

Weishaupt, Horst

## How demographic change affects education?

*Hungarian educational research journal 6 (2016) 3, S. 84-94, 10.14413/HERJ.2016.03.09*



Quellenangabe/ Reference:

Weishaupt, Horst: How demographic change affects education? - In: Hungarian educational research journal 6 (2016) 3, S. 84-94 - URN: urn:nbn:de:0111-dipfdocs-169890 - DOI: 10.25657/02:16989

<https://nbn-resolving.org/urn:nbn:de:0111-dipfdocs-169890>

<https://doi.org/10.25657/02:16989>

### Nutzungsbedingungen

Gewährt wird ein nicht exklusives, nicht übertragbares, persönliches und beschränktes Recht auf Nutzung dieses Dokuments. Dieses Dokument ist ausschließlich für den persönlichen, nicht-kommerziellen Gebrauch bestimmt. Die Nutzung stellt keine Übertragung des Eigentumsrechts an diesem Dokument dar und gilt vorbehaltlich der folgenden Einschränkungen: Auf sämtlichen Kopien dieses Dokuments müssen alle Urheberrechtshinweise und sonstigen Hinweise auf gesetzlichen Schutz beibehalten werden. Sie dürfen dieses Dokument nicht in irgendeiner Weise abändern, noch dürfen Sie dieses Dokument für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, aufführen, vertreiben oder anderweitig nutzen.

Mit der Verwendung dieses Dokuments erkennen Sie die Nutzungsbedingungen an.

### Terms of use

We grant a non-exclusive, non-transferable, individual and limited right to using this document.

This document is solely intended for your personal, non-commercial use. Use of this document does not include any transfer of property rights and it is conditional to the following limitations: All of the copies of this documents must retain all copyright information and other information regarding legal protection. You are not allowed to alter this document in any way, to copy it for public or commercial purposes, to exhibit the document in public, to perform, distribute or otherwise use the document in public.

By using this particular document, you accept the above-stated conditions of use.

### Kontakt / Contact:

DIPF | Leibniz-Institut für  
Bildungsforschung und Bildungsinformation  
Frankfurter Forschungsbibliothek  
publikationen@dipf.de  
www.dipfdocs.de

Mitglied der

  
Leibniz-Gemeinschaft



## How Demographic Change Affects Education?

Hungarian Educational Research Journal  
2016, Vol. 6(3) 84–94  
© The Author(s) 2016  
<http://herj.lib.unideb.hu>  
Debrecen University Press



**Horst Weishaupt<sup>1</sup>**

DOI: 10.14413/HERJ.2016.03.09.

### Abstract

In Germany, demographic change has had far-reaching effects regarding the education system. Particularly in rural, non-urban areas, the existing network of schools is at risk – most of all, this concerns vocational education and training schools. Even more striking, however, are the consequences regarding the qualification of young people because a generation of “baby boomers” needs to be replaced by a low-birthrate generation while at the same time the labour market demands higher qualification levels. Moreover, a growing number of students are from immigrant backgrounds and/or from disadvantaged families: they represent the potential that would still allow for increases in qualification levels.

**Keywords:** demography, educational statistics, school network, rural schools, immigration

---

<sup>1</sup> Prof. em. Dr. Horst Weishaupt, Rudolf-Carnap Senior Professor at Bergische Universität Wuppertal, Former Director of the Department of Educational Governance, German Institute for International Educational Research (DIPF), Schloßstr. 29, D-60486 Frankfurt am Mai, Germany. Email address: [weishaupt@dipf.de](mailto:weishaupt@dipf.de)

