral agreement with Morocco with unilateral programs (African Growth and Opportunity Act (AGOA) and the General System of Preferences) being the more popular policy instrument.

With the commencement of the trade agreement between China and Mauritius, a small island state in the South of Africa at the beginning of 2021, China is attempting the introduction of new trade policy measures with Africa. This is the first bilateral agreement between China and an African state and can be interpreted as the launch of the next phase of China’s foreign policy in Africa. For a long time, China has been heavily involved and interested in the African economy and its progress, as one of the most important international investors in Africa in recent years. The Asian giant invests mainly in African infrastructure and in the construction of industrial Special Economic Zones (SEZs), geographically defined zones designed to facilitate industrial production (UNCTAD 2019). In addition to the economic profitability of the invest-

ments, China’s geopolitical interests play a critical role as well.

Non-tariff Trade Barriers Significantly Hinder Trade

Non-tariff barriers (NTBs) include all trade costs that arise additionally to tariffs. These can be of various types such as long waiting times at the border, corruption, geographical barriers (mountain ranges or lakes), poor infrastructure, but also customs formalities, product standards, or import restrictions (i.e., import quotas). Some of those, for example, geographical circumstances, are very difficult for policy makers to influence. Others, like import restrictions, are the result of trade policy measures and can therefore be better addressed by regional trade agreements such as the AfCFTA. In the next step, we focus on these very barriers and highlight the areas with particularly high costs that impede intra-African trade.

In addition to tariffs, NTBs are also very high within Africa and therefore contribute to low intra-African trade integration as well. As highlighted by previous studies on the AfCFTA, trade costs resulting from NTBs in Africa are among the highest worldwide and their abolishment has considerable trade-creating effects for intra-African trade (see IMF 2019; UNCTAD 2021a).

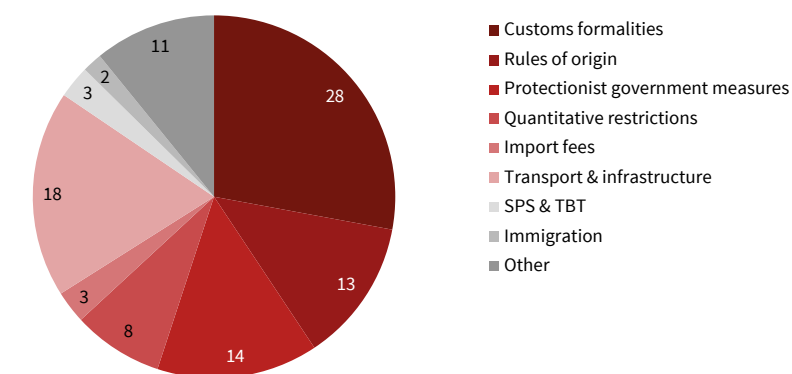
To get a better understanding of what type of NTBs African exporters are struggling the most with when doing business with other African countries, we have analyzed firm-level reports on barriers to trade. To improve trade between SADC, COMESA, and EAC countries, an online platform was introduced that companies can use to report NTBs to the authorities. The platform is used to collect the complaints and initiate a mediation process in the case of conflicts. The reports are publicly available and in the last ten years, a total of 797 reports have been filed on the platform (as of September 2021).⁸ The information provided by companies is very detailed and gives a good overview of which barriers pose the biggest challenge to East-African exporters. For example, an exporter from Burundi reports that a district in Kenya charges a transit fee. For analysis purposes, we divided the comprehensive reports into several categories: NTBs arising from the imposition of tariffs (customs formalities or rules of origin), discriminatory measures, transport and infrastructure, phytosanitary measures, and technical barriers to trade (SPS and TBT), and immigration. All remaining complaints were grouped in the category “Other.”

Figure 4 shows the distribution of all reported NTBs for trade between SADC, COMESA, and EAC countries. Barriers arising from the imposition of tariffs account for 41% of reported NTBs. Lengthy and costly customs procedures and rules of origin,

⁷ Bilateral trade agreements exist with Cameroon, Ghana, Côte d’Ivoire, Morocco, Egypt, Algeria, and Tunisia.

⁸ The complaints can be viewed here: <https://www.tradebarriers.org>.

Figure 4
Non-tariff Barriers in Africa



Source: Tripartite NTB-Monitor.

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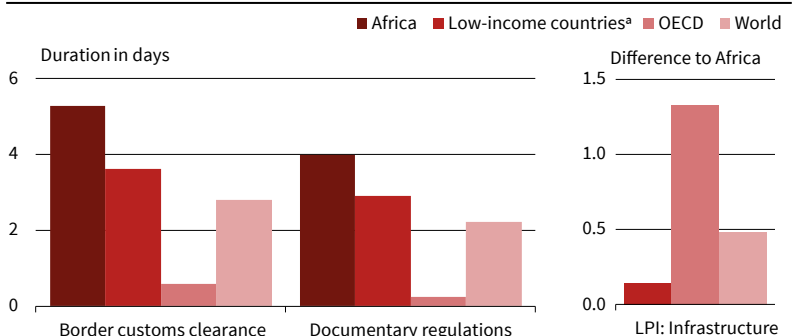
which alone account for 13% of all complaints, pose a major challenge to exporters. Furthermore, 18% of complaints revolve around problems in transportation and inadequate infrastructure. Discriminatory measures (export subsidies and quantitative restrictions) still seem to be widely used within Africa. Meanwhile, standards (SPS and TBT), as well as import fees and immigration play a minor role, each accounting for less than 3% of reported NTBs. The category “Other” includes NTBs that could not be clearly assigned, such as arbitrariness in border control or corruption.

Inefficiencies in customs clearance generate high costs: the customs clearance at the border alone takes on average 5.3 days in Africa, which is almost two full days longer than the average in low-income countries and almost ten times longer than the average duration in OECD countries (see Figure 5).⁹ A similar picture emerges for the average time to prepare the required documents, which takes four days – nearly twice as long as the global average. So, while the customs procedures in OECD countries take less than one day on average, the duration in Africa can add up to almost 10 days, thus representing a high cost for exporters.

Besides customs clearance, the African transport infrastructure is lagging behind globally as the Logis-

⁹ The numbers are from 2019 and were taken from the World Bank’s Doing Business project (<https://www.doingbusiness.org/en/data>).

Figure 5
Duration of Customs Clearance and the Difference of the Logistics Infrastructure between Africa and Selected Countries



^a This includes the “Low- and middle-income” country group defined by the World Bank. Source: World Bank.

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tics Performance Index (LPI) of the World Bank, which evaluates the functionality of a country’s overall logistics infrastructure, illustrates. The index is calculated every two years, is survey-based, and ranges from 1 to 4, with higher scores indicating better infrastructure. We focus on a sub-component of the index that focuses on the quality of trade and transportation infrastructure. Figure 5 (right) shows the difference between the average score of selected country groups and Africa for 2018: the African infrastructure lags significantly compared to the rest of the world, particularly in comparison with OECD countries. Investments that could narrow this gap and reduce transport costs should be directed toward better road conditions, a more interconnected road and rail network, and better-equipped border posts, among other things (Teravaninthorn and Raballand 2009). The AfCFTA could help to attract more investment by reducing uncertainty and providing the legal framework for investment protection.

As Figure 4 shows, rules of origin are a major challenge for exporters in existing regional trade agreements. Rules of origin are part of every trade agreement and must be complied with to obtain preferential market access. Exporters must provide a proof of origin that demonstrates “domestic production,” i.e., goods need to be predominantly produced within the free trade area, otherwise the MFN tariff applies. For example, Ghanaian car exporters must prove that at least 30% of the production took place either in Ghana or one of the other ECOWAS countries to be allowed to export duty-free to Nigeria; if this proof is not provided, a 20% duty will apply. Because only intermediate goods that originate in ECOWAS countries can be used, rules of origin have a protectionist effect against other African regions outside ECOWAS. Rules of origin are thus costly and inefficient, especially for exporters with complex value chains that span multiple African countries, or if such value chains do not exist yet, they can impede the emergence of production processes across national borders.

Exporters, who find it too complicated or expensive to comply with the rules of origin, will choose not to use the preferential market access and instead continue to pay the MFN tariff. Rules of origin are particularly challenging for small and less productive firms, which are therefore more unlikely to benefit from trade agreements (Demidova et al. 2012). Hence, the use of the AfCFTA preferences will depend heavily on the exact design of the rules of origin: the stricter the rules, the lower the trade-creating effects.

The elimination of tariffs is therefore only beneficial if the rules of origin are not too complex and can be easily fulfilled and proven by companies. There are several ways in which rules of origin can be made more flexible: rules of origin can be sector- or product-specific, or they can be defined by a requirement for regional minimum value content. Since sector- or product-specific rules of origin define exactly which

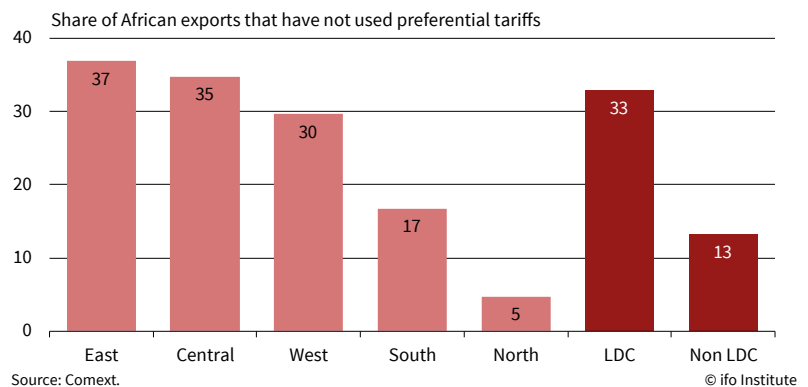
production step must take place regionally, they are more restrictive than regional minimum value content requirements (Conconi et al. 2018). The AfCFTA opted for sector- or product-specific rules of origin and thus missed the opportunity to introduce more liberal rules of origin. It is particularly interesting to note that more flexible rules are already in place in other African agreements such as ECOWAS or CEMAC. Here, the origin criteria are defined with a minimum value-added requirement that is the same across all goods. Unfortunately, however, supporters of these regulations have not been able to gain acceptance.

