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INVESTOR IN PEOPLE

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An Organizational Perspective on Ageing and Age Diversity at Work

Despite the recent financial crisis, the employment rate of older workers (aged between 55 and 64) is increasing at a rapid pace. In 2015, older workers comprised 53.3% of the workforce in the 28 EU member states; in 11 of the member states, the rates ranged between 50% and 66%, with a peak of 74,5% in Sweden (Eurostat, 2016). These trends are common to most industrialized countries where people are working until later in life, often far beyond the retirement ages established in past decades when life expectancies were shorter.

In light of this demographic shift, successful age management arises as one of the most relevant global challenges faced by leaders and policy makers. The increasing ageing and age diversity of the workforce are not transient phenomena, and their implications are compounded by several global trends such as increasing immigration, worker mobility, and gender and ethnic differences. Galvanized by a growing awareness of these issues, both researchers and practitioners have produced a growing body of scholarly and popular publications that address this phenomenon. Researchers, in particular, have studied ageing and age diversity in the workplace from a number of disciplines, theoretical perspectives and levels of analysis. Much theoretical and empirical work has shed light on age-related changes at work (Truxillo, Cadiz, & Rineer, 2015) – whether that involves physical abilities (e.g., Ng & Feldman, 2013), cognitive abilities (e.g., Cattell, 1971), personality (e.g., Soto, John, Gosling, & Potter, 2011), work motivation (e.g., Kooij, De Lange, Jansen, Kanfer, & Dijkers, 2011), or employees' work attitudes and performance (e.g., Ng & Feldman, 2010).

One fact that arises from this literature is that ageing is a multidimensional process: One single definition of age cannot capture its multiple meanings. Accordingly, a stream of research has focused on the different meanings of age and ageing, going beyond chronological age to highlight the role of age perceptions (i.e., subjective age, relative age, psychological age) in shaping individual attitudes and behaviors (De Lange et al., 2006). Such researchers suggest that we need to reconceptualize age if we want to change the way we manage age diversity.

Most of the literature on workforce ageing shows a theoretical emphasis on negative predictions (Shore et al., 2009), focusing on the effects of age stereotypes (Posthuma & Campion, 2009), age discrimination (Maurer & Rafuse, 2001), career

timetables (Shore, Cleveland, & Goldberg, 2003), and prototype matching (Perry & Finkelstein, 1999). This field of research highlights individuals' implicit or explicit exclusion from job opportunities, human resource investments, and decision-making processes because of their actual or perceived age. A recent meta-analysis shows that ageism significantly predicts personnel discriminatory selection and serves as a more subtle form of discrimination (in opposition to diversity-supportive policies) (Jones et al., 2017).

This growing body of research provides a strong theoretical and empirical basis for understanding the reality of an ageing workforce. However, there has been little direct research into how organizations could and should utilize the knowledge of differently aged workers (Truxillo et al., 2014) and thereby capitalize on the benefits of age diversity. The European Commission (2014) underlines the need to support the mature workforce by promoting active ageing policies that target better working conditions, better opportunities for job creation, and an overall better labor market that values an older and more skilled workforce. To this end, more research needs to investigate how organizations can customize people management practices (e.g., hiring, training, development and rewarding decisions), as well as redesign jobs and the work environment (e.g., flexible work times and spaces), to ensure that older workers utilize their strengths and perform successfully (Schalk et al., 2010).

Of course, the workforce is not only ageing, but also becoming more age-diverse, which means that older workers are not the sole concern. Very young employees must work together with considerably older colleagues and vice versa, which creates a management challenge that organizations must address (Rabl & Triana, 2014). Despite the growing relevance of this phenomenon, the research on age diversity's workplace implications remains much less developed than that on race and gender diversity (Shore et al., 2009). This may be due to the ambiguity of age diversity's significance in the literature. Like age, age diversity has different meanings. For instance, one can distinguish between age diversity at the individual level, which captures the dissimilarity of one member compared to others, and age diversity at the group/organizational level, which refers to "the distribution of differences among the members of a unit" with respect to age (Harrison & Klein, 2007, p. 1200). In addition, it seems that perceived diversity, which depends on group members' diversity beliefs, is as important as objective diversity (Homan, Greer, Jehn, & Koning, 2010). Finally, it is worth noting that researchers often use the terms "diversity," "heterogeneity," "dissimilarity," and "dispersion" rather interchangeably; however, these terms are rooted in different concepts and thus need to be treated with caution. Indeed, the meaning we associate with the age diversity concept impacts its consequences, antecedents, and operationalization. Case in point: Diversity can indicate *separation* when it refers to differences of opinions, values, or attitudes among members, any of which may cause disagreement or conflict. It can indicate *variety* when it reflects individuals' unique sets of information, knowledge, and experience. It can indicate *disparity* when it represents differences in how valuable resources are concentrated among certain members (Harrison & Klein, 2007). And if we adopt a generational perspective, diversity takes another

meaning: It denotes individuals' differences in terms of the values and attitudes they develop in response to social and historical events (Twenge & Campbell, 2008).

Despite these conceptual and operational concerns, there is a growing body of research about age diversity and its effects on individual outcomes (e.g., Ellwart, Bündgens, & Rack, 2013; Liebermann, Wegge, Jungmann, & Schmidt, 2013; Sammarra, Innocenti, & Profili, 2015), group functioning (e.g., Schalk et al., 2010; Wegge, Roth, Neubach, Schmidt, & Kanfer, 2008), and organizational performance (e.g., Backes-Gellner & Veen, 2013; De Meulenaere, Boone, & Buyl, 2016). However, there is no clear consensus yet about whether age diversity has an overall positive or negative effect on these various dimensions and levels of analysis. According to the Information and Decision-Making Perspective (Williams & O'Reilly, 1998), positive effects should prevail because age-diverse teams benefit from a wider range of non-redundant knowledge, experiences, relationships, and perspectives. This not only gives age-diverse groups a larger pool of resources, but also encourages team members to process various sources of task-relevant information, leading to more innovative solutions (Ancona & Caldwell, 1992). The Social Categorization Perspective, on the contrary, posits that individuals' age differences can be used to categorize oneself and others into groups, which then activates in-group and out-group distinctions. As a result, people become more positively inclined toward a group and its members when they are more similar to the group members in terms of age (Tajfel & Turner, 1986). In this sense, group homogeneity should result in higher group performance. A third model, the Categorization-Elaboration Model of work-group diversity (Van Knippenberg, De Dreu, & Homan, 2004), seeks a middle ground. Specifically, it argues that age diversity could have both positive and negative effects; the extent to which the negative effects of social categorization overcome the positive impact of information elaboration depends on several moderating and mediating variables (e.g., task motivation, task ability, social category salience).

Given this foundation, there is a need for more research into the processes underlying the effects of work-group diversity, which could ultimately produce better practical strategies for dealing with age diversity. To that end, this volume bridges the theoretical and empirical approaches: It discusses the challenges of valuing workers at various points in their professional lives, from youth to retirement, as well as the benefits that arise from leveraging an age-diverse workforce. Embracing perspectives that span from the individual to the organizational levels of analysis, the book explores the two distinct, but intertwined, phenomena of workforce ageing and increasing workforce age diversity. That said, the book primarily assumes an organizational perspective for two reasons:

First, we believe that age is a diversity element that requires more sensitivity on the part of employers and leaders. Among CEOs who are adopting strategies to promote diversity and inclusion, only 8% say they are focusing on age, compared to 33% for gender and 24.5% for race/ethnicity/nationality (PwC, 2015).

Second, just like the societies they inhabit and the individuals they employ, organizations are grappling with the complexity invoked by unprecedented demographic changes. Such changes raise questions about conventional ways of management

thinking, doing and being. Overlooking age as a diversity factor means forfeiting many of the benefits of full inclusiveness and exposing the organization to several risks. However, while scholars generally agree on the need to engage a more age-diverse workforce, the literature lacks the same consistency regarding the constructs' conceptualization, strategic impact, and related organizational practices. For this reason, research should focus on contingency factors that make age diversity work (Guillaume, Dawson, Otaye-Ebede, Woods, & West, 2017), especially those that managers can control, such as strategy, leadership, unit and task design, climate and culture, and HRM practices.

In order to assist readers in parsing this issue, this book is divided into two parts. The first section raises questions about the meanings of age and age diversity, as well as how and when age matters in organizations.

Any considerations related to age diversity management in the workplace must rely on data about population ageing, the ageing workforce, and labor force participation trends. Addressing this need, the first chapter, written by Catherine Earl, Philip Taylor, Chris Roberts, Patrick Huynh, and Simon Davis, presents labor supply and demand scenarios for 10 OECD countries. The authors offer an extensive analysis of older workers' labor force participation trends against the backdrop of workplace changes resulting from globalization, casualization, and, increasingly, automation. They also discuss a number of implications for policy makers across the world.

The second chapter, written by Hannes Zacher and Cort W. Rudolph, proposes a comprehensive analysis of successful ageing at work. Drawing from theories in the gerontology, lifespan development, and organizational literatures, the authors discuss what success means in the context of an ageing workforce, what time frame is necessary to observe ageing in the work context, and why some workers are ageing more successfully than others.

