2 February, 2020

To: Retirement Income Review Secretariat
The Treasury
Langton Crescent
Parkes, ACT 2600

Dear Friends;

On behalf of the Centre for Future Work, I am pleased to make the attached submission to your Retirement Income Review. It draws on previous research conducted by our Centre regarding the wage determination process in Australia, and the extent to which changes in compulsory superannuation contributions (through the Superannuation Guarantee) can be expected to influence the future trajectory of wage growth. This is an important consideration in contemplating various alternative options for retirement policy and their impact on incomes and well-being over the life-cycles of Australians.

The short answer to this question, based on our research, is: "We don't know." The commonly-made claim of a consensus (or "conventional wisdom") among economists that changes in SG contributions will be automatically and largely completely matched by offsetting changes in nominal wages is unfounded. In fact, there is very little empirical research in Australia on this question – and the published literature (based on both theoretical modeling and empirical analysis) on the impact of compulsory employer social contributions on wages has produced widely divergent results. Your consultation paper states, on p. 17, that "the degree to which compulsory superannuation is paid for by employees in the form of reduced take-home wages is debated," and that is an appropriate summary of the state of our knowledge. That debate will continue, and more research needs to be done.

We have conducted extensive research at our Centre into the dimensions, causes and consequences of the recent slowdown in nominal wage growth in Australia – which since 2013 has decelerated to average annual rates of around 2%, half or less of the traditional pace of wage growth. This slowdown has occurred at a time when SG rates have been largely frozen. Indeed, we would suggest that the factors determining wages and SG rates are largely independent. And we would strongly reject the argument that the weak

trajectory of wage growth in Australia could be reversed, and wage growth strengthened, by cancelling the agreed schedule of increases in the SG rate beginning in 2021.

The macroeconomic evidence in Australia shows no evidence of a consistent or significant relationship between wages and superannuation contributions, neither negative (as assumed in the mis-cited "conventional wisdom") nor positive. There is actually more indication of a (weak) positive correlation between SG rates and wage growth, than a negative one; this could be due to the fact that wages and SG rates independently reflect indicators of workers' economic and political bargaining power that could move together. International statistical comparisons also indicate no evidence of a trade-off between employer social contributions and wage growth.

If we are concerned with strengthening Australian wage growth (and we should be, for many reasons), we should focus on the institutional, regulatory, and other policy measures which could attain that result directly: including, in our judgment, stronger minimum wage laws, an expansion and strengthening of the Modern Awards system, and measures to restore meaningful access to collective bargaining (especially in the private sector, where collective bargaining is rapidly disappearing). Those measures are independent from discussion of the optimal level of SG contributions; that question should be determined on the basis of its own merits, with an eye to optimising the access of Australians to secure and comfortable retirement incomes (rather than making that decision on the basis of a false hope that reducing SG contributions could somehow supplement the inadequate wage increases being received by so many Australians).

Our full submission is attached. It draws on more detailed research published in our November 2019 report, entitled *The Relationship Between Superannuation Contributions and Wages in Australia*, which can be accessed at https://www.futurework.org.au/abandoning_super_increases_won_t_boost_wages.

Thank you for the opportunity to present our views, and we would be glad to provide further information as required.

Sincerely,

Dr. Jim Stanford
Economist and Director, Centre for Future Work
Level 1 Endeavour House, 1 Franklin St, Manuka, ACT 2603
+61 2 6130 0530
jim@tai.org.au

Contents

ABOUT THE CENTRE FOR FUTURE WORK

The Centre for Future Work is a research institute associated with the Australia Institute (Australia's leading progressive think tank). We undertake and publish research into a wide range of labour market, employment, income, and related issues. We are independent and non-partisan. Please see our website to access any of our reports, at http://www.futurework.org.au/.

SUMMARY

Employers' minimum statutory superannuation contributions, presently set at 9.5% of eligible earnings, are scheduled to increase to 12% in five annual stages beginning 1 July 2021. Some policy analysts and business lobbyists oppose that increase. One of the arguments invoked by opponents of expanded superannuation is the idea that increases in compulsory superannuation contributions would necessarily and automatically be offset by equivalent reductions in direct wage and salary payments to covered employees. A higher superannuation guarantee rate is therefore self-defeating, and produces (at best) a transfer of income from an employee's working life to their retirement.[1] This argument is being wielded in a broader campaign to cancel the scheduled increases in the superannuation guarantee. Some have even used this logic to advocate for making superannuation contributions voluntary for some groups of workers.[2] Proponents of this view are exploiting widespread concern over the current historically low pace of wage growth, to argue that workers should forego promised improvements in superannuation to supplement their (disappointing) current incomes.

However, the claim that wages automatically and fully adjust to offset higher superannuation contributions is not supported by concrete empirical evidence. Instead, it is simply asserted that such a trade-off is somehow an obvious and widely-accepted economic finding. Proponents of this view cite others who have also made similar assertions; but on closer investigation, these citations are circular and self-reinforcing. A group of writers cites other writers who make the same assumption – with no empirical support for the proposition.

In contrast, this submission considers more concretely the historical, theoretical and empirical dimensions of the relationship between compulsory superannuation contributions and wage determination in Australia. It shows that even in competitive neoclassical economic theory (which requires restrictive assumptions about market-clearing and perfect competition), the conclusion that wages will decline to fully offset increases in compulsory superannuation is valid only in extreme special cases: with perfectly inelastic labour supply (that is, when labour supply does not respond at all to changes in wages), or with perfect substitutability between voluntary and policy-induced savings. More flexible neoclassical models (such as those which allow elastic labour supply, or acknowledge the existence of minimum wages and other labour market "rigidities") do not expect a perfect one-to-one trade-off between superannuation contributions and wages. More realistically, when wages are understood as the outcome of normal and ongoing regulatory, institutional, and bargaining processes (rather than determined by competitive market-clearing), there is no

[1] Some proponents of this argument argue workers are actually worse off on a net basis, due to the interaction of superannuation with the Age Pension and other factors; see Daley and Coates (2018), for example.

[2] See Borys (2019) or Cowan (2019a).

reason to expect any automatic trade-off between wages and superannuation contributions.

A broad review of the statistical history of wages and superannuation contributions in Australia over the last 35 years casts further doubt on these claims of an automatic and complete trade-off between wages and superannuation contributions. There is no visible correlation between increases in the superannuation guarantee (SG) rate and either lower or slower-growing wages. To the contrary, average wage growth has tended to be slightly stronger in years when the SG rate was increased, than in years when it was frozen – and wages were more likely to accelerate than decelerate in those years. There is no statistically significant correlation between the two forms of compensation. And throughout the entire period since compulsory superannuation was introduced, total labour compensation has declined steadily as a share of total GDP (despite rising superannuation contributions). This attests to a multi-dimensional and structural disempowerment of working people in Australia – the result of the overall set of business-friendly, wage-constraining policies implemented over the past generation.

We also conduct three more formal tests for a statistical relationship between wage growth and changes in superannuation contributions: one based on a multivariate time series analysis of Australian data, one based on inter-industry comparisons within Australia, and one based on international comparisons across the broader set of democratic industrial countries. In no case does the empirical evidence support the existence of a visible or statistically significant trade-off between wages and superannuation contributions (or compulsory employer-paid social contributions more generally) – let alone the perfect one-to-one trade-off assumed by those opposing scheduled increases in SG rates. In fact, the Australian historical analysis finds a surprising positive correlation: higher SG payments are associated with faster-growing wages, not slower, and in some specifications that finding is statistically significant.

The assumption of an automatic one-to-one trade-off between superannuation contributions and wage growth is not credible, and policy conclusions based on that assumption should be rejected.

Record-low wage growth will not be “fixed” by giving up planned increases in compulsory superannuation contributions by employers. Australians concerned with weak wage growth should support measures that directly tackle that problem: including by strengthening the whole set of institutions and policies that support wages (like a higher minimum wage, an expanded mandate for Modern Awards, the revitalisation of collective bargaining, and the alignment of fiscal policy with the goal of stronger wages).

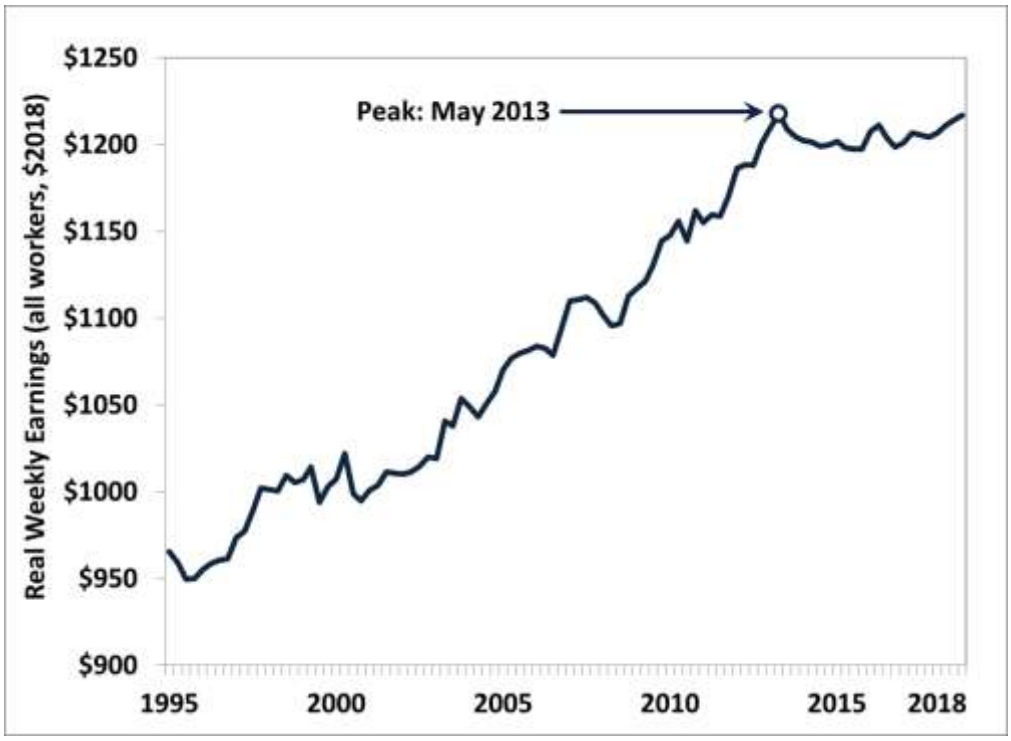
To strengthen Australia’s presently weak wage growth will require concerted action on the part of regulators, government, workers and their unions. Canceling planned increases in the SG rate will not shift income from employers to workers; it would almost certainly lead

to even further reduction in overall labour compensation relative to GDP. In that context, the planned increases in superannuation contributions should be supplemented by active measures to strengthen wage growth. Then Australian workers could attain both improved living standards now, and a more decent and secure income after they retire.

THE DECELERATION OF AUSTRALIAN WAGE GROWTH

Australia's labour market has endured an unprecedented and painful slowdown in wage growth for several years. The slowdown became evident around 2013, and resulted in an approximate halving of previous typical rates of nominal wage growth: from around 4% per year (or even faster in the mid-2000s) to an average of 2% since then (and even below that during the worst years of the slowdown, 2016 and 2017).[3] During this time, nominal wages have barely kept up with consumer price inflation, producing an outright stagnation in average real earnings for Australian workers. As indicated in Figure 1, after decades of fairly steady growth, real wages hit a "wall" in 2013, and have been essentially unchanged since then. The collapse of nominal wage growth since 2013 has widened an already-substantial gap between the ongoing advancement of real labour productivity, and real labour compensation.

Figure 1. Real Weekly Earnings, Australia, 1995-2018.



Source: Author's calculations from ABS Catalogues 6302.0, Table 2 and 6401.0, Table 1.

[3] For a detailed discussion of the dimensions, causes, consequences and potential remedies to the wages slowdown, see Stewart *et al*. (2018).

Weakness in wage growth, stagnation in living standards, and growing inequality have incited growing anger and frustration among Australians. They have also sparked an ongoing policy debate about how to achieve stronger wage growth and a more equal distribution of income. That policy discussion will continue. Many proposals for measures to strengthen wage growth have been advanced: in the areas of labour law and industrial relations, fiscal policy and income transfers, skills and training strategies, and other ideas for addressing the threats to inclusive prosperity in Australia.[4]

Into this important debate over wages and income distribution has been injected an unexpected and perhaps unfortunate dimension. Certain groups who oppose scheduled increases in required superannuation contributions by employers[5] have seized on the widespread and legitimate concern over weak wage growth to argue that the superannuation guarantee (SG) should be frozen at its existing rate. These commentators argue that raising the SG rate will result in even weaker wage growth in the future, worsening the economic and social problems arising from the historic slowdown in wages. Some even suggest that the problems of low wages and weak wage growth could be ameliorated by *reducing* superannuation contributions: for example, by making contributions "voluntary" for at least some groups of workers (supposedly to divert superannuation contributions into supplementing low wages).[6]

These opponents of higher superannuation contributions argue that fundamental economic relationships, experienced through market forces of supply and demand in the labour market, will cause wages (or at least wage growth) to decline in response to the introduction of higher superannuation obligations on employers. However, concrete empirical evidence to support this contention has not been provided by the leading proponents of this argument.

For households struggling to balance their incomes and expenses in the here-and-now, in the wake of stagnant real wages and escalating prices for many necessities of life (like housing and energy), topping up current incomes by diverting compensation originally intended to support them in retirement might seem tempting. Some workers, especially those most impoverished by Australia's increasingly unequal and unforgiving labour market, might grasp that opportunity. But from a broader perspective, the notion that historically weak wage growth should be "solved" by reducing workers' retirement savings to supplement inadequate current incomes, is both economically perverse and socially punitive.

[4] For discussion of proposals to strengthen wages and economic equality, see Stewart *et al*. (2018, Chapter 20), Isaac (2018), Bornstein (2019), and Stanford (2019).

[5] On the basis of legislation passed in 2014, the superannuation guarantee (SG) rate is now scheduled to increase from its present rate of 9.5% of earnings to 12%, in 5 equal annual steps of 0.5 points from 1 July 2021through 1 July 2025.

[6] See Borys (2019) and Cowan (2019a) for proposals for making superannuation contributions voluntary.

THE PREDICTIONS OF ECONOMIC THEORY, AND THE FINDINGS OF EMPIRICAL RESEARCH

The labour market impacts of compulsory employer social payments (such as retirement pensions, unemployment insurance, or workers compensation) have long captured the interest of economists. As a result, there is a large and comprehensive literature on this topic, covering both theoretical models and applied empirical research. This existing literature is relevant for considering the likely impacts arising from changes in Australia's SG rate. Below we review the findings of three classes of theoretical analysis: the conventional competitive neoclassical model, variations on that neoclassical model (allowing for imperfections or rigidities which interfere with normal competitive markets), and non-neoclassical (or heterodox) models which do not rely on traditional neoclassical assumptions about competitive, market-clearing behaviour. We also briefly consider the wide range of findings reported in the extensive body of empirical literature which has attempted to quantify the impacts of compulsory social contributions on wages and employment.

