10 *A strong long-term care system is necessary for economic growth*

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10.1 Introduction

A country's economic growth – the rate at which its income is increasing or shrinking – is a key concern for policy makers. A growing economy suggests that income per person and living standards are rising, and the country has more resources for investments that will increase future economic productivity and income growth. Proposals to expand government spending or change tax rates are almost always evaluated in terms of how they will contribute to the country's economy and especially the growth of the economy. In countries with rapidly ageing populations, economic growth is increasingly viewed by policy makers as essential if the country is going to have enough income to support continuing improvements in the standard of living. Thus, proposals to strengthen existing long-term care systems or create new programmes must consider how an ageing population might impact the country's economic growth.[1]

Models of the determinants of economic growth indicate that a country's income grows when its labour supply grows or workers are more productive, or its supply of physical capital (such as equipment, manufacturing facilities, laboratories, transportation infrastructure) increases. Labour productivity increases when workers are more skilled, or if they can work with more or improved forms of capital, or if new knowledge or organisational

[1] The European Commission, the OECD, the IMF and the World Bank, as well as many country-specific government agencies and researchers, regularly issue papers about how the ageing of populations is likely to affect economic output, worker productivity and countries' ability to support government programmes. See, for example, several recent analyses: European Commission (2021), Kim and Dougherty (2020), Dubina et al. (2021).

changes enable workers to produce more with existing forms of capital.[2] The obvious concern for countries with ageing populations is that the models also imply that economic growth will slow as older workers retire unless there are other changes that increase worker productivity or the productivity of labour and capital taken together.[3]

This scenario often leads to the conclusion that countries with ageing populations cannot afford to finance a strong long-term care system. The presumption is that doing so would further slow economic growth by raising taxes or reducing public expenditure on investments that help economies grow – such as education or research that leads to production innovations. However, the conclusion does not allow for the possibility that other changes could occur to increase the supply of labour or worker productivity. Instead, debates about proposals to strengthen long-term care systems have largely focused on how workers and businesses have responded in the past to tax changes. But research on responses to tax changes typically cannot isolate the effects of particular changes in tax rates from the context of other simultaneous tax code changes (including to the tax base). Despite a lack of evidence, the assumption that economic growth will be slowed by higher taxes to finance long-term care has contributed substantially to an impasse in most high-income countries about whether to strengthen their long-term care systems as their populations age.

The Covid-19 pandemic provided a different perspective for how to think about the possible behavioural responses to implementing a stronger long-term care system and its impact on economic growth. In the United States, it is not clear why many previously employed people have remained out of the labour force since the onset of Covid-19, despite employers' strong

[2] The supplies of natural resources (e.g., land, water, minerals) are also factors that determine economic growth but we will treat that as constant in this context.

[3] From an accounting point of view, a country's output (GPD) generally grows at a higher rate than the sum of the growth rate of labour and the growth rate of capital. The difference is attributed to technological changes that allow a country's labour and capital to work together more efficiently to produce the country's output. Thus, as a country's supply of labour grows more slowly or contracts due to an ageing workforce, technological changes are increasingly needed to raise productivity.

demand for labour (Autor, 2021).[4] But women account for the overwhelming share of people who were employed prior to March 2020 and have remained out of the labour force since then (Mitchell et al., 2021; Tappe, 2021). Covid-19 had a larger and lingering negative impact, especially on women's labour force participation, than was expected at the end of 2020 (Aaronson & Alba, 2021; Lim & Zabek, 2021; Powell, 2021). Even the loss of unemployment benefits in some states and offers of higher wages did not entice them to apply for job openings and return to work. However, continuing waves of Covid-19 cases increased uncertainty about whether a person with family caregiving responsibilities could plan to go to work each day. Not knowing if Covid-19 would prevent home health care aides from showing up each day to care for older relatives or suddenly cause a child's school or childcare centre to close for a few days produces significant stress for people trying to work. The heightened uncertainty and stress gained salience as an explanation for why many women remained out of the labour force. This explanation implies that when workers do not have stable arrangements for their family responsibilities, their ability to work is hampered significantly.

The Covid-19 pandemic's negative impact on the ability of women to participate in the labour force provides credible evidence of what might happen to economic growth if a country does *not* strengthen its long-term care system. Unless a substantial share of women can participate in the labour force and replace older workers as they retire, countries with ageing populations will experience a slowing rate of growth in their labour supply and slower economic growth. On the other hand, if a strong long-term care system helps provide stability so more people are in the workforce, the gain in income growth may outweigh any negative labour supply impact of higher contributions or payroll taxes to finance the system.

[4] In European countries, the drop in women's labour force participation in the two years after March 2020 was smaller than in the US largely because many countries created programmes to support employers' retention of workers during the pandemic and most workers returned to their jobs as more people were vaccinated (Ando et al., 2022). Even so, Covid-19 caused sudden disruptions to people's ability to work when home-health aides were exposed to Covid-19 or positive cases caused childcare centres or schools to close for a week.

This chapter explores how a country's economic growth might be strengthened by changes to long-term care systems, paying particular attention to providing stability for workers who have ageing relatives with needs for long-term care. Three themes emerge in the chapter:

- Countries' current long-term care systems impose an implicit tax on the labour supply of informal (unpaid) caregivers – the vast majority of whom are women. The loss of their labour supply and skills suggests a significant shortfall in a country's potential income and opportunities for economic growth compared to what could occur if informal caregivers were able to work. If more employers and industries offered flexible working conditions, informal caregivers could work in jobs for which they have a comparative advantage.
- Studies of the labour effects of unpaid caregiving and of programmes to support the labour force participation of women with young children offer some suggestions for how unpaid caregivers' labour decisions might be affected by programmes and policies intended to help with caring responsibilities (for example, subsidies for paid caregivers' wages or public early childhood education). The research does not provide an overwhelming consensus that a particular type of programme or policy change is most useful for unpaid family caregivers who also want to work. But it is clear that without more trained and licensed care professionals paid competitive wages, it will be difficult for unpaid caregivers to increase their labour supply.
- To increase productivity and economic growth, a long-term care system has to include a mix of support programmes and policy changes that encourage informal caregivers to participate in the labour force and to work in jobs that fully utilise their skills and abilities. A strong long-term care system has to recognise the variety of care needs of individuals if informal caregivers are going to be confident that their family member will be appropriately cared for while they are at work. A broader definition of what constitutes care services may be required – for example, several hours per week of assistance with grocery shopping or transportation to social activities may be sufficient help so informal caregivers can work. Paid caregivers' time also could be allocated among several people with such needs, increasing caregiver productivity. Simultaneously, more

employers creating flexible work options may be the most helpful way of enabling workers to continue in their jobs when they also look after a relative with care needs.