There are also major differences between trade agreements in terms of requirements for how proof of origin can be provided. For example, the EU allows African exporters to self-certify. In African regional agreements, on the other hand, proof of origin can only be issued by the respective customs authorities. For the time being, this regulation also applies to trade within the AfCFTA. However, companies can apply for the status of an “approved exporter,” for which self-certification is then sufficient for future exports. This procedure is unnecessarily complicated, despite the improvement compared to the previously applicable rules of the regional agreements.

How can we assess whether rules of origin are an obstacle for exporters? A common metric in the literature is the so-called preference utilization rate (Keck and Lendle 2012). It examines how often exporters choose not to provide proof of origin and instead pay the higher MFN tariff. In these cases, the costs due to rules of origin exceed the benefits. Unfortunately, an analysis of intra-African use of preferences is not possible due to lack of data. However, we can examine EU imports from Africa. The EU provides preferential market access to all African countries through various trade policy regimes, such as the unilateral “Everything-but-Arms” and “General System of Preferences” programs, as well as bilateral trade agreements. Table 1 illustrates this relationship. For these trade agreements, we can verify whether the EU’s rules of origin are a barrier to trade for African exporters. This finding helps us to better assess the risk of unused preferences under the new AfCFTA.

The official EU trade data contain information on how often exporters from countries that are de jure exempt from tariff payments make de facto use of preferential market access. Figure 6 displays the share of exports for which the MFN tariff was paid even though eligibility for a preferential tariff existed. For 37% of exports from East African countries that were eligible for preferential tariffs, African exporters did not use them in 2017 and paid the MFN tariff instead. This figure is similar for Central and West African countries (34% and 30%, respectively), but exporters from South African countries are more likely to use preferential market access. The preference utilization rate is particularly high among North African countries. On the one hand, this can be explained

Figure 6
(Non)-Usage of Preferential EU Market Access by African Exporters



by their greater integration into the European production network, which facilitates compliance with EU rules of origin. On the other hand, simpler rules of origin are in force for these countries, making it easier for exporters to provide the proof of origin. Especially exporters from less developed countries are burdened by rules of origin; the share of exports that could not use the preferential tariffs is almost three times higher for African LDCs than for the rest of the countries.

What do these figures mean for the AfCFTA? We expect even lower utilization rates for the AfCFTA than for the exports to the EU. The strong and long-standing orientation of African trade towards the EU suggests that African companies are part of European production processes. This facilitates compliance with rules of origin, as both European and African intermediate goods can be used to meet the requirements. However, this strong integration with Europe also means that it will be more difficult for African companies to carry out the necessary production processes in Africa. In addition, the goods exported differ significantly between Europe and other African countries: While raw materials and minerals are particularly important for the European market, which often involve few upstream production steps and for which it is therefore easier to comply with the rules of origin, intra-African trade is more diverse.

Finally, corruption is a major obstacle in Africa that might undo all potential gains from trade. Many African states have a major problem with corruption. Looking at relevant indicators such as the Corruptions Perceptions Index of Transparency International, it seems obvious that the widespread corruption measured here also occurs in customs administrations.¹⁰ Although there is no data to back this up meeting scientific standards, observers interviewed from several AfCFTA member states confirm that corruption is widespread at customs borders. This also explicitly applies to goods for which no customs duties or other trade restrictions apply. Gregor Jaecke, who has

¹⁰ More information on the Corruptions Perceptions Index is available here: <https://www.transparency.org/en/cpi/2021>.

headed the offices in Kenya and Congo of the German Konrad Adenauer foundation, reports: “while I worked in eastern- and central Africa, I have often been told about corruption in customs and I have experienced it several times. Even within existing customs unions such as the EAC, it is the rule rather than the exception that for goods that should actually be duty-free and for which correctly completed documents are carried, considerable sums of bribe money have to be paid at the borders.” If the AfCFTA, in fact, increases trade, corruption will also become even more lucrative and hence more prevalent. In the worst case, the additional fees levied by corrupt customs officials might undo all tariff cuts agreed on in the AfCFTA.

STATE OF IMPLEMENTATION OF THE AfCFTA

Although trade under the AfCFTA has been officially launched since January 2021, many key issues regarding the trade in goods and services remain unresolved and hinder the implementation of the trade agreement. In December 2021, negotiations regarding the rules of origin were only 87% completed, although the initial deadline was in 2020. The large heterogeneity across African countries and their different economic structures make it hard to align protectionist interests and to reach a consensus; the discrepancies are particularly strong in the textile sector. The relatively high share of finalized rules of origin masks the fact that it includes many products that are not traded. Thus, the remaining 13% likely comprise the most controversial products. Only time will tell how long it will take to reach an agreement.

Furthermore, proposed tariff schedules have not been received from all states. The ratified version of the AfCFTA specifies how the implementation of tariff reductions should look in detail: Each member state shall eliminate 90% of tariff lines after five years, least developed countries (LDCs) have more time to adjust (ten years). Of the remaining 10%, defined as sensitive goods, each country is allowed to completely exclude 3% from tariff elimination and eliminate the remaining 7% within a longer period (ten years and thirteen years for LDCs, respectively). Similar country-specific exemptions can also be found in Mercosur, a regional trade agreement in Latin-America including Argentina, Brazil, Paraguay, and Uruguay (Baur et al. 2021), and might be the only way the highly heterogeneous African countries can reach an agreement in the first place. However, they impose major difficulties for multi-destination exporters: depending on the destination, a different tariff might be applicable.

Although the guidelines on tariffs are clearly stated in the AfCFTA, most of the countries that have already submitted their tariff cut proposals to the secretariat do not comply with them. Out of the 43 countries that have submitted proposals, only 29 stick to the rule of only exempting 3% of the tariff lines. It remains unclear whether negotiations will go on to

meet the pre-defined criteria or if countries will take the easy way out and stop when reaching the lowest common denominator.

Without finalized rules of origin and tariff schedules, trade under the AfCFTA has effectively not commenced, despite having officially launched one year ago. The main priority of the AU is now to resolve these overdue issues so that liberalized trade in goods can begin. Nevertheless, these prolonged negotiations already indicate that the more ambitious goals of the AfCFTA, such as protocols for investment, intellectual property rights, or e-commerce, are either unlikely to be concluded or only achieved in a distant future.

LITTLE ENTHUSIASM FOR FREE TRADE ON THE CONTINENT: POTENTIAL EXPLANATIONS AND WAYS FORWARD

Why is it so difficult for African countries to align their interests and implement a deep and comprehensive trade agreement? We will next discuss two potential explanations: first, reliance on tariff revenues, and second, political economy motivations.

For many African countries, tariffs are a non-negligible part of their total government revenue (Keen 2008; Baunsgaard and Keen 2010). On average, the share of customs and other import duties of tax revenue equals 14% using the latest available year of the World Bank’s World Development Indicators.¹¹ For comparison, the share is less than 2% for Germany, France, Italy, the US, and Japan. The average share also masks large heterogeneity across countries: while customs and other import duties are only 3% of South Africa’s tax revenue, it equals between one-quarter and a third for the Côte d’Ivoire, Botswana, Namibia, and Somalia. African countries rely more heavily on tariffs because they are relatively easy to collect, especially compared to other taxes like a value added tax or an income tax for which better institutions are needed (Keen 2008; Baunsgaard and Keen 2010). In addition to tariffs, other fees and taxes also arise when trading, such as an excise tax or service fees, making trade as a source of income even more important for low-income countries. Unfortunately, due to the opaque nature of these costs it is hard to quantify them. Anecdotal evidence suggests that they are highly relevant for African countries.¹²

Countries that depend strongly on tariffs as a source of government income do not have any incentives to lower tariffs in general. Due to the current trade patterns, we only expect small direct effects of the trade liberalization advanced by the AfCFTA: the bulk of African imports are from extra-continental

¹¹ The data can be downloaded here: <https://databank.worldbank.org/source/world-development-indicators>.

¹² According to estimates of the office of the German Konrad Adenauer foundation in Addis Ababa, in Ethiopia, the total earnings through trade amount to 40% of the total annual budget out of which only roughly 10% are directly attributable to tariffs.

partners; hence, the direct effect of a tariff reduction on intra-African trade on tariff revenues will be rather small. In a simulation study, the World Bank shows that the direct reduction will not exceed 0.06 percent of total government revenue (International Bank for Reconstruction and Development/The World Bank 2020). However, tariff revenues might be affected by general equilibrium outcomes, i.e., trade diversion; the lower tariffs vis-à-vis African partners will lead to more trade within Africa and less trade with third countries reducing tariff revenue significantly. While more research is needed to formally quantify this effect, given the dominance of extra-African trade partners and the many trade barriers within Africa that remain virtually untouched by the AfCFTA we expect trade diversion to only have a small impact on revenues.

How could one lessen concerns about lower tariff revenues and consequently increase the acceptance of the mega-deal? First and foremost, better information and more visible communication is necessary. Promoters of free trade should put forward that tariff revenue will not be hampered by free trade on the continent, or, if they are, the gains from free trade will certainly outweigh the lower stream of income. Second, the international community could assist African governments to implement other taxes as a major form of income. We are aware that this second suggestion is more of a long-term approach and will only be possible if many obstacles like corruption can be overcome.