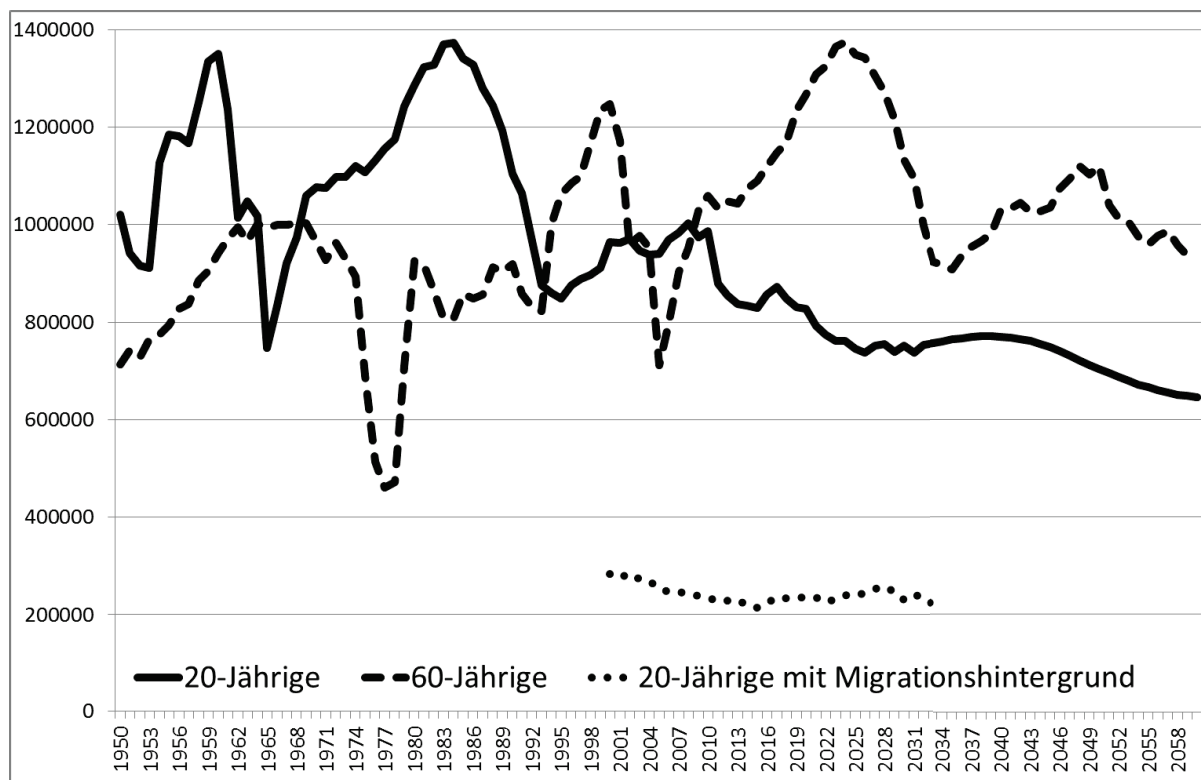
## I. Introduction

Developments in the education system are closely connected to developments in society at large. Wolfgang Mitter presented many analyses in this regard (Mitter 2007, 2015) and he thereby contributed to a mutual understanding of education systems from an international perspective. In light of his analyses, I will describe impacts of demographic change in Germany which will lead to far-reaching changes in societal developments and thus affect the role of education.

In the next decades, the population will significantly grow older in Germany and altogether its size will decline, Germany thereby takes a leading position in a development that will soon also affect other parts of Europe and East Asia. This process can only be cushioned by immigration but it can no longer be brought to a halt. Our concept of development which is ultimately programmed towards growth is thus fundamentally challenged. Far-reaching social and economic processes are influenced and their unintended side effects can so far not really be assessed because worldwide, no such experiences have been gathered. Still, particularly as regards education, in recent years (see Autorengruppe Bildungsberichterstattung 2010), a focus has been placed on the fact that besides immediate effects of the demographic change in terms of required educational institutions, staff and funding, more indirect effects on education can be found, see for instance the impact on the availability of qualified labour force. Demands thus emerge that have so far little been noticed by the general public in Germany.

The situation in Germany can be visualized in a population pyramid (see Autorengruppe Bildungsberichterstattung 2014, p. 15). After World War II, birthrates grew rapidly in Germany until the mid-1960s, followed by a rapid decline in birthrates which has generally continued until today with a few exceptional years. The “baby boomer” generation born between 1950 and 1965 will retire from working life in the next twenty years, to be replaced by a generation that is significantly smaller in size (*see figure 1*).

