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Analyses of topical policy issues

Working conditions in essential occupations and the role of migrants

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ABSTRACT

Following a national lockdown in response to the Covid-19 pandemic, state governments in Germany published lists of “essential” occupations that were considered necessary to maintain basic services such as health care, social care, food production, and transport. This paper examines working conditions in these essential occupations and identifies clusters of similar jobs. Differences across clusters are highlighted using detailed data on job characteristics including working conditions, tasks, and educational requirements. Two clusters with favourable or average working conditions account for more than three-quarters of jobs in essential occupations. Another two clusters, comprising 20% of jobs in essential occupations, are associated with unfavourable working conditions such as low pay, job insecurity, poor prospects for advancement, and low autonomy. These latter clusters exhibit high shares of migrants. An Oaxaca–Blinder decomposition is used to investigate which individual characteristics explain why migrants are more likely to have unfavourable working conditions. The results suggest that lacking proficiency in the host-country language is the main barrier to improving migrants’ working conditions.

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1. Introduction

The Covid-19 pandemic has highlighted a number of “essential” or “system-relevant” occupations, which were exempted from the limitations that other occupations faced during the pandemic, notably during lockdowns. Because these occupations were chosen in a pragmatic emergency response to a major threat, they likely represent a useful approximation of the activities truly needed to sustain the provision of basic goods and services. Therefore, a better understanding of essential occupations can support countries’ efforts to weather such crises and help increase their resilience in the longer run.

While this newly emerged class of essential occupations has hardly been explored, it has been noted that they include many jobs with low pay and low prestige, comparatively often filled by migrants (Gelatt, 2020; Fasani and Mazza, 2020a; Koebe et al., 2020). This paper uses a range of indicators to take a closer look at the working conditions in essential occupations in Germany. The focus on working conditions is linked to employee retention, the quality of basic services and their resilience during crises.

A key concern is that adverse working conditions in essential occupations could lead to high employee turnover, as has been documented for nurses (e.g. Galletta et al., 2011) and in other contexts (Martin, 2003; Cottini et al., 2011). This would imply that occupation-specific knowledge is lost at a high rate and incentives to invest in occupation-specific human skills are lower. This is not only of concern from a human capital perspective but also from a perspective of employment sustainability. Filling positions with such knowledge requires time and offers lower incentives, which can be an important barrier to attract employees to such low-quality positions.
capital are undermined. Permanent staff shortages may arise – as is arguably the case for nursing and care occupations – which likely make an occupation more vulnerable to a crisis. While employers might consider a high-turnover work environment as one option among several human-resource strategies, this strategy may be dangerous in the case of essential occupations.

Working conditions can affect the quality of basic services, for example when worktime arrangements make nurses come to work despite being ill (Min et al., 2021). More generally, mounting evidence links job satisfaction to productivity (e.g. Oswald et al., 2015; Bellet et al., 2019; ILO, 2020). An effect on service quality can also arise indirectly, through turnover: the remaining staff might become less productive as they are burdened with more recruitment and retraining or even take on the workload of those who left, at least temporarily. Evidence of this mechanism has recently been presented for workers in long-term care (Allan and Vadean, 2021).

Job characteristics can then also matter for employees’ performance under pressure from a crisis and for how they deal with unusual challenges: poor working conditions make a temporary rise in productivity and hours worked less likely to happen. Findings on the resilience of health services have stressed the importance of team efforts during a pandemic (Kruk et al., 2015) but poor working conditions could undermine this by reducing collaboration among employees. In addition, poor working conditions can expose employees to greater risks of contagion, which appear to be especially high in many essential occupations (Zhang, 2020).

The often high share of migrants in essential occupations has received considerable attention, as pointed out above (see also Fernández-Reino et al., 2020; Khalil et al., 2020). The finding probably seems paradoxical: while it is a major concern with migration and integration that migrants might remain on the margins of the labour market and society more generally, they play an especially strong role in maintaining core functions of the economy and society. Further investigation of migrants’ roles in essential occupations can build an understanding to what extent basic services have become dependent on migrants, which could have far-reaching implications for policy (Anderson et al., 2021).

Through a Latent Class Analysis (LCA), this paper delimits clusters of jobs across essential occupations that share important job quality characteristics. This clustering approach reflects that working conditions are multi-dimensional, which requires using a number of indicators — not just the level of pay. The paper identifies salient features of these clusters and highlights the different distributions of migrants and native-born persons over clusters. Through an Oaxaca–Blinder decomposition, factors that contribute to this difference are identified. These analyses are performed for Germany, where rich data on job characteristics are available and migrants are likely to be observed comparatively well. The overlap between essential occupations designated by various countries implies that insights obtained here might generalise to other countries.