The next section briefly reviews what long-term care is and characteristics of a strong long-term care system. The third section reviews why a country's economy needs to grow and the key factors that economists generally agree are needed for economic growth. For countries with ageing populations, it is especially important that the labour supply and labour productivity continue to grow. The discussion draws on what is known about labour supply responses to changes in payroll and income taxes in different circumstances, and how changes in taxes on wealth have affected investment. There is little empirical evidence that government sponsored programmes (i.e. those financed by a mix of insurance contributions and/or taxes paid by everyone, which provides universal entitlement when a person meets the criteria for assistance) have hurt economic growth. The fourth section focuses on findings from research on the effects on women's labour supply of long-term care systems that require families to provide informal care to older relatives with care needs, and several policies and programmes intended to increase the labour supply and earnings of women after having or adopting a child. In both situations, opportunity costs are incurred by caregivers; and equally important, the research finds a negative impact on wages, which suggests an inefficient allocation of labour and missed opportunities for increasing productivity and economic growth. The fifth section uses these findings to argue for reframing the public discussion about the relationship between economic growth and a strong long-term care system. The absence of workers with job experience and capabilities from the labour force because they need to provide unpaid long-term care is a drag on a country's ability to reach its potential economic growth rate. A long-term care system can promote economic growth if it includes policies that reduce uncertainties tied to a relative's long-term care needs so caregivers can be employed in jobs for which they have a comparative advantage. The last section provides some concluding comments.

10.2 Background

Long-term care versus post-acute care

As described in the introduction to this volume, long-term care refers to a broad range of personal, social and medical services and support for people with or at risk of a significant loss of intrinsic capacity. Such services and support include assistance with tasks of daily life, where the need for such assistance is due to a physical, mental or emotional condition (Hado & Komisar, 2019).[5] The fundamental objective of long-term care is to enable its recipients to maintain the greatest quality of life possible for the longest possible time. With an appropriate mix of long-term care services and support, the goal is for people to remain in their homes and minimise any need to move to a care home.

This definition does not include what in the United States has come to be called 'post-acute' care: physical and occupational therapy and skilled nursing care that typically are provided for a short period of time to help a person recover from an acute medical incident such as a stroke or surgery.[6] Services and support provided over a long period of time generally fall into two categories: *formal* care that is paid for by an individual and/or by a country's long-term care system and *informal* care that is provided by a family member or friend who is not paid for providing the care.[7]

[5] Tasks of daily life include personal care needs (e.g., bathing, dressing). In some instances the population with long-term care needs also includes people with difficulties handling routine tasks (e.g., everyday household chores, grocery shopping).

[6] Medicare covers post-acute care but does not cover long-term care as we are defining it. In some OECD countries, long-term care is provided in what translates in English to skilled nursing facilities (SNFs). Germany, for example, refers to nursing homes as SNFs. In the United States, however, a SNF level of care is post-acute care. A majority of nursing homes in the United States have sections that provide SNF-level care, and the terms 'nursing home' and 'SNF' are often used interchangeably, creating further confusion.

[7] Expenditure for formal long-term care in the US in fiscal year (FY) 2018 were estimated to be $379 billion (Watts et al., 2020), a little more than 10% of total US health expenditure that year. This total does not include Medicare spending for post-acute care (estimated to be $83.8 billion) or payments for long-term care to care workers who were paid privately by people. Importantly, the total also does not include the estimated value of informal care provided (at least $470 to $522 billion annually) (Reinhard et al., 2019; Chari et al., 2015).

Whereas for health care there is broad awareness of the wide range of needs and services used by different people, in discussions about long-term care there is a tendency to assume much more uniformity of needs and services. In reality, long-term care covers a range of situations, and recognising this variation is essential to assessing costs, delivery models and their impact on outcomes. At one extreme are people who need a few hours per week of help for activities like light housework, grocery shopping, preparing meals or being driven to medical appointments. At the other extreme are people who need 'intense' assistance with personal care such as bathing, using the toilet, feeding, walking and moving from a chair to a bed. Although some people with intense long-term care needs have to live in nursing homes because their care needs are beyond the ability of relatives to provide, many are able to continue living at home with a mix of formal and unpaid care. The latter situation happens most often when the person with long-term care needs lives with the family member providing the unpaid care.

Most countries rely on a large amount of unpaid, informal care being provided as a way to restrain the costs of their formal long-term care systems. While there are a few systems (such as in Nordic countries) that apply a needs-based entitlement approach rather than a primarily means-tested approach, most OECD countries' long-term care systems (regardless of how they are organised) expect or require an individual with care needs and their family to be responsible for a substantial share of the long-term care services. Such systems require people to rely on informal care and/or to pay out of pocket[8] for the costs of formal care up to some limit (with the limit depending on the person's resources) (Colombo et al., 2011; Costa-Font & Courbage, 2012; Swartz, 2013a).[9] Thus, in all OECD

[8] Out of pocket (or private) payments include co-payments, user charges and deductibles.

[9] In the United States, the primary payer of long-term care services is Medicaid – the federal-state health insurance programme for low-income people of all ages (Watts et al., 2020). Since 2013, more than half of what Medicaid spends for long-term care pays for long-term services and support provided to people in their homes or in community-based settings (known as HCBS) rather than care for residents of nursing homes. Most people who receive Medicaid-funded HCBS also depend on some amount of informal care from relatives. To be eligible for Medicaid coverage of long-term care, people must have very low income and assets (frequently by spending down their income and wealth to pay for medical and long-term care expenses).

countries the vast majority of people who have long-term care needs receive unpaid care provided by family and friends. Although this outcome is preferred by many people, it is important to note that the burden of providing the care is borne primarily by women. Estimates for EU countries indicate that up to 80 per cent of care is accounted for by informally provided support and 70 percent of this is provided by women (WHO, 2022). In the United States, women account for 62 per cent of people providing unpaid care for family members 65 years of age and older (Spillman et al., 2020; National Academies of Science, Engineering, and Medicine, 2016). Hence, the burden of requiring family members to provide unpaid care is analogous to a tax on women. We will return to this point below.