Figure 1: Comparison of 20- year olds and 60-year olds 1950-2060 in Germany (since 2014 13<sup>th</sup> estimate variant 2<sup>2</sup>)



Source: the author's calculation and compilation

Even given a persistently high immigration rate, it will therefore not be possible to counterbalance the decrease in a working-age population in Germany over a very long period of time (see Statistisches Bundesamt 2015, p. 22). Today, the generation of twenty-year olds in 2034 has already been born. An urgent need for an increase in the proportion of higher-qualified school leavers is evident from the pure fact that the considerably larger cohort of highly-qualified retiring employees will need to be replaced. In the past and right until the present, educational policy has fallen short with respect to tackling disadvantages in education and in the near future this might have a negative impact on the labour market, given that nationwide a third of the population aged under 20 have an immigrant background. Among them, only a small number qualify for higher education and more than a third of the population with an immigrant background aged 30-34 years have not acquired a formal certificate of vocational education (compared to only 10% of the German population, see Autorengruppe Bildungsberichterstattung 2014, p. 235).

Below, the aforementioned aspects of demographic change will be further taken into perspective: quantitative changes in the need for schools, qualitative challenges owing to a risen demand for qualified labour force and concurrently declining numbers, and a

<sup>2</sup> The presentation of migrants is based on the population as of late 2013 (microcensus) and it does not take immigration into account that might lead to a rise in the proportion.

growing intercultural nature of the student population needing to be prepared for future employment markets.

## II. Decline in student population and the security of school locations

After a first significant round of shrinking student numbers has come to a halt in the East German federal states, the assurance of school locations will principally be a matter of concern in West German states. The ministries of cultural affairs of the federal states published calculations according to which the student population will probably decrease by 20% after 2011 at the secondary school level (Sekretariat der KMK 2014), bearing in mind that developments will proceed at a different pace within the federal states<sup>3</sup>. Besides the rural areas, particularly the traditional industrialised regions like the Saar and the Ruhr area will experience a significant decline in the student population, whilst some service-centred areas will experience growths.

Subject to a model programme funded by the Federal Ministry of the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), diverse suggestions are currently being prepared and ideas are put to a test to safeguard the educational infrastructure in rural areas. Respective approaches predominantly focus on general education schools even though vocational education schools are particularly at risk in such peripheral areas. Therefore, more attention should be paid to vocational education schools and their training programmes in structurally underdeveloped, rural areas and vocational education institutions should serve these regions as “innovation agencies” (Weishaupt 2014). This concerns safeguarding of classes for dual vocational education and training courses that are offered in the respective regions in Germany, full-time vocational education schools tailored to the economic situation in the region, and grammar schools with a special focus on vocational education offering special subjects – particularly in areas outside urban agglomerations (technical and science subjects, economics, environmental studies, design, social work and social pedagogy, healthcare). After all, vocational educational schools also need to be assured because the demographically caused decline in numbers of school leavers in rural areas will significantly improve job-seekers’ opportunities. A dense network of initial and further training institutions should therefore not only support initial training but also be more embedded into the qualification of those already in work (“second chance”, recognition of vocational qualifications obtained in another country, in-service training and continuous qualification measures).

## III. Qualification demands and offers

To illustrate the consequences of demographic change on the labour market in the near future, *figure 1* compares 20-year olds (half of whom are already in work) with 60-year