Political economy motivations might be another potential explanation for the preference for high tariffs in Africa. Tariffs crowd out goods provided by foreign producers that are more competitive than domestic producers. Therefore, tariffs will lead to higher prices, which is bad for consumers but increases the rents of African producers. Put differently, tariffs redistribute income away from consumers towards producers.

Now the question arises of why countries value the welfare of producers higher than those of consumers. First, producers might be politically organized and lobby for their interests, for example, through campaign donations (Grossman and Helpman 1994; Goldberg and Maggi 1999). Furthermore, politicians might favor industries that have critical mass in elections. For example, Muûls and Petropoulou (2013) and Bown et al. (2021) show that, in the US, states classified as swing-states that are highly relevant for the outcome of elections, benefit from higher protection.

In Africa, protecting special interest groups has a long-standing tradition. A high share of the existing industry in AfCFTA-countries is owned by members of the same elites who in many cases also dominate the political class (Odijie and Onofua 2020). Many of these industries produce only for the limited domestic market and use technology that is generally

outdated from a global perspective. These industries are therefore often not very competitive. Still, they generate lucrative income for their owners as long as the products they produce are protected by high trade-barriers. This leads to situations that seem absurd, at least for an outside observer. For example, in Kenya helicopters that are used by the very wealthy as a means of transport are exempted from tariffs. Cardboard on the other hand, which is an important input for the big packaging industry in Kenya, has very high tariffs.¹³

Producers that enjoy protection through tariffs have no interest whatsoever in liberalizing trade. Therefore, African producers strongly oppose tariff reductions even if only intra-African trade is covered. However, because of the close ties between industrial ownership and political decision makers, in Africa this translates into even stronger preferences for protectionism than in other region where producers have less power to manipulate tariffs.

The strong ties between politicians and special interest groups are hard to circumvent and will always pose difficulties for free trade in Africa, especially for intra-continental trade, as here potential gains of free trade might be lower than when liberalizing trade with more important trade partners. A possible solution might be to first finalize trade deals with other trade partners to discipline governments and weaken the position of producers. As Maggi and Rodriguez-Clare (1998 and 2007) show, a government can credibly distance itself from domestic political economy forces by finalizing a trade deal. Although political economy motivations are strong in Africa, liberalization could be achieved if the other negotiating party is a very important trade partner. In this case, African producers have a harder time to push through protectionist agendas, because African countries are the junior partner and heavily rely on further free access making it easier to agree on concessions. The EU's economic partnership agreements (EPAs) might have exactly this effect. For those countries that have already finalized the EPAs, we do not observe many tariff lines being exempted. Instead, governments have committed to broad tariff reductions.¹⁴ In the long-run, the lower protection of producers will lead to higher exits of firms, as only the most competitive African producers will be able to withstand the higher competition through EU-exporters. The purge will reduce the protectionist tendencies in Africa, making it easier to liberalize trade within the continent. This channel might be strengthened if other important trade partners like the United States and China also start to negotiate bilateral trade deals instead of only unilaterally granting preferences to the African continent.

¹³ Tariffs for Kenya can be found here: <https://kenyatradeportal.go.ke/tariff-list-2>.

¹⁴ Information on EPAs can be found here: <https://ec.europa.eu/trade/policy/countries-and-regions/development/economic-partnerships/>.

CONCLUSION

Despite the emergence of numerous regional trade agreements on the African continent, intra-African trade has not gained in relative importance throughout the last decades. African businesses still predominantly trade with European, Chinese, and American partners and export raw materials and minerals. In this paper we identify the existing trade policy landscape as one major reason for this pattern: while African exporters have free access for most exports to the EU, the US, and China, the barriers to trade within Africa are still very high, impeding trade with other African countries. Particularly across different regions, i.e., South, North, West, East, and Central Africa, the scope for liberalizing trade through tariff reductions is significant. In addition, non-tariff barriers (NTBs) are very high, and especially inefficient handling at the border imposes a major hurdle to trade.

Given these adverse conditions for intra-African trade, the launch of the AfCFTA one year ago promises large trade-creating effects, which may promote economic development and support the diversification of African trade flows. While ambitious in scope, the implementation of the trade agreement imposes major difficulties: first, due to many country-specific exemptions tariff eliminations might not be as extensive as initially promised. Moreover, it remains unclear to what extent these tariff reductions will eventually be implemented by the individual states. Lessons from another seemingly deep trade deal among developing countries, the customs union Mercosur in Latin America, show that, despite official agreements, tariffs have still not been completely abolished – after 30 years (Baur et al. 2021). Similar trends are observable in the existing trade agreements in Africa as well. Third, instead of replacing existing trade agreements, the AfCFTA co-exists in parallel, making it even more complicated for exporters to understand the trade policy landscape. Fourth, strict rules of origin as well as corruption might even undo any successfully implemented tariff cuts. Lastly, so far, most of the agreement seems to be about tariffs, leaving NTBs, a major chunk of total trade costs, untouched – this needs to change if the overarching goal of free trade within Africa shall ever be achieved. We identify especially political economy motivations, more precisely the close ties between the political elite and the industrial powerhouse in Africa, to be one of the main problems when trying to advance free trade.

What does this mean for the future of the AfCFTA? The next few years will be decisive for the AfCFTA: if all member states respect and implement the agreed tariff concessions, this would be a first good indication. It means that the AfCFTA is taken seriously by the countries and makes it possible to initiate deeper integration measures. Given the current structural issues that impose major challenges, it is more than questionable if African countries can achieve these

ambitious goals. It would also be desirable if the AfCFTA could replace the existing regional trade agreements as soon as possible. This would significantly reduce the complexity of the continent's trade policy – but there is a long way to go until then.

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APPENDIX

Table A1

States of the African Union and Their Memberships in Regional Agreements

| Region | Country | Customs Union | FTAs | | RECs | |
|---------|----------------------------------|---------------|------------|------------|--------|---------|
| South | | | | | | |
| | Angola | | SADC-FTA | | SADC | ECCAS |
| | Botswana | SACU | SADC-FTA | | SADC | |
| | Eswatini | SACU | SADC-FTA | COMESA-FTA | SADC | COMESA |
| | Lesotho | SACU | SADC-FTA | | SADC | |
| | Madagascar | | SADC-FTA | COMESA-FTA | SADC | COMESA |
| | Malawi | | SADC-FTA | COMESA-FTA | SADC | COMESA |
| | Mauritius | | SADC-FTA | COMESA-FTA | SADC | COMESA |
| | Mozambique | | SADC-FTA | | SADC | |
| | Namibia | SACU | SADC-FTA | | SADC | |
| | Seychelles | | SADC-FTA | COMESA-FTA | SADC | COMESA |
| | South Africa | SACU | SADC-FTA | | SADC | |
| | Zambia | | SADC-FTA | COMESA-FTA | SADC | COMESA |
| | Zimbabwe | | SADC-FTA | COMESA-FTA | SADC | COMESA |
| East | | | | | | |
| | Burundi | EAC | COMESA-FTA | | EAC | COMESA |
| | Comoros | | COMESA-FTA | | COMESA | SADC |
| | Djibouti | | COMESA-FTA | | COMESA | CEN-SAD |
| | Eritrea | | COMESA-FTA | | COMESA | CEN-SAD |
| | Ethiopia | | COMESA-FTA | | COMESA | IGAD |
| | Kenya | EAC | COMESA-FTA | | EAC | COMESA |
| | Rwanda | EAC | COMESA-FTA | | EAC | COMESA |
| | Somalia | | | | COMESA | CEN-SAD |
| | South Sudan | EAC | | | EAC | IGAD |
| | Tanzania | EAC | SADC-FTA | | EAC | SADC |
| | Uganda | EAC | COMESA-FTA | | EAC | COMESA |
| | | | | | | IGAD |
| Central | | | | | | |
| | Cameroon | CEMAC | | | | ECCAS |
| | Central African Republic | CEMAC | | | | ECCAS |
| | Chad | CEMAC | | | | ECCAS |
| | Democratic Republic of the Congo | | COMESA-FTA | SADC-FTA | ECCAS | COMESA |
| | Equatorial Guinea | CEMAC | | | | ECCAS |
| | Gabon | CEMAC | | | | ECCAS |
| | Republic of the Congo | CEMAC | | | | ECCAS |
| | São Tomé and Príncipe | | | | | ECCAS |
| | | | | | | CEN-SAD |
| West | | | | | | |
| | Benin | ECOWAS | | | ECOWAS | CEN-SAD |
| | Burkina Faso | ECOWAS | | | ECOWAS | CEN-SAD |
| | Cape Verde | ECOWAS | | | ECOWAS | CEN-SAD |
| | Côte d'Ivoire | ECOWAS | | | ECOWAS | CEN-SAD |
| | Gambia | ECOWAS | | | ECOWAS | CEN-SAD |
| | Ghana | ECOWAS | | | ECOWAS | CEN-SAD |
| | Guinea | ECOWAS | | | ECOWAS | CEN-SAD |
| | Guinea-Bissau | ECOWAS | | | ECOWAS | CEN-SAD |
| | Liberia | ECOWAS | | | ECOWAS | CEN-SAD |
| | Mali | ECOWAS | | | ECOWAS | CEN-SAD |
| | Niger | ECOWAS | | | ECOWAS | CEN-SAD |
| | Nigeria | ECOWAS | | | ECOWAS | CEN-SAD |
| | Senegal | ECOWAS | | | ECOWAS | CEN-SAD |
| | Sierra Leone | ECOWAS | | | ECOWAS | CEN-SAD |
| | Togo | ECOWAS | | | ECOWAS | CEN-SAD |
| North | | | | | | |
| | Egypt | | PAFTA | COMESA-FTA | COMESA | CEN-SAD |
| | Algeria | | PAFTA | | AMU | |
| | Libya | | PAFTA | COMESA-FTA | AMU | COMESA |
| | Morocco | | PAFTA | | AMU | CEN-SAD |
| | Mauretania | | | | AMU | CEN-SAD |
| | Sudan | | PAFTA | COMESA-FTA | COMESA | CEN-SAD |
| | Tunisia | | PAFTA | COMESA-FTA | AMU | COMESA |
| | Western Sahara | | | | | CEN-SAD |

Note: Entries marked in light red indicate that the accession of the respective country to the stated agreement is currently under negotiation.