The third chapter, written by Justin Marcus and Michael P. Leiter, analyzes generational differences at work by accounting for contextual factors. To this end, the authors test a set of countervailing hypotheses by comparing the effect of age cohorts with that of generational cohorts. Their results favor a generational hypothesis regarding the positively valenced construct of job satisfaction, but an age-based hypothesis for the negatively valenced construct of turnover intentions. This suggests that the generational and age approaches may have different effects on work outcomes based on the situation at hand.

The fourth chapter, written by Silvia Profili, Laura Innocenti, and Alessia Sammarra, discusses the conceptual issues involved with theoretically defining and empirically measuring the age diversity climate construct. After reviewing and comparing age diversity climate with other age-focused climate concepts, the authors discuss several open issues related to the operationalization of age diversity climate, including the level of analysis, the choice of referent, and the dimensions of analysis. They conclude by outlining implications for future research on one of the most relevant boundary conditions of age diversity effects.

The second part of the volume examines the role and contribution of HR practices in forging an age-inclusive workplace. To this end, the fifth chapter, written by

Jeanette N. Cleveland, Lena-Alyeska Huebner, and Madison E. Hanscom, introduces an intersectionality perspective to the study of diversity effects. Their starting point is that ageing workers are a diverse group and have multiple identities. Therefore, the authors examine the joint effects of age and gender upon various life domains and decisions, suggesting that the experience of ageing differs for women and men in terms of health, resilience, and life domains. Further, they argue that HR practices are more likely to succeed if they recognize and accommodate the needs of a diverse workforce – acknowledging, for example, that older men and older woman differ in their needs, preferences, and experiences, or even that the concept of “age” may play out differently for men and women.

The sixth chapter, written by Franco Fraccaroli, Sara Zaniboni, and Donald Truxillo, explores the relationship between job design and older workers. The authors assess the theoretical approaches to job design that have emerged in recent last decades, as well as highlight job characteristics that may be more suitable or beneficial for people in older age groups or later stages of their careers.

The seventh chapter, written by Alessia Sammarra, Silvia Profili, Fabrizio Maimone, and Gabriele Gabrielli, inspects the HRM system’s role in facilitating effective knowledge sharing in age-diverse organizations. To this end, the authors synthesize research on HR planning, training and development, performance appraisal, and reward systems. By strengthening their HRM practices, the authors argue, organizations can better capitalize on the unique knowledge-based resources held by their younger and older employees.

We hope that, taken together, these studies will contribute to the literature on ageing and age diversity by exploring their implications on individual, group, and organizational outcomes. This work should appeal to not only scholars and researchers, but also leaders, managers, and practitioners who are interested in the management of people and want to draw upon workforce age diversity in order to obtain competitive advantages.

To conclude, we would like to thank Tanya Bondarouk and Miguel R. Olivás-Luján, Editors of the Emerald Advanced Series in Management, for believing in our project and ensuring continuous support during the book’s preparation. The very idea of editing a book on ageing and age diversity in the workplace was born during a lunch we had with Tanya at the EURAM Conference in Warsaw on June 2015, where we jointly chaired the Human Resource Management Standing Track. Thank you, Tanya, for giving us this opportunity. Further, we want to thank all the book contributors, whose expertise and commitment made this work possible and enjoyable. It is a privilege to have you all in our edited book. We are also grateful to all the colleagues who provided useful reviews and comments to improve the quality of the book. Finally, our thanks to Emma Stevenson and the team of Emerald Group Publishing for helping us keep the book on track.

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PART I
FRAMING AGE AND AGE DIVERSITY IN
ORGANIZATIONS

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Chapter 1

The Workforce Demographic Shift and the Changing Nature of Work: Implications for Policy, Productivity, and Participation

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Abstract

Population ageing, coupled with economic uncertainty and a shifting workforce structure, has directed the attention of public and organizational policy makers toward the potential contribution of older workers and skilled migrants in meeting labor supply shortages in ageing populations. This chapter presents labor supply and demand scenarios for 10 OECD countries and examines trends in the labor force participation of older workers against the backdrop of changes to the nature of work in an era of globalization, casualization, and, increasingly, automation. Brief analysis of each country's situation and policy responses indicates that China, Japan, and Korea stand out as being at particular risk of being unable to maintain growth without undertaking drastic action, although their areas of focus need to differ. A limitation of the study is that GDP projections used in labor demand analysis were based on historical rates and represented past potential and a long-run average of historic economic output. Future research might also undertake comparative analysis of case studies addressing different potential solutions to workforce ageing. A key implication of the study is that there is a need to take a blended approach to public policy regarding older workers in a changing labor market.

*The views expressed in this chapter are the views of the authors, not Ernst & Young. This chapter provides general information, does not constitute advice, and should not be relied on as such. Professional advice should be sought prior to any action being taken in reliance on any of the information. Liability limited by a scheme approved under Professional Standards Legislation.

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Where migration has historically been a source of labor supplementation, this may become a less viable avenue over the near future. Future shortfalls in labor imply that economies will increasingly need to diversify their sources of workers in order to maintain economic growth. For public policy makers the challenge will be to overcome public antipathy to migration and longer working lives.

Keywords: Workforce ageing; older workers; public policy; productivity; labor migration

Introduction

By 2050 around a quarter of the global population will be aged over 60, although this will be unevenly distributed with some countries being older and ageing more rapidly than others. Europe, for example, currently has a quarter of its population aged over 60 (United Nations, 2015). High-income countries, particularly the developed economies of North America and Western Europe, are faced with populations that are ageing as a result of increasing longevity and falling fertility (Burke, Cooper, & Field, 2013; Phillips & Sui, 2012). Population ageing, coupled with economic uncertainty and a shifting workforce structure, has directed the attention of public and organizational policy makers toward older workers and their potentially significant contribution to the performance and growth of the economy within these countries. But, at the same time, skilled migration has also played a role in meeting labor supply shortages in ageing populations.

Workforce ageing presents challenges for governments, employers, and individuals. This chapter will present data on population ageing and the ageing of the workforce internationally and trends in the labor force participation of older workers. It will describe the emergence of pro-work public policies targeting the ongoing employment of older workers, the changing workforce age composition, and what this will mean for the management of a diverse workforce, and the intersection of the changing nature of work with expectations about retirement and longer working lives in terms of individual careers. It will present labor supply scenarios for selected OECD countries and present Australia as a detailed case study which may provide a template for comparative studies of labor supply in ageing societies.

Challenges of Workforce Ageing

In industrialized countries experiencing population ageing work at older ages is presently framed as an economic and social good. For example, Staudinger, Finkelstein, Calvo, and Sivaramakrishnan (2016, S281-2) argue that past academic and policy debates that focused on negative aspects of prolonging working lives “protected people from work” and overlooked the potential positive outcomes of

work in later life. On the other hand, [Maimaris, Hogan, and Lock \(2010\)](#) and [Sahlgren \(2013\)](#) point out that, while there may be some social and physical and mental health benefits to working longer for some individuals, benefits are unlikely to be universal. This notion that working longer is a good occurs against the backdrop of changes to the nature of work.

In ageing societies, such as Australia, labor supply has been a driver for policy responses centered on skilled migration, retaining young workers, and increasing participation and securing productivity of workers as they age ([Rolland, 2004](#)). Organizations use a number of strategies to address labor supply shortages, such as recruiting new “hidden” sources of labor such as women, migrants, people with a disability, and, perhaps, older workers; increasing the labor supply of existing workers through measures such as extending the hours of part-time workers; temporarily outsourcing or hiring through a recruitment agency; and, as a longer term strategy, investing in labor saving technologies ([Henkens, Remery, & Schippers, 2008](#)).

Changing labor markets require differentiated responses to address labor supply shortages. Currently there are few studies that have found labor supply shortages are addressed by hiring or retaining older workers. A notable exception is [Taylor, McLoughlin, Brooke, Di Biase, and Steinberg \(2013\)](#) which found that many private sector, public sector, and large organizations in Australia (located in the state of Queensland) were open to hiring older workers to address a labor supply shortage, although they were less committed to retraining older workers, indicating a preference for a short-term “stop-gap” strategy.

More aligned with trends identified across the broader older worker literature, [Loretto and White \(2006\)](#) found Scottish employers turned to hiring older workers when prime age workers were not available and [Karpinska, Henkens, and Schippers \(2013\)](#) found employers preferred the early exit of older workers than their retention. Importantly, as [Loretto and Vickerstaff \(2015\)](#) stress, older workers in the United Kingdom did not necessarily desire working past a traditional retirement age, with a minority of relatively advantaged men expressing interest in continuing working and women, who often acquired new caring responsibilities for elderly parents or grandchildren, finding continuing in part-time work unsuitable or undesirable. Older women may also avoid part-time work if they are workforce returnees building a first or second career. Age-based income inequalities are exacerbated by gender-based income inequalities and these are found in both developed and developing countries. For example, older women workers in Canada have lower incomes than older male workers ([Curtis & McMullin, 2016](#)) and migrant women workers in China experience more labor market discrimination than migrant male workers ([Song, 2016](#)).