Competitive (Neoclassical) Models

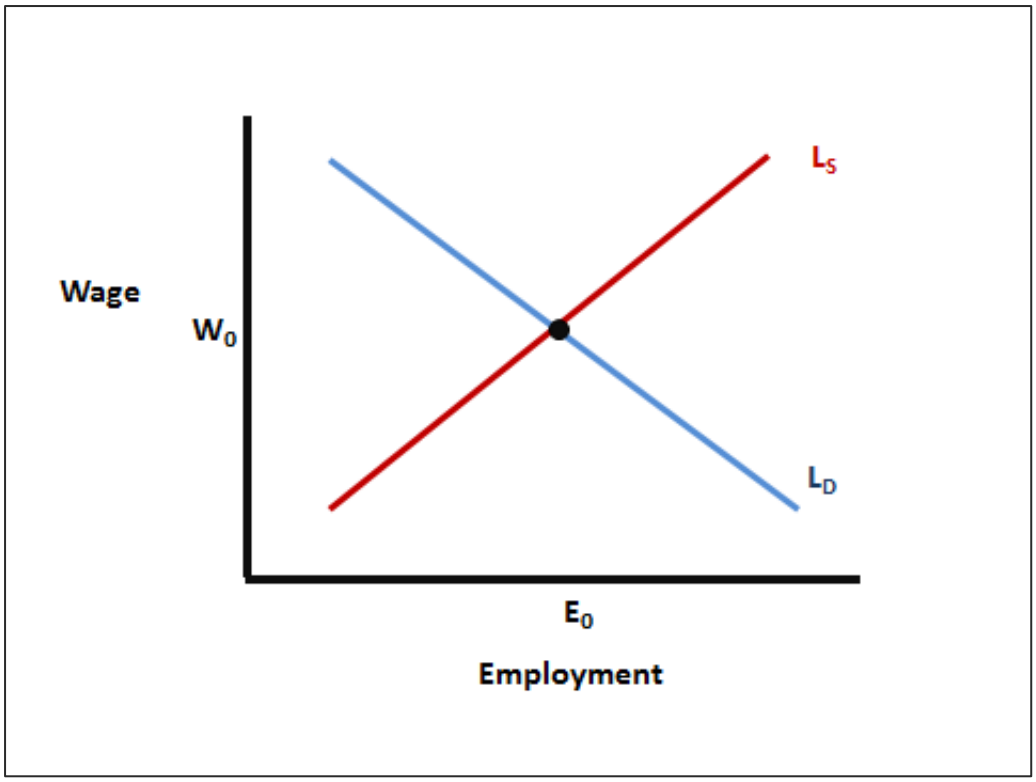
The labour market effects of compulsory superannuation contributions (considering impacts on both wages and employment levels) are commonly hypothesised as being equivalent to a payroll tax, in which employer labour costs are increased by a compulsory levy applied to pre-tax wage costs. Since SG contributions are compulsory, calculated on top of wages, and paid by the employer, their effects are similar to those of a payroll tax. In the case of payroll taxes which flow into general government revenues, there would not likely be any direct impact of the tax on labour supply decisions; the main labour market impact is experienced via an increase in employers' labour costs. However, most payroll taxes are attached to the provision of specified benefits for the workers who are covered by them; in this case they can be considered as a form of indirect or deferred compensation to those workers.[7] There may then be impacts on labour supply decisions, in addition to their effect on employers' labour costs.

An alternative theoretical approach for analysing pension payments by employers is to model them as a choice by workers regarding the optimal mixture of compensation between direct wages and fringe benefits (such as pensions, supplementary insurances, and other fringe benefits). Theoretical models of this choice aim to describe trade-offs between those various forms of compensation as being determined by the preferences of workers, mediated by relative 'prices' of different forms of compensation (which are influenced,

[7] Australia's national income accounting system treats employer payments for both superannuation contributions and workers' compensation schemes as forms of labour compensation.

among other things, by differences in the tax treatment of various forms of compensation).[8] In the case of Australian SG payments, which are compulsory at minimum rates determined by the government, this optimizing choice model is not relevant – and at any rate the findings of those compensation 'choice' models are broadly similar to models of payroll taxes.

Figure 2. Competitive Labour Market Partial Equilibrium



Neoclassical analysis of the wage and employment effects of payroll taxes, and their ultimate incidence, traditionally starts from an assumed competitive partial equilibrium condition in the labour market. This approach, a hallmark of neoclassical economics, assumes that a flexible market-clearing wage is established at a level which equalizes labour supply and labour demand. As illustrated in Figure 2, employers will predictably adjust their labour demand (L_D), and workers will predictably adjust their labour supply (L_S), in response to fluctuations in the (flexible) wage rate, until a wage level is reached (W_o) which equalizes labour supply and demand (at employment level E_o), and no involuntary unemployment exists. Lurking behind this partial equilibrium description is a whole set of further assumptions about competitive behaviour, the nature of economic preferences and decisions, and the existence of a broader general equilibrium in the economy as a whole. With the help of those other assumptions, the equilibrium wage can be shown to equal the

[8] For examples of this approach, see Blumberg (1991), Woodbury and Huang (1991), or Smith and Ehrenberg (1983).

marginal revenue product of employed labour – giving rise to the important neoclassical conclusion that workers are automatically paid according to their productivity.[9]

This starting point of a well-behaved labour market partial equilibrium is familiar, but the assumptions underlying that model are not always elucidated or appreciated. It is important to be aware of those assumptions, to judge whether it is realistic to apply that model to real-world economic problems. The assumptions which are essential to this starting description of labour market behaviour include:

- A well-behaved labour supply function, whereby the amount of labour offered by workers increases monotonically with a higher wage. In practice, labour supply may respond unpredictably to a higher wage (if workers have a target standard of living, their labour supply may actually decline as the wage grows), or may be dominated by determinants other than the wage.

- A well-behaved labour demand function, whereby the amount of labour employed by businesses will increase as the wage falls. If the output of firms is constrained by demand conditions in product markets, a lower wage may have no impact on employment – since employers' labour demand is dependent on (and derived from) the expected demand for whatever those workers are being hired to produce. In fact, in certain circumstances, lower wages can reduce labour demand via their negative impact on aggregate purchasing power in the economy.[10]

- A complementary assumption necessary for a well-behaved labour demand function is of constant returns to scale in production: that is, unit production costs of firms are invariant with respect to the size of their operations. This assumption (along with the assumption of a fixed capital stock in the short-run) is necessary to generate the finding of decreasing marginal productivity which underpins the downward-sloping demand curve. It is highly unrealistic.

- In turn, the assumption of constant returns, along with the numerous complementary assumptions of perfect competition (namely, atomistically small firms, perfect information and certainty, price-taking behaviour by all agents, and full consumer sovereignty), is also necessary for the neoclassical expectation that excess profits captured by any firm will be competed away. In general equilibrium, prices

[9] Keep in mind that the specific concept of labour productivity utilised in the neoclassical model (marginal revenue productivity) is not equivalent to measures of average labour productivity typically reported in economic statistics; indeed, marginal productivity is not typically observable except through economic experimentation.

[10] Bhaduri and Marglin (1990) and Palley (2017) provide seminal examples of models in which lower wages result in lower employment through their negative impact on workers' consumption spending. Lavoie and Stockhammer (2012), among others, have found this effect to be empirically relevant in several OECD countries – even more so since the global financial crisis of 2008-2009 and resulting conditions of chronic macroeconomic stagnation.

for all goods and services equal their cost of production (including a normal market-clearing return to the owners of capital). Businesses cannot earn excess profits (or "rents") thanks to the disciplining force of competition.

- Finally, the wage must be able to freely fluctuate until it reaches a market-clearing level, no matter how low (or high) that may be; involuntary unemployment does not exist.

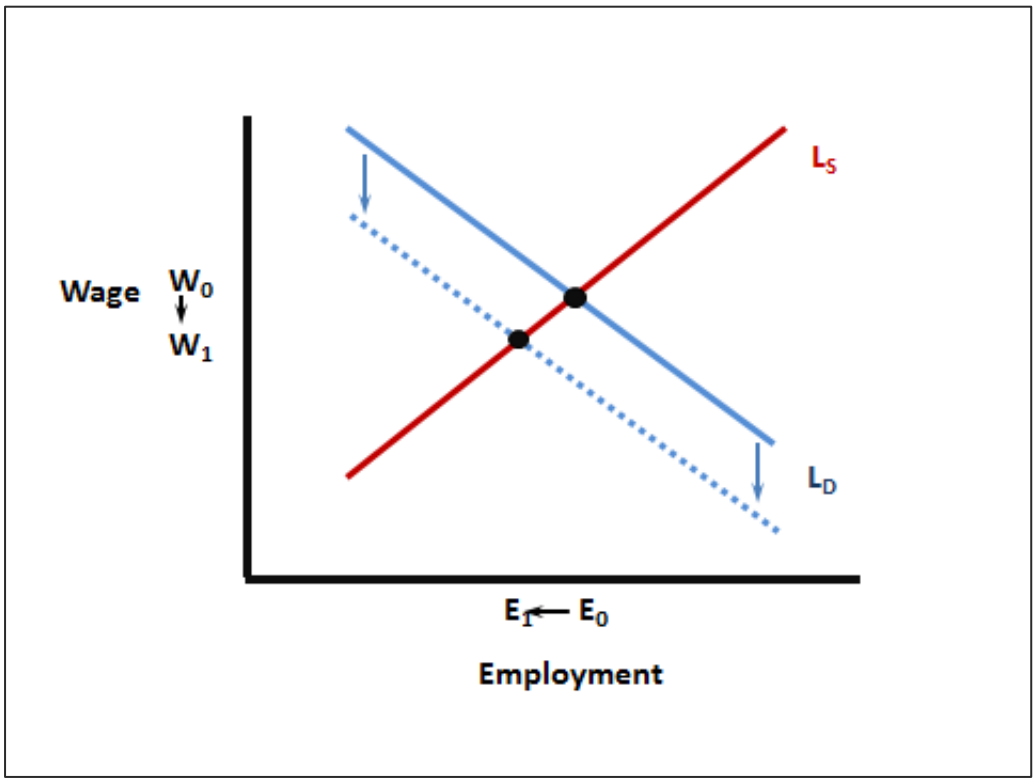
These assumptions, necessary to the competitive neoclassical model, are self-evidently unrealistic. They do not describe any real-world economy: neither today, nor in the past. Indeed, these assumptions were never posited as a description of economic reality, but rather were conceived as the first step in a process of axiomatic theoretical analysis: the methodology of neoclassical general equilibrium theory begins with certain assumed starting points (or axioms), and then derives increasingly comprehensive conclusions from them (including the claim that unconstrained markets optimise social welfare). While any economic theory involves abstraction from real-world detail in order to identify deeper underlying forces and relationships, the dependence of the neoclassical model on those extreme starting assumptions should always be kept in mind – especially when applying findings of that theory to real-world policy issues.

Starting from that assumed partial equilibrium condition, neoclassical models of the impacts of a payroll tax proceed by adjusting labour demand and labour supply functions according to the size and nature of the tax.[11] We begin with the case of a payroll tax paid by the employer. For any given wage rate, employers now employ less labour than they would have without the payroll tax – because their total labour costs now include the payroll tax, and those higher total labour costs encounter the declining marginal revenue product of labour at a lower level of employment. This can be illustrated as downward shift in the labour demand curve. Workers do not pay the tax, and continue to receive the full value of whatever market-clearing wage they are paid; hence their labour supply function is unaffected (although the equilibrium wage will be).[12]

[11] See, for example, representative expositions of this approach in Bédard (1998), Organisation for Economic Cooperation and Development (1990), and Freebairn (2004).

[12] If the payroll tax funds some benefit for workers, then it can be considered as a kind of compensation, and hence might have labour supply effects; this case is discussed below.

Figure 3. Adjustment to Employer-Paid Payroll Tax.



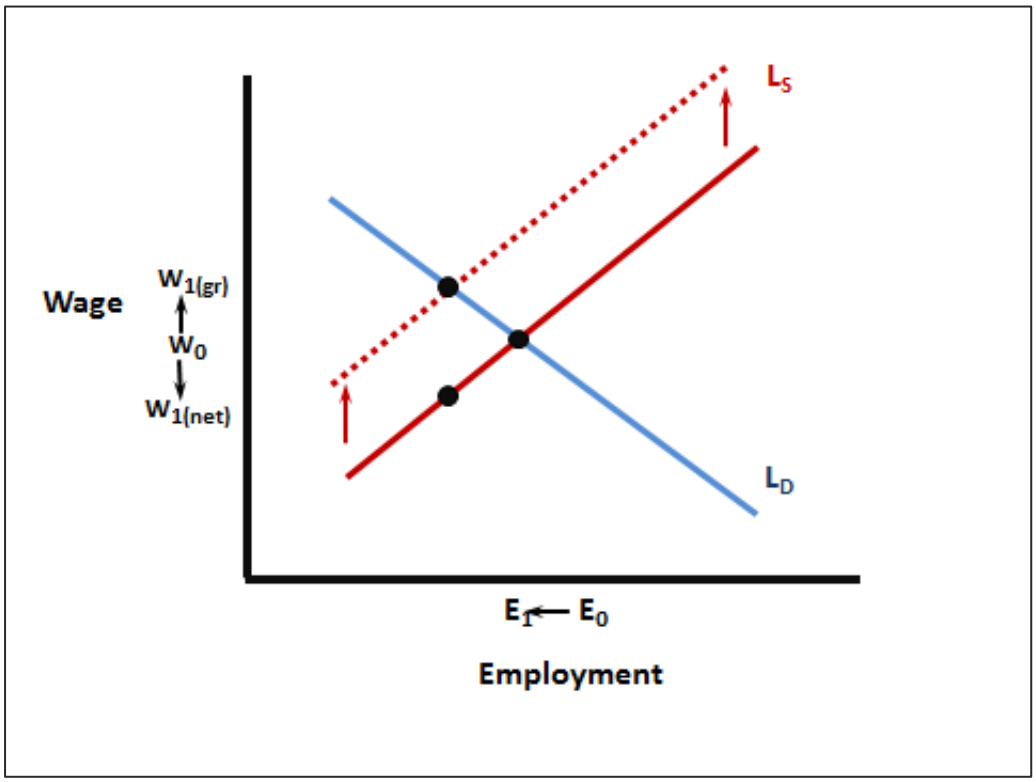
As illustrated in Figure 3, the downward shift in the labour demand curve results in a reduction in both the total level of employment (falling to E_1) and in the equilibrium (market-clearing) wage level (falling to W_1). There is still no unemployment; employment declines because workers voluntarily offer less labour supply as the wage declines, but no unemployment is created. Some of the payroll tax is reflected in a loss of wage income to workers (even though the tax is paid by employers); but some is reflected in a reduction in employment. The relative size of those two effects depends on the relative elasticities of labour supply and demand: that is, the extent to which both respond to changes in the market-clearing wage. If labour supply is relatively insensitive to wages (inelastic),[13] then more of the final burden of the tax will be reflected in lower wages, since workers have to absorb lower wages (forced by market pressures) in order to ensure that their continuing labour supply is fully employed despite higher labour costs; in this case, the resulting decline in wages might offset most of the increase in labour costs resulting from the payroll tax. But if labour supply is quite elastic (ie. highly sensitive to changes in wages), then wages will not change as much. Employment declines a lot in response to the increase in (total) labour costs, because workers withdraw their labour quickly as the wage begins to fall; hence the equilibrium wage is relatively unaffected. In any event, *none* of the payroll tax is "borne" or ultimately "paid" by employers: remember, in the neoclassical model there are no excess profits (or "rents") either before or after the imposition of the payroll tax, thanks to the pressure of competition. Firms always hire the optimal combinations of factors of

[13] This is represented by a more steeply-sloping labour supply function.

production, given their (market-clearing) prices, and then sell the resulting output at prices which always exactly equal their cost of production.