Source: Individual trade agreement websites; authors' compilation.

Martin Werding

Is a Pension Reform Needed in Germany?

ABSTRACT

Germany is being hit relatively hard by demographic aging. The latest round of major pension reforms dates back to the period from 2001 to 2007. The last government tried to prepare a new reform, but failed to reach a consensus. The new coalition government is not pursuing these plans any further. This article describes the changes in existing rules that the coalition is nevertheless considering and discusses actual reform needs.

According to the new German government's coalition agreement, the answer to the question raised in the title is, basically, no. While the preceding "Grand-Coalition" government had installed a commission that was meant – but eventually failed to – reach a consensus on a far-sighted pension reform, the new coalition formed by Social Democrats, Greens, and Liberal Democrats quickly declared that no major reforms of the mandatory public pension scheme will be considered during its term of legislation; that is, until 2025. Instead, the coalition has announced a few minor adjustments in this scheme, plus an examination of options for improving on participation in and the performance of occupational pensions as well as private old-age provision, which are both voluntary in Germany. The fact that, in a document with 177 pp., only one and a half pages focus on old-age provision has been a point of criticism about the new coalition agreement by a number of observers.

REASONS FOR REFORMS



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The main reason why reforms of the German pay-as-you-go public pension scheme – and at least one of the other two pillars providing funded pensions – are needed is that the country will be hit relatively hard by demographic aging in the near future. Until 2035, Germany will be among the fastest aging countries in the world, a result of an after-war baby boom which came rather late and was small by international standards and a sub-

sequent decline in fertility which was substantially steeper and stronger than elsewhere. Between 1964 and 1975, the total fertility rate fell from 2.54 to 1.45 in West Germany and has roughly stayed constant at this level, with only a slight increase in recent years.¹

As a consequence, the old-age dependency ratio is expected to double between 2000 and 2035 (Statistisches Bundesamt 2019). One-third of this increase has already materialized, while the remaining two-thirds are now imminent, as the German baby boomers are currently starting to enter retirement. After 2035, old-age dependency will not go down again, due to the long period with low fertility. Most likely, it will continue to increase at lower speed in the decades that follow (or stay constant at its elevated level at best), depending on future migration flows and further increases in life expectancy.

These unfavorable demographic trends have long been foreseeable. Thus far, German pension policy has responded to this perspective through several rounds of reforms, always with a time horizon of about 15 years (for an analysis of earlier steps, see Werding 2007). A major reform package was enacted in 1989, strengthening actuarial fairness in the public pension scheme and switching from annual benefit up-ratings aiming at a constant gross benefit level – which no longer made sense in times when contribution rates for pensions were projected to go up – to a constant net benefit level.² Between 2001 and 2007, a series of reforms followed which openly acknowledged that holding the benefit level constant, even on a net basis, would not be feasible against the pressure of demographic aging. Therefore, annual benefit up-ratings were inversely linked to changes in the system dependency ratio (besides existing links to wage growth and changes in pension contribution rates) as a self-stabilizing mechanism (Börsch-Supan 2007). To prevent the benefit level from declining too fast and to moderate the expected rise in contribution rates, a gradual increase in the statutory retirement

¹ Figures for East Germany were 2.51 in 1964 and 1.54 in 1975, respectively, indicating remarkably parallel trends at this time. Afterwards, annual fertility rates fluctuated much more in the East than in the West, before and after re-unification, but converged to a common level until 2005.

² Here, "benefit level" means a quasi-replacement rate, relating current pension benefits to current wages. Rules for benefit assessment and indexation imply that this level is the same for all workers with an equivalent work record, regardless of their age and duration of retirement. It is officially assessed based on a standardized pension derived from 45 years of contributions on average wages in each year. As the system does not entail much redistribution, the impact of shorter or longer work records and lower or higher wages on individual benefit entitlements is largely linear.

age from 65 to 67 was legislated, which has been effective since 2012 and will remain in place until 2031.³ In addition, a new program for supplementary private provisions and their subsidization was introduced to make up for the projected decrease in the level of public pensions. Taken together, these measures were expected to render the system viable until around 2025. Therefore, initiating discussions on new reforms is now actually needed.

Figure 1 shows the outlook on how demographic aging will affect contribution rates and benefit levels⁴ of the German public pension scheme until 2060 under the current legal framework.⁵ In lieu of a richer set of sensitivity tests, the figure combines a “baseline scenario” with indications regarding the margins of uncertainty arising from alternative assumptions on future demographic trends (building on the medium variant and two extreme scenarios – called “young” and “old population” – of the latest official demographic projections prepared by the federal statistical office; Statistisches Bundesamt 2019).

SHIFT IN POLITICAL DISCUSSIONS

The results presented in Figure 1 clearly demonstrate that the ongoing aging process is expected to put the German public pension scheme under pressure. Benefit levels which have gone up during the economic crisis triggered by the Covid-19 pandemic⁶ will decrease considerably until 2035 and may continue to do so afterwards. Nevertheless, contribution rates for the public pension scheme tend to increase, starting from 2023, over the entire simulation period, even though the pension scheme regularly receives huge transfers from the federal budget that will also go up following existing rules for their annual adjustment.⁷

At the same time, the figure indicates that, against earlier expectations, contribution rates went down between 2010 and 2015 and have remained largely constant since then. This reflects a long period of strong labor-market performance which started in 2006, following a remarkable change in trend unemployment, and became fully visible during and after the Great Recession. The unforeseen recovery from

³ By rules allowing to retire early (starting from age 63, with discounts from acquired benefit entitlements) or late (with top-ups), the individual retirement age is nevertheless flexible.

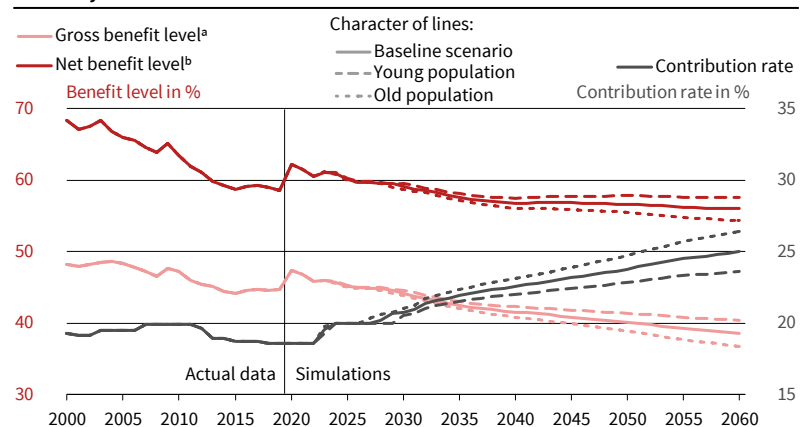
⁴ Official measurement of the benefit level in Germany uses a mixed approach regarding gross and net figures. Pensions and wages are taken net of social insurance contributions, but income taxes are disregarded as they are strongly dependent on individual characteristics. Here, they are assessed assuming that pensions or wages are the only source of income (taking into account a full transition to deferred taxation of pensions until 2040, as currently scheduled).

⁵ The simulations have been prepared using the Social Insurance Model, version 2019 (“SIM.19”; see Werding 2021) for a description of underlying assumption and modeling strategies employed).

⁶ This is not only due to the fact that pension up-ratings always follow wage growth with a one-year time-lag, but also to special rules applying if wages covered in the pension scheme decline – as they did from 2019 to 2020.

⁷ Currently, total transfers financed from general taxation (or, partly, from fiscal deficits) cover about 30 percent of expenditure of the public pension scheme. In the simulations presented here, this percentage will rise to 33 percent until 2060.

Figure 1
Statutory Pension Scheme – Benefits and Contributions



^a Pension benefits after 45 years with contributions on average wages as a percentage of average wages.

^b Net of social insurance contributions and income taxes on pensions and wages.

Source: German Pension Insurance (until 2019); SIM.19 (from 2020 onwards).

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an earlier period of sluggish growth and continuously rising unemployment is certainly good news with respect to how Germany will be able to cope with its pronounced aging process. Without it, contribution rates for pensions would have started to increase a decade earlier than is currently projected and would reach even higher levels over time (see Werding 2007). However, while this new “German miracle” (Burda and Hunt 2011) unfolded, attention in political discussions about the pension system shifted away from the impending aging process and its long-term consequences.

In recent years, public debates about the German pension scheme were mostly driven by concerns about the ongoing reduction in the benefit level, which has basically come about as scheduled through the reforms taken from 2001 to 2007. Starting from 2014, a number of amendments were made to the rules governing public pensions, partly undoing earlier reforms (see Werding 2016 and 2020). When installing the commission on a new round of pension reforms in 2018, the ruling Grand-Coalition government also defined a “stop line,” implying that the level of pension benefits should not fall below a certain limit (48 percent, based on the official definition mixing gross and net benefit levels; see footnote 4) until 2025. To put those actively insured as well as their employers at ease, another stop line was added prescribing that contribution rates should not exceed 20 percent during the same time span. Afterwards, a number of politicians soon started creating the impression that prolonging the stop line for the benefit level, with or without a second stop line for contribution rates, might be feasible.