Characteristics of strong long-term care systems

This chapter builds on the discussion in previous chapters of the characteristics defining a strong long-term care system, with an emphasis on two particular features. First, a strong long-term care system is publicly funded, via either taxation or social insurance. It covers everyone with needs for costly long-term care irrespective of their level of income or assets, and is financed by individual insurance contributions or taxes based on payroll and general revenues. Second, a strong long-term care system emphasises assisting both the person with long-term care needs and the person providing unpaid care (WHO, 2022). Programmes and policies that provide employment stability for caregivers when relatives with long-term care needs have a medical appointment or in case of emergencies are an important component of a strong long-term care system. The particular set of such supportive programmes and policies will differ among countries, and many may come from employers. Covid-19 caused more employers to realise that flexibility in work schedules provides the support many workers need to deal with family responsibilities. As Goldin (2021) points out, the caring sector and the wider economy are interdependent. How countries and employers support workers providing informal care for family members with long-term care needs has an impact on economic productivity and growth (European Commission, 2020).

10.3 Why countries need economic growth

Maintaining or increasing a country's income growth (economic growth) is needed for countries to sustain rising personal incomes and maintain or expand government-funded programmes. Economic growth signals that the total income (GDP) from the goods and services produced by the country is increasing at a steady or rising annual rate.[10]

As noted briefly in the introduction, simple models of economic growth illustrate that a combination of labour, physical capital (e.g., manufacturing buildings and equipment, office buildings, laboratories) and technological change drive the growth of a country's economy. The key insights from this model of growth are that a country's economy will grow if the capital stock and/or the size of the labour force grow or the quality of labour improves, and if technological changes increase the productivity of either capital or labour or both. Investments in capital depend on companies and some people's willingness to supply a portion of their earnings to improve and grow the capital stock. Improvements in capital equipment often come from technological change – innovations that change the processes used in producing goods and services so the combination of capital and labour is more efficient and output increases. Some innovations result in new products or higher quality products that consumers are willing to buy, thereby also leading to growth in GDP. Importantly, GDP grows when more people are working or the quality of labour rises as a result of improvements in education and skills (i.e. investments in human capital). A more skilled workforce can take advantage of technological changes that improve the productivity of labour (the amount of goods and services produced per worker).

An ageing population can adversely affect the supply of labour in two ways. One is that as people over age 65 reduce their labour force participation, the country's supply of labour will grow more slowly or even contract.[11] The slowing growth of the working population is

[10] An increase could result from a steady annual rate of growth (say 3 per cent), or from a one-off jump in GDP (perhaps due to greater efficiency in electric power storage) that doesn't change the rate of growth but does provide the country with more income. Increasing income also could be the result of a combination of the two.

[11] Japan, for example, by one estimate could experience a reduction of 4.5 million people in its labour force by 2030, a 6.6% decline over its 2021 labour force (Duell et al., 2018).

a problem because rising life expectancy means the older population is growing faster than the working population, increasing the dependency ratio of older non-workers to working adults. This will cause a decline in per capita income. The second problem with an ageing population is that in general, worker productivity changes over a person's lifetime, often increasing in younger years as experience accumulates and then declining in later years as physical ailments increase or an ability to learn new skills declines (Aiyar et al., 2016). The impact of ageing on a country's labour productivity is nuanced; it depends on the mix of industries and occupations in a country, the age structure of the workforces in the different industries, as well as spillover effects on firms from being located in areas with an ageing labour force (Daniele et al., 2019; Maestas, Mullen, and Powell, 2023). Thus, the concern with an ageing workforce is that labour productivity may decline, leading to slower economic growth and a decline in per capita income (Maestas et al., 2023; Aiyar et al., 2016; Daniele et al., 2019). One estimate of the combined effects of a slowing growth in the supply of labour and an ageing workforce on productivity growth in OECD countries between 2006 and 2014 indicates that had the workforce not been ageing, the cumulative per capita GDP growth would have been 1.5 percentage points higher on average than it was; the actual rate was 2.3 per cent (Daniele et al., 2019).

The need to grow (or at least maintain) income per capita in the face of an ageing population is real. Health care expenditure is higher for older people than those younger than 65 years of age, and with greater life expectancy, a country's public spending on health care and pensions will rise as the population ages.[12] Economic growth is essential if countries are to meet the expected growth in the costs of their older

[12] An ageing population per se is a factor but it is not a key driver of the growth in health care spending; the primary drivers are new (generally more costly) technologies and medicines and greater intensity of use of medical services (Reinhardt, 2003; Smith et al., 2009; Sorenson et al., 2013; MedPAC, 2022). But as a simple arithmetic exercise, a society with a growing share of its population who are older will increase its public spending on health care (Niu & Topoleski, 2014). In the United States, in 2014 (the latest year where spending is available by age groups) per person health care spending for people 65 and older was USD 19,098, compared to USD 7,153 per 18–64 year-old people and USD 3,749 per child (CMS, December 2021). As the number of people aged 65 and older increases, health care spending will increase unless per person costs for older people are substantially reduced.

population and be able to continue spending public monies on programmes such as national defence, education, health and social welfare programmes as well as have people confident that their standard of living will not decline.

Thus, to foster economic growth, countries with ageing populations have to create conditions that promote greater employment of adults of all ages, and incentives for investments in human and physical capital and technological change.[13] Creating such conditions for labour implies that a combination of tax policies and social programmes is needed to motivate more people to work (increase the labour force), and induce people to work in jobs and pursue careers for which their skills are well-suited so labour productivity also increases. Similarly, tax policies affecting businesses and individuals need to promote investments in capital and new technologies that increase labour productivity and generate new goods and services that increase GDP.