During the first wave of the Covid-19 pandemic in spring of 2020, authorities in the German states published lists of occupations considered “essential” for the maintenance of basic services with the view to providing children of workers in these occupations with preferential access to emergency childcare (Koebe et al., 2020). This paper uses the first list drawn up by the state of Berlin on March 17 plus agricultural occupations that were included in more rural states (Table A1). The resulting list aligns with a list of “systemically relevant sectors” eventually published by the Federal Ministry of Employment and Social Affairs (BMAS) on March 30, with the exception that it does not include the media. While such lists differ across countries, the overlap of lists for the United States, Italy and Spain highlights health care, social care, agriculture, energy supply, water and waste management, transport as well as wholesale and retail of certain goods, notably food. This “core” matches the essential occupations in Germany.

In such essential occupations, migrants often appear to play a particular role. In major destination countries in Europe, migrants account for 10%–20% of employees in essential occupations, and this share rises to 20%–30% in Germany, Austria, Sweden and Ireland, for example (Fasani and Mazza, 2020a). In the United States, migrants are overrepresented in a number of “frontline” occupations (Gelatt, 2020). Kerwin and Warren (2020) estimate that 69% of migrant employees in the United States work in sectors that are considered “critical infrastructure” by the Department of Homeland Security.

The role of migrants specifically in health professions has received significant attention already prior to the Covid-19 pandemic (e.g. Kingma, 2007). Across 26 OECD countries, foreign-born health professionals accounted for 27% of all doctors in 2016, and for 16% of all nurses (OECD, 2019). The interest in migrant health professionals likely reflects the particular importance of health services. This implies that the employment of migrants in other essential occupations might also deserve more attention. The next section reviews the current literature and outlines the contribution of the study. Following the presentation of our results on essential occupations, we spell out a number of implications for policies on working conditions and migrant employment.

1 The issue that undocumented employment of migrants is often poorly covered in the available data sources is probably comparatively small in the case of Germany, as the availability of various legal statuses for extra-EU migrants and free mobility for EU migrants greatly reduce the estimated number of irregular migrants who would be ineligible for regular employment (Hosner, 2020).

2 Due to its limited sample size, the data do not offer observations on occupations in fishing (see Table A1).

3 The list of the BMAS includes the media, with an emphasis on news and crisis communication. These media occupations are not included here because they cannot be separated from editors, authors and writers in the occupational classification at three-digit level.
## 2. Contribution to the literature

While this paper is motivated by insights from the Covid-19 pandemic, its questions and results relate to several long-standing strands of literature. One explores where and why poor working conditions arise. In an early contribution, Karasek (1979) emphasised that they result from an accumulation of unfavourable job characteristics. Based on broad cross-country evidence, the OECD (2014) found that poor working conditions are especially frequent for young persons, low-skilled workers and those working in temporary jobs. Literature reviews such as Findlay et al. (2013) conclude that poor working conditions are brought about by a complex interaction of various factors, which can include organisational choices, incentive systems, and institutional regimes. For example, Finegold and Soskice (1988) highlighted the possibility of an equilibrium with low-skilled workers producing low-quality outputs, where incentives to invest in upskilling and improving working conditions remain limited. The first contribution of this paper underlines that poor working conditions can even arise for a substantial share of the jobs that a highly developed economy relies on for its core services.

Where working conditions are relatively poor, often a strong presence of migrant workers is observed (e.g. Ruhs and Anderson, 2010; Benach et al., 2010; Gundert et al., 2020; Basso et al., 2020). Further findings indicate that migrants' jobs are more often manual or physically taxing (Cassidy, 2019; Zavodny, 2015). The results of the analysis in this paper indicate that both patterns also extend to essential occupations in Germany. Our results align with findings by Fasani and Mazza (2020b) that migrants in essential occupations in Europe earn relatively low wages and are more often in temporary employment, compared to native-born peers. Anderson et al. (2021) argue that, far from being an anomaly, poor working conditions in essential occupations may result from the institutional context and may be tolerated precisely because the work is essential.