Alternatively, the payroll tax might be paid by the worker, deducted from their wages and forwarded to the government. In this case there is now a difference between the wages paid by employers, and the wages received by workers. Workers now need a higher pre-tax wage in order to elicit a given amount of labour supply – since that pre-tax wage is reduced by the amount of the tax. This can be illustrated as an upward shift in the labour supply function (see Figure 4).

Figure 4. Adjustment to Employee-Paid Payroll Tax



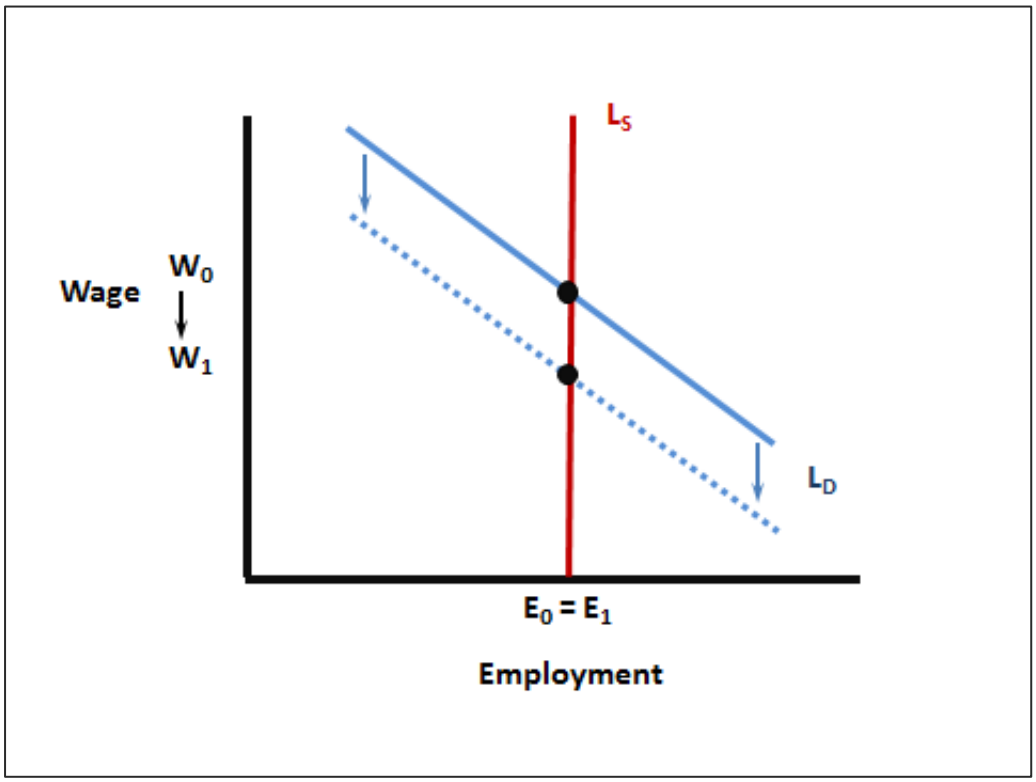
In this case, the pre-tax or gross wage increases (to $W_{1(gr)}$), but the after-tax or net wage received by the worker (after deducting the payroll tax) falls (to $W_{1(net)}$). Employment will also decline, since employers will reduce their hiring in response to the increase in the (pre-tax) wage. Once again, the final effect of the payroll tax is divided between a decrease in the (after-tax) wage and a decrease in employment. And the relative division of those effects between lower employment and lower wages still depends on the relative elasticities of labour supply and demand. This gives rise to the celebrated finding in neoclassical theory that there is no difference between the impacts of a payroll tax levied on employers, and a similar tax levied on employees (known as the finding of "incidence equivalency").[14] The automatic workings of competitive markets will ensure that the end results are identical –

[14] See Bédard (1998) for a typical exposition of the theory of incidence equivalence, and Fullerton and Metcalf (2002) for a survey of the literature on incidence.

including the extent to which the payroll tax is reflected in lower wages. This result is counter-intuitive (few Australians would believe they would be no worse off if the full burden of superannuation contributions was removed from employers, and instead deducted from their own paycheques), and as always is dependent on all the underlying assumptions of competitive market behaviour described above.

Whether the payroll tax is levied on employers, employees, or shared between them, the ultimate incidence of the tax (on wages and employment levels) depends on the elasticities of labour supply and demand. The extent to which a payroll tax produces an

Figure 5. Employer-Paid Payroll Tax with Perfectly Inelastic Labour Supply



offsetting reduction in wages is thus an empirical question; no unequivocal conclusion is expected, *even in a neoclassical model assuming perfectly competitive labour markets*. In general, if labour supply is very inelastic, then the decline in the market-clearing wage will be assumed to constitute a larger share of the initial payroll tax. But only in an extreme case does the neoclassical model suggest that labour will bear the *full* impact of the payroll tax in lower wages.

This case is illustrated in Figures 5 and 6. Both figures indicate a condition of perfectly inelastic labour supply: that is, workers will supply the same amount of labour to the market, regardless of the wage being paid. While it is often considered that labour supply is relatively inelastic in response to wages (since most workers must work in order to support

themselves and their families, even if the wage is unattractive[15]), the assumption of perfect inelasticity is not realistic. Clearly, at least some workers (including segments of the labour force such as students, retirees, and homemakers) will adjust their labour supply in response to changes in wage rates, and in that case wages do not bear the full burden of the tax.[16]

Figure 6. Employee-Paid Payroll Tax with Perfectly Inelastic Labour Supply

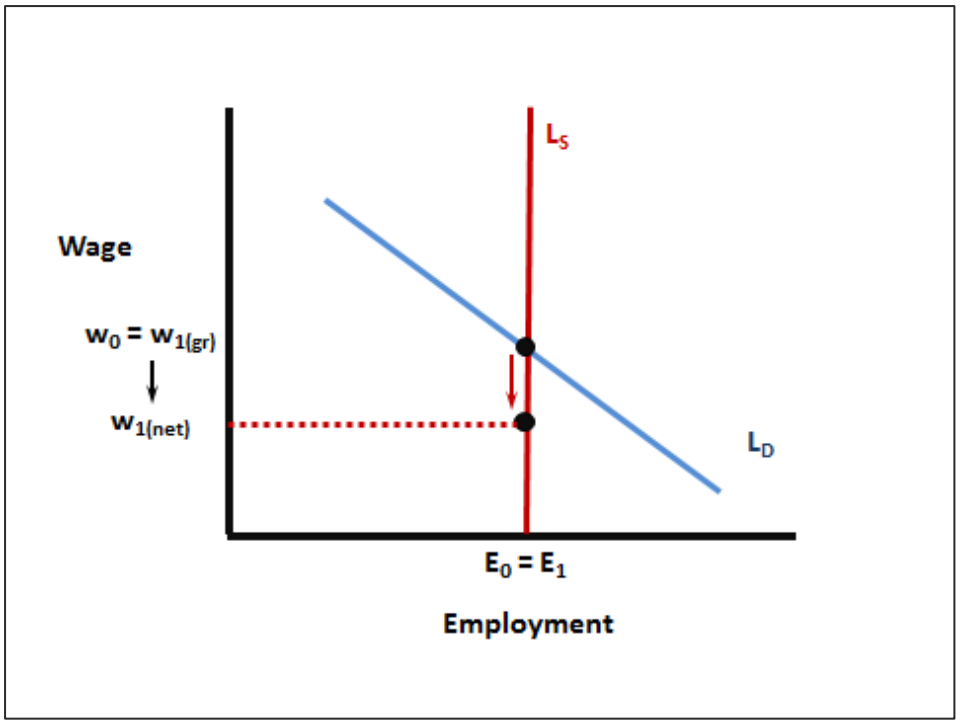


Figure 5 illustrates the case of an employer-paid payroll tax in conditions of perfectly inelastic labour supply. Employment does not change (since workers are compelled to continue supplying just as much labour, even as their wage falls), and the equilibrium market-clearing wage falls by the full amount of the payrolls tax.

If the payroll tax is deducted from workers' wages (rather than being paid by the employer), the same result is attained (consistent once again with the neoclassical finding of incidence equivalency; see Figure 6). The pre-tax (gross) wage is unchanged, but the after-tax (net) wage falls by the full amount of the tax, and there is no change in employment.

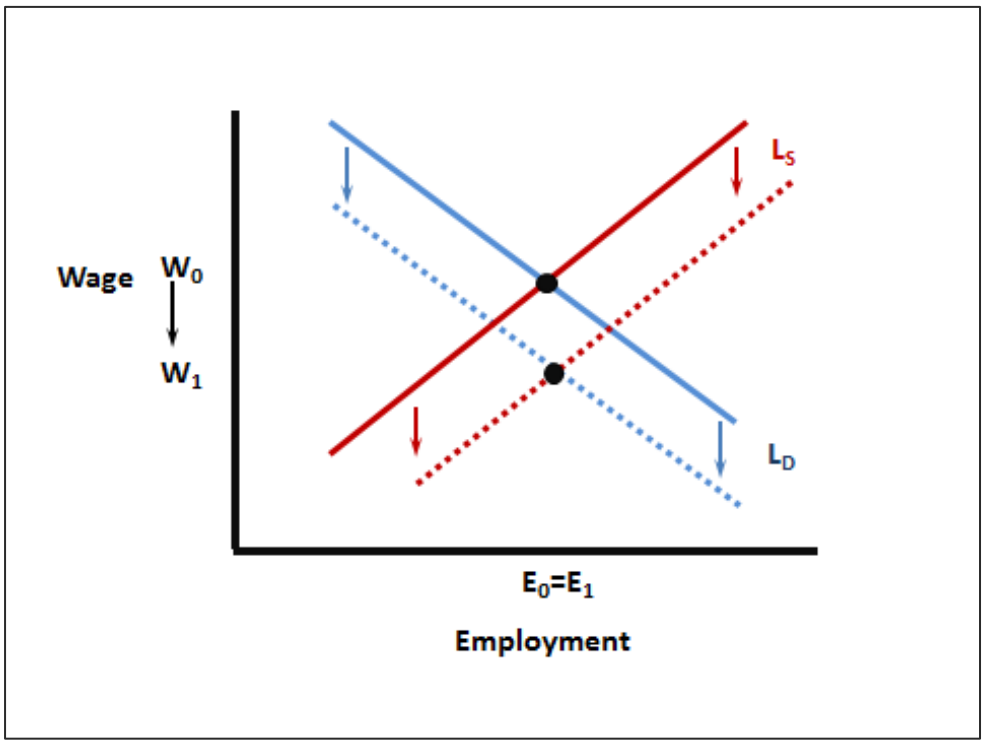
It is thus clear that the claim that wages will decline by an amount that fully and completely offsets the value of compulsory employer-paid superannuation contributions is doubly dependent on unrealistic assumptions. First, the entire neoclassical partial equilibrium

[15] Labour supply is considered relatively inelastic when the proportionate change in labour supply offered is less than the proportionate change in the wage rate; that is, the measured elasticity is smaller than 1.

[16] As Piketty *et al*. (2016) summarise, "Whenever supply effects cannot be neglected, the aggregate level of domestic output and national income will be affected by the tax system, and all taxes will be partly shifted to both labor and capital" (p.14, fn 24).

model itself depends on the existence of market-clearing wage determination – which in turn depends on a whole set of far-reaching and unbelievable assumptions about competition, markets, and prices. But even that (unrealistic) model does not expect a full offset between wages and superannuation contributions (contrary to the claims of Potter and Coates, among others), except in the extreme case of perfectly inelastic labour supply. Even in the rarefied world of neoclassical economic theory, therefore, the claim of a perfect trade-off between wages and compulsory employer-paid social contributions is not generally justified.

Figure 7. Adjustment to Employer-Paid Payroll Tax with Labour Supply Response.



An elaboration of the neoclassical model with particular application to Australia's superannuation system is provided by Freebairn (2004). He notes that unlike payroll taxes that are used to fund the general activities of government, compulsory superannuation contributions have a direct and personal connection to the compensation of covered workers. The contributions are paid into a personal fund, which workers will be able to draw down when they reach retirement age. Those contributions should therefore have an impact on workers' labour supply decisions: since workers receive this compensation on top of their (pre-super) stated wage, they should actually be willing to supply a great amount of labour for any given wage rate than would be the case if compensation consisted only of that wage. (A similar logic could also apply to public insurance or benefit programs funded with payroll taxes, where worker's access to the benefit is contingent on their employment or wage history.) This incentive effect of the funded social benefit can be modeled in the standard neoclassical framework as a downward shift in the labour supply function (Figure

7): a given level of labour supply can now be elicited with a lower wage, since workers also receive superannuation in addition to that wage.

Freebairn describes a special case in which individuals with perfect foresight and certainty view superannuation savings as a perfect substitute for their own voluntary personal savings from current income. This is unlikely for several reasons: the savings propensity implied by the SG rate is unlikely to perfectly match workers' independent willingness to save (especially since savings propensity varies greatly across the various income levels that make up the aggregate labour market, and few would choose to voluntarily save exactly at the rate specified by the SG system); individuals with relatively short time-horizons (ie. who discount future consumption greatly) or who are facing difficult immediate financial circumstances might prefer to have access to more income immediately;[17] and tax rules and volatile investment returns will cause the realised future value of superannuation contributions (with accumulated investment income) to deviate unpredictably from the up-front value of employer contributions. However, if the assumption of perfect substitutability between superannuation contributions and voluntary savings were true, then it is possible that the introduction of compulsory superannuation contributions would have no net labour market impact at all. Since workers are indifferent to the allocation of compensation between wages and superannuation contributions, they are as happy to to work in return for wages plus super contributions as to come to work for the same (total) amount solely in wages. Employer labour costs would increase by the amount of the guarantee, reducing employment. But more labour supply is forthcoming because of the incentive of superannuation; the wage would fall by the exact amount of the required contribution rate. Employment is unchanged, and the decline in wages perfectly offsets the superannuation contributions (as in the case of perfectly inelastic labour supply). The only change is that individuals now save through their superannuation funds, rather than through individual accumulation of assets.

Freebairn acknowledges this is a limiting and unrealistic assumption; in practice, superannuation savings are an imperfect substitute for voluntary personal savings (in part because of the incentive effect of lower tax rates on superannuation contributions), and hence he concludes that only some of the cost of the SG is passed through in the form of lower wages. And again, even this finding is still dependent on the regular underlying assumptions of the competitive neoclassical model (including a flexible wage rate that equalizes labour demand and supply and eliminates unemployment).