Population Ageing and the Ageing of the Workforce Internationally

In developed economies the thrust of public policy changed rapidly, from targeting the removal of older workers from the labor market through programs of early exit

to encouraging their ongoing participation into late career work (Phillipson, 2009). The emergence of pro-work public policies targeting the ongoing employment of older workers occurs in the context of labor supply shortages that may be addressed by other measures including skilled migration, fertility policies, training, and increasing the participation rates of women (Buttigieg, 2011). Nevertheless, the policy focus on extending working lives and pushing out the age of final workforce withdrawal has generally resulted in a greater number of targeted policies across developed countries, as considered in detail below. This occurs on a basis that policies aimed at prolonging working lives of older employees will be more effective at increasing the labor force participation of older people than policies aimed at drawing retirees back into work or encouraging inactive older people to enter the workforce (Warren, 2015).

Underpinning pro-work policies in developed nations is a conception of “active ageing” that tends to be narrowly focused on employment activity and social engagement through the job market. This occurs despite its definition which has a positive orientation and extends to optimizing well-being and participation broadly through a range of endeavors and across the life course (Walker, 2009, 2015; see also Moulaert & Biggs, 2012).

The related and popular concept of “successful ageing at work” is unambiguous in locating active ageing as a productive endeavor within the workforce. This implicitly refers to being “in work” or “at work” as being engaged in paid employment ideally at a workplace (Zacher, 2015; see also Martin et al., 2015; Ryff, 1982). For the purpose of this chapter, we adopt this narrow definition of “work” understood in terms of full-time or part-time (including casual) paid employment. We recognize that, as the economy becomes folded into society (Adkins, 2012), work may be understood more broadly than an androcentric notion of paid employment to incorporate unpaid work, volunteering, family caring, formalized social groups, as well as other activities that contribute meaningfully to society.

Recently, attempts have been made to reconceptualize successful ageing at work in line with the changing nature of working that is shaped by globalization, casualization, and automation. An example is Kooij (2015) who proposes reconceptualizing successful ageing at work as sustainability at work and calls for attention to be paid to continuous person-job fit between the changing person and the changing nature of work in order for employees to maintain health, motivation, work ability, and thus successful ageing. A different approach is taken by Dropkin, Moline, Kim, and Gold (2016) who introduce “blended work” consisting of using information and communication technology (ICT) to enable working “anywhere and anytime” as a potentially suitable transition from work to retirement, albeit one that does not necessarily involve maintaining workplace-oriented social connections. Blended work may be conceptualized as a subset of the much promoted concept of bridge employment (Zhan, 2016; see also Alcover, Topa, Parry, Fraccaroli, & Depolo, 2014).

Even with a targeted policy focus on extending working lives, discrimination and disadvantages for older workers continue to limit their opportunities, particularly when they lack resources, education, or marketable skills. Workers aged over 60, in

the United Kingdom, for example, are more likely to be recruited into lower status, lower paying jobs with few prospects of promotion (Lain, 2012). Older workers may be excluded from skilled migration programs, such as the case in Australia (Biggs, Fredvang, & Haapala, 2013), from formal employment in entirety due to relatively young official retirement ages and perceptions that older workers lack competitiveness, such as the case in China (Yang & Wang, 2010) and Korea (Higo & Klassen, 2014), or from “re-employment” programs that exclude those deemed unnecessary and may result in poorer terms and conditions, such as the case in Japan (Taylor & Earl, 2016a). Self-employment, including via the informal economy, may offer a solution for policy makers or older workers themselves and, in recent years, has been much promoted. Self-employment rates of older workers aged 55–69 in Canada, the United States, and the United Kingdom are relatively high and rise for each year of age, particularly after age 64 (Schuetze, 2015). Such “encore careers” may offer quality work that contributes meaningfully to society, but these may also be potentially exploitative in compelling older workers to take responsibility for their own economic and social well-being and absolving society of this responsibility (Simpson, Richardson, & Zorn, 2012). Moreover, any successes in this arena may be drawn upon as evidence that older workers are self-enabled to fend for themselves in the absence of policy or welfare provisions. While older workers internationally are protected to differing extents by national legislation proscribing discrimination on a basis of age, disability status, sex, and/or race, it is worth noting that accompanying the policy push to extend working lives is a competing discourse advocated by lobbyists without any compelling underpinning evidence that age discrimination is endemic across ageing populations and older workers as a unified group are vulnerable and exploited (Taylor & Earl, 2016b).

Overall, concepts of active, healthy, and successful ageing center on participation particularly in and through working and, perhaps because of this, later life has come to be conceptualized as a time when one should be working. Retirement in many contexts, therefore, has been transformed to incorporate time spent working. But, such ideas are not universal, and ageing concepts may differ from this generalization in different socio-cultural contexts, such as Thailand (Thiamwong, McManus, & Suwanno, 2013) and India (Pandya, 2016).

Trends in the Labor Force Participation of Older Workers

Across the member countries of the Organisation for Economic Cooperation and Development (OECD), the labor force participation of workers aged 55–64 has been increasing, although at different trajectories for women and men. Older women’s labor force participation has gradually increased over the past three decades and overall in OECD countries has increased steadily since 1980 from a third to just over a half (36–51%). Older men’s labor force participation was relatively high at nearly three-quarters (73%) in 1980. It subsequently dipped due to a large extent to the emergence of early retirement pathways throughout the 1980s

and 1990s, and eventually almost recovered to its historical peak in the 2010s. For OECD member countries overall, it remains around 70% (OECD.Stat in Taylor, Earl & McLoughlin, 2016). Moreover, workers aged over 65 are a growing segment of the labor market. There has been an overall rise in the effective retirement age, with the average having reached 65 or over in 10 OECD member countries in 2000, and growing to 13 countries in 2012 (OECD, 2015).

While higher participation rates of older workers are consistently apparent across OECD countries, this should not be taken to mean that older workers are necessarily able to find work easily. The data on unemployment rates among older workers are unequivocal and reveal that in most OECD countries, while older workers are rather less likely to experience unemployment than younger workers, when they do it is likely to be for much longer (OECD, 2006). While older workers may find themselves out of work for longer, they may also find themselves locked out of quality jobs. For example, in Europe the growth of non-standard employment varies across countries but affects older workers, younger workers, women, migrants, and long-term unemployed people (Green & Livanos, 2017). Involving the underutilization of skills or working hours, underemployment of older workers may be compounded by the potential mismatch of being overqualified for a job resulting in an imbalance between effort and reward that contributes to job dissatisfaction and early workforce exit, particularly for older women (Schnalzenberger, Schneeweis, Winter-Ebmer, & Zwemüller, 2014). Underemployment is exacerbated by age and technological barriers that may encourage older workers to enter self-employment as a survival strategy (Moulton & Scott, 2016; Talbot, Tobe, & Ames, 2015).

The changing nature of work affects workers across the workforce, but with the pro-work policy push to prolong working lives in ageing populations, three dimensions have become pertinent issues for the labor force participation of older people.

Firstly, the changing nature of work affects the availability of jobs in an era of globalization that has seen an increase in global labor migrations. In part this occurs through formal skilled migration programs, for example, to Australia, which are no longer simply focused on productive labor but have shifted over the past 25 years toward service categories, corporate professionals, entrepreneurs, and managers (Brownlee, 2016). Conceptualizations of skilled labor migration as simply “South-North,” for example, from India and China to OECD member countries, do not take into account an observably complex migration system that involves multidirectional flows, circularity, reciprocity, and remigration (Hugo, 2008). Skilled migration employment does not necessarily displace native employment as it is linked to higher overall employment, although this is unevenly distributed on native workers with younger workers’ prospects higher than older workers and older workers among those with highest exits in some industries, such as science, technology, engineering, and mathematics (STEM) occupations (Nathan, 2014).

Secondly, increasing casualization and a greater fragmentation of work structures have also transformed the nature of work, particularly for vulnerable and peripheral labor sources including women, older workers, people with a disability, and undocumented migrants. Not all older workers are vulnerable; nor are they necessarily involved in peripheral jobs. Nevertheless, the relationship between the

declining physical body and productivity appears to center on the depreciation of value of older workers and their consignment to the less productive edges of organizations (Brooke, Taylor, McLoughlin, & Di Biase, 2013). In itself, the notion of later life employment and a retirement that involves working is not problematic if it is complemented by the availability of good quality jobs for older workers (Curtis & McMullin, 2016). Casual work is not necessarily dissatisfying work, but the irregular and unpredictable hours of working within casual jobs may be associated with low job satisfaction (Buddelmeyer, McVicar, & Wooden, 2015).