A third finding of this paper identifies proficiency in the host-country language as the key determinant of migrants' working conditions in essential occupations. This aligns with numerous studies highlighting the role of language skills for migrants' wages (and employment probability): Trejo (1997) for the United States, Dustmann and Fabbri (2003) for the United Kingdom, Ferrer et al. (2006) for Canada, Aldashev et al. (2009) for Germany, as well as Chiswick and Miller (1995) and more recently Tam and Page (2016) for Australia, among others. Without complementing language skills, migrants' wages also respond less to their educational qualifications (Chiswick and Miller, 2003; Berman et al., 2003). However, results on migrants' working conditions beyond wages were lacking. The analysis in this paper appears to be the first that explicitly links migrants' language proficiency to the quality of their non-wage working conditions. Thus far, this had been only implicitly suggested by observations that migrants tend to work more often in manual and less often in language-intensive occupations than native-born persons (e.g. Peri and Sparber, 2009; Adserà and Ferrer, 2021).

## 3. Data and methods

This paper analyses essential occupations by job characteristics. The analysis is based on a sample of the working population in Germany from the “Panel Study Labour Market and Social Security” (PASS). The PASS is a longitudinal survey conducted annually since 2006, covering about 10,000 households (Trappmann et al., 2013). The survey is specifically designed for the purpose of the labour market and welfare issues research in Germany. A notable feature of the survey is that it collects detailed individual-level information on a range of objective and subjective indicators of job quality, combined with unusually rich information on professional aspirations. These variables allow for a more in-depth investigation than would be possible using labour force surveys, for example.

While the PASS data are representative for the overall population and the employed population in Germany, some parts of the population – notably migrants – were oversampled to allow for greater precision in these cases see Bethmann et al. (2013). Gundert et al. (2020) use the PASS data for a general analysis of migrants' job quality in Germany. However, it appears that these data have not been used before to identify clusters based on job characteristics nor to analyse employment in essential occupations.

This paper draws on the three most recent PASS waves (2016–2018) in order to approximate the situation at the onset of the Covid-19 pandemic while ensuring a sufficiently large sample. Given the panel dimension of the data, different waves largely contain the same persons. However, the sample in this paper includes each person only once (using the latest available observation). After limiting the sample to employees in essential occupations and restricting the sample to employees aged 18–64, close to 2500 individual observations remain, 23% of which are first or second-generation migrants.

Table 1 provides summary statistics and indicators of job quality for this sample. These statistics point to substantial differences between employees without migration background and migrants (especially recent migrants), while differences with second-generation migrants are comparatively small. The recent migrants in the sample originate primarily from other EU countries and highly educated persons make up a large share. By contrast, many of the refugees who arrived in Germany in 2015/16 were not yet in employment by 2018.

In addition, a second data set is used, with a dual objective: to include data on occupational tasks as well as educational requirements, and to cross-validate the results based on PASS. These data are obtained from Germany’s Federal Institute for Vocational Education and Training (BIBB). To match them to the PASS data, the individual-level survey data from 2018...
Table 1
Descriptive statistics for employment in essential occupations, by migration background.

|                              | No migration background | Recent migrants (duration of stay up to 5 years) | Settled migrants (duration of stay exceeds 5 years) | Second-generation migrant (with a migrant parent) | Total |
|------------------------------|-------------------------|--------------------------------------------------|---------------------------------------------------|--------------------------------------------------|-------|
| Observations                 | 1831                    | 133                                              | 340                                               | 151                                              | 2455  |
| Share in sample              | 77%                     | 2%                                               | 14%                                               | 6%                                               | 100%  |

**Indicators used to define clusters in the Latent Class Analysis**

| Indicator                        | No migration background | Recent migrants (duration of stay up to 5 years) | Settled migrants (duration of stay exceeds 5 years) | Second-generation migrant (with a migrant parent) |
|----------------------------------|-------------------------|--------------------------------------------------|---------------------------------------------------|--------------------------------------------------|
| Wage level: low                  | 18%                     | 19%                                              | 21%                                               | 15%                                              | 18%   |
| Wage level: medium               | 53%                     | 80%                                              | 60%                                               | 51%                                              | 55%   |
| Wage level: high                 | 29%                     | 1%                                               | 19%                                               | 34%                                              | 27%   |
| Contract: permanent              | 88%                     | 59%                                              | 87%                                               | 83%                                              | 87%   |
| Contract: temporary              | 12%                     | 41%                                              | 13%                                               | 17%                                              | 13%   |
| Hours: fixed                     | 73%                     | 98%                                              | 89%                                               | 66%                                              | 75%   |
| Hours: flexible                  | 27%                     | 2%                                               | 11%                                               | 34%                                              | 25%   |
| Overtime is common: yes          | 53%                     | 33%                                              | 41%                                               | 63%                                              | 52%   |
| Job insecurity: yes              | 15%                     | 53%                                              | 24%                                               | 15%                                              | 17%   |
| Bad work relations: yes          | 12%                     | 26%                                              | 22%                                               | 14%                                              | 14%   |
| Bad conditions: low              | 64%                     | 18%                                              | 53%                                               | 71%                                              | 62%   |
| Bad conditions: medium           | 24%                     | 51%                                              | 16%                                               | 24%                                              | 23%   |
| Bad conditions: high             | 12%                     | 31%                                              | 31%                                               | 5%                                               | 15%   |