Another possible labour supply effect of compulsory superannuation is that having access to adequate retirement incomes is likely to reduce the labour supply of older workers. This

[17] If the SG system collects savings at a higher rate than workers would voluntarily choose to save (which is likely, and indeed is one of the goals of compulsory superannuation), then the compensation provided in retirement will be less appealing than current compensation, and labour supply will shift only partially in response to the SG contributions.

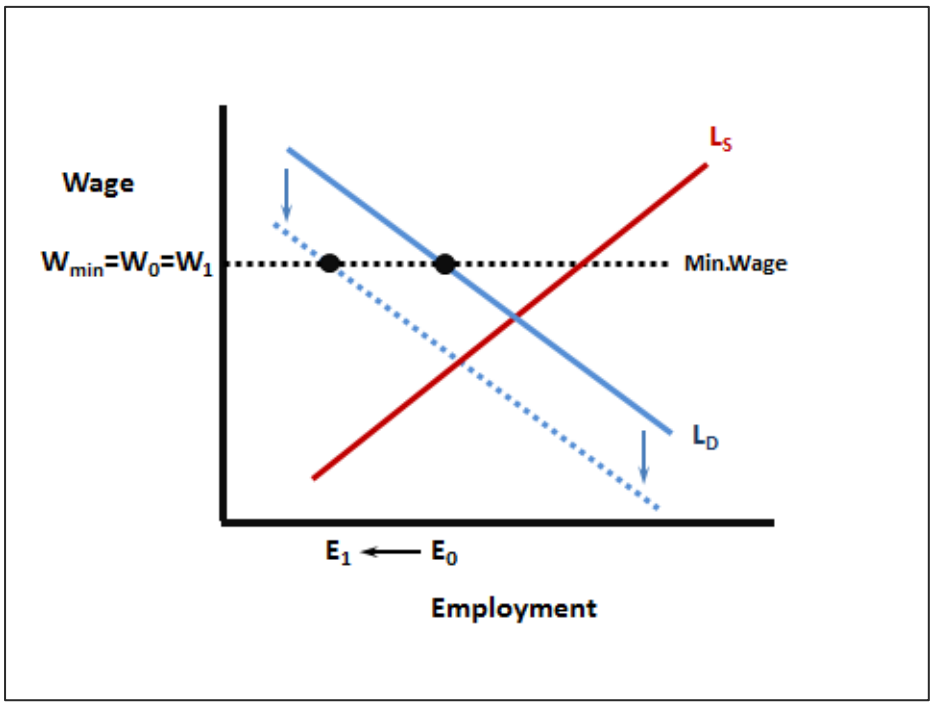
would incrementally reduce overall labour supply in the market and hence lead to higher wages. This is another practical reason why, even in a competitive neoclassical model, superannuation contributions might not be fully offset by lower wages.

Adaptations of the Competitive Model

In the real-world economy, no labour market matches the competitive ideal described in these conventional neoclassical models. Unemployment is a normal feature of labour markets, not a passing or frictional problem. Many so-called "frictions" or market imperfections influence wage determination, presumably interfering with the expected flexibility required to equalize supply and demand. These frictions include various labour market regulations and institutions – such as minimum wages or union activity. Under these circumstances, the expected response of labour markets to compulsory social payments by employers and/or workers will be quite different than under the assumption that flexible wages always adjust after a policy change to maintain full employment.

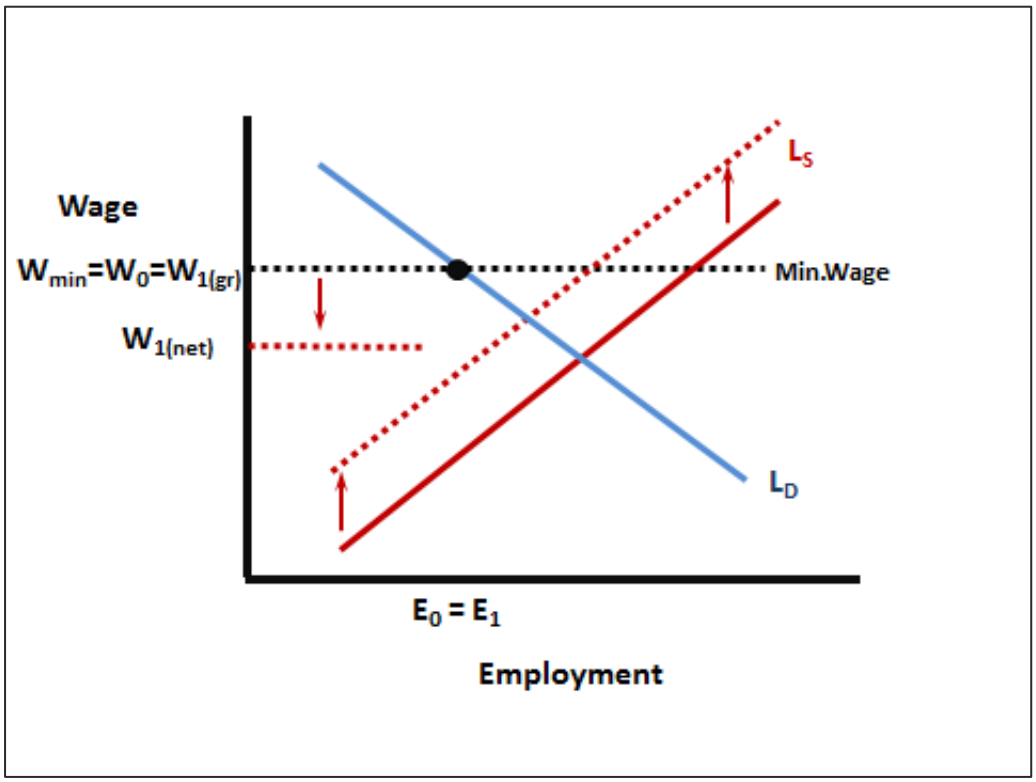
The simplest example of how real-world "rigidities" wreak havoc with traditional neoclassical analysis is the case of a uniform minimum wage. Imagine that a government, pursuing a social objective, imposes a minimum legal wage that "binds": that is, it is higher than the wage rate that would be determined (under neoclassical assumptions) by market forces in a competitive labour market. Now the wage is no longer determined by a market-clearing process; unemployment is a normal outcome (though could presumably be addressed through complementary expansionary macroeconomic policy). The outcomes of a payroll tax are now very different.

Figure 8. Employer-Paid Payroll Tax with Minimum Wage



If paid by the employer, the payroll tax has no impact on pre-tax wages, which are determined by the legal minimum (W_{min}) both before and after the imposition of the payroll tax (as illustrated in Figure 8). Labour costs increase by the amount of the payroll tax, and hence the labour demand function (still assumed to be "well-behaved", in line with standard neoclassical assumptions) shifts downward. This will reduce employment and increase unemployment (represented by the now-larger distance between the labour demand and labour supply functions at the level of the minimum wage). The size of the decline in employment depends on the elasticity of labour demand; if labour demand is relatively responsive to wages, then the decline in employment will be greater. An example of this kind of analysis of the effect of payroll taxes under a minimum wage is provided by Lee and Saez (2012).

Figure 9. Employee-Paid Payroll Tax with Minimum Wage



If the tax is paid by the employee, however, then total labour costs paid by the employer do not change, and hence employment does not change. The minimum wage continues to apply at the previous level. Workers bear the full burden of the tax through deductions paid out of their (minimum) wage, leaving them with a smaller net wage (W_{net}, see Figure 9). Notional labour supply declines, since workers need a higher pre-tax wage to elicit a given amount of labour supply. But that shift in labour supply doesn't affect employment (which is constrained by the minimum wage); it can only serve to reduce the amount of *recorded* unemployment (since with reduced labour supply, there are fewer non-employed people who would actually be willing to work for the given pre-tax wage). This scenario seems somewhat unlikely in political terms, since collecting a payroll tax from the incomes of

minimum wage workers would seem to defeat the original purpose of the minimum wage (namely to boost incomes for low-wage workers) – although if the payroll tax was used to fund a social benefit that enhanced the consumption possibilities of those same minimum wage workers, then it might be considered justifiable. In any case, once the assumption of market-clearing behaviour is relaxed, then the neoclassical finding of incidence equivalency is no longer valid: it now matters greatly whether the tax is paid by the employer or the employee. This perhaps explains why in real-world policy-design, payroll taxes are almost always imposed at least partly if not wholly on employers (whereas conventional neoclassical models argue that is merely an "illusion", and does not reduce how much of the tax is ultimately borne by workers).

This simple adaptation of the neoclassical model (which still retains the other underlying assumptions of neoclassical equilibrium, including well-behaved labour demand functions) would seem to have considerable implications in Australia. After all, Australia's labour market is governed by a unique, historically entrenched and far-reaching system of wage regulation. In addition to a standard minimum wage (which directly applies to only a small proportion of workers), the Modern Award system extends direct wage regulation to a much larger share of the workforce: in excess of one-fifth of employees are paid according to wage rates specified in a Modern Award. There is strong evidence, moreover, that the compensation of many workers paid according to individual contracts also closely follows changes in Award wages. For example, Wright and Buchanan (2012) estimate that the wages of many workers on individual contracts track wage rates directly regulated (and publicly posted) under the Modern Awards, effectively doubling the reach of minimum wage decisions. Finally, an estimated 40 percent of employees are paid according to enterprise agreements, which are typically negotiated for several years at a time.[18] In sum, most Australian workers have their wage determined by some kind of institutional mechanism, rather than by "market forces."

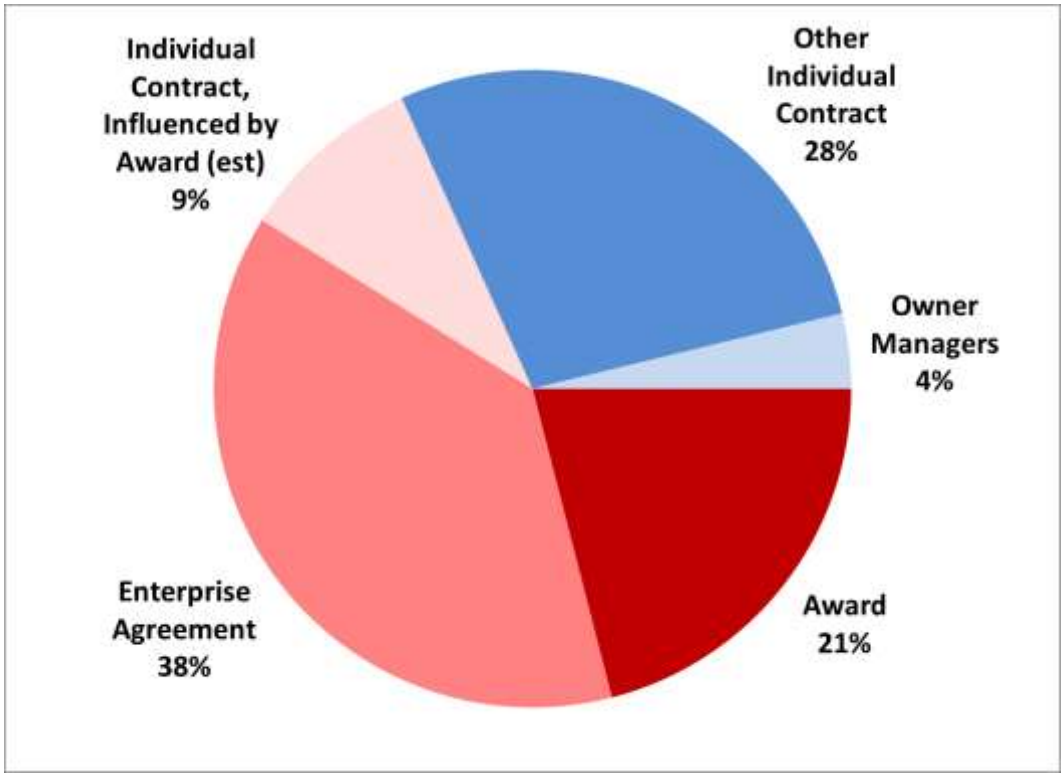
Figure 10 illustrates the dominance of regulated wages in Australia's labour market, on the basis of data compiled (for 2018) by the Australian Bureau of Statistics. Various forms of wage regulation are indicated by shades of red; more market-sensitive forms of wage determination are indicated in shades of blue. Almost 60% of workers have their wages directly regulated by an Award or an enterprise agreement. Another significant share of workers are employed under individual contracts which tend to mirror Award wages.[19] That leaves about one-third of workers who are employed under more market-sensitive individual contracts or have their incomes determined by the returns of small businesses which they own and manage. Even in that portion of the labour market, it is not at all clear

[18] As described by Pennington (2018), many of those enterprise agreements have expired and not renewed; but under Australian law the wage provisions of even an expired enterprise agreement continue to apply unless the agreement is formally terminated.

[19] Figure 10 assumes that one in four workers on individual contracts have wages linked to Award rates; that is conservative, as the research cited above (eg. Wright and Buchanan, 2012) suggests that portion is higher.

that wages are set by market "clearing" (as discussed further below). But the influence of market forces on wages across most of the labour market is certainly constrained by Australia's interventionist system of wage regulation. This casts considerable doubt on the robustness of the conventional neoclassical conclusion (which depends on the assumption of market-clearing wage determination) that automatic wage adjustments will offset at least some of the impacts on labour costs of compulsory employer social contributions.

Figure 10. Employment by Wage-Setting Method, 2018



Source: Author's calculations from ABS Catalogue 6306.0.

This analysis of payroll tax incidence under a minimum wage is only the simplest way to incorporate institutional rigidities into a neoclassical analysis. There are many more complicated models that aim to account for the absence of market-clearing in observed labour markets, the complex and unpredictable impacts of institutions and social norms on wages, and the potential existence of excess business profits (or "rents") in the absence of perfect competition and general equilibrium. The latter point is particularly relevant to understanding the incidence and distributional effects of payroll taxes. In the absence of general equilibrium, it cannot be assumed that each factor of production is paid according to its marginal productivity, nor that those normal payments to factors perfectly exhaust total output.[20] In this case, at least some businesses are likely to receive excess profits (or "rents") over and above the normal returns to the factors of production which they hire; indeed, in the real world there is no point starting a business unless its owners think that

[20] This is also the case under increasing returns to scale, another more realistic variation to the standard neoclassical model.

such profits can indeed be captured. Institutions, regulations, and social norms then become crucial factors in wage determination – as workers strive to capture a larger share of total output, including some of those rents that would otherwise be appropriated by business. Employers may desire to keep wages above their market-clearing level in order to reduce turnover and elicit more effort from their employees ("efficiency wages"). Alternatively, under conditions of "monopsony" power in labour markets, whereby large firms influence the wage rate through their own hiring decisions, wages will be kept above market-clearing, unemployment may exist, and excess profits are captured by businesses.[21]

Under any or all of these "imperfect" market conditions, efforts by workers (including operating through the political sphere) to extract higher wages can be understood as an effort to capture a share of economic surplus that would otherwise be received as profits by employers. This description also applies to efforts to strengthen non-wage benefits (like pensions or superannuation). Saez *et al*. (2012) summarise the far-reaching implications that arise when the impact of these "frictions" is introduced into standard neoclassical analysis:

> "In models with frictions such as search models, employees and employers share a surplus so that there is typically an interval of wages that are acceptable to both the employee and the employer. Hence, wages are not systematically equal to marginal product as in the standard model and are in part determined by other factors such as bargaining power, wage setting norms, or pay fairness norms." (Saez *et al*., p. 527)

Falk *et al*. (2006) describe how minimum wage policies not only establish a floor below which wages cannot fall (negating the automatic market mechanisms that underpin the neoclassical finding that wages will decline to at least partially offset payroll taxes), but also powerfully influence entitlement effects and normative judgments about what wage is "fair." This will also influence wage determination in the absence of market clearing.