PENSIONS IN THE 2021 ELECTORAL CAMPAIGN

Before and during the 2021 electoral campaign, a number of experts’ groups and think tanks generated ideas on how to further adjust the German public

pension scheme and the overall system of old-age provision to the next stage of the aging process (see, e.g., Wissenschaftlicher Beirat beim BMF 2020; Wissenschaftlicher Beirat beim BMWi 2021). At the same time, politicians on all sides were extremely reluctant to address the topic of new pension reforms throughout their campaigns.

Instead, the Greens and even more so the Social Democrats mainly tried to assure voters that they would not lay hands on two issues which the public considered the highest attention – reductions in the level of pension benefits below the current stop line and further increases of the statutory retirement age after 2031 (when the ongoing increase comes to a halt). Only the Liberal Democrats openly advocated reforms with respect to both these difficult issues to create room for maneuver regarding an overhaul and an expansion of supplementary private old-age provision, largely modeled on the Swedish “premium pension” which had been established in 2001 in combination with a far-reaching reform of the traditional Swedish public pension scheme. With respect to supplementary private provisions, the Greens advocated a similar concept in their campaign, but did not make this an element of a comprehensive reform proposal.

In the election, the Social Democrats won the highest share in the popular vote. Given the age structure of the German electorate, their low-voiced, but clear position against pension reforms may have contributed to this outcome (as predicted by Sinn and Uebelmesser 2002). Soon after the election, it also became clear that entering a coalition with the Greens and the Liberal Democrats was the most appealing, if not the only option for forming a new government.⁸

CURRENT PLANS FOR THE TIME UNTIL 2025

As previously mentioned, the coalition agreement of the new government basically rejects any major reforms of the German public pension scheme, mainly reflecting pre-election positions of the Social Democrats in this regard. Specifically, the agreement confirms that – in line with existing rules – contribution rates will not be raised above the current stop line during the government’s term of office. The wording is stronger regarding the benefit level. Here, the coalition partners state that they will secure it to remain permanently above its current stop line. In addition, they state that there will be no further increases in the statutory retirement age, without indicating a time frame for this promise.

Following these initial commitments, the agreement explains that the coalition wants to strengthen the pay-as-you-go pension scheme mainly through higher immigration and higher labor-force participa-

tion of women and elderly workers. The simulations provided in Figure 1 are already based on substantial amounts of immigration – in the baseline scenario as well as in the “young population” variant – and on the assumption that female labor-force participation and effective retirement ages will continue to grow. Additional changes in these directions could mitigate the unfavorable trends in benefit levels and contribution rates shown there. But with realistic variations in relevant assumptions, these trends will never disappear. The coalition has also announced a small correction of benefit up-ratings that will become effective in 2022 to partly undo the rise of the benefit level related to the Covid-19 crisis (yet without violating the existing stop line). This will shift all projected curves in Figure 1 downwards by a very small margin, but will not alter the overall picture. In addition, the agreement states that more generous rules for assessing disability pensions which were introduced in recent years for newly awarded benefits of this type will now also be applied to benefits already awarded earlier. This may lead to small and transitory increases in contribution rates projected for the years until 2040.

Besides these changes in current rules that are all minor in their nature, the coalition agreement also contains a new idea, the consequences of which have yet to be seen. In 2022, the new government will increase the reserves of the public pension scheme by an extra injection of EUR 10 bn. that are meant to be invested on global stock markets by an independent authority. The plan is to build up a permanent stock of reserves for partially prefunding the scheme in order to reduce contribution rates below actual cost rates starting from some point in time in the future. “Demographic buffer funds” of this kind exist in other countries as well, following the prototypical Social Security Trust Fund in the United States. However, they are usually financed from higher contribution rates, not from taxes. Also, to really make a difference they have to become rather large compared to current pension expenditure. In the case of Germany, EUR 10 bn. are the equivalent of pension expenditure for about ten days. Important questions that the coalition agreement does not answer are these: how will these funds be augmented from 2023 onwards – when the “debt break” in the German constitution and fiscal limits agreed upon at an EU level will again become fully effective – in terms of both the size and the source of additional injections? Starting from when will the fund be utilized for subsidizing current pensioners and contributors, does “permanent” mean that the fund will never be depleted?

Even if these questions are answered, the arrangement may lack the transparency and consistency of the Swedish model for partially prefunding pensions which the Liberal Democrats and the Greens had in mind before the election. Moving in this direction could be accomplished more easily by building on additional considerations included in the co-

⁸ The Christian Democrats who had led four preceding governments since 2005 had come in with the second highest share in votes. With this result, there was no unanimity in the party about attempts at forming a three-party coalition – again with the Greens and the Liberal Democrats – which would have been legally feasible.

alition agreement regarding occupational pensions and private provisions. Here, the coalition wants to make sure that new types of occupational pension plans (with defined contributions and without any guarantees) admitted under the preceding government are now actually utilized. It also considers new regulations allowing for more profitable investment. For supplementary private provisions, establishing a publicly administered fund, with lower costs than in the private sector and subject to an opt-out clause, will be examined.

ACTUAL REFORM NEEDS

Leaving the current legal framework for old-age provision unchanged and letting the aging process go its way until 2035 and beyond does not seem to be a good idea. This message is clearly conveyed by the simulations shown in Figure 1, even though they cannot be taken to be precise predictions of what would happen then. Taking this route would imply that recent political debates about public pensions being too low and/or contributions being too high are perpetuated over several decades. In addition, contribution rates that reach 25 percent (and, together with contributions raised for health care, long-term care, and unemployment insurance, may exceed 50 percent well before 2060) will exert pressure on wage costs and net wages, deter immigrants who are urgently needed to cope with a shrinking and aging population, and create enormous risks for employment and economic growth.

Per se, prolonging current stop lines for important parameters of the pension scheme will not offer a solution either. These limits may not become binding until 2025,⁹ but would do so soon afterwards. Fixing both the benefit level and contribution rates at current stop lines would lead to growing deficits in the pension scheme's budget. Resulting annual shortfalls would amount to tens of billions of euros in the late 2020s and 2030s, to hundreds of billions of euros in the 2040s (at current prices). Filling these gaps through higher transfers from the federal budget would drive up their share in this budget from a current 25 percent to over 60 percent – or require correspondingly higher tax revenues for the federal government – in order to maintain expenditure on many other items. In other words, the financial burden would be shifted around, but not reduced, maybe with different distributional effects, but with similar consequences for employment and growth.

What needs to be discussed, therefore, are (i) options for reducing the expected growth in pay-as-you-go financed pension expenditure in an acceptable way in order to prevent contribution rates from continuously increasing; and (ii) options for limiting the resulting reductions in retirement incomes through

prefunded components, as there is no further alternative (Sinn 2000). Essentially, this corresponds to an updated strategy for the reform path entered in 2001 to 2007. At the same time, it might be a basis for defining new “stop lines” – for total old-age provisions on the one hand and for levels of total benefits on the other – that are consistent with each other and can be maintained over a longer time horizon.¹⁰

Regarding step (i), several approaches are conceivable. In the context of the ongoing aging process, a natural approach is to further increase the statutory retirement age (beyond age 67) after 2031. By appropriately linking the age threshold for each cohort to increases in life expectancy, another self-stabilizing mechanism can be designed (Börsch-Supan 2007) which could perfectly neutralize the impact of higher longevity on the pension scheme's budget. In Germany, however, changes in life expectancy only account for a smaller part of the aging process compared to the pronounced decline in fertility rates. Therefore, additional measures are needed to reduce projected increases in pension expenditure. For instance, one could strengthen the existing (inverse) link between benefit up-ratings and the system dependency ratio, with a proportional impact on the benefit level for all retirees. Alternatively, one could make the German public pension scheme more redistributive, for example by reducing the benefit level more strongly for pensions deriving from higher earnings than for low-earner pensions; or one could make individual benefit levels dependent on the duration of retirement by switching from wage-oriented up-ratings to price indexation of pensions after award (as one component of a potentially more complex indexation formula).¹¹

With respect to step (ii), Sweden indeed provides an interesting example for how partial prefunding can be successfully established within a differentiated system of old-age provision. In this sense, the examination clause in the coalition agreement for a similar arrangement sounds more promising than the intention to build up a buffer fund within the public pension scheme. In any case, a new solution should be more binding, more transparent, and should offer higher returns (after transaction costs) than existing instruments. What also needs to be considered, then, is the interplay of measures taken for steps (i) and (ii) and the appropriate timing of reforms in both areas.

CONCLUSION

Preparing far-reaching pension reforms takes time – to create a sense of urgency, to select appropriate concepts, and to establish consensus. In spite of the reforms already taken, Germany is now rather late in

¹⁰ However, for workers approaching retirement who have not engaged in making supplementary provisions in 2001 or soon thereafter, this may no longer be feasible.

¹¹ These alternative approaches have been suggested by Wissenschaftlicher Beirat beim BMWi (2021).

⁹ According to the simulations made for Figure 1, this is less certain with respect to contribution rates than it is for the benefit level.

fully addressing the dimension of its aging process. Nevertheless, it can be conceded that for the new government there is more time left for some of the reform elements discussed here than for others.

Expanding funded components is urgent, as funds first need to be accumulated, while a schedule for increasing the statutory retirement age until 2031 is already under way. However, employees and employers need time to adjust to a further extension, so that it should be legislated a few years in advance. Discussing changes affecting the future benefit level of public pensions is a delicate issue that also should not wait. Most importantly, all this ought to be considered simultaneously to find comprehensive and consistent solutions.

An important drawback of the new coalition agreement is that it might create the impression among workers and pensioners that no major pension reforms are needed to deal with the upcoming aging process. How will these groups of voters react if this difficult issue returns in the run-up to the next election? On the other hand, coalition agreements need not be final words. In 2024 at the latest, the contribution rate for the public pension scheme will jump up considerably, for the first time in many years. Perhaps, if this adjustment draws near, this will trigger discussions on how further increases can be avoided.