Thirdly, globalization and technological advances have further changed the nature of work by introducing labor saving technologies and automation, notably in manufacturing, agriculture, and health care industries. Technology is changing job content, blurring task divisions and reshaping work flows (Hughes, 1996). Advances in technology and workplace design may enable older workers, including those with disability, to continue working to later ages (Brooke et al., 2013; Dropkin et al., 2016). Yet, workers continue to be dealt with as ageless and disembodied, for example, in hospital nursing where the rapid pace in technological change and pervasive spread of digital technologies in the workplace have become a challenge for the ongoing participation of older nurses (Halford, Kukarenko, Lotherington, & Obstfelder, 2015). Technology has played a role in transforming the nature of work by displacing some jobs and creating others since the Industrial Revolution. Its new effect is the rapid pace of exposure to and adoption of digital and robotic technologies in contemporary industries not only in the richest countries but across the globe (Comin & Hobijn, 2010). As Brynjolfsson and McAfee (2014) point out, labor saving capital has displaced human workers and this has occurred in manual labor, such as construction or manufacturing, as well as intellectual labor, such as making calculations or compiling data. While automation arguably also generates demand for labor, increases productivity, and raises earnings, it has caused a polarization of the labor market in which those at the higher and lower extremes have been disproportionately rewarded and those in the middle have been most negatively affected by income and skill redistributions (Autor, 2015). Considering these shifts are continuing to transform work, it is difficult to predict what jobs there will be for older workers in the future.

Against this backdrop is the question of how national economies will need to manage labor supply going forward. The following sections report on a recent project funded by National Seniors Australia that aimed to provide an evidence base that would underpin arguments for the greater utilization of older workers alongside other sources of future labor in order to maintain economic growth. The study considered, firstly, population ageing and international migration trends for national productivity and, secondly, developed labor supply and demand scenarios for selected OECD economies, with accompanying brief commentary for each on pension and labor market reforms associated with responses to population ageing and managing labor supply. In addition, an in-depth case study of Australia was undertaken which included modeling how potential productivity gains would impact labor supply. The case study offers a methodological approach to considering issues of future labor supply that may be applied in other national contexts.

Methodology

Publicly available data sources and internationally accepted modeling practices were combined to provide a transparent and robust analytical approach. This involved the following four key stages.

Information Gathering

A targeted review of available data was undertaken from a range of publicly available and credible sources to inform the analysis and identify trends in global work and ageing. Key data sources and official projections included: United Nations – Population history and projections (UN); Organisation for Economic Cooperation and Development (OECD); Australian Bureau of Statistics (ABS); and International Monetary Fund (IMF).

Global Outlook

Global datasets were analyzed to construct the trends around three key aggregates: global populations, net migration, and age demographics. The analysis looked at both historical data ranging from 1950 to 2015 and official projections covering the period from 2016 to 2051 in order to understand the trajectory for work and ageing across the three key aggregates.

Analysis was then undertaken to uncover the underlying implications of the ageing global workforce on labor supply against demand across various countries around the world. That is, for each country GDP projections based on a bottom-up approach of labor supply and top-down approach of labor demand were compared to estimate future gaps between labor supply and demand.

The GDP projections were based on the same methodology used in the [Australian Treasury's \(2015\) Intergenerational Report \(IGR\)](#). That is, long-term projections of economic growth are a function of the trend growth rates for population, productivity, and participation. This 3Ps framework is very robust, internationally accepted, and can be applied uniformly to each of the international datasets under examination.

Labor supply and demand projections were estimated over a forecast horizon to 2041. Projections were provided for the United States, Canada, Germany, the United Kingdom, India, China, Japan, South Korea, and Australia. Costs were calculated in the home currency of the country in real terms. These countries were chosen to reflect international diversity, encompass established and emerging economies, and to include countries where there is strong policy interest in older workers' employment and where such interest is nascent. Workers were calculated as persons in the country over the age of 15 who were participating in the labor market, that is, working or actively looking for work.

Labor Supply

A bottom-up approach was used to calculate the labor supply available to the economy on current trends. Using the 3Ps framework, real GDP growth is a function of:

- population – the number of people of working age (15 years and over);
- productivity – the average output per hour worked; and
- participation – the average participation in the workforce by age cohort.

For each year of the forecasts, population projections were based on official projections, productivity growth rates were based on their long-term historical averages, and participation rates for each five-year age cohort were assumed to remain stable and were based on their most recent year of available data.

Specifically, population projections were taken from the UN mid-range projections in five-year age cohorts, and all age groups 65 or older were summed to make a “65 or greater” group. Population projections were multiplied by the participation rates for each of the five-year age cohorts for ages 15–65 or greater for each year data was available. Participation rate data was sourced from the OECD. That is, up until and including, 2014:

$$L_{supply,t} = \sum [population_{5\text{ year cohort},t} * participation\ rate_{5\text{ year cohort},t}]$$

For 2015 onwards:

$$L_{supply,t} = \sum [population_{5\text{ year cohort},t} * participation\ rate_{5\text{ year cohort},2014}]$$

For projections after 2014, the 2014 participation rates for each cohort were used.

Labor Demand

The top-down approach was used to calculate what labor would be required to meet GDP levels based on their long-run historical average growth rates. Using the 3Ps framework again:

- productivity growth rates were based on their long-term historical averages;
- participation growth rates for each five-year age cohort were assumed to remain stable and were based on their most recent year; and
- population growth rates, in contrast to the labor supply estimates, were solved to meet the real GDP projections based on their long-run historical average growth rates.

GDP data in real, home currency terms was taken from the IMF World Economic Outlook Database. The growth rates between each year were calculated with the preceding year as the base. This was done for all years between 1980 and

2014 inclusive. The average of these growth rates was determined for the time period and used as the indicative long-run growth rate for each country. For each year from 2015 onwards, GDP was calculated to be the average growth rate since 1980 times the GDP for the previous year. That is:

$$\text{GDP}_{t+1} = \text{GDP}_t + \text{GDP}_t * g_{\text{historical average}}$$

This was projected forward to 2041.

Historical productivity growth rates were calculated by taking the GDP for each year and dividing it by the number of people in the labor force as calculated from the UN population and OECD participation rate datasets. That is:

$$\text{Productivity}_t = \frac{\text{GDP}_t}{L_{\text{supply},t}}$$

This gave the ‘‘GDP per labor force participant’’ number. The growth rate between each year was then calculated. Finally, the average of these growth rates was calculated to find a long-run average growth rate of productivity. For each year from 2015 onwards, productivity was calculated to be the average growth rate since 1980 times the productivity level for the previous year. This was projected forward to 2041. That is:

$$\text{Productivity}_{t+1} = \text{Productivity}_t(1 + \text{productivity growth rate}_{\text{historical average}})$$

Given the forecasts of GDP and productivity for each country, the labor demand required to reach the required forecast level of GDP with the relevant forecast productivity rate was calculated. This was done by dividing GDP by productivity. That is:

$$L_{\text{demand},t} = \frac{\text{GDP}_t}{\text{Productivity}_t}$$

The annual difference between the two workforces (population by participation rates and projected GDP divided by projected productivity) of the bottom-up and top-down approaches is the labor gap of each country.

Australian Case

Following from the global outlook, detailed analysis on the Australian Case was undertaken to understand the extent of work and ageing across the Australian population, industries, and occupations. The methodology was extended to examine factors including industry, employment status, and the wider economy. Analysis from this section utilized official National Population Census and ABS datasets. Australia was chosen as the case study as the overall study had a particular focus on this country. However, in a future study it would be potentially informative to

undertake a contrasting case study of a country where migration and not productivity may be a better solution – for example, South Korea or Japan.

Scenario Analysis

Productivity growth rates and participation rates by five-year cohorts were varied to investigate the potential impacts of shifts on gaps in labor supply and demand.

Australia's productivity growth rate was raised in the calculation of labor demand to 1.5% and 2%.

The increased productivity growth rate resulted in fewer workers needed to reach the target level of GDP as each worker is more productive. The increased participation rate closed the supply gap by adding more workers in the labor market.

The assumptions are based on data from the official sources covering the period 1950–2015. Official population projections were used. It is noted that the GDP projections used in the labor demand approach were based on historical rates and represent past potential and are not intended to be official GDP forecasts, but rather a long-run average of historic economic output.

Findings

Global Population Trends

Global population trends potentially present a number of challenges for productivity. In part challenges are generated by the significant demographic shift that the global labor force is undergoing. Ageing populations have generated older workforces mainly in developed nations (although some developing nations are rapidly catching up) and further pressure is added as older workers move into economic inactivity and retirement. These combined pressures place a strain on labor supply in developed nations which is rapidly falling before labor demand. Labor supply shortages are not universal across developed nations as the effects are experienced to a greater extent in some industries and lesser extent in others. As the analysis shows, governments have been pursuing a range of policy measures, including encouraging older workers to work longer as well as promoting skilled migration programs, in order to increase labor productivity and participation rates with a view to maintaining current GDP growth trends.

Population ageing is most pronounced in more developed nations. The negative growth rate for the population aged under 50 can be attributed in part to a lack of replacement due to fertility control programs and lower fertility rates as well as to a large portion of the population entering the cohort aged 50 and over due to increasing life expectancy and better general health. The growth of the cohort aged 50 and over in more developed nations is already reflected in labor force composition. Workers aged 50 and over will be a growing segment in national labor forces.