Despite the growth models' clear implications that incentives are needed to encourage more people to participate in the labour force and to increase productivity, creating or strengthening a long-term care system is often viewed as likely to hurt economic growth because higher taxes would be needed to finance it.[14] Popular opinion holds that raising taxes on labour causes people to work less, and raising taxes on unearned income (i.e. income from investments rather than income earned through labour) causes investors to invest elsewhere. Simple economic models of worker decisions to supply labour indicate that when the costs of working, such as transportation and childcare, exceed after-tax wages, workers drop out of the labour force or find jobs with lower costs of working. In this context, additional taxes are a disincentive for people to work more unless they feel that the taxes pay for programmes that help them (Bozio et al., 2019). Simple models of the effects of taxes on unearned income (such as capital gains from investments) similarly suggest that higher tax rates reduce the rate of return on investments, thereby discouraging people from investing in

[13] The European Council's Lisbon Strategy of 2000 aimed to reverse the low productivity and anaemic economic growth in the European Union of the 1990s; the strategy's goals included increasing employment by 2010, especially among women (a target of 60% labour force participation rate (LFPR)) and people 55 to 64 years of age (a target of at least 50% LFPR) (European Parliament, 2010).

[14] In the United States, opponents of increasing Medicare's coverage of long-term care have long argued that economic growth will suffer because taxes will be raised to finance it. See Feder (2015).

new buildings and equipment (capital) or ventures that might produce technological change (Mankiw et al., 2009; Burman & Slemrod, 2020). Opponents of increasing taxes on unearned income or corporate earnings argue that they will hurt economic growth (Hodge & Hickman, 2018).

The belief that raising taxes will hurt economic growth persists despite the lack of strong empirical evidence of how people's employment and investment behaviours respond to different specific taxes and social programmes. Using more sophisticated methods to estimate behavioural responses to taxes, a large body of empirical economics research has attempted to understand how changes in specific taxes have affected labour supply decisions and investment decisions. However, much of this research has analysed effects of *reductions* in individual and corporate income tax rates rather than tax increases dedicated to pay for social programmes. Furthermore, most analyses of the effects of specific taxes have not examined how economic growth was affected by the tax change. Instead, analyses of how tax changes impacted economic growth have largely been conducted in the context of major tax reform legislation that involved reductions in individual and corporate income tax rates and an expansion of the tax base (e.g., Gale & Samwick, 2017). The result for our purposes is an absence of strong empirical evidence about either the labour supply or economic growth effects of specific tax increases dedicated to particular programmes. Indeed, Lindert (2004a, 2004b) has argued that there is no evidence that social welfare states (i.e. countries with large publicly funded programmes) funded with 'careful' taxes (tilted towards labour rather than capital) have slower economic growth than countries with less generous social programmes.

Thus, countries with ageing populations need to pivot away from assuming that economic growth will be hurt by strengthening their long-term care systems. Framing the issue as a choice between raising taxes and promoting economic growth completely ignores the extent to which most countries' current long-term care systems place an implicit tax on people who have to reduce their labour supply in order to provide unpaid care to relatives with long-term care needs. Importantly, the burden of this ignored tax falls predominantly on women, who account for a little less than half of most OECD countries' labour force. Paying attention to this burden is crucial for thinking about how to maintain the future economic growth of countries with

ageing populations. Increasing or at least maintaining a country's economic growth rate depends on increasing the supply of labour and the quality of labour. When a large number of possible workers are not participating in the labour force or are not pursuing careers that match their abilities (which would increase labour productivity), it is an indication that the economy is not growing at its potential rate of growth.

10.4 Policies that increase and decrease women's labour supply

Given our focus on how a strong long-term care system might impact economic growth and the lack of empirical evidence about how tax increases to support other programmes have affected people's supply of labour, we turn to examining the effects of tax-financed social programmes that were at least partially intended to increase the labour supply of women.[15] Over the past three decades, a large body of empirical research has investigated various effects of Western European countries' childcare and family support policies on women's earnings, labour supply and, occasionally, career choices. Another body of research conducted over the same time period has focused on how providing informal long-term care services has affected women's labour force participation, hours of work and types of jobs or careers. Both areas of research face a common problem: the decision to provide informal care (or care for one's own child) and the decision to participate in the labour force (and how many hours per week to work) are each correlated with other, often unobservable, factors – such as concern about social consequences if one does not conform to gender norms (Bertrand, 2020). The correlations with other factors make it difficult to know whether people choose not to work (or reduce their hours of work) because they have to provide informal care (or childcare), or they choose to provide informal care or childcare because their employment options may be limited. It is difficult to assign causality to one decision or the other. The outcomes are said to be endogenous

[15] It is important to note that many of these policies had dual purposes, including increasing the number of children in order to slow or reverse the ageing of countries' populations and addressing the 'child (or motherhood) penalty' – the negative effects of having children on wages and earnings over a decade or longer.

because they are simultaneously determined. Similarly, countries' implementation of various social programmes to support women working is endogenous with contemporaneous changes in social attitudes about women's roles in the labour force and caring for children and older relatives. Thus, it is important to pay attention to the empirical methods used to estimate effects when drawing conclusions about the directions of causality.

Long-term care systems' requirement that families provide informal care

As noted earlier, most countries' long-term care systems depend heavily on the provision of informal care by family and friends (Swartz & Feder, 2021; Feder & Swartz, 2021; Costa-Font & Courbage, 2012; Villalobos Dintrans, 2021). This dependency imposes an implicit tax burden on such caregivers' ability to work and pursue careers that match their productive capabilities. Surveys of people with long-term care needs or of older people who are informal caregivers consistently show that women are far more likely than men to provide unpaid care for older family members (AARP, 2020; ONS, 2019; NASEM, 2016).

In the United States and a majority of OECD countries, the heavy reliance on informal long-term care arises from the way access to publicly financed formal care services is structured. Often, eligibility for these services is linked to individual or household income, involves considerable co-payments by users, and does not fully cover the costs of long-term care unless a person has very low or no income and/or assets. Some countries also place financial responsibility for parents' long-term care costs on their adult offspring. The final social safety net in most OECD countries is residential care, but only for people with sufficiently pronounced care needs to qualify for such care. For those who need less intensive support, informal care compensates for the lack of services in the community and for their lack of affordability. In these cases, the alternative would not be to move to a nursing home, but rather to receive no care.