The simplest so-called "special case" of a minimum wage (a policy that applies in virtually every industrialised labour market) confirms that even in a neoclassical understanding, it is not likely or possible that wages would decline to fully offset the impact of compulsory employer-paid social contributions. Of course, minimum wages themselves are a reflection of active policy decisions, and those policy decisions are likely to consider the state of other relevant labour market and policy variables (including the level of and changes in payroll taxes);[22] but that chain of causation relies on active and discretionary policy judgments, and is not consistent with the neoclassical conclusion that automatic market adjustments will offset (and frustrate) movements in payroll taxes.

[21] An implication of the monopsony case is that total employment can be increased thanks to increases in the minimum wage, by constraining the extent to which monopsonies can suppress wages; this would also apply to the case of higher superannuation contributions.

[22] As discussed above, this is one of the mechanisms suggested by Coates (2019) to explain why he thinks wages will decline (or grow more slowly) if the SG rate is raised.

Power, Institutions, and Income Distribution

What if the impacts of minimum wages, unions, institutions, and social norms are accepted as normal and essential features of any labour market – rather than as "imperfections" or special cases? In historic reality, wages have never been determined purely by market-clearing forces. And unemployment is a normal labour market condition.[23] Perhaps reality is not well-described as some kind of deviation from the assumed perfect competition and efficient markets of neoclassical theory; perhaps it should instead be described and analysed directly on more realistic theoretical and empirical grounds.

Indeed, there is a diverse and creative heterodox (or non-neoclassical) tradition in economics which dispenses with the assumption of labour market clearing as the starting point of understanding wage determination. Instead, wages are described as the result of an ongoing and conflictual process within society over income distribution. The outcomes of that central distributional conflict depend on the relative bargaining power of employers and employees, influenced by institutions (like collective bargaining and wage regulation), productivity, profitability, technology, competitiveness, and social norms and expectations. These alternative models can explain why unemployment is a normal economic outcome, why demand-side constraints are a permanent (not cyclical) factor, and why income distribution varies with many economic, political and social trends (rather than being determined solely by technology and tastes).[24]

In a typical heterodox description, employment is dependent on aggregate demand conditions, led by business investment decisions (reflecting companies' hopes and expectations for profit, not the automatic "clearing" of a market for capital), exports, government injections of spending power, and swings in consumer spending. Those demand conditions will not generally be sufficient to fully employ labour; unemployment is a normal condition. Pro-active macroeconomic policy can reduce unemployment – but in modern times that policy generally aims to preserve a "desired" cushion of unemployment, so as to restrain wage pressures and maintain labour discipline. Profit is not a normal, market-determined "return" to capital; it is the residual or surplus left over after wages and other costs are paid out of production.[25] There is a wide range of potential wage levels possible:

[23] Many neoclassical theorists try to deal with this inconvenient truth by defining observed unemployment as voluntary non-employment, and equate "full-employment unemployment" with a so-called natural rate or non-accelerating inflation rate of unemployment. These approaches have been unsuccessful in both theoretical and empirical terms; see Richardson (2019) for a critique in the Australian context.

[24] Many different economic approaches describe labour market outcomes without relying on neoclassical market-clearing mechanisms, including Keynesian, post-Keynesian, structuralist, and Marxian traditions. For representative descriptions of non-neoclassical approaches to wage determination see Bowles *et al*. (2005), Fine (1998), and Stanford (2015, Chapter 8).

[25] The heterodox understanding profit as a "surplus" is analogous to the analysis of excess profits or "rents" in some modern mainstream theories – except heterodox theorists understand this as a normal outcome, not an exception or market failure.

from a bare minimum sufficient only to provide for the subsistence and reproduction of workers, to a ceiling at which point profits disappear. The precise distribution of income within those limits depends on the relative economic and social power of the respective factors of production.

In this approach, there is no normal, natural, self-regulating wage level. Labour compensation always depends on the state of institutions and relative power. Total labour compensation consists of various components: including wages, paid time off, non-wage benefits, and pensions. Workers and their unions will typically aim to make progress in all of those areas -- and historically they have. Of course, workers' efforts to improve compensation are constrained by economic and political limits: they can never win everything they want, and hence have to make differing strategic judgments about what components of compensation to pursue in various times and circumstances. But in the context of an ongoing political-economic contest over distribution in general, there is no reason to expect an automatic and complete trade-off between any particular components of compensation. This is fundamentally different from the neoclassical approach in which total compensation is determined, at some efficient and natural level, by self-regulating market forces; if workers want more of one particular component of compensation, they must therefore give up something else. That assumption of market-clearing wage determination ultimately underlies claims of an automatic and complete trade-off between wages and superannuation. In an alternative framework in which income distribution is determined by ongoing structural, institutional and political processes, there is no reason why workers cannot have some of both.

A central goal of workers' movements historically has been winning the right to retire with a pension. Employers consistently resist those efforts; they argue it is up to individual workers or governments to provide for workers' retirement incomes (through individual savings or public pensions). But workers understand that winning the right to stop working in retirement, free of economic compulsion, is crucial both to their general quality of life, and to the power balance between workers and employers throughout working life. A world in which workers must "work until they die" is one in which employers exercise a more all-encompassing power over their employees; a world in which workers have the power to leave that relationship, at some point in their lives, is one where they have more capacity to resist employer demands and demand more from work (including higher wages while they are working[26]). Workers' efforts to win decent pensions have been historically fought at the same time as they strived for and won higher wages: historically they are complements, not substitutes. Internationally, too, it is evident that countries where workers have been able to win stronger current wages and better working conditions, are also countries where retirement protections are more generous and secure.

[26] This is another example of how winning stronger superannuation benefits, which allow workers to leave the labour market sooner, gives them bargaining to demand higher wages as well.

In this understanding, it is quite natural that wages and superannuation contributions move in the same direction over time, not opposite directions – always shaped by the balance of economic and bargaining power in the labour market. Indeed, this is already visible in the coincidence of weak wage growth with the new upsurge in demands to cancel scheduled increases in the SG rate. If wages and superannuation contributions were truly substitutes – separate specific items purchased from a unified, market-determined bundle of total compensation – then the recent historic slowdown in wages should *strengthen* the argument for superannuation improvements. Instead, some business lobbyists and sympathetic researchers are now setting their sights on reducing that component of labour compensation, too – on top of prevailing low wage growth. In a labour market in which employers already have the upper hand, exploiting underemployment and lax labour market regulations to drive down wage growth to post-war lows, it is not surprising that many are now keen to reduce their contributions to post-retirement compensation, as well. It would be folly, in that context, for workers to assume they could win stronger wage growth by giving up their historic demand for better retirement incomes.

Empirical Studies of Payroll Taxes and Non-Wage Benefits

There is a vast published literature on the economic effects of payroll taxes and related labour market policies. Hundreds of papers have been published tracing the effects of payroll taxes, pension funding arrangements, and other policies (including wage subsidies, which are the opposite of a payroll tax) on wages and employment levels. As described above, even in most neoclassical models the final incidence of payroll taxes on wages is indeterminate, dependent on the specific nature of labour supply and demand responses. In models which relax neoclassical assumptions of market-clearing and competitive wage determination, an even wider range of outcomes is possible. It thus becomes an empirical question whether and to what degree payroll taxes are indeed reflected in lower wages.

In this empirical literature, just as in the theoretical approaches surveyed above, there is no consensus regarding the effects of compulsory employer social contributions on labour market outcomes. Individual empirical studies produce starkly different conclusions, depending on the specific quantitative methodologies followed and the specific case studies considered. Some research finds that payroll taxes are fully reflected in lower wages (such as Deslauriers *et al*., 2018); others find no impact on wages (Engelbrecht *et al*., 2001); others (perhaps seeking a compromise!), find a 50-50 split in the incidence (Korkeamäki and Uusitalo, 2009). This diversity of empirical findings should be expected, given the theoretical indeterminacy described above.

The time frame chosen also affects the results. Estimated effects are generally expected to be larger over a longer term time horizon – although as Arpaia and Carone (2004) find, the "long term" can take many years to arrive. Adam *et al*. (2018) find a complex mixture of labour supply and wage responses that depends on age, occupation, and who pays the tax

(contrary to the incidence equivalency hypothesis). Lee and Saez (2012) find that pass-through of payroll taxes to wages is prevented under a minimum wage.

Several surveys of this vast literature on the wage and employment effects of payroll taxes have been conducted, including by Meyer (1995), Nickell and Layard (1999), Hart (2010), and Melguizo and Gonzales-Paramo (2013). In general, these surveys indicate that a majority of studies find that most (but not all) of the ultimate incidence of payroll taxes is experienced via lower wages (as opposed to in employment effects, or in changes in business rents). Melguizo and Gonzales-Paramo propose, after reviewing over 50 empirical studies,[27] a composite estimate of the long-run elasticity of wages with respect to changes in payroll taxes of around -0.7: that is, around 70 percent of the value of a payroll tax is ultimately paid by workers through lower wages, although estimates still vary greatly depending on the country, methods of measuring taxes, and time frame. However, even these literature surveys cannot be interpreted independently from the theoretical starting point of the studies that they review. Most conventional studies utilise a neoclassical framework which assumes market-clearing wage determination and other hallmarks of competitive equilibrium; hence any "consensus" among them that most of the incidence of payroll taxes falls on wages is contingent on their (broadly shared) theoretical starting point. Studies which adopt more flexible theoretical approaches (such as Lee and Saez, 2012, Saez *et al*., 2017, or Hargaden and Roantree, 2019) are more likely to reject the "consensus" views that statutory incidence doesn't matter and that the incidence of a payroll tax is mostly reflected in lower wages.

Many empirical studies have also been conducted of the effects of wage subsidies – in which employers are compensated for a portion of labour costs, usually with the goal of stimulating stronger employment among targeted groups of workers.[28] In a neoclassical understanding, a wage subsidy should have opposite effects to a payroll tax: it should lead to some combination of wage increases and employment increases, depending on the relative elasticities of labour supply and demand. Most empirical studies of wage subsidy effects find at least modest positive employment effects – implying that no automatic one-to-one trade-off between payroll taxes/subsidies and wages is visible in this context, either.

In sum, the empirical literature on the labour market effects of payroll taxes is immense and diverse; it is beyond the scope of the present study to comprehensively review it all. But even this brief overview generates some important conclusions relevant to the discussion of the relationship between compulsory superannuation contributions and wages in Australia. First, there is no settled consensus among economists regarding the labour market impacts of compulsory employer social contributions; research continues to generate a wide range of findings. Second, empirical findings depend on the theoretical framework adopted by the

[27] Melguizo and Gonzales-Paramo perform a "meta-regression" on their surveyed studies: in essence performing a second-order regression on the individual regression estimates.

[28] Overviews of this literature are provided by Katz (1996) and Marx (2001).

investigator; models which allow for non-market-clearing effects (such as minimum wages, distributional norms, and business rents) are more likely to generate outcomes that vary from the conventional neoclassical view. Finally, very little support exists in this empirical literature for the extreme assumption (incorporated into the Potter and Grattan simulations) that changes in compulsory social contributions will be fully and immediately reflected in lower wages.

THE HISTORICAL EVOLUTION OF WAGES AND SUPERANNUATION CONTRIBUTIONS

Australia's superannuation system is the historical result of decades of economic and political debates and struggles, as working people and their unions fought to win a degree of economic independence and security for workers in retirement.[29] Public age pensions were introduced in most states in the early 20th Century, replaced by a national means-tested flat-rate age pension that came into effect in 1909. The public pension was expanded and reformed several times in intervening decades, including with the introduction of cost-of-living indexing, and various income and asset tests. But it did not provide a sufficient level of income replacement to maintain living standards for most workers after retiring, and reliance on voluntary individual savings to adequately supplement the public pension was never successful. Hence workers agitated for occupational and employer-based pension benefits to supplement the public scheme.

Occupational superannuation programs began to be widely negotiated and arbitrated in collective agreements and industry awards in the 1970s and 1980s. Employers resisted demands that they pay toward the retirement incomes of their workers, but gradually the practice became standardised across most industries – including through precedent-setting agreements negotiated by relatively stronger unions (in industries such as construction, manufacturing, and the public sector), and then extended through the arbitration and awards system. Expanding employer-funded superannuation contributions became an important priority for unions during the years of the successive Prices and Incomes Awards from 1983 through 1991.[30] Compulsory superannuation contributions were sought as one of the trade-offs for the voluntary wage restraint which unions accepted in support of the Hawke government's efforts to reduce inflation and reduce labour costs.[31] By 1988, industry-wide compulsory superannuation schemes had been negotiated or arbitrated in dozens of major industries (Mees and Brigden, 2017, p. 85).

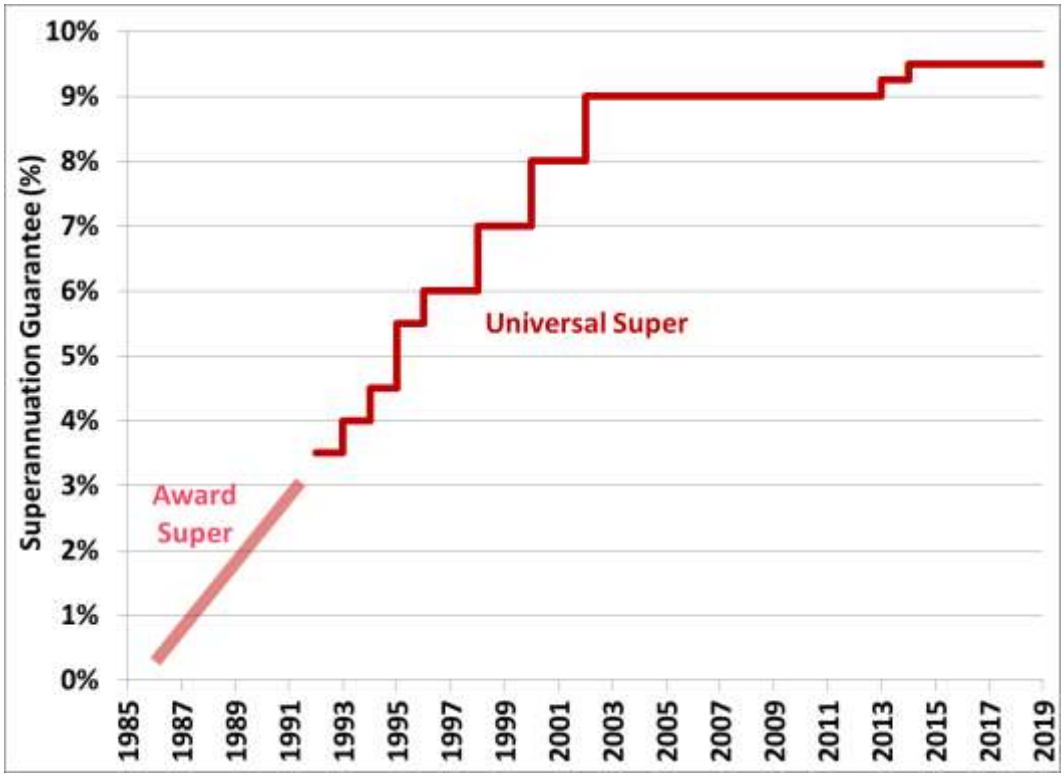
[29] A rich description of this history is provided by Mess and Brigden (2017); see also Dept. of Social Services (1988) for a review of early pension policy debates in Australia.