While the world population as a whole is ageing, population growth rates are higher overall in less developed nations, including for the cohort aged 50 and over. Unlike China, which has an ageing population, India and other large developing nations in Asia and Africa, such as Nigeria, Pakistan, and Indonesia, remain demographically young and will continue to grow until 2050 (United Nations, 2015).

Global Labor Migrations

Global labor migrations also present a number of challenges for productivity. Nations experiencing population ageing have been compelled to address labor supply shortages using a range of measures in order to satisfy economic growth. Besides prolonging working lives, governments internationally have relied on skilled migration programs as well as irregular migration flows to supplement labor supply to varying extents.

Historically significant migrations have originated in Europe (particularly from the United Kingdom, Ireland, and Italy), China, and Mexico and targeted the settler societies of United States, Canada, and Australia. In the last 45 years, major migration sources to the United States, Canada, and Australia have shifted to also include less developed source countries, such as India, Vietnam, and the Philippines. These irregular and skilled migrations do not simply involve unidirectional flows of permanent migration but comprise a diversity of circulations, reciprocity, and remigration patterns (Hugo, 2008).

Reliance on migration to supplement labor forces presents a challenge for nations experiencing workforce ageing, particularly when not all migrations comprise skilled migrants and not all skills are equally desirable in meeting labor supply shortages. However, migration may be an effective means of providing high-skill labor supply and prolonging working lives of older citizens may provide low-skill labor supply (McDonald & Temple, 2013). Nevertheless, matching migrants' skills to the skill shortages in a particular nation or industry is an ongoing challenge for formal programs to address. This may be further complicated by the movements of highly skilled expatriate workers, who are often temporary residents such as Western expatriates in Shanghai, and who may not be counted in official state data (Farrer, 2012). Moreover, the uncertainty of irregular migrations impact on forecasts of global migration flows and how, or if, irregular migration might contribute to addressing labor supply shortages in the short or longer term. Recent mass migrations from North Africa, Central Asia, and Middle Eastern regions have illustrated this uncertainty primarily in the European region.

It is worth noting that skilled migrants from developing countries, on the one hand, may be among the most highly resourced and/or most highly educated citizens who are readily enabled to access not only formal skilled migration programs but, on the other, may be among the most vulnerable and potentially exploited workers if they lack the necessary resources or information concerning decision making about access to migration programs. Moreover, in meeting labor supply shortages, migrant women of all skill levels (including high-skill) face potential

underemployment and deskilling (Cerna & Czaika, 2016; IOM, 2012; McCormack, Joudo Larsen, & Abul Husn, 2015).

Implications for Labor Supply against Demand

Even with skilled migration programs, there will be significant labor supply shortages across developed economies around the world. This section overviews nine national cases to illustrate that the extent of labor shortages will be directly related to the demographic journey of each individual country with the effect of population ageing being very apparent.

United States The United States will begin to see a labor shortage based on current trends very soon. These deficits will likely become more apparent after 2020. The deficit may imply wage-driven inflation and below potential economic growth in the long term. This demographic picture reveals that there has been relatively less pressure on policy makers in the United States to take action and consequently they have shown relatively little interest in increasing opportunities for older people to extend their working lives. The small number of significant pieces of legislation, including the Age Discrimination in Employment Act (1967), with phased retirement and older worker retraining programs, may make continued employment at later ages easier, more attractive, or more financially necessary (Rix, 2016). Additional policies to address the shortfall in labor supply and maintain current growth may be required. To achieve these ends, policies should target labor productivity, increasing participation rates and finding alternative means to migration to supplement labor supply. This is shown in Figure 1.

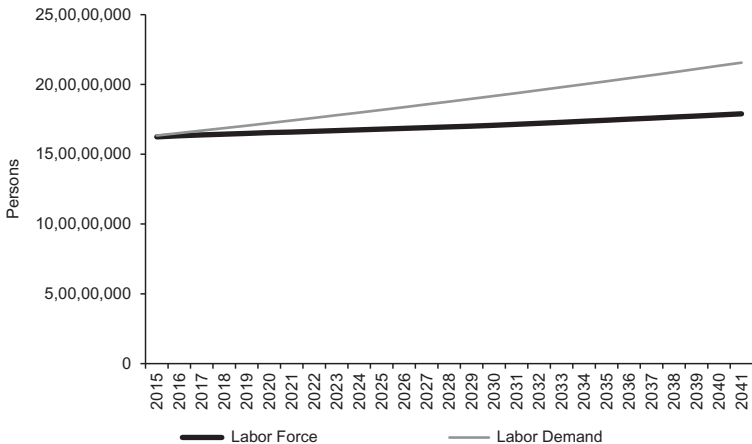


Figure 1: Labor Supply and Demand Model for the USA. Source: UN Population Projections 2015, EY Analysis.

Canada Canada's labor force will stay relatively flat based on current population trends and labor force participation rates. To achieve Canada's recent GDP growth with current productivity growth rates, labor force participation rates will need to increase, particularly for the population aged over 60. This is shown in Figure 2. Canada can expect an increasing gap in its labor supply and demand in the long term. Policies to address the increasing shortfall in labor supply will be required to avert large wage-driven inflation and decreasing growth prospects. These policies will build on active employment measures, such as the 1999 Older Workers Pilot Projects Initiative (OWPPI), the 2006 Targeted Initiative for Older Workers (TIOW), and the 2012 revisions to Old Age Security (OAS) provisions that resulted in raising the pension eligibility age to 67 (Curtis & McMullin, 2016; HRSDC, 2012). Policy makers need to continue to target increases in labor productivity and participation to maintain current growth.

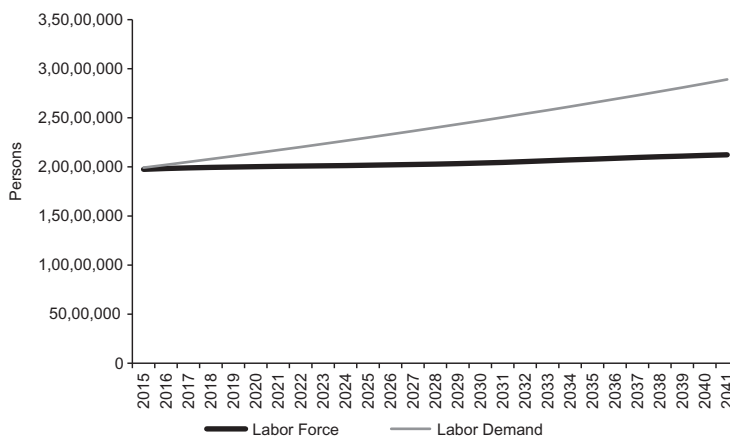


Figure 2: Labor Supply and Demand Model for Canada. *Source:* UN Population Projections 2015, EY Analysis.

The United Kingdom The United Kingdom's labor force is expected to remain relatively flat over the coming years, with a small increase in a few decades time (Figure 3). To maintain current GDP growth rates, the United Kingdom's labor force will need to expand or become more productive. Policy makers in the United Kingdom have introduced measures to place restrictions on mandatory retirement ages by employers, provide incentives to work beyond 65 years, and ensure the right of employees to request flexible working arrangements. However, poorly aligned policy is disadvantageous to older job seekers, older workers with lower levels of education, and those experiencing ill health (Phillipson, Vickerstaff, & Lain, 2016; see also Phillipson, 2013). Future policies to address the increasing shortfall in labor supply will be required to avert large wage-driven inflation and decreasing growth prospects. Policy makers may need to further target increases in labor productivity and participation to maintain current growth in the potential absence of migration

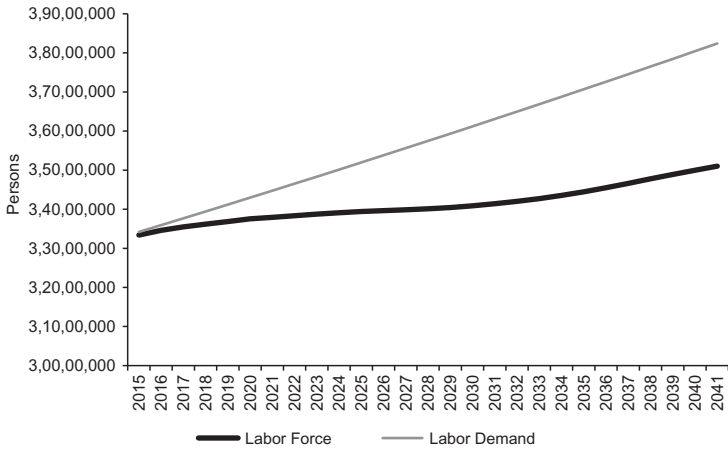


Figure 3: Labor Supply and Demand Model for the UK. *Source:* UN Population Projections 2015, EY Analysis.

as an effective policy mechanism in the wake of the United Kingdom’s decisions, firstly, to restrict skilled migration and, secondly, to leave the European Union.