**Indicators used to describe clusters (PASS)**

| Indicator                        | Share of women | Mean age (years) | Children: No | Children: 1 | Children: 2–3 | Children: >3 | Family status: single | Family status: couple | Family status: divorced/widowed | Education: low | Education: medium | Education: high | Total work experience (years) | Tenure with current employer (years) | Part-time (<35 h per week) | Public sector | Temporary employment agency | Bad work relations: with supervisor | Bad work relations: with colleagues | Bad conditions: poor prospects for advancement | Bad conditions: little autonomy | Bad conditions: little learning | Bad conditions: tasks not challenging | Language skills: native or very good | Language skills: good | Language skills: average | Language skills: low/very low | Born in Germany | Born in other EU countries | Born in Asia (including Turkey) | Born in non-EU Europe | Born in the former Soviet Union | Born in Africa/Americas/Other | (continued on next page)

are aggregated at the level of occupations, using the same classification as in PASS (the 2010 “Klassifikation der Berufe”, KldB). The list of essential occupations is given in Table A1 in the Appendix but some essential occupations – notably in agriculture – account for so little employment that they are hardly represented in the limited sample used here.

The paper uses two empirical methods that build on each other and together allow for novel insights. The first method is a Latent Class (Cluster) Analysis (LCA), a technique that examines relationships among variables to explore the existence of underlying (“latent”) clusters. Any such clusters would consist of observations that are similar within the cluster and different as possible between clusters, in terms of the variables whose relationships are examined. Against a null hypothesis of no latent clusters, so that the data represent a single “cluster”, models with several latent clusters are estimated and compared. The final model is then chosen based on the Bayesian Information Criterion and other goodness-of-fit indicators (see e.g. Goodman, 2002, for details).
The LCA in this paper examines relationships among seven important job characteristics: hourly wage, contract type (temporary or permanent), flexibility of working hours, unpaid overtime, job insecurity and indicators of bad work relations as well as bad working conditions (see Table 1 for descriptive statistics). \(^7\) Goodness-of-fit indicators point to a model with 5 latent clusters (see Table A2 in the Appendix). Categories such as occupations and demographic groups are only used to describe the clusters that are identified based on job characteristics. This approach allows for heterogeneous working conditions within a single occupation and within the demographic group of migrants. It therefore offers a “bottom-up” analysis of working conditions in essential occupations, despite their diversity.

The second empirical method builds on the LCA results and proceeds to analyse the estimated distributions over clusters. Based on working conditions in clusters, two subsets of clusters are delimited, so that a binary variable indicates for all individuals in which subset of clusters they fall. To analyse the “gap” between native-born persons and migrants, in the probability of falling into the set of clusters with relatively good working conditions, an Oaxaca (1973) and Blinder (1973) decomposition is applied. As the binary variable is the dependent variable in this context, this decomposition relies on Fairlie’s (2005) adaptation of the Oaxaca–Blinder method to binary outcomes. In any case, the Oaxaca–Blinder method is limited to one-dimensional outcome variables. It can be applied here to inherently multi-dimensional working conditions only because the LCA has grouped jobs by working conditions.

As explanatory variables, the decomposition analysis includes variables describing individuals’ socio-demographic status (age, gender, number of children and marital status), education, work experience (total work experience and tenure with the current employer), language skills, country of origin as well as job aspirations. In the estimation, the distribution of each explanatory variable for migrants is replaced with that for the group of native-born persons, while holding the other variables constant. The resulting change in the average predicted probability of falling into the clusters with relatively good working conditions then reflects how the explanatory variable in question contributes to the gap. In other words, this analysis involves estimating counterfactual probabilities of falling into the clusters with relatively good working conditions, e.g. the probability that migrants would have if they had the same characteristics as native-born persons.

4. First set of results: the Latent Class Analysis

Based on the LCA of job characteristics, five clusters of widely different sizes emerge (Fig. 1). Standard jobs with rather good working conditions (Cluster A) alone account for 61% of jobs in essential occupations. White-collar jobs with good working conditions account for another 16% (Cluster B). Mostly standard jobs with bad working conditions account for still 12% (Cluster C), and a cluster of often temporary jobs with rather bad working conditions makes up 8% (Cluster D). Another cluster of generally temporary jobs (Cluster E) exhibits better working conditions but accounts for only 3% of jobs in essential occupations.