Three problems make it difficult to estimate the effects of providing informal care on labour market outcomes of interest (the decision to participate in the labour force, the number of hours to work given that the person is working for pay, and wages earned). The first problem, as just noted, is that decisions about providing informal care and

participating in the labour force (and how many hours to work per week) are endogenous. If the endogeneity is not controlled for, the causal effect of providing informal care on labour market outcomes has been shown to be overestimated (Ettner, 1995, 1996; Heitmueller, 2007). A second problem relates to unobservable differences in people's preferences for providing informal care for parents and working. A third problem is that surveys focused on ageing issues often do not gather detailed information about the paid employment of family caregivers (e.g., hours of work, income) and hours of informal care provided, as well as how much the caregiver was working before starting to provide unpaid care. Researchers have addressed the problems of endogeneity and unobservable differences in preferences with different empirical methods and by focusing on different groups of caregivers.

Earlier research based on cross-section data that attempted to account for the endogeneity of caregiving and labour force participation decisions relied on instrumental variable methods[16] (Ettner, 1995, 1996; Heitmueller, 2007; Bolin et al., 2008). Estimates from these studies are somewhat dated in that they rely on data primarily collected in the 1980s and 1990s.[17] More recent studies have been able to exploit

[16] Instrumental variable (IV) methods try to provide a consistent estimate of the causal impact of an endogenous variable on an outcome of interest – in this case, the impact of having a relative who needs long-term care on that person's labour force participation. If another variable can be observed that is likely to be correlated with the decision to provide care, and is not likely to be correlated with the decision to participate in the labour force, it could be used as an instrumental variable. In this case, the IV method involves estimating the decision to provide care as a function, for example, of the health status of an aged parent. The *predicted* value of the decision to provide care would then be used as an explanatory variable in a separate estimation of the decision to work. However, if the instrumental variable is only weakly correlated with the endogenous variable of interest (the decision to provide care), the estimated effect will be inconsistent and biased – making any estimate of the causal impact suspect. In general, it is difficult to find instrumental variables that are more than weakly correlated with the endogenous variable of interest and yield plausible estimates of a causal effect.

[17] Since 2000, most countries' long-term care policies have shifted to providing more home-based long-term care services so people with long-term care needs can stay in their homes. Moreover, these data are from people who most likely would have been born between 1920 and 1940 – and the women especially had very different labour market expectations throughout their lives compared to women born during the baby boom years or since. Fahle and McGarry (2018) have results that confirm caregiving differences among women in their fifties and sixties who were born in different cohorts.

the longitudinal nature of data in the Health and Retirement Study (HRS), the British Household Panel Study (BHPS) or SHARE to control for the endogenous relationship when estimating the effect of providing informal care on labour market outcomes (Heitmueller & Inglis 2007; Johnson & Lo Sasso, 2006; Casado-Marin et al., 2011; Van Houtven et al., 2013; Fahle & McGarry, 2018). These studies differ in terms of their focus on recipients of care (parents or parents-in-law, spouses), the type and intensity of care provided, and details about the caregivers' characteristics (e.g., age, education, years in the labour force). Nonetheless, the studies' findings are mostly consistent. First, the share of women providing informal care to parents or parents-in-law is substantial – about a third of women provide such care before they reach 65 years of age (Johnson & Lo Sasso, 2006; Fahle & McGarry, 2018). Second, providing informal care has a significant, negative effect on the probability of women working. Estimates range from about 8 per cent (on a mean of 41 per cent of women working) by Fahle and McGarry (2018) and 6 per cent by Heitmueller (2007), to 20.5 per cent and up to 26 per cent for caregivers providing intense care (defined as more than 28 hours of care per week and more than 20 hours per week, respectively) in research by Casado-Marin et al. (2011) and Heitmueller (2007). Van Houtven et al. (2013) estimate that caregiving of any type has no significant impact on the probability of working for women or men.[18] But when they examine the effect on self-reported retirement status, they estimate that caregiving of any type increases the probability of being retired by 2.4 percentage points for women – an increase in mean retirement status of 6.7 per cent. Thus, while there is general agreement that providing care services increases the probability that women who had been working will stop participating in the labour force, the magnitude of the effect seems to depend on details about the caregivers and the intensity of care being provided.

There also is general agreement that caregiving reduces women's hours of work, conditional on working, but there is less agreement about the size of the impact. Fahle and McGarry (2018) find a relatively small effect – a 1.3 hour (4 per cent) decrease in hours worked in an average work week

[18] Their explanation for this finding is that they control for 'permanent' unobserved differences (heterogeneity) with fixed effects and suggest that by doing this, there is no evidence of endogeneity between caregiving and participating in the labour force (the extensive margin of labour supply) (Van Houtven et al., 2013).

of 34 hours. Van Houtven et al (2013) obtain different results depending on whether they treat caregiving as exogenous or endogenous, and whether the hours of care are intense (defined as at least 1,000 hours over a two year period). When caregiving is treated as exogenous, they find no causal effect on work hours but when it is treated as endogenous, their results change: caregiving of any type reduces women's work hours by 3 hours per week while intense caregiving reduces work hours by 9 to 13 hours per week. This result and the finding by Casado-Marin et al. (2011), that providing more than 28 hours of care per week causes Spanish middle-aged women to not participate in the labour force, highlight the need to account for the intensity of care being provided in any estimates of caregiving's impact on labour force outcomes. It also is noteworthy that younger women (in more recent cohorts) are providing more hours of care to parents or parents-in-law than women in older cohorts, probably because of increased longevity of the parents of younger women (Fahle & McGarry, 2018).

Only a few studies have examined the effect of caregiving on wages of working caregivers because most surveys do not collect wage and earnings information. But well-done estimates based on data from the United States and the United Kingdom are consistent and indicate a significant wage penalty for the caregiver. For women, the estimates range from a reduction on average of 3 or 3.1 per cent in hourly wages (Heitmueller & Inglis, 2007; and Van Houtven et al., 2013, respectively) to almost 9 per cent (Carmichael & Charles, 2003). The only estimates of a significant effect on men's wages are from Carmichael and Charles (2003), who surmise that the negative effect is primarily for men with relatively low earnings, which may also be indicative of limited job options.