Germany Germany’s labor force is expected to shrink progressively over the coming decades. At the same time, labor demand will increase if GDP continues to grow at current rates. Policy makers have introduced a range of measures to extend working lives, including lifting the retirement age to 67, modifying welfare provisions for unemployment and disability, and offering retraining programs,

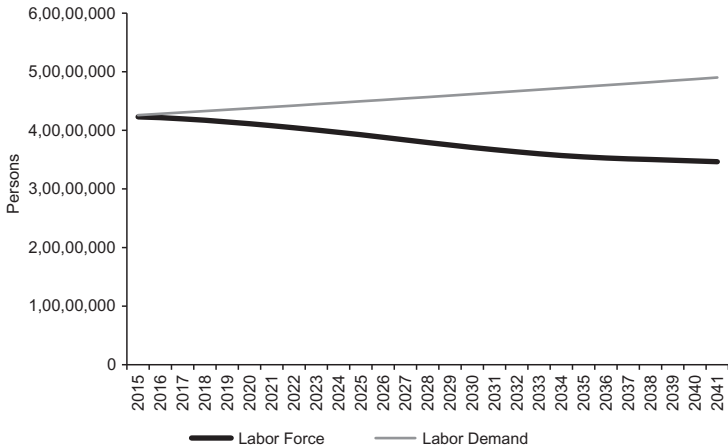


Figure 4: Labor Supply and Demand Model for Germany. *Source:* UN Population Projections 2015, EY Analysis.

and various employment policies such as wage subsidies, employment protections, employment pacts, part-time work, and the promotion of self-employment (Bauknecht & Naegele, 2016). These measures have generated a demand among older workers for quality jobs (Dittrich, Busch, & Micheel, 2011). Nevertheless, severe labor shortages are expected to develop over the coming decades, as shown in Figure 4. Like other ageing OECD member countries, such as Canada and the United Kingdom, Germany can expect an increasing gap between labor supply and demand in the long term and policy makers will need to implement new measures to address these.

India India is projected to have a labor surplus, with supply outstripping demand by 2019 (Figure 5). The labor surplus will increase to approximately 40 million workers by 2041 based on current trends. However, if India's GDP growth were to accelerate, this excess supply may be reduced. India lacks a formal retirement system and older workers in India do not envisage their retirements involving working (Gupta & Hershey, 2016). Consequently, policy makers in India are yet to target the rehiring or retraining of older workers as a means to stimulate the economy and also as a strategy to build skilled human capital through knowledge transfer, for example, through volunteering activities of retired professional women in Mumbai (Pandya, 2016). India can be expected to continue to be a source of outbound migrants into the future, including highly skilled professionals and unskilled labor migrants exiting on formal programs as well as irregular and undocumented out-migrations to all countries, including OECD member states such as Australia (Hugo, 2008; Phillips & Simon-Davies, 2016).

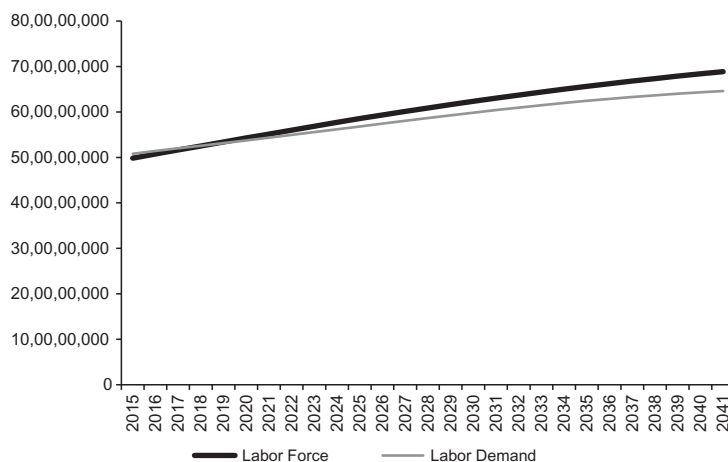


Figure 5: Labor Supply and Demand Model for India. *Source:* UN Population Projections 2015, EY Analysis.

China The second of the two most populous countries presents a contrasting case. China is predicted to experience severe labor shortages in the next few decades (Figure 6). This is due to ageing demographics heavily weighted toward older cohorts, exacerbated by fertility restriction programs including terminations and sterilizations under the single child policy. China is an ageing country but, significantly, it is not a rich nation and, thus, it is worth outlining key elements of its trajectory that differ from the ageing nations of Europe and North America.

China’s transition from a centrally planned to a market economy has resulted in a poorly designed pension system that because it is not a fully funded system has led to later life poverty, particularly in rural China. Labor market participation rates for people aged over 50 dramatically decline compared to rates for people aged under 50, and differentiated official retirement ages for women (age 55) and men (age 60) makes the effect more dramatic for women compared to men. This situation is exacerbated by the development of labor-intensive industries that have resulted in older workers not being seen as competitive employees. The labor market transition has also involved the development of an informal economy of small enterprises that are not recognized and not protected by legal and regulatory frameworks. Since the 1990s the government has introduced a series of active employment policies, but only some of which target older workers, including public employment services, employment training, re-employment support, and promotion of lifelong learning (Yang & Wang, 2010). GDP growth can be expected to moderate without a significant increase in older worker participation or sharp productivity increases.

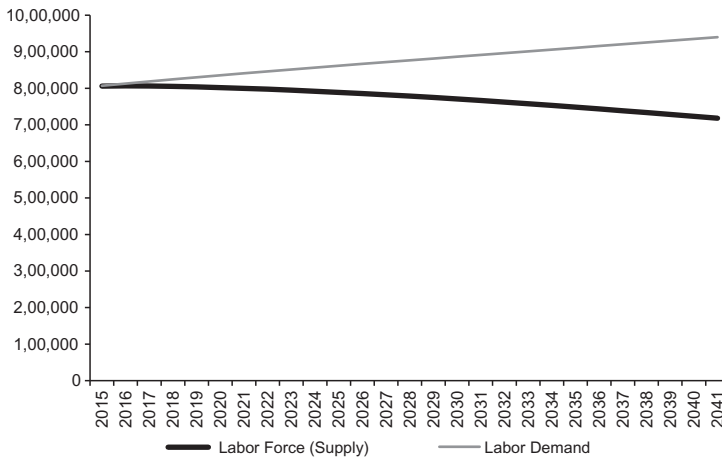


Figure 6: Labor Supply and Demand Model for China. *Source:* UN Population Projections 2015, EY Analysis.

Japan Japan presents one of the most serious cases of workforce ageing internationally. Given recent history, labor demand in Japan will increase moderately. However, based on current participation rates and population trends, the decline in the labor force will be faster (Figure 7). The combined effect of population ageing and resistance toward migration will create severe labor shortages in Japan over the next 25 years. Policy makers in Japan have focused on recruiting, retaining, and rehiring older workers primarily through post-retirement contracts which involve a retiree continuing to work with the original company at a dramatically reduced salary (Fujimura, 2016; Yamada & Higo, 2015). This has generated a greater demand from older workers for opportunities to continue working in quality jobs, but the quality of later life employment in general is meager and it is widely regarded as an obligation to the state rather than part of a business model (Higo & Klassen, 2016; Oka, 2013). While Germany and Japan may be expected to be similar in terms of demographic ageing, their respective policy responses to the ageing workforce have been divergent (Jackson & Debroux, 2016). Policy makers in Japan need to act to address labor shortages through a range of measures including considering migration as a viable option into the future and also by pursuing other means to bridge this increasing supply-demand gap as much as possible.

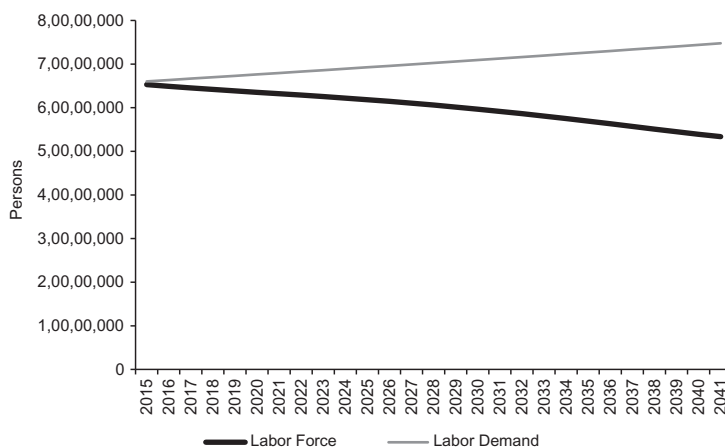


Figure 7: Labor Supply and Demand Model for Japan. *Source:* UN Population Projections 2015, EY Analysis.