In Cluster A, around 90% of employees have a permanent contract and have fixed working hours (see Tables A3 and A4 for all detailed results). Almost two-thirds of employees in this cluster are women, and more than two-thirds work in the private sector. Only 5% of employees in Cluster A indicate having job insecurity. Frequent occupations include education and social work (18% of employees in Cluster A), nursing (15%), warehousing and logistics (14%) and geriatric care (9%). Large majorities report having opportunities to learn (83%) and to solve difficult tasks (80%), while 33% report a lack of autonomy. Tasks in Cluster A often include giving advice or information (63%) or convincing others (44%) but also often involve repetitive movements (56%).

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\(^7\) To improve model fit, also the variable for being a migrant was used in the regression adjustment.
Employees in Cluster B often enjoy high wages (70%) and virtually all have a permanent contract. At the same time, working hours are generally flexible and 78% report that overtime is common. Men and women are roughly equally frequent in this cluster, and half work in the public sector (52%). The main occupations are public administration (30%), education and social work (24%), driving (8%) as well as IT (7%). Very few (4%) report a lack of autonomy in their work, virtually everyone reports having opportunities to learn and to solve difficult tasks. To advise and inform is a task for two-thirds in this cluster, and only 25% report that their tasks are strongly codified.

While employees in Cluster C also exhibit high shares with permanent contracts (82%) and fixed working hours (99%), low hourly wages are far more frequent in Cluster C (83%) than in other clusters. Half of the jobs in this cluster are part-time (less than 35 h per week), and 86% work in the private sector. The most frequent occupations are warehousing and logistics (20%), selling groceries (19%), cleaning (16%) and driving (11%). Most report poor prospects for advancement (75%), lack of challenging tasks (64%) and a lack of autonomy at work (63%, by far the highest of all clusters). Tasks are especially often codified (38%) and involve repetitive movements (66%).

Cluster D features almost exclusively medium-level wages (95%). While only 36% of jobs are part-time, two in five contracts are temporary and the share of insecure jobs (64%) is higher than in all other clusters. Most employees (70%) work in the private sector, half of them are women, and especially many have children (61%). Frequent occupations include warehousing and logistics (28%), education and social work (24%), driving (13%) and cleaning (8%). Two in five do not find their tasks challenging, close to half (47%) report having little autonomy, and many see poor prospects for advancement (73%). In Cluster D, far more employees than in other clusters have poor work relations with their supervisor (48%) or colleagues (26%).

Finally, employees in Cluster E have virtually always temporary contracts, and half of them work part-time. Overtime is especially frequent (83%) and one-third of wages are low although almost half of the jobs are in the public sector. Main occupations are education and social work (26%), public administration (23%), warehousing and logistics (16%) as well as farming (7%). Only 11% report having little autonomy and very few (2%) report a lack of opportunities to learn. While these employees are also often expected to advise and inform (65%), the pace of their work is comparatively often determined by equipment (31%) and repetitive movements are rarer than in most other clusters (52%).

The results across clusters appear to confirm a central concern in the context of essential occupations: comparatively poor working conditions in clusters C and D coincide with comparatively low job tenure, a signal for high employee turnover. While the average tenure with the current employer reaches 10 years in Cluster A and almost 13 years in cluster B, it is around 6 years in clusters C and D (see Table A3). It is unlikely that the relatively small number of recent migrants – who naturally tend to have lower tenure due to their recent arrival – can explain this rather large difference. Temporary contracts are substantially more frequent in Cluster C and especially Cluster D than in clusters A and B. They might per se explain much of the difference in job tenure but might also contribute to higher voluntary employee turnover, alongside similar effects from other unfavourable job characteristics. The very low average job tenure in Cluster E (under 3 years) likely reflects the virtual absence of permanent contracts in this cluster, and possibly also the tendency for employees in Cluster E to be younger and more often single than employees in other clusters.

From a comparative view of the results for identified clusters (Fig. 2), a number of further patterns emerge. Indicators for poor working conditions (Panel A) nearly always apply to more jobs in cluster C than in clusters A and B. Cluster D also exhibits worse working conditions than clusters A and B, with the notable exceptions of wages and overtime. While clusters C and D therefore both exhibit comparatively poor working conditions, Cluster C fares better than Cluster
D on some indicators but worse on others. Results are mixed for Cluster E: while it is close to clusters A and B on many indicators, it exhibits poor working conditions in terms of contract duration and job security.