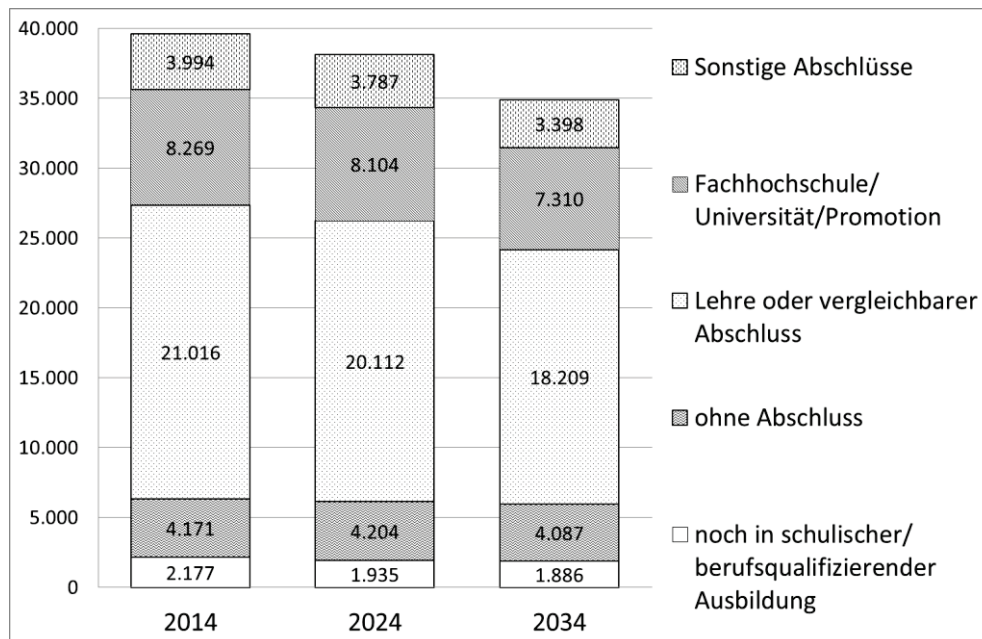
---

<sup>3</sup> (<http://www.bbsr.bund.de/BBSR/DE/Raumbeobachtung/Downloads/HaeufigNachgefragteKarten/DemWandel.pdf?blob=publicationFile&v=2>)

olds (because at present half of the latter age cohort are in work, too). In ten years (2025), for instance, the generation of young people entering the labour market will account for only two thirds of the inhabitants reaching retirement age. Given the continuation of the situation found in 2013, a third of this future workforce will have an immigrant background, and the ratio will even increase as the number of immigrants is rising. Structural change in Germany also needs to be considered which means that Germany will not only need to replace highly-qualified persons retiring from the labour market, but there is a need for an even higher number of qualified workers. Recent prognoses from relevant sources have underlined this demand, see studies by the Federal Ministry of Employment and Social Affairs, and the Federal Institute of Vocational Education with the Institute for Labour Market Research (BMAS 2013; Maier et al. 2014).

Nowadays, more than half of the students each year obtain a higher education entry qualification – yet only around 70% of those such qualified enroll in a university course (Autorengruppe Bildungsberichterstattung 2014, p. 294). Moreover, only around two thirds to three quarters of these university students continue and graduate (Autorengruppe Bildungsberichterstattung 2014, S. 301). By consequence, the proportion of university graduates in the population aged 30-34 in Germany in 2014 was 24%, thus only half the size of persons in the age group who possessed a higher education entry qualification (46%). In recent years, the expansion of participation rates in education that became known as “educational expansion” has nearly exclusively impacted on the graduation rates of women while little change is noticeable regarding men. Therefore, calls for a further expansion are justified regarding higher education entry qualifications and improved conditions of study. The debate on Germany becoming “over-academic” does not pay service to societal reality. If assuming that future changes in the labour market are only caused by demographic change, by 2034 the workforce will be reduced by nearly five million and among them the number of academics will decline by one million (*see figure 2*).