Altogether, the effect of caregiving (especially intense caregiving) on labour force participation, hours of work and wages indicate that caregivers incur substantial opportunity costs.[19] When people drop out of the labour force, in addition to a loss of income they stop accumulating pensions and savings for their retirement years, and in the United States they also may lose access to employer-sponsored

[19] Researchers' estimates of family caregivers' forgone earnings in the United States and the United Kingdom are more than twice official government estimates of spending on formal long-term care services (Chari et al., 2015; Buckner & Yeandle, 2015; Reinhard et al., 2019). The estimates also underestimate the opportunity costs because they do not include earnings forgone by choosing to work in lower-paying jobs in order to provide care.

health insurance.[20] The compounded negative effects of caregiving on hours of work together with lower wages suggest even greater opportunity costs in terms of total lost income from working (and any future retirement fund accumulations tied to earnings). The decline in wages for women may reflect decisions to change jobs (even with the same employer) that do not fully match with the women's skills and experience as a way to reduce stress at work or have more flexible work hours. A few studies have analysed the effects of caregiving on caregivers' own health, expanding the set of opportunity costs that informal care requirements impose on caregivers (Coe & Van Houtven 2009; AARP, 2020). Harmful effects to caregivers' health have substantial implications for the productivity of people who also participate in the labour force: productivity is likely to suffer due to mental fatigue or physical injuries and intermittent absences from work.

It is important to recognise that these opportunity costs are the direct result of an implicit tax on caregivers' ability to participate in the labour force that is built into most countries' long-term care systems. To control the costs of paid care visible in government budgets, long-term care systems depend on family to supply unpaid care. This implicit tax is based on a social norm about women's labour – a norm at odds with the need to increase labour force participation rates of women in order to counteract the slowing growth in countries' labour supply as the populations age. It is also inconsistent with policies at least partially intended to increase the labour supply of young women when they have young children. In the context of long-term care, new evidence underlines the implications of this idiosyncratic relationship between work and care. When public policies push women to work longer in older age (as with increases to the state pension age), they reduce the amount of informal care they provide, especially if they have demanding jobs, and there is no compensation for this forgone care by other care providers (Carrino et al., 2023).

Parental leave policies and childcare programmes

The impetus for empirical research about the effects of child-oriented and family support programmes on women's labour supply stems from efforts

[20] In the United States, they also may lose accumulating at least 40 quarters (3 months per quarter) or 10 years total of payroll tax contributions needed for Social Security and Medicare eligibility.

to understand if (and how) such programmes might reduce persistent differences in labour force participation and earnings by gender. In particular, there is an interest in going beyond explanations of discrimination against women to try to understand why women may choose different employment paths than men.[21] Findings from the research have implications for how a strong long-term care system might be designed so that economic growth is also maintained or increased.

Having or adopting children has been seen as creating a child or motherhood penalty on the labour market outcomes of women relative to men (Bertrand et al., 2010; Kleven et al., 2019; Bertrand, 2020). Most high-income countries (with the United States being a notable exception) have implemented social policies and programmes intended to alleviate the costs of caring for young children so that women can participate in the labour force. The policies and programmes vary across countries but generally they involve parental leave rights, public expenditure on early childhood care and education and, to a lesser extent, flexibility in when the workday starts and ends. Countries' parental leave structures vary in terms of maximum length of time for the leave and the percentage of the leave-taking parent's income that is paid during the leave. Public expenditure on early childhood care and education varies in terms of whether they are direct payments to childcare agencies or schools, or subsidies to parents who can choose private childcare providers, and whether the subsidies are tax credits for the parents or payments to the childcare providers. Countries also differ in the extent to which they may emphasise one or more of the policies in their support of women working. It would be a mistake to analyse any one policy as if it exists independently of other policies in the same country (including those that may seemingly not be related).[22]

[21] See Bertrand (2020) and Goldin (2021) for excellent discussions about efforts to understand and identify the impacts of changing social norms, gender norms and stereotypes on gender differences in employment outcomes.

[22] For example, during the 1990s, Spain implemented subsidised full-time childcare for children 3 years of age. The enrolment rate in public childcare for 3 year-olds rose from 8.5% in 1990 to 67.1% in 2002, but the increase in labour supply by mothers was modest. A primary contributing factor to the growth in enrolment of 3-year-olds is that the local school must take 3-year-old children who live in the neighbourhood but if the school has reached its capacity for 6-year-olds (the age of mandatory school enrolment), the school does not have to enrol any more 6-year-olds. Thus, if parents want their child to attend the local public school, they can ensure that outcome by enrolling their children at age 3 (Nollenberger & Rodriguez-Planas, 2015).

These policies can affect many outcomes (children's educational attainment, for example) but our interest is in the estimated effects of these policies on women's labour force participation. It is beyond the scope of this chapter to review in detail the studies that have attempted to identify the causal effects of such policies.[23] Nonetheless, we can draw some conclusions from studies that focused on specific countries and took advantage of within-country variation in the implementation timing of programmes and policies (see, for example, Lefebvre et al., 2009; Cascio et al., 2015; Asai, 2015; Bettendorf et al., 2015; Geyer et al., 2015; Givord & Marbot, 2015; Nollenberger & Rodríguez-Planas, 2015; Kleven et al., 2019).

Two general conclusions related to labour force participation can be drawn from these studies. First, parental leave of as much as a year after the birth or adoption of a child increases women's participation in the labour force but the effect is small. Crucially, when childcare facilities or private nanny care are not widely available, it appears that parental leave policies have little to no significant effect on women's labour supply or earnings. Second, publicly funded spending on childcare and universal early education – particularly if such spending involves creating more childcare facilities and raising the salaries of providers and teachers – increases the labour force participation of women with children one year of age and older. These conclusions are highly relevant for efforts to increase the labour supply of informal caregivers. They imply that without a long-term care programme to substantially raise wages for home health care aides and increase the supply of trained and licensed aides, informal caregivers are unlikely to increase their supply of labour.