Relative to other clusters, clusters C and D typically exhibit the highest shares of jobs that involve repetitive motions, bending or twisting (Panel B of Fig. 2). At the same time, clusters C and D exhibit the lowest shares of jobs that leave workers the freedom to make decisions or involve such tasks as convincing, advising or informing. The “dull” nature of these jobs does not appear to be driven by the requirements of equipment such as machines, which appear to shape jobs in clusters C and D slightly less often than in other clusters. The results on tasks in Panel B therefore broadly align with the results in Panel A, although the two panels are based on different datasets.

5. Second set of results: analysing the distribution of migrants over clusters

From the cluster analysis, it emerges that migrants are especially frequent in Clusters C and D where working conditions are rather bad (Fig. 3). While only 12% of those without migration background work in these clusters, this share rises to 60% for settled migrants and more than 70% for recent migrants in essential occupations. In particular, half of the recent migrants work in Cluster D, which in many respects offers the worst working conditions, but they virtually never work in Cluster B, which arguably offers the best working conditions. Conversely, Cluster A with its standard jobs accounts for only one-quarter of the recent migrants and one-third of the settled migrants, but two-thirds of those without migration background. Second-generation migrants exhibit a similar distribution over clusters to persons without migration background, with the exception that they are especially frequent in Cluster E.
In order to go a step further, the remainder of this section investigates the determinants of this pattern: which worker characteristics are most strongly linked to having good rather than poor working conditions? From the results of the cluster analysis, it appears legitimate to identify jobs with good working conditions as the jobs in clusters A, B and E, while clusters C and D make up the jobs with relatively poor working conditions. Therefore, Fig. 3 highlights a “gap” between migrants and native-born (including second-generation migrants): migrants are considerably less likely to work in jobs with good working conditions.

This set-up lends itself to a well-known econometric technique, the Oaxaca-Blinder decomposition of a gap between two groups, which allows identifying factors that explain the gap (see the end of Section 3 for details on the method). Since changes in the main factors that explain the gap should contribute especially strongly to closing the gap, the results of such a decomposition analysis can be directly relevant for policy, pointing to specific policy levers. In other words, the following analysis seeks to identify which changes might allow migrants to move from jobs with poor working conditions to jobs with good working conditions, within essential occupations. To this end, the empirical model relates an indicator for having a job with good working conditions (the dependent variable) to various individual characteristics. Two model specifications are considered: in model 1, all jobs in clusters A, B and E are counted as jobs with good working conditions while in model 2, only jobs in clusters A and B are counted as such. In fact model 2 entirely excludes Cluster B from the analysis: as shown in Fig. 3, very few migrants work in cluster B, and the (mostly white-collar) jobs in Cluster B might be unattainable to many migrants. By considering both models, it can be verified that the results do not depend overly strongly on Cluster B.

Table 2 summarises the results of the decomposition. Independently of the model, there is a gap of around 45 percentage points between native-born and migrants, in terms of shares employed in jobs with good working conditions. The decomposition analysis indicates that about 70% of this gap may be explained by differences in individual characteristics. The estimated contributions of country of origin and language skills to the gap are by far the largest. Country of origin contributes 11 percentage points to the observed gap in job quality and holding other variables constant, the gap in the quality of working conditions would be approximately 19 percentage points smaller if migrants had the same average level of language proficiency as the native-born. Next, differences in work experience and educational attainment can together explain another 3 to 4 percentage points of the gap. Estimated contributions to the gap from differences in socio-demographic characteristics (e.g. age and gender) and attitudes to employment appear very small. Overall, the results are similar for both models.

The strong role for country of origin likely reflects a combination of otherwise unobserved factors, such as geographical and cultural proximity, the quality of the education system in the origin country, as well as host-country regulations that depend on the migrant’s nationality. In particular, migrants from other EU countries enjoy free mobility and full labour market access in Germany, and qualifications obtained in EU countries are normally recognised by default. By contrast, extra-EU migrants need some residence and work permit, need to apply for the recognition of their foreign qualifications and might be subject to labour market tests. Because the situation of EU migrants approximates that of native-born in many ways, they were ultimately given the same value in the indicator for country of origin.