Figure 2: Development of employees 2014 until 2034 according to qualification level given consistent age-specific employment ratios from 2014 (employed with or without immigrant status) (microcensus 2014 and 13<sup>th</sup> population estimate, 2<sup>nd</sup> variant)



Source: the author's own calculation

Regardless of the stated demand, it is not easy to raise the number of university students and to subsequently increase higher education graduate numbers in Germany. In particular, it is necessary to bear in mind that especially for children from non-academic backgrounds, the dual vocational education and training system represents an appealing alternative to higher education. A quarter of the school leavers qualifying for higher education choose a vocational training course instead of university, either in the dual system or at a full-time school<sup>4</sup>. Dual vocational education (including a dual study course) offers the perspective of paid further qualification that allows the students to cover their living expenses. On the other hand, many university study courses cannot clearly guarantee that the investment will pay out in the future. Currently, developments in the dual vocational and education system have not suffered from a lack of demand from qualified applicants – instead, for nearly all training occupations the demand is exceeded by the number of applicants (Autorengruppe Bildungsberichterstattung 2014, p. 102).

To service societal demand for highly-qualified workers in Germany, a significant potential can thus be tapped among qualified school graduates who have either not taken up or dropped out of a university course and they could be offered in-work further qualification measures. To this end, however, it would be necessary to provide for a relevant number of in-work study courses at universities in Germany.

<sup>4</sup> At this point, it is important to note that in Germany, for example, the entire range of non-medical healthcare training courses (e.g. nurses, medical assistants, physiotherapists) and staff working in preschool care are not trained at universities but in full-time vocational schools.

Meanwhile, political measures targeting the assurance of a qualified workforce in Germany are taking all labour market approaches into perspective that are available for the expansion of potential:

- An increase in the employment ratio.
- An extension of the time spent in employment.
- An increase in the number of women in employment.
- An increase in the employment ratio of immigrants.
- A reduction of the proportion of part-time workers (particularly with respect to women).

It is important to note that all of these labour market policy measures are closely linked to education: rising levels of education correspond to an increase in employment rates, time spent in employment, employment of women, employment of immigrants and the proportion of full-time employees. In this regard, educational measures targeting the increase in general levels of qualification in the population present an important prerequisite to achieving labour—market policy objectives. This also pertains to improved opportunities regarding the professional qualification measures offered to older employees, enabling them to stay in work without losing touch regarding the latest developments in their field of work (Maier et al. 2014, p. 6). As far as women are concerned, it is highly important to provide for adequate education and care solutions in pre-primary and primary school settings. In West Germany in particular, there is a persistent need for all-day primary care (Autorengruppe Bildungsberichterstattung 2014, p. 80).

Projections of needs versus offer anticipate a continued release of tension on the labour market. According to federal state calculations, a nearly balanced labour market can be expected by 2030. However, the release of pressure comes along with a persistent excess availability of ca. 1.2 million workers without proper vocational qualification until 2030 (Maier et al. 2014, p. 5). The high number of unskilled, unemployed workforce has particularly been caused by past and present neglects regarding vocational qualification measures for immigrants. As long as no successful efforts are made to re-train a relevant number of unskilled workers in the near future, we can predict a situation with a demand for skilled workers facing a significant number of unemployed people in Germany who lack the qualifications that are necessary for an integration into the labour market. Different types of second-chance qualification are necessary to successfully train persons with a low level of education and/or immigrant background for their integration into society.<sup>5</sup> This is expressed in the labour market prognosis published by the Federal Ministry of Labour and Social Affairs [translation: “Educational endeavours will need to focus on the lower end of the qualification spectrum. It is essential to reinforce efforts in targeting young people from less educated

---

<sup>5</sup> If persons with an immigrant background reached the same level of employment as persons without an immigrant background by 2034, the number of employees would rise by (*ceteris paribus*) 1.5 million.