Moreover, although the estimated effects of the childcare and early childhood education policies on women's earnings are inconclusive,[24] the analyses lend weight to the argument that many women are employed in

[23] Olivetti and Petrongolo (2017) provide an excellent review of the research done before 2018 on the effects on women's labour supply of high-income countries' parental leave rights, public expenditure on early childhood care and education, and flexibility in the start and end time of the workday. The paper helpfully distinguishes between cross-country analyses of similar support policies and studies using micro-level data from different countries that examine specific policies' effects on women's labour supply and earnings outcomes.

[24] Several studies suggest that childcare and early childhood education policies may have positive employment and earnings effects especially for less skilled women (Olivetti & Petrongolo, 2017). The absence of conclusive evidence that

jobs where their skills are not fully utilised. This is significant as more women are obtaining more education and skills, and pursuing careers previously thought to be suitable only for men. Labour productivity growth depends on having workers with more education and skills, and the loss of skilled women from the workforce in the future because of needing to provide informal care to older relatives will make maintaining economic growth all the more difficult.

Importantly, the finding that the labour force participation rates of mothers with young children increased when public funding for childcare and early education increased belies the argument that raising taxes will reduce the labour supply and thereby hurt economic growth.

10.5 Policies to support caregivers and promote economic growth

Taken together, these research studies show that there is a significant amount of forgone productivity and national income (as well as personal income) due to a substantial share of working age people providing unpaid care when they would otherwise be employed or working more hours, or employed in jobs that better matched their aptitudes and skills. A country's ability to achieve higher economic growth is constrained by the loss of caregivers' labour supply and the misallocation of their skills and aptitudes to jobs when they are employed.

The clear implication is that the public discourse around the pros and cons of establishing a strong national long-term care system needs to be reframed. Framing the issue as 'how can we afford it, especially if raising taxes slows economic growth?' is a red herring. The pertinent issue is that ageing populations cause a country's labour supply and productivity to decline as older workers retire – and the shrinkage will hurt economic growth. When workers have to reduce their labour supply in order to provide informal care, the loss of their work effort compounds the decline in a country's labour supply and productivity.

family support policies reduce the child penalty effect on mothers' earnings may be due to several factors. It is difficult to measure and control for the diversity in women's (and men's) attitudes towards caring for young children and participating in the labour force. Some of the variability in attitudes appears to be related to gender stereotypes and the internalisation of gender norms into preferences (Bertrand, 2020). The absence of quality early childcare and education providers in several of the studies also makes it difficult to know which family support policies had any effects on women's earnings.

Thus, a strong long-term care system that enables informal caregivers to participate in the labour force and work in jobs where their skills are most productive will help prevent the slowing of economic growth.

Reframing the rationale for a strong long-term care system in this way also requires recognising that several interrelated policies will need to be paired with long-term care policies in order to encourage unpaid caregivers to increase their labour supply. Simply creating a national social insurance or taxation-funded programme for long-term care will not by itself achieve this goal. A recent study of how the introduction of Japan's national long-term care insurance programme impacted trends in women's labour force participation and the country's economic growth provides a cautionary note for expecting a rapid labour supply increase in response to implementing a long-term care programme (Ando et al., 2021).[25] Japan implemented a national insurance programme for long-term care in 2000, motivated in part by hopes that it would increase women's supply of labour (Campbell et al., 2010). The study found that middle-aged women did not enter the labour force in significant numbers ten years after the introduction of the national long-term care programme.[26] But as Ando et al. (2021) point out, the Japanese long-term care insurance programme provides in-kind services, enabling people with care needs to live at home, including many who had been living in nursing homes – and this comes with a catch. Most programme recipients still require some amount of informal care at home, making it difficult for women to work. In the fifteen years after the introduction of the long-term care insurance programme, the share of older people receiving the long-term care benefits at home grew from 4.4% to 12.4%. It also is possible that many middle-aged women did not choose to participate in the labour force after the introduction of the long-term care programme because they had been out of the labour force for some time. It is noteworthy that Japan's rate of economic

[25] It is difficult to estimate the causal impact of introducing a national long-term care social insurance programme on labour force outcomes because everyone who resides in a country is affected by the programme; a control group of people who were not affected by the programme does not exist. Ando et al. (2021) addresses this problem by creating a synthetic control group using data from eighteen other OECD countries.

[26] Similarly, efforts in several countries to expand the labour supply of women with young children by offering subsidies or tax credits to offset the costs of childcare did not have the intended effect because sufficient numbers of quality childcare centres were not available (Lefebvre et al., 2009; Olivetti & Petrongolo, 2017).

growth did not slow after the introduction of the tax-financed long-term care insurance programme (Ando et al., 2021).

To increase informal caregivers' willingness to participate more in the labour force, implementation of the long-term care programme will need to be paired with two related policy efforts: one directed at increasing the supply of paid home health care aides, and the other at finding ways to allocate the aides more efficiently. Increasing the supply of trained and licensed home-based caregivers is essential if workers with caregiving responsibilities for loved ones are to be willing to shift some of the burden of providing informal care. It can be an emotionally difficult decision to relinquish some caregiving tasks to a person who is not related to the relative with care needs. Knowing that a home health care aide has been through a certified training programme and passed a licensing exam helps ease that decision.[27] This is especially the case for caregivers who are providing intense amounts of care (more than 20 hours per week) and whose labour supply is most affected by caregiving (Heitmueller, 2007; Casado-Marin et al., 2011; Van Houtven et al., 2013; Fahle & McGarry, 2018). If family caregivers can remain in jobs or choose careers that better match their skills because there are licensed, trained aides who can provide some of the caregivers' tasks, the country's workforce will be more productive. Chapter 6 in this volume provides further discussion of the links between investment into the care workforce and the quality of the long-term care system as a whole.