Apart from factors linked to the country of origin, the results point to one factor in particular: lacking proficiency in the host-country language appears to be the main barrier to improving migrants’ working conditions in essential occupations. While a large effect of language skills on working conditions is plausible, given similar findings for effects of language skills on wages, the estimated magnitude might partly reflect effects of other variables. For example, the number of years since migration cannot be included in the decomposition analysis because it is not defined for native-born persons. As language skills typically improve with duration in the host country, the estimated effect of language skills might partly reflect unobserved variables that also improve over time, such as networks and familiarity with local standards. However, the inclusion of variables such as job tenure and total work experience should mitigate any such bias. At the same time, bias in the opposite direction can also be expected: the error in measuring language skills likely attenuates the estimated effect (Dustmann and Van Soest, 2002).

The result of a relatively minor role for education (Table 2) may seem surprising, given results from the LCA on jobs’ educational requirements (Table A3): some 37% of jobs in Cluster C and 34% in Cluster D do not require any professional qualification, compared with 14%–22% in other clusters. Jobs in clusters C and D therefore appear much more accessible to workers without formal professional qualifications, and migrants fall comparatively often into this category (Table 1). However, several reasons could explain this apparent discrepancy. As mentioned before, some studies have highlighted that migrants’ education seems to be “validated” through language skills (e.g. Chiswick and Miller, 2003; Berman et al., 2003). This implies that better education alone might do little to improve migrants’ working conditions, and again points to the key role of proficiency in the host-country language.

In addition, there are at least two reasons why the contribution by education might be underestimated here. While the analysis in this paper considers migrants’ education irrespectively of where it was obtained, formal qualifications from abroad often seem to be worth less than qualifications obtained in the host country, unless they are formally recognised as equivalent (e.g. Brücker et al., 2021). Without information on where a qualification was obtained and whether a foreign qualification was recognised, migrants’ educational attainment is inaccurately measured, leading to attenuation bias. The results for education might also be weakened because an unusually high share of recent migrants in our sample are highly educated (Table 1), so that high education is especially frequent where its impact is likely especially low. Similarly, other unobserved factors could partly explain the results of relatively minor contributions from work experience and socio-demographic characteristics. For example, restrictive geographical allocation policies for asylum seekers could adversely
Table 2
Non-linear decomposition of the gap in working conditions between native-born and migrants.
Source: Own analyses based on the Panel Study Labour Market and Social Security, 2016–2018.

| Gap in working conditions | Model 1: Good Jobs = Clusters A + B + E | Model 2: Good Jobs = Clusters A + E |
|---------------------------|----------------------------------------|-----------------------------------|
| Share of native-born in good-quality jobs | 0.81 | 0.78 |
| Share of migrants in good-quality jobs | 0.34 | 0.33 |
| Gap | 0.47 | 0.45 |
| Gap explained by explanatory variables | 0.34 | 0.33 |

Estimated contribution of (grouped) explanatory variables to the gap in the probability of having a job with good working conditions

| Socio-demographic characteristics | −0.016*** (5%) | −0.017** (5%) |
|----------------------------------|----------------|----------------|
| (in % of the gap) |               |               |
| Measures of work experience | 0.035*** (10%) | 0.037*** (11%) |
| (in % of the gap) |               |               |
| Education | 0.006 | 0.003 |
| (in % of the gap) |               |               |
| Language skills | 0.198*** (58%) | 0.189** (57%) |
| (in % of the gap) |               |               |
| Country of origin | 0.106*** (31%) | 0.108*** (33%) |
| (in % of the gap) |               |               |
| Job aspirations | 0.011*** (3%) | 0.008* (2%) |
| (in % of the gap) |               |               |
| Number of observations | 2291 | 2062 |

Note: Values in parentheses refer to the percentage of the gap that is explained by the explanatory variable. Detailed results are provided in Table A5.

*Estimates are indicated when statistically significant at the 10% significance level.
**Estimates are indicated when statistically significant at the 5% significance level.
***Estimates are indicated when statistically significant at the 1% significance level.

Fig. 4. Survey responses on which job characteristics are considered important, by migration background. Note: Migrants with a duration of stay up to 5 years are considered recent migrants, and settled migrants otherwise. A native-born person with at least one migrant parent is considered a second-generation migrant.
Source: Own analyses based on the Panel Study Labour Market and Social Security, 2016–2018.

The findings on job aspirations in Table 2 and Fig. 4 provide some support for the often debated hypothesis that migrants work more often in jobs with unfavourable working conditions because they more readily accept the returns to work experience and might prevent them from entering jobs with good working conditions more generally (Brücker et al., 2020).