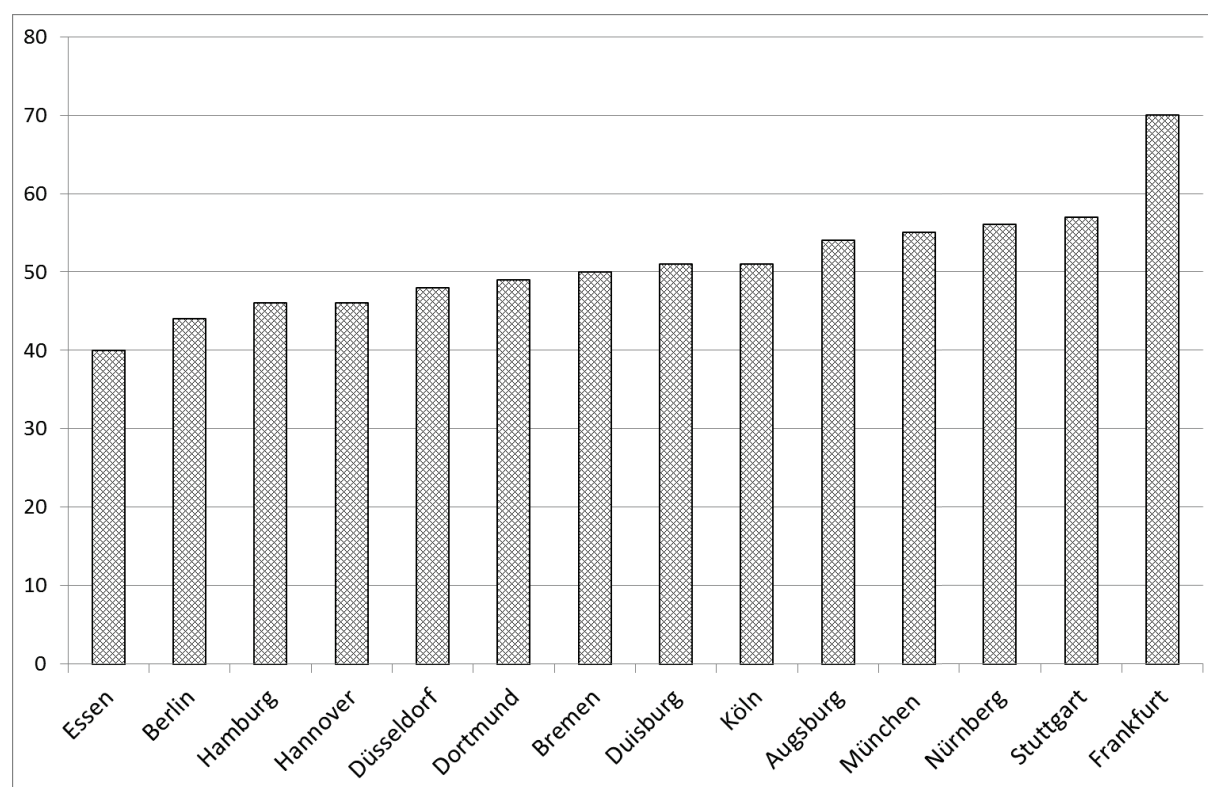


families but an expansion of further training programmes is also essential. These are the prerequisites for the economy to facilitate transfer of a call for qualification into effective demand.”<sup>6</sup> (BMAS 2013, p. 23). So far, such measures have been limited to isolated model projects and it is no longer possible to make up for the past neglect. This is all the more evident when looking at the group of immigrants.

## VI. Migration and segregation

The group of migrants will be highly relevant in light of the aforementioned developments because nowadays a third of the children in Germany have an immigrant background. Particularly in densely populated areas in West Germany, the number of inhabitants with immigrant backgrounds has risen continuously. In many cases, the majority of children and adolescents under the age of 18 have an immigrant background (see figure 3).

Figure. 3: Proportion of population aged under 18 with an immigrant status in selected cities 2011



Source: Statistical Offices of the Länder and the Federal Statistical Office - Population according to immigrant status regional 2011, the author's calculation

The proportion of preschool and primary-school aged children is even higher than among the entire age group. By comparison, areas in the eastern part of Germany (the

<sup>6</sup> Original German: “Das Augenmerk der Bildungsbemühungen wird sich auf das untere Ende des Qualifikationsspektrums richten müssen. Dort muss es zu verstärkten Anstrengungen bei der Integration ausbildungsferner Jugendlicher kommen, aber auch zum Ausbau der beruflichen Weiterbildung. Dies sind die Voraussetzungen, damit die Wirtschaft ihren Qualifikationsbedarf überhaupt in wirksame Nachfrage umsetzen kann.”

former GDR), the proportion of children and youth under 18 with an immigrant background is only 8% (2011).