[30] See Mees and Brigden (2017), Wright (2014) and Forsyth and Holbrook (2017).

[31] Other improvements to social benefits included in this overall "package" included universal medicare and stronger income support benefits for lower-income Australians.

The introduction of enterprise bargaining under the last version of the Accords (Accord Mark VII, 1991), implemented under new Prime Minister Paul Keating, led to a shift in strategy regarding superannuation. The fragmentation of bargaining power under the new system, and the phasing out of centralised arbitration, made it harder for unions to continue to negotiate stronger superannuation benefits on a firm or industry basis. Hence the government introduced a new universal superannuation guarantee, effective 1 July 1992, which would require essentially all employers to make minimum contributions to individual superannuation accounts, starting at 3% or 4% of eligible earnings.[32] A timetable was established for annual or biannual increases in the required rate of contributions, which reached 9% by 2002.An original plan to increase total contributions to 15% of earnings (including employee contributions planned to reach 3%) was scrapped by the John Howard government after 1996. The SG rate was frozen at 9% until 2013, when a timetable for smaller annual increases was implemented by the then-Labor government. The first two small increases (of just 0.25% each) came into effect in 2013 and 2014. Originally annual increases were

Figure 11. Evolution of the Superannuation Guarantee



Source: Australian Taxation Office (2019) and *Superannuation Guarantee (Administration) Act 1992*. Pre-1992 rates (under awards) estimated; 1992-1996 rates shown as average of small and large business rates. Rate changes effective 1 July.

[32] Until 1996 the contribution rate depended on the size of the employing company, with larger firms (measured by revenue) required to pay a higher rate.

intended to continue until the SG rate reached 12%, but in 2014 the new Coalition government of Tony Abbott deferred the increases by six years – freezing the rate at 9.5% until 2021 as part of a deal to eliminate the previous mining profits tax (Cox *et al*., 2014).

Figure 11 illustrates the evolution of compulsory superannuation rates from 1992 through to the present. The figure also provides an approximate illustration of the gradual phasing in of superannuation contributions before 1992 through collective agreements and industrial awards. At the time the universal superannuation system began, many industries were already paying superannuation at comparable rates, and hence the initial introduction of the new system (at initial rates of 3% or 4%) had modest impacts on employer costs (since most large employers were already paying superannuation at broadly compatible rates). Since the start of universal superannuation, phased increases in the SG rate (from 1992 through 2019) have amounted to the equivalent of a compound average annual increase of 0.2% of wages per year.

As indicated in Table 1, that represents a small proportion (about one-seventeenth) of the average compound annual increase in nominal wages experienced over that same period (3.4% per year). Moreover, most of the increase in SG rates occurred before 2002; since then, the two modest additional increases in the compulsory rate have

Table 1. Dimensions of Compulsory Superannuation, Australia, 1992-2019

Initial superannuation guarantee rate, 1992	3%/4%[1]
Superannuation guarantee rate, 2019	9.5%
1992-2019	
Annual compound increase, SG rate	0.2%
Annual compound increase, avg. weekly earnings	3.4%
2002-2019	
Annual compound increase, SG rate	0.03%
Annual compound increase, avg. weekly earnings	3.52%
Estimated employer contributions	
APRA superannuation review, 2017-18	$94.8 billion
Share of total wages and salaries paid	12.2%
Source: Author's compilation from APRA (2019), ABS Catalogues 5206.0, Table 7, and 6302.0, Table 2.	

added less than 0.03% to average wages on an average annual compound basis, and hence have not been a significant component (less than one-hundredth) of overall changes in labour costs during that time. Despite the aggregate financial and macroeconomic

importance of the superannuation system, therefore, changes to the SG rate have not been a significant factor in labour cost trends since the turn of the century.

In practice, actual employer superannuation contributions differ from the statutory SG rate. Some employers have agreed to pay higher rates than required under the SG (through enterprise agreements). Some workers do not receive superannuation contributions: for example, if their monthly wages fall below $450 per month,[33] or if they are not considered "employees" (such as contractors or nominally self-employed – including new forms of self-employment such as on-demand workers through digital platforms). Some forms of income (such as some overtime payments or bonuses) do not attract compulsory superannuation contributions; and very high incomes (above a current threshold of $55,720 in a quarter) also do not incur compulsory superannuation contributions. Finally, investigations have identified a growing problem of non-payment of required superannuation by employers: recent estimates suggest that $6 billion per year in compulsory superannuation contributions are evaded by employers (Industry Super Australia, 2018), equivalent to over 6% of collected employer contributions. For all these reasons, the effective rate of employer superannuation contributions differs from the SG rate. In the financial year 2017-18, employer contributions to superannuation totaled just under $95 billion (Table 1).[34] That was equal to 12.2% of all wage and salary payments recorded that financial year through Australia's national income accounting system.[35]

The long-term rise in total employer superannuation contributions since 1997[36] is illustrated by the blue line in Figure 12. Two distinct phases are visible in this data. From 1997 through 2007, total contributions grew very quickly (by an average of 13% per year), and the effective rate approximately doubled (from over 7% to 14%). After the onset of the global financial crisis in 2008, however, the growth of total employer contributions slowed considerably (to just 3.25% per year since then), and the effective rate has actually declined slightly. It is interesting to note the imperfect correlation between those trends and the change in the statutory SG rate. The steady increases in the SG rate up to financial 2003 translated into observed rapid increases in both superannuation contributions and the effective rate. However, the effective rate continued growing from 2003 through 2007, despite the freeze in the statutory rate in that period. And after 2008 the effective rate remained steady, despite the small increases in the statutory SG rate in 2013 and 2014. The growth in overall superannuation contributions slowed down dramatically – in part because of the historic slowdown in nominal wage growth that took hold after 2013. This imperfect

[33] ASFA (2018) estimates that 365,000 employees, or around 3% of employees, lose superannuation benefits because their income falls below the monthly threshold.

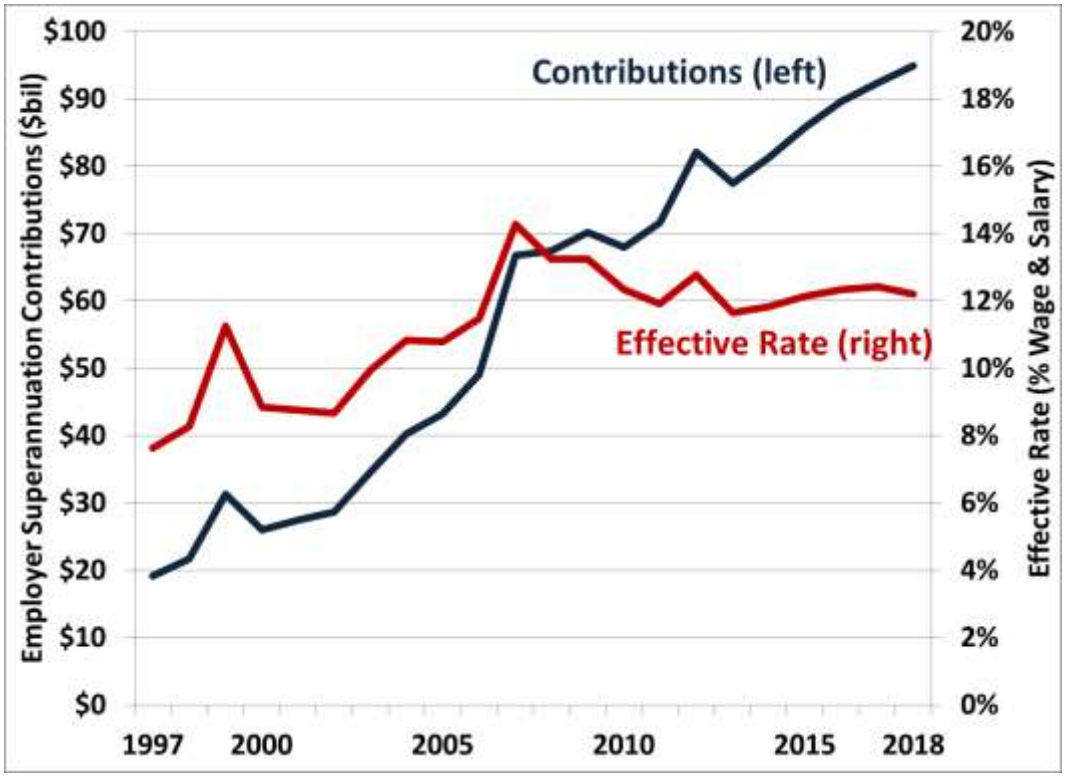
[34] APRA (2019).

[35] Author's calculations from ABS Catalogue 5206.0, Table 7.

[36] Consistent data on employer superannuation contributions is available from APRA only back to 1997. Employer contributions may fluctuate in specific years due to particular factors such as lags in payments, unusual contributions, and other factors.

relationship between change in the SG rate (which serves as a broad benchmark for overall employer practice) and actual observed contributions suggests that any effect of changes in the SG rate on nominal wages may be even weaker than suggested in the preceding review of theoretical and empirical evidence – since changes in the SG rate translate only indirectly and imperfectly into changes in actual contributions.

Figure 12. Superannuation Contributions and Effective Rate, 1997-2019



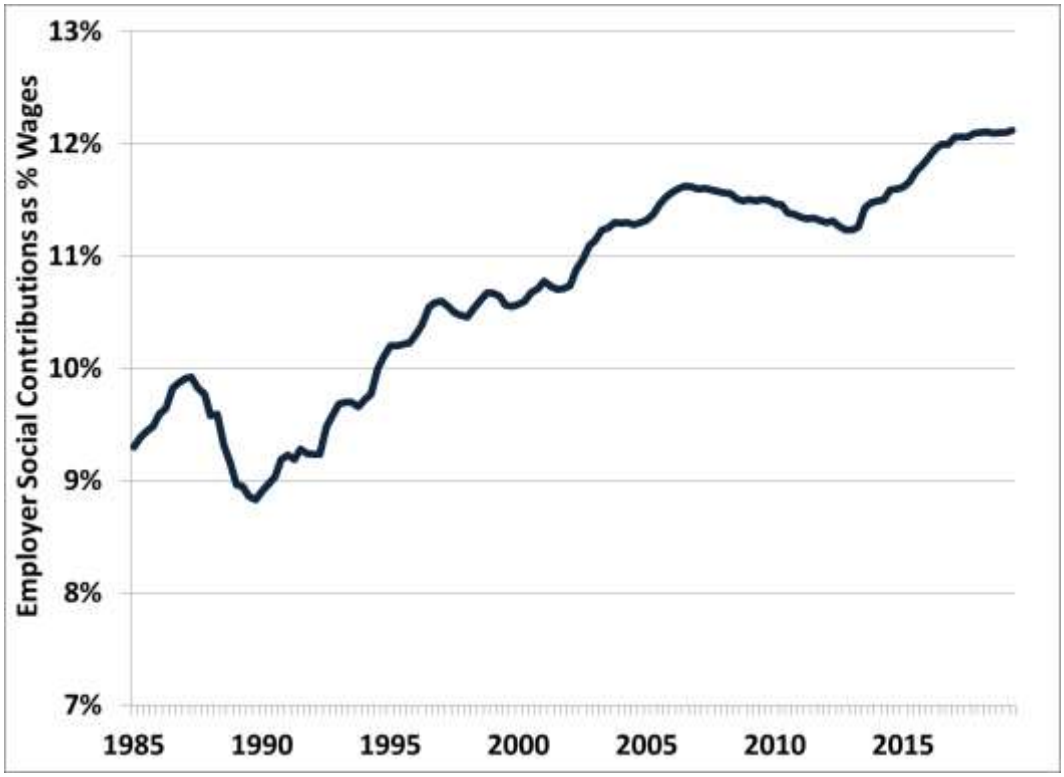
Source: Author's calculations from APRA (2019 and previous editions) and ABS Catalogue 5206.0, Table 7. Financial years ending 30 June.

Another perspective on the actual realised impact of changes in the SG rate on total employer labour costs is provided by ABS national income accounts data. The ABS reports total employer payments into social benefit programs, as a form of labour compensation (in addition to direct wage and salary payments to employees). This data on "employers' social contributions" (from ABS Catalogue 5306.0, Table 7) includes two primary components: employer superannuation contributions and employer-paid premiums for workers compensation programs (most of which are run by state governments).[37] Workers

[37] It may seem odd that compulsory workers' compensation premiums, intended to compensate workers for workplace injuries (and to serve as an incentive for employers to improve workplace safety) are treated in national income statistics as "compensation" for workers; the stated logic is that these premiums constitute an employer-paid insurance benefit which is tied to the employment status of those covered by it. Among other ironic implications of this accounting treatment is the fact that the decline in workers compensation premiums that has been observed in recent years, in part resulting from a decline in workplace accidents, is interpreted as a reduction in labour compensation.

compensation premiums have declined in recent years for various reasons: including reductions in benefits and a long-term reduction in the frequency of workplace accidents.[38] That trend has served to further insulate overall labour costs from the impact of increases in the statutory SG rate.

Figure 13. Effective Rate of Employer Social Contributions, 1986-2019



Source: Author's calculations from ABS Catalogue 5206.0, Table 7.