Finally, it is worth noting that the decomposition analysis indicates a significant yet limited role for individual job aspirations (Table 2). These variables from the survey data provide direct evidence on which job characteristics workers consider important. For the entire sample, Fig. 4 reports unconditional averages for job aspirations by migration background. It appears that working without time pressure but with autonomy and flexible working time are comparatively less important for recent migrants. This aligns with recent migrants frequently working in clusters C and D, which have high shares of jobs with little autonomy (Table A3). As before, the responses by second-generation migrants are typically close to those of persons without migration background, while second-generation migrants stand out from all other groups regarding interest in further qualifications and flexible working time. Overall, however, the differences by migration background seem rather limited, especially with regards to pay, job security and recognition of one’s work.

Together, the findings on job aspirations in Table 2 and Fig. 4 provide only some support for the often debated hypothesis that migrants work more often in jobs with unfavourable working conditions because they more readily accept
these conditions. While it is plausible that migrants might be under greater pressure to work than native-born persons – e.g. due to the need for remittances, the conditions for staying, and less access to social benefits – this does not seem to be a major determinant of migrants’ working conditions in the context considered here. More generally, evidence for this hypothesis also appears to be rare in the literature. As part of a detailed analysis of working conditions in the United Kingdom, for example, Zwysen and Demireva (2020) merely find that migrant men appear more likely than white British workers to accept a job with unfavourable working conditions instead of not working.

6. Implications for policy

Given the potential for adverse effects of poor working conditions on turnover and service quality, policy makers might seek to improve working conditions in essential occupations. To this end, authorities could implement stronger regulations on working conditions, linked to greater efforts in monitoring them. As public entities play an important role for basic services, certain working conditions could be a condition in public procurement. This may at the same time result in higher costs of some basic services, such as healthcare and long-term care.

A second strategy could be to foster raising skill levels, especially for those working in poor conditions. The results of the LCA highlight that jobs with better working conditions often require higher levels of education and computer skills (Table A.3). Professional qualifications obtained through life-long learning programmes or simple computer literacy courses could be effective in this context. In addition, subsequent increases in productivity could to some extent offset the higher costs from better working conditions.

For migrants working in essential occupations, improving language skills might often be the most effective approach, given the strong results for language skills in the decomposition analysis (Table 2). Also the LCA results indicate that better working conditions are associated with language-intensive tasks such as giving advice and information (Fig. 2). There should be opportunities and incentives to learn the host-country language beyond a basic level, ideally in ways that can be implemented in a context of professional development (e.g. internships) or as part of procedures to validate migrants’ foreign qualifications. The benefits of advanced language proficiency identified in this paper again underline the importance of involving migrants in language courses from an early stage, and of removing practical barriers to their participation (OECD, 2021).

Finally, recognition of foreign qualifications and opportunities for job changes are bound to matter for allowing migrants to move to jobs with good working conditions — although our analyses do not provide direct evidence on these mechanisms. These considerations imply that migrants can be stuck in poor working conditions if they are too dependent on their current employer, which creates a risk of exploitation. Greater upward mobility of migrants could instead generate wider economic benefits, not least by raising diversity in some occupations where migrants are few and far between.

7. Conclusions

Most jobs in essential occupations in Germany are standard jobs with average or good working conditions, including most jobs in health services. Poor working conditions and routine tasks mostly arise in a few occupations, notably cleaning, logistics/warehousing, social work and certain forms of care. However, the analysis has gone beyond occupations, showing that “good” and “bad” jobs coexist within the same occupation. In this context, even a share of 20% “bad” jobs may be especially problematic: it could generate high staff turnover or permanent shortages, lower the quality of the services that essential occupations provide, and undermine their resilience during crises.

Among jobs in essential occupations, those with poor working conditions exhibit high shares of migrants. Earlier findings on migrants being overrepresented in jobs with poor working conditions seem to extend to essential occupations, despite their critical relevance for basic services. A novel insight concerns the main driver of this pattern: especially a lack of proficiency in the host-country language appears to prevent migrants from obtaining better working conditions. The pattern does not seem to reflect a greater tolerance of migrants for poor working conditions.

In order to ensure the resilience of basic services during crises, policies should pay close attention to working conditions in essential occupations. This concerns various policies and institutions that shape essential occupations but also migration policy, due to the particular role that migrants seem to play in essential occupations. Even if policy makers accept that a substantial share of jobs in essential occupations have poor working conditions, policies cannot ignore the importance of migrants in ensuring that these jobs are filled. If policy makers seek to improve working conditions at the lower end, the language proficiency of migrants working in these jobs might be a strong lever. Raising migrants’ language skills could then even generate a double dividend, not only allowing migrants to improve their working conditions within essential occupations but also increasing their long-term employment and wage prospects.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.
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Appendix A. Supplementary data

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