The situation of immigrants in Germany is marked by the fact that in most cases they do not speak German as their first language, economically and socially they are deprived compared to the average population without immigrant status in Germany (Schwarz/Weishaupt 2014). Owing to their disadvantaged social and economic status, children from immigrant backgrounds are concentrated in big city areas with low rents. Consequently, learning conditions are disadvantaged in such areas - even more so if those resident parents from non-immigrant families find ways and means of enrolling their children elsewhere, choosing less challenged and if necessary privately paid schools. In the recent past, several studies have demonstrated that migrant-specific segregation of primary schoolers in cities in Germany somewhat exceeds the geographical distribution of the population with an immigrant background (see, for example, Morris-Lange/Wendt/Wohlfarth 2013). At the lower secondary school level, students from immigrant backgrounds are found in special schools for the learning disabled and the lowest-track secondary schools (Hauptschule). In the big cities, a growing number of school classes can be found where most of the students do not speak German as their first language.<sup>7</sup> Such processes in school development place a clear burden on integration endeavours because student composition impacts on individual student achievement (Dumont et al. 2013).

Successful efforts targeting the improvement of educational opportunities for immigrants will be crucial regarding the necessary expansion of educational participation, ultimately increasing the proportion of students qualifying for higher education and the proportion of a skilled, qualified workforce.

## **V. Conclusion**

Summarising the arguments outlined above, threatened school locations in rural areas present the flipside only. Owing to demographic change, the education system in Germany is even more challenged by societal demands for replacement and supplemental qualified workforce, and the demands will only be met if participation in education and thus the general level of education are increased. Given the growing proportion of children and adolescents with immigrant backgrounds, however, the needs can only be met if endeavours are reinforced regarding the educational participation of people with immigrant backgrounds. In this regard, it is necessary to intensify efforts and counteract the growing social and ethnic segregation processes in pre-primary and school education. There is also an urgent need to (re)train and qualify low-skilled employees, and in the latter case to some extent an institutional framework

---

<sup>7</sup> In child daycare institutions, 34% of the children who generally do not speak German at home attend care settings with a proportion of more than 50% immigrant children. (Autorengruppe Bildungsberichterstattung 2014, p. 56). No comparable data have been published for schools.

is required because existing further training institutions would not be able to cope with the challenge. In this respect, it would also be important to strengthen the role of vocational education schools particularly in the rural areas.

Significant regional differences in demographic change also invoke regionally different challenges: in rural areas with a declining population, it is necessary to ensure a regionally adequate educational infrastructure, to support better opportunities for school leavers seeking employment in their area of residence (relevance of vocational education schools in less populated areas!).

In urban cities with more people in occupation (workplace) than in employment (residence), it is more difficult to replace qualified workers. Here, it is important to provide for educational opportunities for migrants (also by reducing segregation in education), all-day school to improve conditions for women, and comprehensive programmes for unskilled workers to improve their prospects. Towns in the traditionally industrialised regions in West Germany do not possess the same economic power as the big cities described above but they are facing the same social problems (probably along with risen numbers of unskilled workers). First of all, they would need the funding to offer their citizens adequate measures that are given in other West German towns. Once they have acquired the financial resources, they will be able to take on appropriate measures and tackle socially disadvantageous living and educational conditions, thus they will become more appealing.

Conflicts will grow between regions with different issues caused by demographic change. A conflict of interests is predictable regarding federal government and state policies on the one hand, and developmental interests of big cities and municipalities within the federal states on the other. Political strategies for action should address different problems. First and foremost, however, it is necessary to focus on interlinking labour market and education policies.