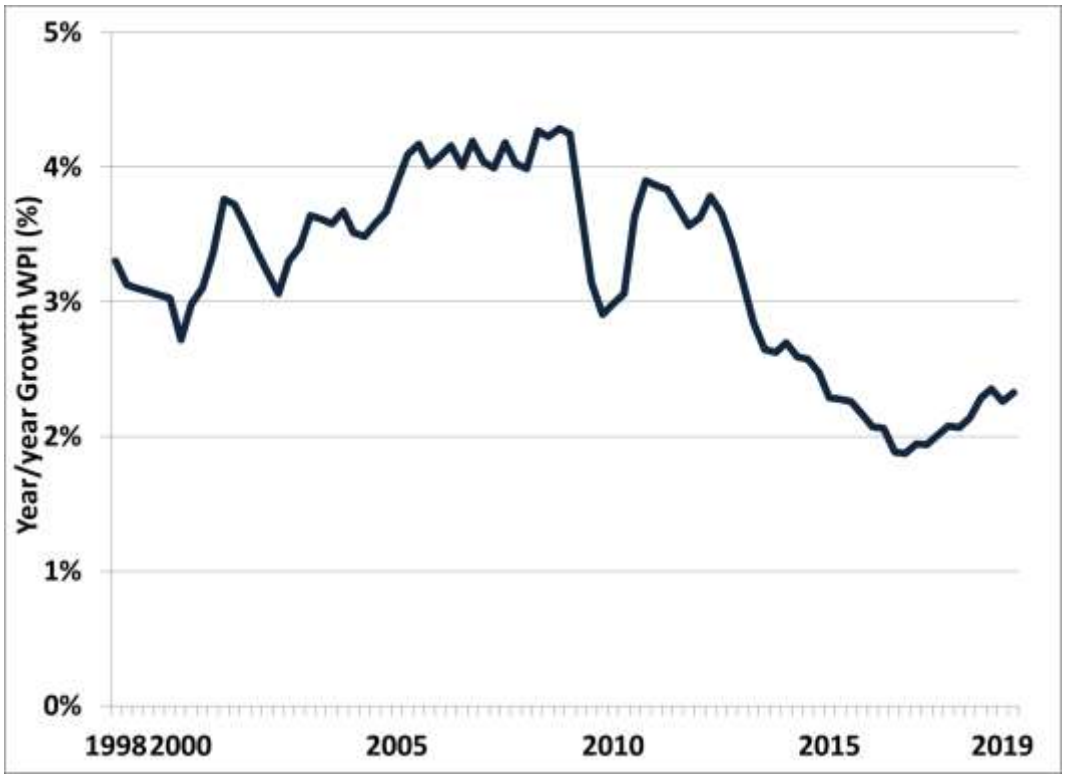
As illustrated in Figure 13, the overall effective rate of employers' social contributions (measured as a share of direct wage and salary payments) has increased from around 9% in 1990 (before the universal superannuation system was introduced) to 12% at present. That 3 percentage point increase in the effective average contribution rate is only about half of the increase in the SG rate – which grew by about 6 percentage points between 1992 and 2019.[39] The muted impact of changes in the SG rate on average effective supplementary labour costs reflects both the imperfect relation between the SG rate and actual employer contributions (weakened by the factors indicated above), and the offsetting decline over the same time period of changes in workers compensation premiums. For all these reasons, the impact of changes in the statutory SG rate over time on total non-wage labour costs by

[38] See Watson and Stanford (2018) for a discussion of the causes and consequences of this decline.

[39] As noted above, we estimate the SG rate in the early years of universal superannuation as the average of the small and large employer rates; for 1992 that was 3.5%. Prior to 1992, the effective rate of superannuation contributions is impossible to measure, being the composite of numerous firm- and industry-specific rates as specified in collective agreements and awards.

employers – let alone their eventual correlation (if any) with wage growth – has been partly diffused.

Figure 14. Growth in Wage Price Index, 1998-2019

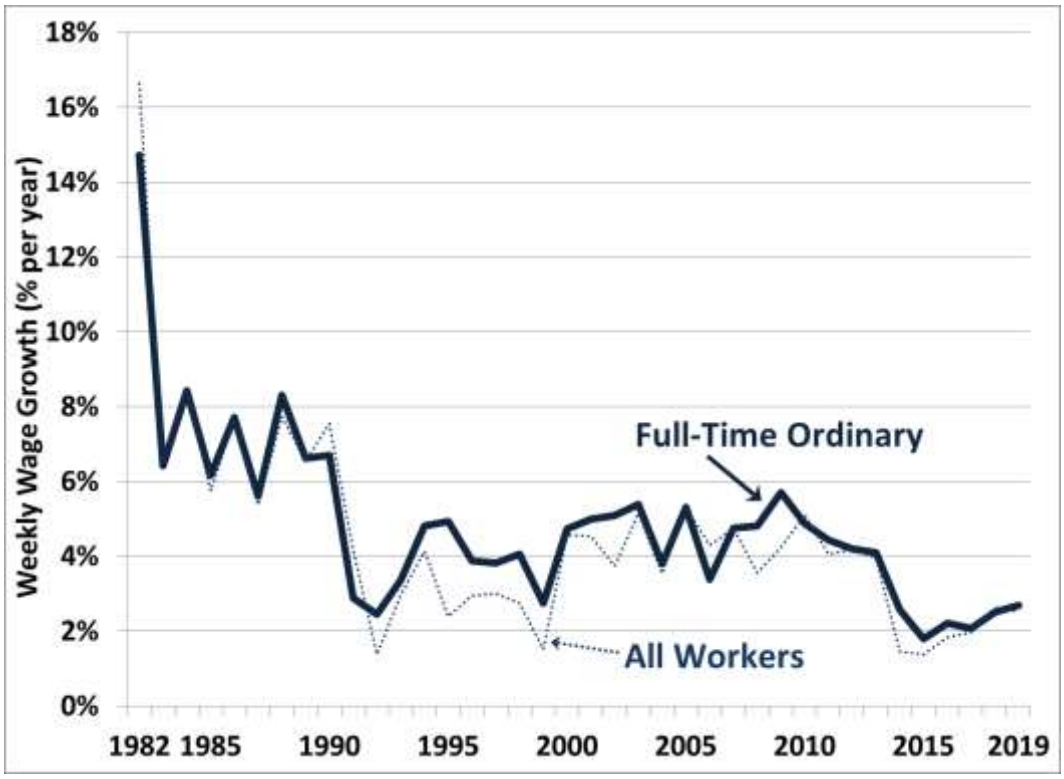


Source: Author's calculations from ABS Catalogue 6345.0, Table 1. Seasonally adjusted, excludes bonuses.

We will now consider the broad dimensions of wage growth over the same historical period covered by the introduction and expansion of compulsory superannuation contributions. There are various ways to measure wage and salary compensation for Australian workers. One common measure, illustrated in Figure 13, is the ABS's quarterly Wage Price Index (WPI, Catalogue 6345.0). This index reports change in wage costs for a representative bundle of jobs; the methodology strips out the effect of changes in job quality, skills, hours of work, or labour market composition (such as changes in the occupational or industry make-up of employment), in order to construct a hypothetically "pure" measure of wage inflation. The WPI tends to understate true wage growth during periods of strong economic growth (when average hours of work increase, and job quality improves due to employer competition for scarce labour), and overstate wage growth during weaker periods (when average hours and job quality decline). The trend in annual growth in the WPI is illustrated in Figure 14. From 1998 through 2013, wage inflation by this measure fluctuated between 3% and 4% per year (with a temporary downturn visible during the 2008-09 financial crisis); since 2013, WPI growth has decelerated well below that traditional pace (averaging about 2% per year). Since the WPI has only been reported by the ABS since 1997, this data does

not cover the full period of time corresponding to the introduction and expansion of universal superannuation.

Figure 15. Average Annual Growth in Weekly Wages, 1982-2019



Source: Author's calculations from ABS Catalogue 6302.0, Table 2, and RBA Occasional Paper #8, Table 4.18. Annual averages.

A more consistent, longer-term, and realistic measure of wages is provided by the ABS's survey of average weekly earnings (Catalogue 6302.0), currently conducted on a semi-annual basis (Figure 15). This survey measures the actual earnings received by employees in Australia, and includes the impact of changes in hours worked, compositional changes in employment, and other factors excluded by design from the WPI. Data is available for all employees (dotted line in Figure 15), or for only the ordinary-time earnings of full-time employees (the solid line). The latter is often viewed as a more reliable measure of "core" wage trends, but it excludes the impact on realised wages of the historic shift toward part-time work in Australia's labour market. This data provides a more complete historical perspective on the potential relationship between wage growth and changes in superannuation contributions. The trend is dominated by the sharp deceleration of nominal wage growth in the 1980s: from around 15% per year at the beginning of that decade, to half that or less in the wake of the initial Prices and Incomes Accord signed in 1983. Nominal wage growth decelerated further after 1990, for various reasons: including the recession experienced in 1992-92, the adoption of inflation targeting by the Reserve Bank of Australia, and the shift to an enterprise bargaining system. Wage growth picked up modestly in the 2000s, on the strength of very strong labour market conditions (associated with the

resource-led economic expansion). Growth in average weekly wages then decelerated sharply after 2013 – to under 2%, before rebounding partially since 2017. In general, the average weekly wages data reveal a similar trend to the pattern visible in WPI data: in particular the marked deceleration of wages after 2013.

Several other measures of wage inflation are also available, including labour compensation and labour cost series derived from the national income accounts, and average wage increases specified in enterprise agreements.[40] Despite differences in methodology, these other series also generally confirm the same historic pattern of wage inflation in Australia (including the historic deceleration of nominal wage growth in the 1980s, the modest strengthening of wage growth during the 2000s, and the deceleration of wages to postwar record lows after 2013).

We will now consider the observed correlation (if any) between changes in the superannuation guarantee rate and the pattern of wage growth. The rise and fall of nominal wage growth in the years since universal superannuation was first implemented bears no obvious correlation to changes in the SG rate. The average annual growth in ordinary weekly wages for full-time workers from 1992 through 2019 was 3.9% per year. Since the introduction of universal superannuation, wage growth fell below that average in 12 years; in 15 years it exceeded the average.[41] The SG rate was increased in 9 of those years; it did not change in 18 of the years. Every possible combination of these two dimensions of change has occurred in practice over this period: weak wage growth occurred both when the SG rate increased and when it did not change, and strong wage growth has occurred when the SG rate increased and when it was frozen. The matrix illustrated in Table 2 summarises the frequency of these permutations.

[40] Wage trends in federally registered enterprise agreements are reported quarterly by the Attorney-General's Department, in its bulletin *Trends in Federal Enterprise Bargaining*.

[41] We do not include 1992 in this analysis since we do not know the effective difference between the initial SG rate and the effective contributions that were already in place (through awards and collective agreements) before 1992. We compare SG changes to average wage growth in the calendar year in which the SG rate increased; since SG rate changes are announced well in advance, and take effect midway through the calendar year, this is appropriate for analysing their potential impact on wage growth (since employers have ample time to anticipate and adjust their wage offers). We include 2019 in the comparison; even though the calendar year was not over at time of writing, it was clear that wage growth will fall well below its post-1992 average.

Table 2: Correlation of Wage Growth and Superannuation Changes, 1993-2019

		Super Guarantee	
		No Increase	**Increase**
Wage Growth[1]	**Below Average**	1997, 1999, 2004, 2006, 2015, 2016, 2017, 2018, 2019 (9)	1993, 1996, 2014 (3)
	Above Average	2001, 2003, 2005, 2007, 2008, 2009, 2010, 2011, 2012 (9)	1994, 1995, 1998, 2000, 2002, 2013 (6)
Source: Author's calculations from ABS Catalogue 6302.0, Table 2, and RBA Occasional Paper #8, Table 4.18. 1. Ordinary time earnings for full-time workers.			

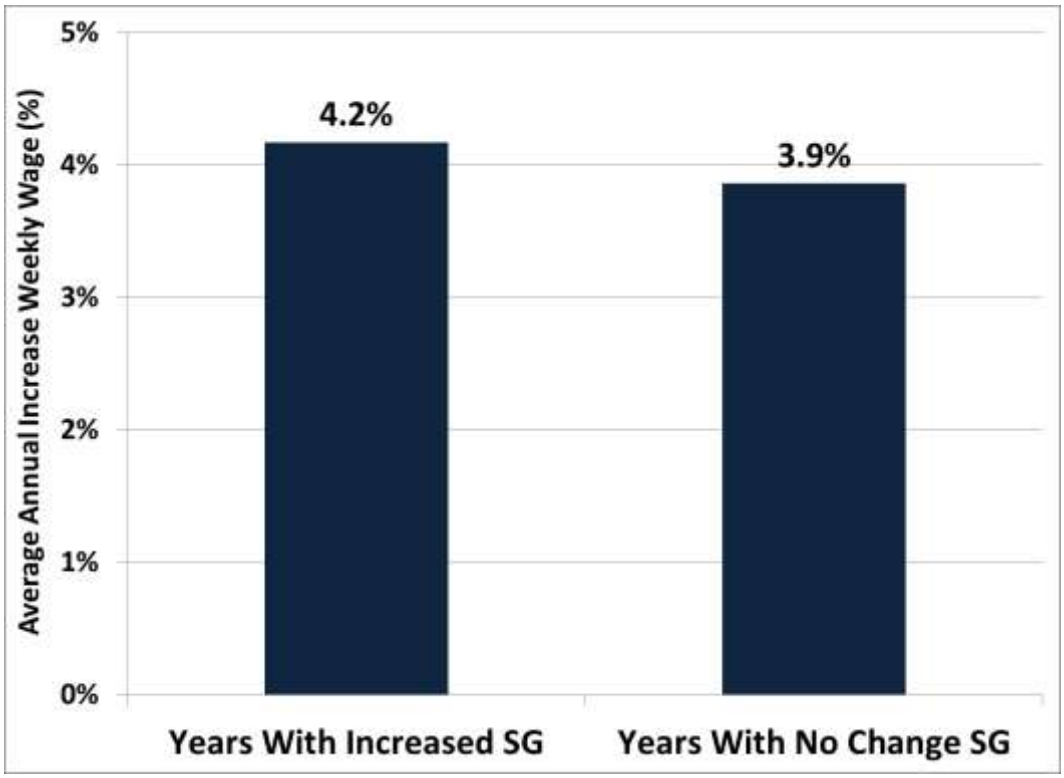
In the 18 years when the SG rate was not increased, it was just as likely that wage growth fell *below* average as above. Clearly, therefore, freezing the SG rate should provide no confidence of strong wage growth. Perhaps more surprisingly, in years when the SG rate *was* increased, it was twice as likely that wage growth would be above average, as below it. In six of the ten years when the SG rate was increased, wage growth exceeded its post-1992 average. In only 3 years (1993, 1996 and 2014) was an increase in the SG rate accompanied by wage growth that was below its post-1992 average rate.

In the latter 2000s, wage growth in most years exceeded its post-1992 average, and that coincided with a long freeze in the SG rate. But this outcome was obviously attributable to very strong labour demand conditions at the time (with an unemployment rate that fell to just 4% by 2008), along with rising terms of trade for Australian exports (which produced very strong profits for Australian businesses, especially in the resources sector, some of which were then captured by workers in higher wages). By the same token, for the last five consecutive years, wage growth has languished well below traditional averages, despite another long freeze in the SG rate. This time the weakness in wages is clearly attributable to bigger cyclical and structural factors affecting Australia's labour market: including elevated underemployment, and the erosion of traditional institutional supports for wages (especially the rapid disappearance of active collective bargaining in Australia's private sector).[42] In both those periods, the impact (if any) of changes in superannuation contributions on wage

[42] See Pennington (2018) for details on the extent of that erosion and its connection to the deceleration of wage growth.

determination was overwhelmed by other factors affecting wage growth (for better or for worse).