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Clara Albrecht and Jennifer Steigmeier*

An Economic Perspective on Abortion Policies

Despite the fact that abortion is considered a common health intervention by the World Health Organization that should be accessible to every woman (WHO 2021), and although the United Nation's human rights bodies characterize restrictive abortion laws as a form of discrimination against women (OHCHR 2020), access to safe abortion is unavailable or restricted for many women in the world. Evidence-based research shows that not being able to carry out a wanted abortion negatively affects the lives of women and their children in many ways.

THE PREVALENCE OF ABORTIONS

Most recent global estimates suggest that for the period 2015-2019 there were 121 million unintended pregnancies, constituting 48 percent of all pregnancies. Almost 30 percent of all pregnancies and more than 60 percent of all unintended pregnancies result in induced abortions, translating into 73.3 million annually induced abortions (Bearak et al. 2020). Using 2014 US abortion rates as a baseline, one in four women of reproductive age is expected to have an abortion (Jonas and Jerman 2017). Despite being a widespread incident, access to safe abortion methods is not available to every woman. 40 percent of women in childbearing age live in countries with highly restrictive abortions laws and/or a lack of availability or access (World Health Organization 2012). Estimates for the period of 2010-2014 suggest that 45 percent of all abortions or 25.1 million were unsafe of which 97 percent occurred in developing countries. In countries with highly restricted abortion laws, the proportion of unsafe abortions were significantly higher (Ganatra et al. 2017).

Maternal Deaths

Unsafe abortions pose a high risk on women's health, accounting for 7.9 percent of maternal deaths each year, of which most occur for women and girls living in poverty and/or belonging to marginalized groups (OHCHR 2020). In developed regions, 30 of 100,000 women having unsafe abortions consequently die. In developing regions, 220 deaths are estimated per 100,000 unsafe abortions (World Health Organization 2021). In most countries of Latin America and the Caribbean, where abortion laws are highly restrictive, ten percent of maternal deaths are caused by

* ifo Institute.

ABSTRACT

Abortions are widespread and occur independent of the legal status of abortions. Prohibiting or restricting abortions increases the proportion of unsafe abortions, posing a massive risk on women's health, but does not necessarily reduce the number of abortions being carried out. Economic research contributes to the often heated debates about the legal status of abortions by providing causal evidence for the fact that lacking access to abortion negatively affects the lives of women in many dimensions. Thus, the way abortion policies are designed is of high relevance.

unsafe abortions (Say et al. 2014). Deaths resulting from unsafe abortion methods almost entirely occur in countries where abortion is strictly restrictive by law or in practice. Maternal deaths attributed to unsafe abortion practices could be completely preventable (OHCHR 2020).¹

Macroeconomic Costs

Unsafe abortions are extremely costly for health care systems in developing countries, resulting in costs of US\$ 553 million for post-abortion treatments each year (World Health Organization 2021). For example, the costs for the treatment of one post-abortion patient in Colombia corresponds to eleven percent of annual per capita income (Vlassoff et al. 2016). For households, a total income loss of US\$ 922 million caused by long-term disability from unsafe abortion methods has been estimated (World Health Organization 2021).

Causal Effects of Abortion Access on Women's and Their Families' Lives

Abortion is a topic that is usually debated from a moral and ethical perspective, but economic research offers methods that allow objective measurements of the causal effects of abortion access for women's lives by applying quasi-experimental methodologies

¹ The reduction of the global maternal mortality ratio to less than 70 per 100,000 live births is defined as a goal target of the United Nations' Sustainable Development Goals (SDG). Additionally, universal access to sexual and reproductive health and reproductive rights is an SDG as well (UNDP 2021).

to disentangle effects derived from abortion access from other potential forces that influence a woman’s life. Existing research shows that having access to abortion has a profound impact on the lives of women by affecting their fertility decision making and thus their educational attainment, labor market outcomes and marriage patterns (Myers and Welch 2021).

Myers (2017) found that the legalization of abortion in some states in the United States in the late 60s and early 70s led to a significant decrease in the likelihood of teenage motherhood by a third and a reduced likelihood of shotgun marriages by more than one-half.

Miller et al. (2020) use data from the Turnaway Study, which is the first to collect longitudinal data on individual women in the US who either received an abortion or who were denied a wanted abortion. They found that women who were denied an abortion compared to women who received a wanted abortion experienced worse health and higher poverty rates and faced large and persistent increases in markers of financial distress.

For Spain, González et al. (2018) found that the legalization of abortions in 1985 reduced the likelihood of motherhood at an early age, while not affecting completed fertility for women. Women were also less likely to marry early and less like to get divorced later on in life. Positive effects were also found for high school graduation rates.

Van der Meulen Rodgers et al. (2021) conducted a scoping review and analysis of the costs and outcomes of abortions and came to the conclusion that the legalization of abortion led to an increase in female labor market participation as well as substantial increases in high school graduation and college attendance.

Not only are women’s lives positively affected by abortion access, but their offspring’s as well. Gruber et al. (1999) found that abortion legalization in the

United States significantly reduced the likelihood for children to grow up in single-parent households, to live in poverty, to receive welfare, and to die as an infant. Also, findings by Bitler and Zavodny (2004) suggest that the legalization of abortion in the US reduced the rates for child abuse and neglect.

A paper that studies the effects of an abortion ban in Romania in 1966 (Pop-Eleches 2006) shows that school and labor market outcomes of the affected cohorts worsened after abortions became illegal.

Unintended Pregnancies, Abortion Rates, and the Legal Status of Abortions

Figure 1 shows that restricting access to safe abortion methods does not lead to a reduction in abortion rates. Abortion rates remain about the same independent of the legal status of abortions. Countries that restrict access to abortions have the highest rates of unintended pregnancies. The lowest unintended pregnancy rates occur in countries where abortion is legal.

Comparative Overview of Abortion Laws

Table 1 provides an overview of abortion regulations in a few selected countries, ranging from very liberal and accessible (Canada, Norway) to highly restrictive (Chile, Poland) (for more information on recent changes in abortions laws, see the Box below).

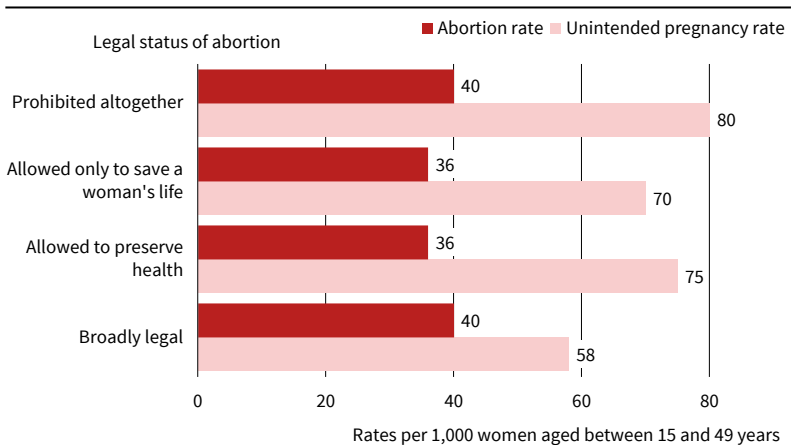
Countries have various rules for acceptable reasons for abortions. In Canada, Germany and Norway, the request for an abortion is sufficient reason for a woman to have an abortion. For example, in Norway this applies until the 12th week of pregnancy. Between the 12th and 22nd week, an abortion board must decide whether an abortion can be carried out or not.

In general, most countries, except for example Canada, allow abortions only up to a gestational limit. Gestational limits prescribe the point within a pregnancy when a termination is permissible. In most countries, this varies between 12 and 14 weeks of pregnancy.²

Some countries do not allow abortions on a woman’s request. In Chile, abortions are only allowed if an abortion is necessary to save the woman’s life. In Japan, broad social or economic grounds are necessary for a legal abortion. Nevertheless, all selected countries have exceptions for cases of rape, incest or fetal impairment that make abortions possible after the gestational limit, or permissible in general.

The WHO gives guidance how abortions should be regulated by law. They emphasize the privacy of

Figure 1
Unintended Pregnancy and Abortion Rate Depending on Legal Status of Abortion
2015–2019 rates



Source: Bearak et al. (2020).

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² In Table 1, gestational limits are calculated from the first day of the menstrual period. Different sources calculate the limit from the day of conception which occurs two weeks later and numbers can vary.