## **References**

- Autorengruppe Bildungsberichterstattung (2010). *Bildung in Deutschland 2010. Ein indikator-  
engestutzter Bericht mit einer Analyse zu Perspektiven des Bildungswesens im demografischen  
Wandel*. Bielefeld: W. Bertelsmann Verlag.
- Autorengruppe Bildungsberichterstattung (2014). *Bildung in Deutschland 2014. Ein indikator-  
engestutzter Bericht mit einer Analyse zur Bildung von Menschen mit Behinderungen*. Bielefeld: W.  
Bertelsmann Verlag ([www.bildungsbericht.de](http://www.bildungsbericht.de)).
- BMAS (2013). *Arbeitsmarktprognose 2030. Eine strategische Vorausschau auf die Entwicklung von  
Angebot und Nachfrage in Deutschland*. Bonn: BMAS. (URL: [http://www.bmas.de/SharedDocs/  
Downloads/DE/PDF-Publikationen/a756-arbeitsmarktprognose-2030.pdf?\\_\\_blob=publicationFile](http://www.bmas.de/SharedDocs/Downloads/DE/PDF-Publikationen/a756-arbeitsmarktprognose-2030.pdf?__blob=publicationFile))

- Dumont, H., Neumann, M., Maaz, K. & Trautwein, U. (2013). Die Zusammensetzung der Schulerschaft als Einflussfaktor für Schulleistungen: Internationale und nationale Befunde. In: Koller, O., Lewalter, D., Saalbach, H., Walper, S. (Eds.). *Psychologie in Erziehung und Unterricht*, 60(3), 163-183.
- Maier, T., Zika, G., Wolter, M. I., Kalinowski, M. & Helmrich, R. (2014). Engpässe im mittleren Qualifikationsbereich trotz erhöhter Zuwanderung. Aktuelle Ergebnisse der BIBB-IAB-Qualifikations- und Berufsfeldprojektionen bis zum Jahr 2030 unter Berücksichtigung von Lohnentwicklungen und beruflicher Mobilität. BIBB-Report 23. Bonn: Bundesinstitut für Berufsbildung (BIBB).
- Mitter, W. (2007). Das deutsche Bildungswesen im internationalen Vergleich. *Bildung und Erziehung*, 60(2), 135-148.
- Mitter, W. (2015). Das Verhältnis von Vergleichender Erziehungswissenschaft und Bildungspolitik in Vergangenheit und Gegenwart. In: do Amaral, M. P. & Amos, K. (Eds.). *Internationale und Vergleichende Erziehungswissenschaft. Geschichte, Theorie, Methode und Forschungsfelder* (pp. 17-39). Münster: Waxmann.
- Morris-Lange, S., Wendt, H. & Wohlfarth, C. (2013). Segregation an deutschen Schulen. Ausmaß, Folgen und Handlungsempfehlungen für bessere Bildungschancen. (Sachverständigenrat der deutschen Stiftungen für Integration und Migration [SVR] – Forschungsbereich.) Berlin: SVR. URL: [http://www.svr-migration.de/wp-content/uploads/2013/07/SVR-FB\\_Studie-Bildungssegregation\\_Web.pdf](http://www.svr-migration.de/wp-content/uploads/2013/07/SVR-FB_Studie-Bildungssegregation_Web.pdf) (Stand: 22.1.2015)
- Statistisches Bundesamt (2015). Bevölkerung Deutschlands bis 2060. – 13. koordinierte Bevölkerungsvorausberechnung. Wiesbaden: Statistisches Bundesamt. URL: [https://www.destatis.de/DE/Publikationen/Thematisch/Bevoelkerung/VorausberechnungBevoelkerung/BevoelkerungDeutschland2060Presse5124204159004.pdf?\\_\\_blob=publicationFile](https://www.destatis.de/DE/Publikationen/Thematisch/Bevoelkerung/VorausberechnungBevoelkerung/BevoelkerungDeutschland2060Presse5124204159004.pdf?__blob=publicationFile)
- Weishaupt, H. (2014). Berufliche Schulen im demografischen Wandel: Perspektiven für die strategische Weiterentwicklung. *Berufsbildung in Wissenschaft und Praxis*, (2), 15-19. URL: <https://www.bibb.de/veroeffentlichungen/de/bwp/show/id/7225>