South Korea South Korea is expected to experience a flattening and eventually declining labor force over the next 25 years. At the same time, based on current trends, the economy and subsequently the demand for labor are expected to grow (Figure 8). South Korea is expected to face labor shortages or a moderation in economic growth. Policy makers in South Korea, as in Japan, have focused on the reformed mandatory retirement system. Unlike Japan where employees continue with the original employer at reduced incomes from age 60, in South Korea

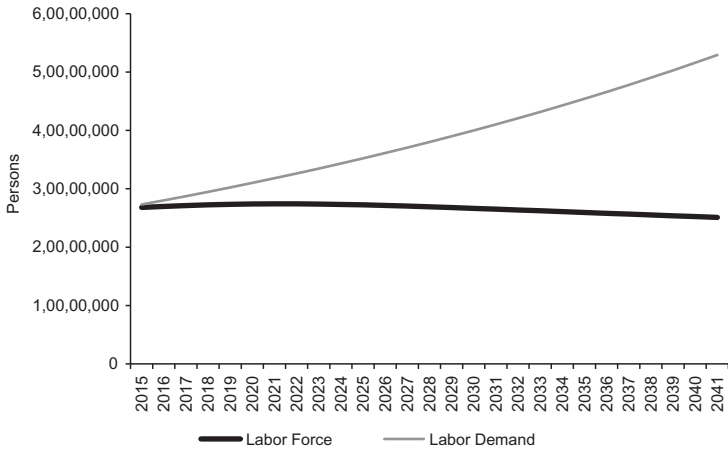


Figure 8: Labor Supply and Demand Model for South Korea. *Source:* UN Population Projections 2015, EY Analysis.

employees are faced with seeking new employment in a second career with a different employer from age 55. Consequently, more Koreans than Japanese remain in the labor market after age 65 (Higo & Klassen, 2014; see also Higo & Klassen, 2016). Similar to Japan, policy makers in South Korea currently do not promote labor migration and may need to consider it as a policy option in future.

Australia As shown in Figure 9, Australia is predicted to face labor shortages in coming years. The demographic trajectory of Australia is similar to that of Canada and the United States, each of which has slightly higher labor force participation rates compared to Australia. Labor shortages across the Australian economy will be felt to varying degrees across different industries. Policy makers in Australia have responded with measures targeting older workers in general, including extending the pension eligibility age to 67 and proposing to extend it further to 70, extending the existing mandatory employer contributions to private retirement savings, promoting gradual retirement through the Transition To Retirement (TTR) scheme, and introducing a package of job search, skills development, and retraining programs (Taylor et al., 2016). The policy landscape in Australia is somewhat uneven with skilled migration policies specifying both target industries and age limits but pro-work policies applying broadly to older workers regardless of their differing needs.

The following section explores in depth the case of Australia, an OECD member country that is experiencing labor supply shortages in part as a result of population ageing, at the same time as it actively operates a skilled migration program with defined aged barriers, and historically has been a settler society involved in other migration circulations and flows. The case study aims to determine how productivity needs can be met using older workers and skilled migrants.

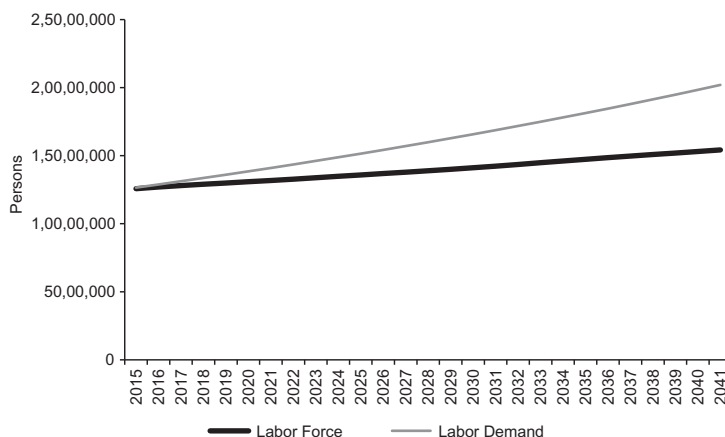


Figure 9: Labor Supply and Demand Model for Australia. *Source:* UN Population Projections 2015, EY Analysis

Case Study: Australia

It is anticipated that Australia’s current skilled migration program will not be able to meet its labor supply needs into the future when the ageing of its population and, in particular, its workforce is taken into account. An in-depth understanding of Australian demographics and economic growth both across the whole economy and within industries will be required to uncover key focus areas for targeted policies.

Changing workforce participation rates and new family structures will cause demographic ageing in Australia to accelerate. Australia’s “Baby Boomers” are a relative large cohort of 5.5 million people born between 1946 and 1965 (Productivity Commission, 2005). They present a significant bulge in Australia’s overall age profile. This is compounded by their working and family preferences. Like their counterparts in the United States and New Zealand, Australia’s Baby Boomers prefer to have fewer children than their parents and to have them later in life. They also have a much longer life expectancy than their parents. Furthermore, Baby Boomers have higher levels of education than their parents and more Baby Boomer women participate in the paid labor force (Winston & Barnes, 2007). There has been a steady increase in the female labor force participation rate over the past few decades from around 20% in 1980 to 56% by 2014, while over the same period there was a decline in the male labor force participation rate followed by a relatively recent recovery to just over 70% (OECD.Stat in Taylor et al., 2016). Overall, there has been an increase in the labor force participation rate across the Australian economy.

Work and Ageing across Industries

The ageing population and subsequent labor force challenge will impact industries and businesses differently, but there have been consistent increases across industry groups illustrating the ageing of Australia’s labor force. By understanding the extent of ageing between industries, government policies can be targeted for greater effectiveness in addressing serious shortages of skilled labor within various industries (Figure 10).

The proportional increase in older workers across all Australian industries has severe implications for long-term labor supply. As older workers move into the retirement phase, industries may face a shortage of workers, constraining their ability to grow at potential. At the same time, all age groups have seen an increase in underemployment since the Global Financial Crisis of 2008–2009. Older workers are no exception as they face a greater propensity for underemployment and endure underemployment for longer, suggesting that a section of the older workforce is underutilized. Underemployment rates in Australia are higher than the OECD average despite lower unemployment rates, and older women in Australia are particularly affected by underemployment (Li, Duncan, & Miranti, 2015).

Australia has relied on migrant labor to supplement shortages. Skilled migration programs have targeted particular skills as well as younger migrants in an attempt to supplement labor shortages and counter the effects of population ageing on the workforce age profile. Australia’s skilled migration scheme is open to individuals aged under 50 and based on a points system that gives preference to workers aged in their 20s and 30s in specified occupations experiencing labor supply shortages. These age barriers exist in migration policy despite anti-age discrimination that regards such age barriers to be illegal in other policy areas (Biggs et al., 2013). Notwithstanding age barriers, it is highly likely that migration to Australia will

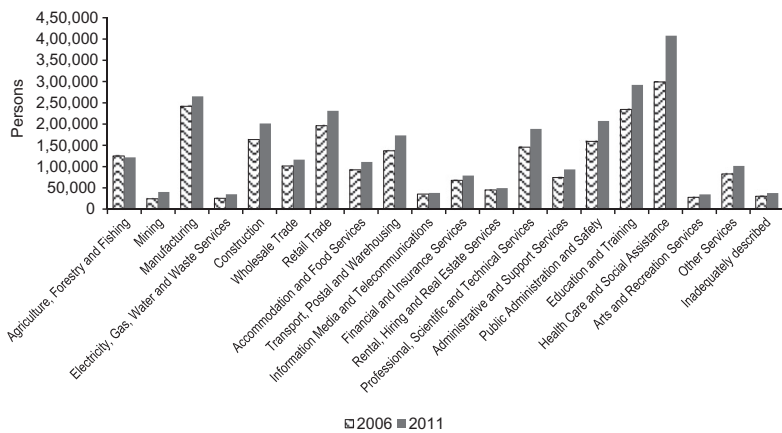


Figure 10: Older Workers’ Employment by Industry, Australia. *Source:* Australian Bureau of Statistics Table Builder.

continue to rise (McDonald, 2012). European migration has been the dominant migration flow to Australia in the twentieth century and, while the recent skilled migration program has transformed to center on skills, European migrants – many of whom enter Australia as temporary skilled migrants – continue to cite lifestyle reasons for migration (Khoo, Hugo, & McDonald, 2011). Since 2011, China and India have provided more permanent skilled migrants to Australia than European nations (Phillips & Simon-Davies, 2016). This long history of migrant settlement has resulted in overseas-born workers being a significant part of all industries in Australia. Industries with a high percentage of overseas-born workers and a large number of older workers (such as in the health care industry) may face higher levels of uncertainty in this environment.

Analysis of Work and Ageing in Australia

In order to understand the extent to which the projected labor shortage can be alleviated through future policy solutions, detailed scenario analysis was conducted to compare the impact of increasing labor productivity or increasing participation rates across selected economies. The objective of this is to see what is required to bridge the gap between the projected labor demand and supply, using Australia as a case study.

The analysis reveals the size of the labor force gap in Australia is in the vicinity of 4.78 million people by 2041. Australia's average annual productivity growth for the past 10 years is approximately 0.9% per annum. If annual productivity gains were to increase to 1.5% per annum, on current population trends and participation rates, the projected labor shortage would be halved. This is shown in Figure 11, where the dashed grey line represents labor demand under the increased productivity scenario.