Table 1

Abortion Policies and Regulations in Selected Countries

| Country | Category of abortion laws | Gestational limit | Spousal consent | Mandatory counselling | Mandatory waiting period | Insurance to offset end user costs | Notes |
|---------------------------------|---|-------------------|--|---|--|---|--|
| Canada | On request | None | No | No | No | Yes | Gestational limit depends on the state (Alberta: 20 weeks, Manitoba: 19 weeks, Nova Scotia: 15 weeks) |
| Chile | To Save the Woman's Life, permitted in cases of rape and fetal impairment | | No | Yes | No | No data | |
| Germany | On request | 14 weeks | No | Yes | Yes, 3 days | Yes | |
| Japan | Broad Social or Economic Grounds, permitted in cases of rape | | Yes | No data | No data | No | |
| Norway | On request | 12 weeks | No | No | No | Yes | After 12th week, abortion board has to decide whether abortion can be carried out, after 22 weeks prohibited |
| Poland | To Preserve Health, permitted in cases of rape and incest | | No | No | Yes, 3 days | Yes | |
| Spain | On request | 14 weeks | No | No | Yes, 3 days | Yes | |
| Mississippi (USA) | On request | 24 weeks | No | Yes | Yes, 24h | Only in cases of life endangerment, rape, incest or fetal anomaly | Discussion at court to reduce gestational limit to 15 weeks, New decision expected in June 2022 |
| WHO Guidance for safe abortions | | | Third-party authorization should not be required for women to have an abortion. Requirement for spousal consent may violate right to privacy | If a woman made the decision to have an abortion, this should be respected without subjecting a woman to mandatory counselling, but voluntary and confidential counseling | States should consider eliminating waiting periods that are not medically required | Abortion services should be mandated for coverage under insurance plans; woman should never be denied because of the inability to pay | |

Sources: World Health Organization (2018), Global Abortion Policies Database, <https://abortion-policies.srhr.org/>; Center for Reproductive Rights (2021), The World's Abortion Laws, <https://reproductiverights.org/maps/worlds-abortion-laws/>; World Health Organization (2012), Safe Abortion: Technical and Policy Guidance for Health Systems – 2nd ed.

women and that therefore third-party authorization should not be required for a woman to have an abortion. However, Japan is a country where spousal consent is required for an abortion. Chile and Germany require mandatory counselling before a woman can have an abortion. Furthermore, Germany, Poland and Spain have a mandatory waiting period of three days after requesting an abortion. According to WHO guidance, these requirements should be eliminated. A woman's decision to have an abortion should be

respected, and from a medical perspective mandatory waiting periods should not be necessary.³

Abortions should be covered financially by insurance plans, according to the WHO. This is the case in most of the selected countries. However, in some countries abortions are only covered by insurance plans if the woman is unable to pay for it herself.

³ For Germany, the CEDAW expresses concerns about the subjection of women who wish to have an abortion for mandatory counselling and a mandatory three-day waiting period (CEDAW 2017).

RECENT DEVELOPMENTS AND CHANGES IN ABORTION LAWS

Ireland

Abortions were banned in Ireland in 1983. Pregnant women and a fetus had an equal legal status. Only lifesaving abortions were allowed and in 2010, at least 12 women went to English clinics every day to seek an abortion. In 2018, Ireland made abortions legal with a progressive new abortion law. Now an abortion is possible for any pregnancy less than 12 weeks (Calkin 2020). For women who live in the Republic of Ireland, abortion care is free. Abortions can be performed by a general practitioner and a government help line exists to support women who want to have an abortion. Nonetheless, there is a three-day waiting period after requesting an abortion (Ifpa 2022).

United States

In 1973, the Supreme Court decided to broadly legalize abortions before fetal viability, when a fetus is considered able to survive outside the uterus, which is typically between 24 and 28 weeks of pregnancy. A new Mississippi law to ban abortion after 15 weeks of pregnancy was enacted in 2018, but until now has never come into effect; this will be reviewed by the court and the Supreme Court's *Roe v. Wade* decision of 1973 will be challenged. It would make most abor-

tions illegal after 15 weeks of pregnancy. The next decision is expected in June 2022 (Miller and Sanger-Katz 2022). In case the Supreme Court overturns the current law, other Republican-controlled states plan to make abortions illegal. For example, there is a law in Texas that would make all abortions illegal 30 days after the current law is overturned. Life sentences would become effective for doctors who perform an abortion (Hassan 2021).

Poland

Poland is one of only three countries that have tightened abortion laws since 1994. In contrast, 59 have expanded them. In 2021, a near-total abortion ban came into effect that prohibits abortions in case of a fetal anomaly. Poland had one of the most restrictive abortion laws in Europe even before this new ban (Datta 2021). In some cases, women have died since life-saving care was denied because doctors feared breaking Poland's restrictive abortion laws. One example is the 30-year-old Izabela who died in 2021 of sepsis 22 weeks into her pregnancy. Doctors were aware of severe fetal defects but refused an abortion because there was still a heartbeat. Protesters blame Poland's restrictive abortion laws for the death of the woman (BBC 2021).

For example, in Germany women must prove they are financially unable to pay for an abortion for the insurance to offset the costs. Usually, abortions are covered financially for rape victims and in cases of medical complications (Center for Reproductive Rights and Global Abortion Policy Database 2022).

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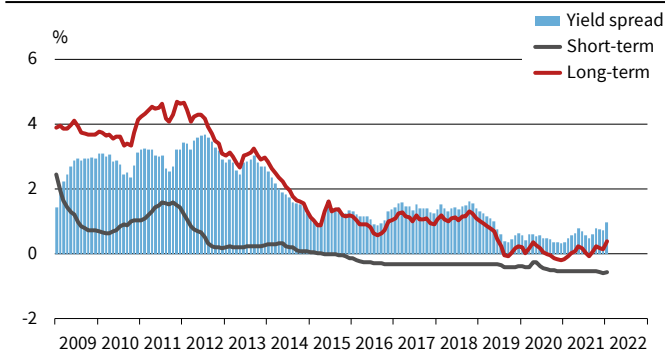
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Statistics Update

Financial Conditions in the Euro Area

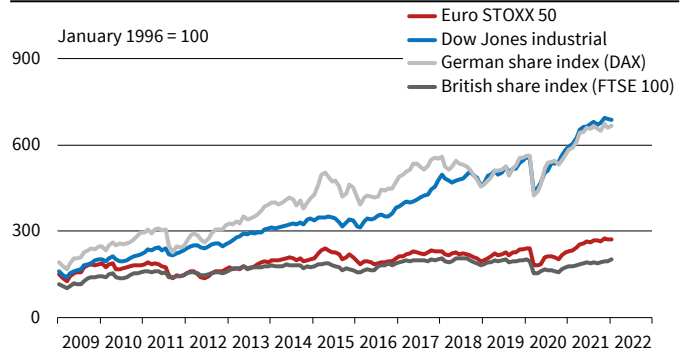
Nominal Interest Rates^a



^a Weighted average (GDP weights).
Source: European Central Bank; calculations by the ifo Institute. © ifo Institute

In the three-month period from November 2021 to January 2022 short-term interest rates increased: the three-month EURIBOR rate was - 0.57% in November 2021 and reached - 0.56% in January 2022. The ten-year bond yields increased from 0.18% in November 2021 to 0.40% in January 2022, while the yield spread also increased from 0.75% to 0.96% between November 2021 and January 2022.

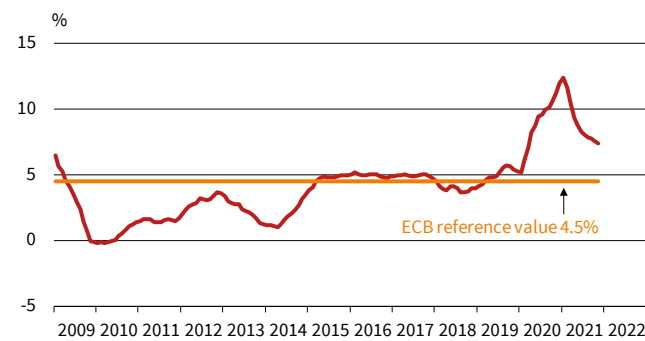
Stock Market Indices



Source: Deutsche Börse; Dow Jones; FTSE; STOXX. © ifo Institute

The global fears about the spread of the Coronavirus, oil price drops caused by an oil price war between Russia and the OPEC countries, and the possibility of a recession led to the stock market crash in March 2020, and global stocks saw a severe downturn in this month. The subsequent rise of the German stock index DAX continued in January 2022, averaging 15,763 points compared to 15,608 points in December 2021, while the UK FTSE-100 also increased from 7,280 to 7,501 points over the same period. The Euro STOXX amounted to 4,252 in January 2022, up from 4,207 in December 2021. Yet, the Dow Jones Industrial decreased, averaging 35,478 points in January 2022, compared to 35,655 points in December 2021.

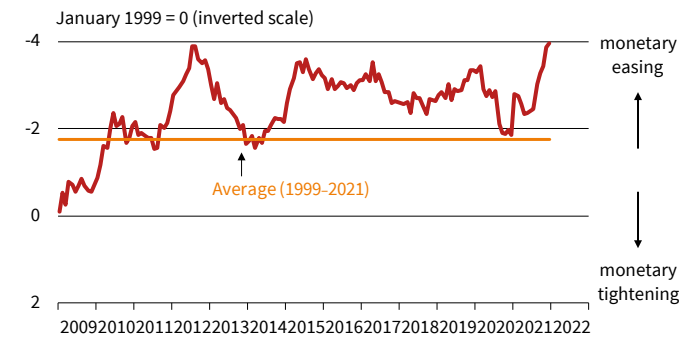
Change in M3^a



^a Annual percentage change (3-month moving average).
Source: European Central Bank. © ifo Institute

The annual growth rate of M3 decreased to 6.9% in December 2021, from 7.4% in November 2021. The three-month average of the annual growth rate of M3 over the period from October 2021 to December 2021 reached 7.3%.

Monetary Conditions Index

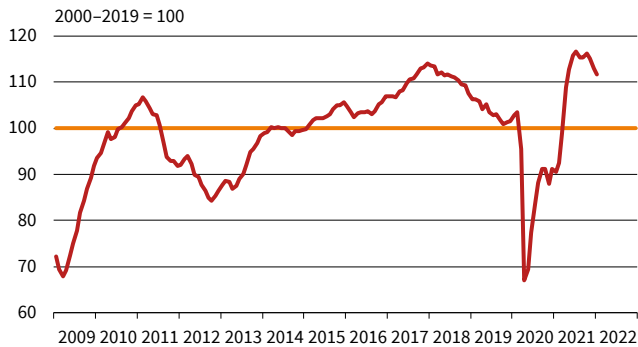


Source: European Commission. © ifo Institute

Between April 2010 and July 2011, the monetary conditions index had remained stable. Its rapid upward trend since August 2011 had led to the first peak in July 2012, signaling greater monetary easing. In particular, this was the result of decreasing real short-term interest rates. In May 2017 the index had reached one of the highest levels in the investigated period since 2007 and its slow downward trend was observed thereafter. A steady upward trend that had prevailed since October 2018 was abruptly halted in March 2020 with the onset of the Covid-19 crisis, and the index continued to decline in 2020. The rapid increase of the index in January 2021 was followed by a decline in the period February to April 2021, while a continuous increase was again recorded since May 2021.