Even if the long-term care system offers significant wage increases for home-based aides, the supply of trained and licensed aides will not substantially increase immediately. Educational programmes and standardised licensing exams will need to be developed to ensure minimum competency of home health care providers. But if management and organisational changes within home health care agencies could occur more rapidly, that would increase the productivity of the existing supply of home health care workers. In particular, health care workers' time among people with care needs could be allocated more efficiently than it often is. Many older people who need some informal care do not require a full-time (8 hours per day) aide. They just need help with chores (laundry, grocery shopping) or being driven to

[27] In most countries, home health care providers receive very little formal training or preparation for assisting older people who need different types of care.

medical appointments and social activities once or twice a week. (They and their relatives also might strongly prefer that any other care needs be provided by relatives.[28]) Given the low number of hours per week of assistance needed by a large share of people with care needs, it should be possible to more efficiently organise the time of home health care workers so their productivity increases. Especially in more densely populated areas, perhaps two to three people who live not far from each other could have their needs met by one health care worker each week. Together with agency supervisors, family caregivers could be tasked with providing oversight to ensure that quality of care remained high.

The private sector has a strong interest in finding ways to lessen the decline in the labour supply caused by older workers' retirements. Creating more opportunities for workers to have flexible work schedules and working conditions does not always require government regulations or incentives for businesses. The Covid-19 pandemic shifted long-standing employer attitudes against flexible work schedules for salaried workers so they are now widespread; and flexible work schedules have become more common among firms with lower-wage workers (for example, in retail or hospitality) – firms that previously would have considered flexible schedules to be detrimental to productivity and profits. While workers in the United Kingdom and other European countries are entitled to take job-protected leave to provide care to older relatives with long-term care needs or parental leave, that is not yet the case in the United States.[29] The combination of regulations and incentives for businesses to have flexible working conditions remains an important means of moderating the impact of a decline in the labour supply caused by an ageing population.

A cautionary note also is important: if the long-term care system simply causes workers in other occupations (retail sales or food preparation, for example) to shift to working as health care aides, perhaps because home health care aides' wages are raised, the total supply of

[28] At the same time, the relatives who provide the unpaid care and are working would be better able to spend time with the care recipient if some of these activities were provided by the long-term care programme (Rapp & Swartz, 2021).

[29] Social pressure to institute such leave was particularly strong in the United States in 2021 and almost caused Congress to pass a minimum leave requirement in a budget bill.

labour will not increase. Astute policy makers and business leaders will realise that workers who shift to home health care jobs will have come from the existing workforce and their businesses. To grow the labour supply beyond what a strengthened long-term care system will do, countries with ageing populations need public and private sector strategies that entice people who are not in the labour force or are unemployed to choose to work. Many people who stopped working because they needed to care for a relative may remain out of the labour force because they feel they have lost prior skills. Private and public sector training programmes, including apprenticeships, could provide a way for people to regain or learn new skills. Furthermore, there remains significant reluctance (if not discrimination) among employers to hire workers, especially women, after longer employment breaks. A wider set of active labour market policies are needed to ensure that those with longer career breaks are supported to rejoin the labour market. A mix of such initiatives together with a strong long-term care system will be needed to enable more people to re-enter the labour force, thereby slowing the decline in the labour supply and helping to maintain economic growth.

10.6 Concluding comments

The public discussion about establishing a strong long-term care system needs to be reframed. For too long, debates about long-term care have stalled over the argument that economic growth would be slowed by the need to raise taxes to fund a social insurance long-term care system. The discussion needs to move beyond this view and acknowledge that most countries' current long-term care systems include an implicit tax on the labour supply of family caregivers. When family caregivers (mostly women) reduce their labour supply so they can care for ageing relatives with long-term care needs, economic growth is less than it potentially would be if the caregivers continued to work or chose careers where their productive abilities were fully utilised. The negative effects on economic growth caused by long-term care systems' implicit tax on the labour supply of family caregivers need to be recognised in debates about strengthening long-term care systems.

The need for reframing the discussion is becoming more urgent with more of the baby boomers ageing past 65 years every year. The increased longevity of more people (despite the disproportionate effects

of Covid-19 on older people) is already impacting the labour supply outcomes of prime-age workers. A recent study examining the impact of providing unpaid care on women's labour supply found that younger cohorts of women are providing more care during their mid-life years (fifties and sixties, prime working ages) than was true of older cohorts when they were the same ages (Fahle & McGarry, 2018).

Establishing a strong long-term care system is unlikely to immediately yield either an increase in the labour supply of prime-age women or to observed changes in established patterns of younger people's choices of jobs and careers.[30] But these changes will occur if a long-term care system increases wages paid to home health care providers, fosters training programmes to improve the skills and career status of such providers, and creates more efficient ways of having providers care for several people each week. Improving the status of home health care providers will attract more people to supply assistance for people with moderate care needs and thereby make it feasible for women to work and still provide other informal care help for older relatives. Moreover, if the long-term care system makes it possible for women to be in careers or take jobs that are better matches for their skills, labour productivity will rise along with the supply of labour – furthering economic growth.

If the history of the United States Medicare programme[31] is a guide (see chapter 5 of this volume), there also are likely to be positive effects for the economy of establishing a strong long-term care system. Medicare had a major role in fostering the development of new pharmaceuticals, medical device inventions and innovations in managing the treatment of diseases and conditions, boosting the health care industry's contribution to economic growth in the United States (Swartz, 2013b). A strengthened long-term care system would similarly no doubt lead to innovations and inventions that help people with care needs or make it easier for caregivers to provide quality care, increasing manufacturing production and economic growth.

[30] Social norms and gender stereotype expectations do not change quickly, but there are hints already that some of the social norms and gendered stereotype expectations about women as better caregivers than men are changing (Bertrand, 2020; Goldin, 2021).

[31] Health insurance for almost all people 65 years of age and older, and people younger than 65 with qualifying disabilities. Further details on the long-term care programmes in the United States are provided in chapter 5.

Terrible as the Covid-19 pandemic has been, it has provided strong evidence that economic growth is slower when substantial numbers of people with skills and experience leave the workforce because of uncertainty about family responsibilities. Avoiding that scenario as countries' populations age has to become paramount in policy makers' deliberations about revising their long-term care systems. A stronger long-term care system that addresses the sources of uncertainty experienced by a growing number of prime-age workers with ageing relatives will benefit older people with long-term care needs and their unpaid family caregivers. Equally important, it will contribute to economic growth.

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