An increase of annual productivity growth to 2% per annum from 0.9% per annum will entirely close the labor shortage gap, as shown in Figure 12. This works by significantly reducing the quantity of labor required to achieve current rates of

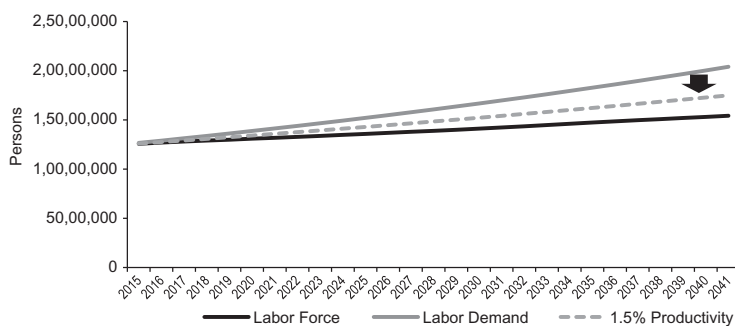


Figure 11: Australian Labor Supply and Demand with productivity growth increased to 1.5% per annum. *Source:* Australian Bureau of Statistics (2016), EY Analysis.

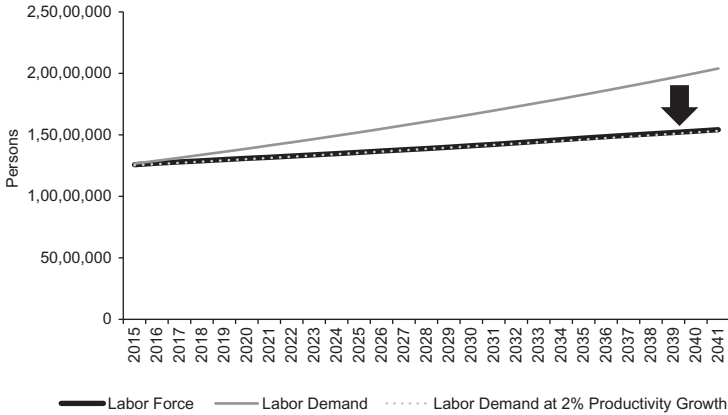


Figure 12: Australian Labor Supply and Demand with productivity growth increased to 2% per annum. *Source:* Australian Bureau of Statistics (2016), EY Analysis.

economic growth. An increase to 2% per annum is more than double the current rate of productivity growth. In the past 35 years, the Australian productivity growth rate has averaged 1.36%. A consistent productivity growth of 2% per annum for the coming decades would be unprecedented.

By comparison, according to IMF analysis across Europe, the average total factor productivity growth is forecast to be around 0.8% per year, which could increase by 1 percentage point per year if the effects of workforce ageing are addressed (Aiyar, Ebeke, & Shao, 2016). Thus, productivity growth cannot be expected to solve the problem.

Conclusions and Recommendations

We summarize the evidence obtained from the labor supply scenarios with the brief analysis of each country’s situation and policy responses in Table 1. With the exception of India, each of the countries we have considered will face labor supply challenges with the potential to affect economic growth associated with the ageing of their populations. Nowhere, with the exception of India, is the situation relatively benign. However, our analysis indicates that the three Pacific Asian countries – China, Japan, and Korea – stand out as being at particular, considerable risk of being unable to maintain growth without undertaking drastic action, although their areas of focus need to differ. While Japan and Korea need to maintain efforts to increase the labor force participation of older workers, this may be insufficient and require more drastic action in terms of opening themselves to labor migration. On the other hand, China will need to take much more action regarding increasing its supply of skilled older labor.

Table 1: Country scenarios regarding the management of labor supply and policy responses.

Country	Labor supply scenario	Present responses to maintaining the supply of older labor	Policy scenario
Australia	Predicted to face labor shortages in coming years with these being felt to varying degrees across different industries.	Australia’s current skilled migration program not able to meet its labor supply needs. Other measures have included increasing the pension eligibility age, promoting flexible retirement, and a package of employment programs targeting older workers.	Government policies need to be targeted for greater effectiveness in addressing shortages of skilled labor within various industries. Remove the age limit within the skilled migration scheme.
Canada	Labor supply predicted to be relatively flat, with an increasing gap in labor supply and demand.	Measures have included employment programs and raising the age at which an old age pension can be accessed.	Needs to be a continued focus on labor productivity and participation. Participation rates will need to increase, particularly for the over 60s.
China	Predicted to experience severe labor shortages in the next few decades. An ageing but not rich country. Labor force participation rates for people aged over 50 dramatically decline. Situation exacerbated by the development of labor-intensive industries.	Has a poorly designed pension system. A series of active employment policies introduced, but only some of which target older workers.	GDP growth can be expected to moderate without a significant increase in older worker participation or sharp productivity increases.

Germany	Severe labor shortages are expected to develop over the coming decades. Labor demand will increase if GDP grows at current rates.	A range of measures to extend working lives has included lifting the retirement age, modifying welfare provisions for unemployment and disability, and a range of employment programs.	An increasing gap between labor supply and demand in the long term will require ongoing reform.
India	Projected to have a long-term labor surplus. Accelerated GDP growth would reduce excess supply.	No policies targeting the rehiring or retraining of older workers as a means to stimulate the economy and to build skilled human capital.	Expected to remain a source of outbound migrants into the future, including highly skilled professionals and unskilled labor migrants exiting on formal programs as well as irregular and undocumented out-migrations to all countries.
Japan	Experiencing severe workforce ageing. Labor demand expected to increase moderately but the decline in the labor force will be faster. Population ageing together with a resistance to migration will create severe labor shortages over the next 25 years.	Focus on recruiting, retaining, and rehiring older workers primarily through post-retirement contracts. Quality of later life employment is somewhat meager.	Need to address labor shortages through a range of measures including migration and by pursuing other means to bridge the increasing supply-demand gap.
South Korea	Expected to experience a flattening and eventual declining labor force while labor demand expected to grow. Expected to face labor shortages or a moderation in economic growth.	Policy focus has been on reforming the retirement income system.	Need to consider labor migration as a policy option in future.

Table 1: Continued.

Country	Labor supply scenario	Present responses to maintaining the supply of older labor	Policy scenario
United States	Imminent labor shortages impacting inflation and economic growth.	Less pressure on US policy makers to take action and consequently little interest in prolonging working lives.	Policies should target labor productivity, increasing participation rates and finding alternative means to migration to supplement labor supply.
United Kingdom	Labor force expected to remain relatively flat over the coming years, with a small increase in a few decades time.	Policy responses have included restrictions on mandatory retirement ages by employers, incentives to work beyond 65, and employee right to request flexible working arrangements. However, policy has been poorly aligned.	Future policies to address the increasing shortfall in labor supply required to avert wage-driven inflation and decreasing growth prospects. A need for increases in labor productivity and participation to maintain current growth in the possible absence of migration.

The present framing of work at older ages as an economic and social good occurs against the backdrop of transformations of work such as changes to the availability of jobs due to influences of globalization, casualization, and technological developments such as automation. There is a need to take a blended approach to public policy regarding older workers within a bigger picture of a changing labor market, economic growth, and sustainability. The ageing global population will result in significant implications for economies across the world. While this issue is commonly known, reoccurring themes were found throughout the analysis. On current trends, the implications of these themes could be observed as soon as the next few decades. These themes are:

1. Economies around the world are facing the possibility of labor shortages due to population ageing. While developed economies have historically utilized migration as a source of labor supplementation, this may become a less viable avenue over the near future. The notable exceptions to this strategy are Japan and Korea. Taking into account that economies are changing with the restructuring of work so that developing economies may become more developed, with increasing disparities between living standards, levels of education, and employment opportunities in urban and rural areas, labor supply and demand configurations that contribute to domestic and international migration flows may be affected. The cases of India and China, which together share around 40% of the global population, are relevant here. In particular India, which unlike China is still growing and is predicted to continue growing to 2050, is an interesting example that will perhaps offer the most reliable continued source of skilled migrants for other economies facing labor supply issues.
2. Illustrated by the case study of Australia, increasing productivity will alleviate some of the labor shortage pressures. However, unprecedented productivity increases will be required to close the gap between labor demand and available labor supply in the Australian case. Optimizing the use of the available labor force will be required along with productivity increases if Australia is to maintain current levels of economic growth. Current rates of engaging older workers and skilled migration will not be able to meet projected labor demand.
3. Finally, for public policy makers the challenge will be to overcome public antipathy to migration and longer working lives if economic growth is to be maintained. While it is generally accepted in policy circles that employment to maximize the participation of workers at all ages is necessary, this may put governments at odds with populations skeptical of their ability to continue working until or beyond age 70. There is a need for governments to take concerted action that makes the case for working longer in terms that both presents a convincing business case for employing older workers and a pro-work agenda that incentivizes continued participation and provides support that makes this a realizable and, above all, a coveted goal. This is a long-term project.

Acknowledgment

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