EU Survey Results

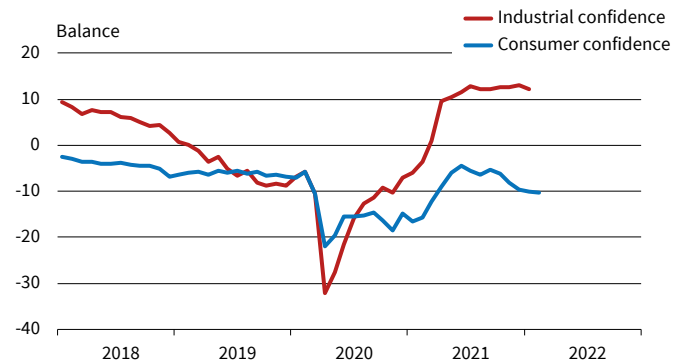
EU27 Economic Sentiment Indicator
Seasonally adjusted



Source: European Commission. © ifo Institute

In January 2022, the *Economic Sentiment Indicator* (ESI) eased further in both the EU (- 1.4 points to 111.6) and the euro area (- 1.1 points to 112.7) but remained high overall. In the EU, the ESI's decrease in January 2022 was driven by a decline in services, construction and, to a lesser extent, industry and consumer confidence, while confidence rebounded in retail trade.

EU27 Industrial and Consumer Confidence Indicators
Percentage balance, seasonally adjusted

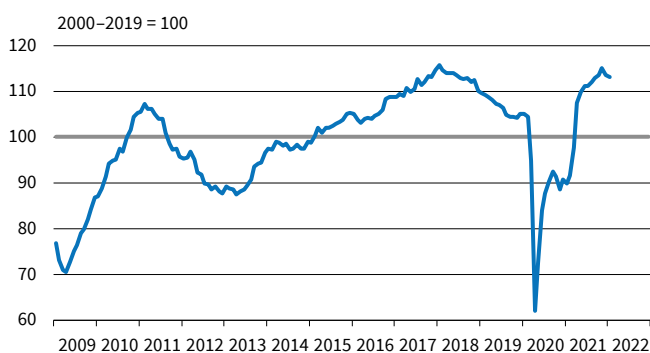


Source: European Commission. © ifo Institute

* The industrial confidence indicator is an average of responses (balances) to the questions on production expectations, order-books and stocks (the latter with inverted sign).
** New consumer confidence indicators, calculated as an arithmetic average of the following questions: financial and general economic situation (over the next 12 months), unemployment expectations (over the next 12 months) and savings (over the next 12 months). Seasonally adjusted data.

In January 2022, the *industrial confidence indicator* decreased by 0.9 points in the EU and by 0.7 points in the euro area, compared to December 2021. The *consumer confidence indicator* decreased by 0.2 points in the EU and by 0.3 points in the euro area in February 2022, compared to January 2022.

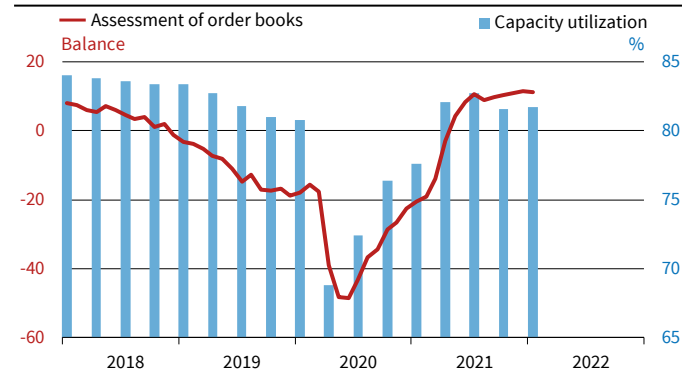
EU27 Employment Expectations Indicator
Seasonally adjusted



Source: European Commission. © ifo Institute

In January 2022, the *Employment Expectations Indicator* (EEI) decreased slightly for the second month in a row in the EU (- 0.5 points to 113.1) and the euro area (- 0.2 points to 113.3).

EU27 Capacity Utilisation and Order Books in the Manufacturing Industry
Seasonally adjusted

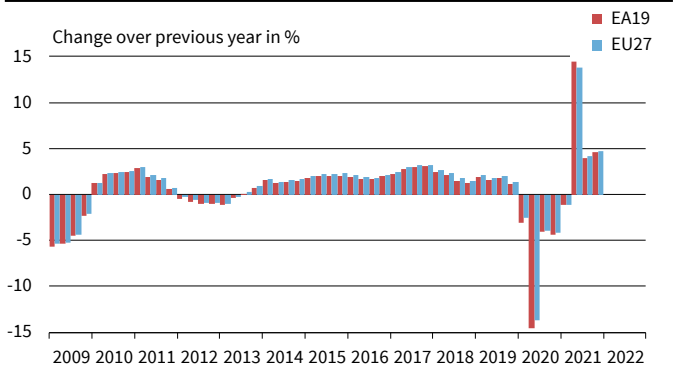


Source: European Commission. © ifo Institute

Managers' assessment of *order books* reached 11.2 in January 2022, compared to 11.6 in December 2021. In November 2021 the indicator had amounted to 11.0. *Capacity utilization* stood at 81.7 in the first quarter of 2022, slightly up from 81.6 in the fourth quarter of 2021.

Euro Area Indicators

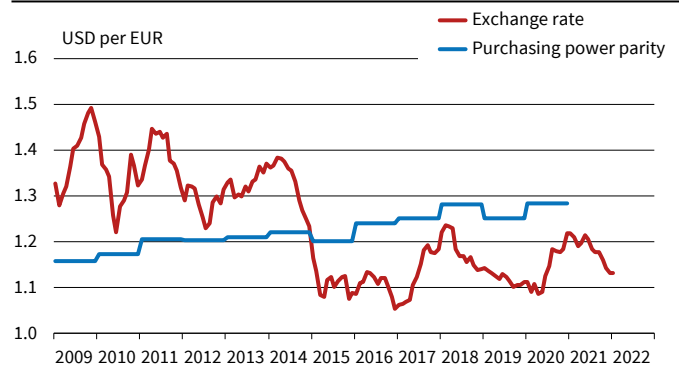
Gross Domestic Product in Constant 2015 Prices



Source: Eurostat. © ifo Institute

According to the Eurostat estimates, seasonally adjusted GDP increased by 0.3% in the euro area and by 0.4% in the EU during the fourth quarter of 2021, compared to the previous quarter. Compared to the fourth quarter of 2020, i.e., year over year, (seasonally adjusted) GDP increased by 4.6% in the EA19 and by 4.8% in the EU27 in the fourth quarter of 2021.

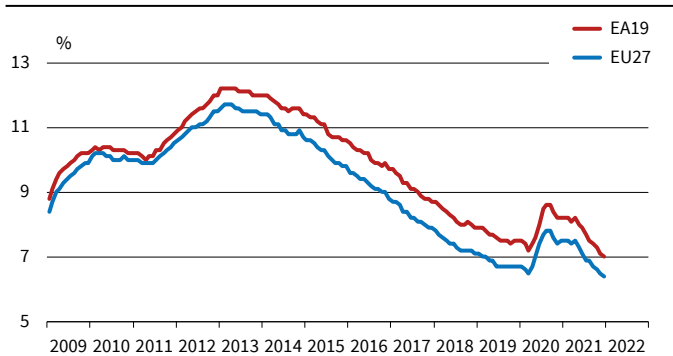
Exchange Rate of the Euro and Purchasing Power Parity



Source: European Central Bank; OECD. © ifo Institute

The exchange rate of the euro against the US dollar averaged approximately 1.13 \$/€ between November 2021 and January 2022. (In October 2021 the rate had also amounted to around 1.16 \$/€.)

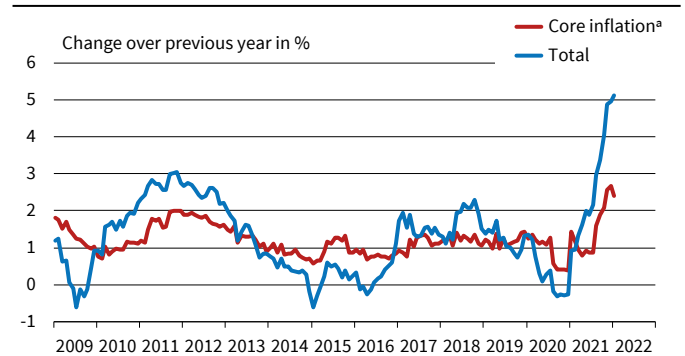
Unemployment Rate



Source: Eurostat. © ifo Institute

Euro area unemployment (seasonally adjusted) amounted to 7.0% in December 2021, down from 7.1% in November 2021. The EU27 unemployment rate was 6.4% in December 2021, down from 6.5% in November 2021. In December 2021 the lowest unemployment rate was recorded in Czechia (2.1%), Poland (2.9%), and Germany (3.2%), while the rate was highest in Spain (13.0%) and Greece (12.7%).

Euro Area Inflation Rate (HICP)



^a Total excl. energy and unprocessed food. Source: Eurostat. © ifo Institute

Euro area annual inflation (HICP) amounted to 5.1% in January 2022, up from 5.0% in December 2021. Year-on-year EA19 core inflation (excluding energy and unprocessed foods) was 2.4% in January 2022, down from 2.7% in December 2021.

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