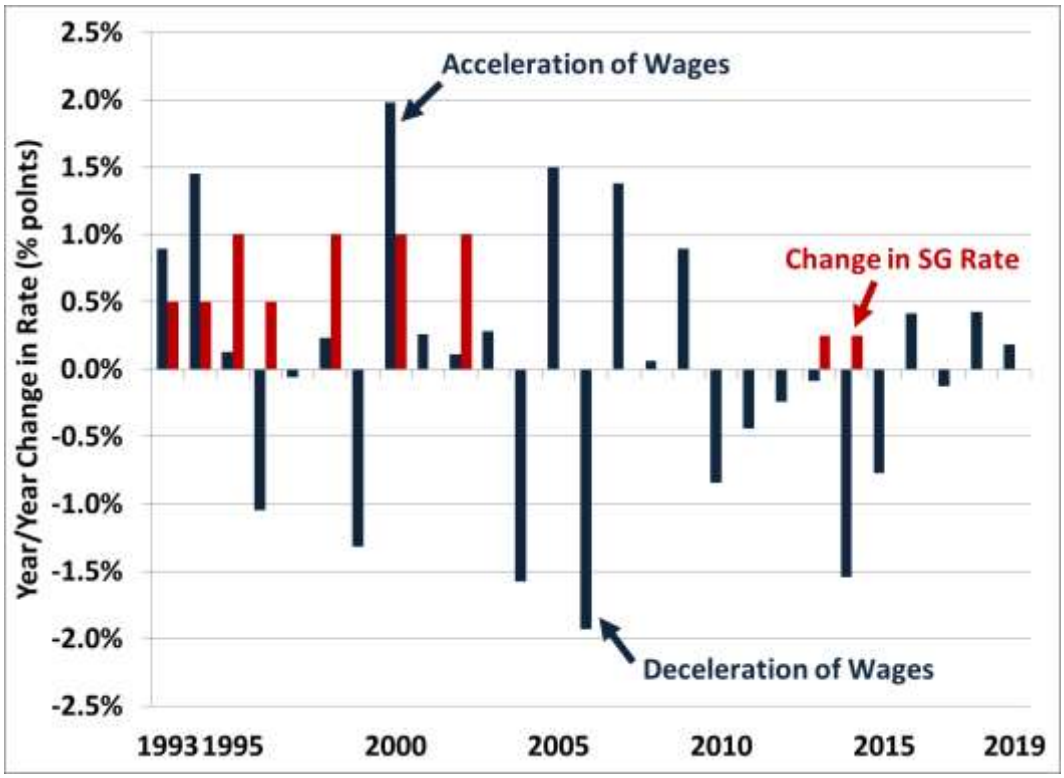
Figure 16. Average Wage Growth and the SG Rate, 1993-2019



Source: Author's calculations from ABS Catalogue 6302.0, Table 2, and RBA Occasional Paper #8, Table 4.18. Ordinary weekly wages for full-time employees; annual averages. 2019 data for first half.

Another unexpected finding of this simple historical analysis of wage growth and changes in the SG rate is provided in Figure 16. It shows the average annual rate of wage growth through the 1993-2019 period, disaggregated into two categories: years in which the SG rate was increased, and years in which it was unchanged. Across the full period, average annual wage growth was slightly higher (4.2%) in years in which the SG rate was raised, than when it was unchanged (3.9%). Once again, the assumption that increases in the SG rate will automatically be reflected in lower wage growth is not consistent with observed history.

Figure 17. Wage Acceleration and Changes in the SG Rate, 1993-2019



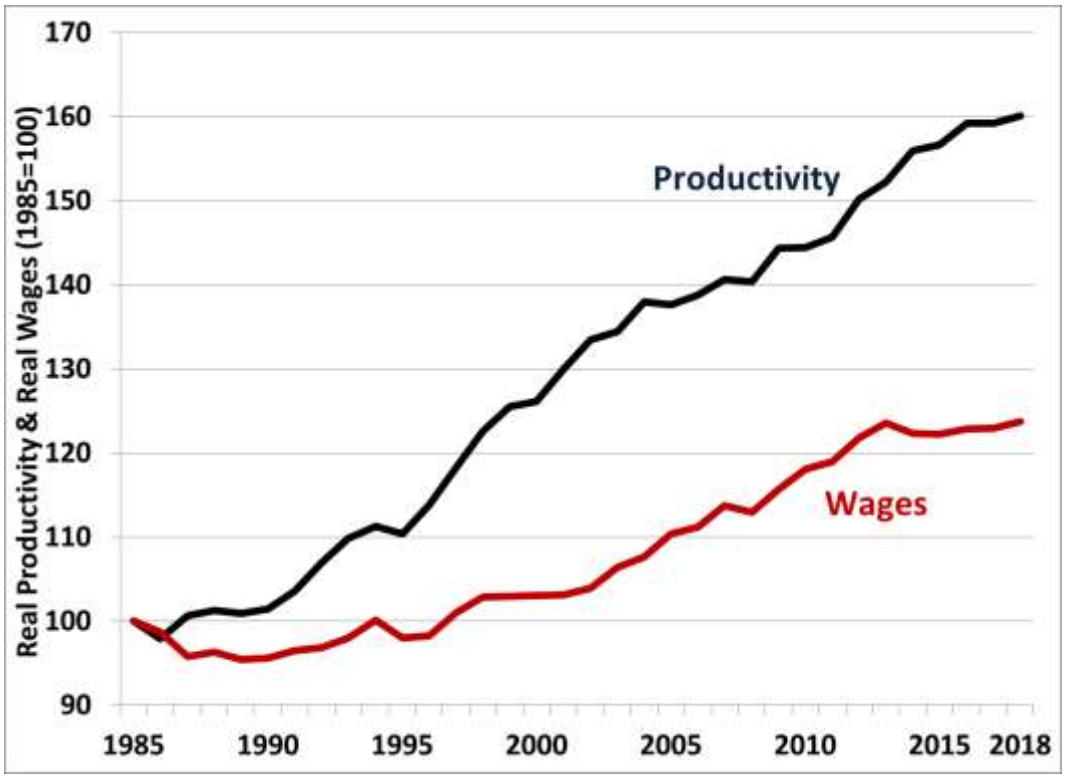
Source: Author's calculations from Source: Author's calculations from ABS Catalogue 6302.0, Table 2, and RBA Occasional Paper #8, Table 4.18.

It may be that the impact of changes in the SG rate is experienced via the direction of change of wage growth, rather than in the rate itself. In other words, a higher SG rate might cause a downward shift in nominal wage growth, but resulting growth might still be higher or lower than average based on other factors (such as general inflation conditions, other labour market factors, etc.). However, comparing the acceleration or deceleration of wage growth with changes in the SG rate (rather than the average rate of wage growth) leads to similar results. Figure 17 indicates the acceleration or deceleration in wages each year (from the previous year, shown in blue) along with changes (if any) in the SG rate (in red). There is no obvious correlation between whether the SG rate was raised in a particular year, and whether wage growth accelerated or decelerated.

Indeed, curiously, wages were slightly more likely to accelerate in a year in which the SG rate was increased (5 times over this period) than they were to decelerate (4 times). The years of greatest deceleration in wages throughout this period (2004 and 2006) were years in which the SG rate did not change; and the single biggest acceleration of wages (in 2000) occurred in a year in which the SG rate was increased by a full percentage point. Perversely, the statistical correlation between changes in the rate of annual wage growth and changes

in the SG rate is slightly *positive*: that is, wages were more likely to accelerate in a year when the SG rate is increased, than decelerate.[43]

Figure 18. Real Wages and Real Labour Productivity, 1985-2019



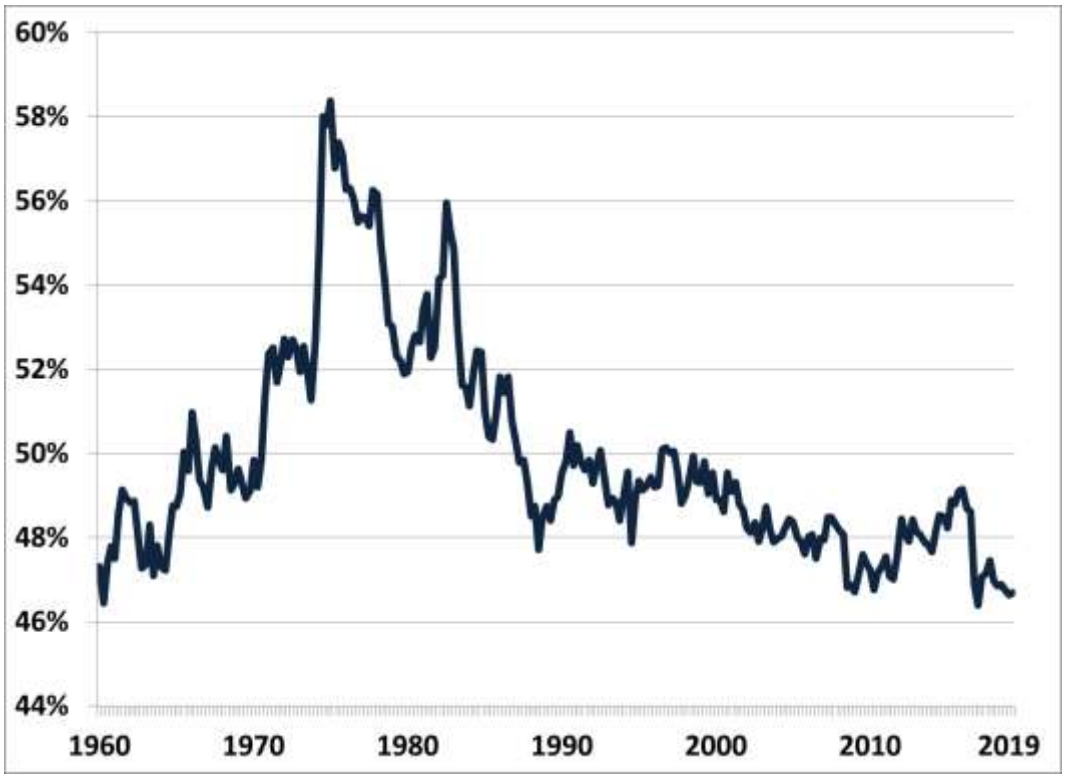
Source: Author's calculations from ABS Catalogues 5206.0, Table 1; 6401.0, Table 1; 6302.0, Table 2; and RBA Occasional Paper #8, Table 4.18.

Throughout the ups and downs of wage growth illustrated in Figures 14 and 15 above, one overarching trend in income distribution has asserted itself – whether wages were growing quickly or slowly. Throughout the period since superannuation arrangements began to be negotiated (first in individual collective agreements and industry awards, later universalized through the SG system), wages have lagged well behind improvements in labour productivity, and workers' aggregate share of national income has declined as a result. For example, as shown in Figure 18, since 1985 real wages have increased in Australia by less than half as much as real labour productivity: real weekly earnings have increased by less than 25% since 1985, while real output per hour has grown by 60%. The gap between productivity and compensation has continued to widen in recent years, even though Australian productivity growth has slowed notably since 2016. But even those unspectacular efficiency improvements are not being reflected in improvements real wages – casting doubt on the standard prescription from business lobbyists and others that the solution to weak wage growth is to improve labour productivity. Without measures to recreate a

[43] That correlation, 0.2793, was not statistically significant. We also tested for correlation using lagged changes in the SG rate, in case it takes more time for wage acceleration/deceleration to adjust to changes in the SG rate; in this case the correlation was negative but very close to zero (-0.1606) and not statistically significant.

reliable link between productivity growth and real wages, higher productivity alone offers little prospect of re-igniting wage growth.

Figure 19. Labour Compensation as Share GDP, 1958-2019.



Source: Author's calculations from ABS Catalogue 5206.0, Table 7.

When workers are not being proportionately compensated for improved productivity, then the share of labour compensation in total output (a ratio which is also reflected in real unit labour costs) must decline. This trend is indicated in Figure 19, which illustrates the rise and fall of labour's share of GDP through the postwar era. Through the initial vibrant decades of postwar growth, wages, salaries, and supplementary labour compensation increased faster than productivity growth – and hence expanded as a share of total GDP, reaching a peak of 58% in 1975. For several years, policy-makers then became consumed with the supposedly excessive nature of wage demands, which were blamed at the time on strong unions, the centralised wage arbitration system, and rising expectations among workers. In response to this so-called "wage overhang," various measures were implemented in a deliberate effort to restrain wages and enhance business profits.

Since the mid-1970s, labour compensation has declined steadily and dramatically as a share of total GDP. The period of the Prices and Incomes Accords, and the subsequent introduction of enterprise bargaining, were associated with significant drops in relative labour compensation. But the decline of the labour share of GDP has continued since then – even alongside the expansion of compulsory superannuation contributions from employers. Indeed, in the most recent financial year (2018-19), the labour share recorded its lowest

yearly average since the Australian Bureau of Statistics began to gather quarterly GDP data in the late 1950s.[44] At the aggregate level, output is being redistributed from labour to other factors of production: primarily the corporate sector, which has benefited most directly from the long-term decline in unit labour costs.[45] And at the household level, this shift in income from labour to capital has also been reflected in growing inequality between individuals – largely because of the very unequal distribution of capital ownership (which means the proceeds from the shift toward capital income are captured disproportionately by a small group of well-off households). Despite short-run fluctuations arising from macroeconomic factors (such as changes in the terms of trade), this negative structural trend in the labour share of GDP is continuing.

The decline in labour compensation as a share of GDP is fully attributable to a decline in direct wages and salaries as a share of GDP. In contrast, employers' social contributions (including both superannuation contributions and workers' compensation premiums) have been stable as a share of GDP, at around 5%, since the mid-2000s – and they increased only fractionally over the two decades prior to that.[46] Rising employer contributions to social benefits (mostly superannuation contributions) have thus served to incrementally stabilise total labour compensation; but they have not been adequate to offset the much larger erosion of wages and salaries relative to overall economic output.

Instead of the long-feared "wage overhang," therefore, it seems that Australia's economy is now beset by a "wage underhang": real wages consistently lag behind productivity, undermining consumer spending, macroeconomic conditions and household financial stability. The very weak condition of recent retail sales and current consumer spending (Pandey, 2019), for example, is just one manifestation of the negative spill-over effects of weak labour compensation.

The downward shift in overall labour compensation (*including* the value of employer superannuation contributions) attests to a profound and lasting shift in power relations in Australia's labour market over the past generation. The ability of workers to demand and receive a stable share of the proceeds of economic growth has been steadily eroded, in

[44] For a more detailed analysis of the decline in the labour share of GDP in Australia, see Stanford (2018a).

[45] Indeed, the ten percentage point increase in the share of GDP reflected in corporate gross operating surplus between 1975-76 and 2018-19 is the mirror image of the ten-point decline in the labour share of GDP over that same period. More recently, the reciprocal relationship between a falling labour share and a growing profit share is even more vividly apparent: the labour share of GDP has declined by over 2 percentage points of GDP in the last 4 financial years, while the share of GDP paid in gross operating surplus to corporations has grown by almost 4 percentage points in the same period.

[46] This relative stability in the share of GDP represented by employers' social contributions seems at odds with the significant increase in the SG rate over most of this period. As noted above, some of this is explained by the relative decline in workers' compensation premiums, which are also counted in the labour compensation measure. It is also explained by the fact that superannuation contributions are calculated as a proportion of wages; a decline in the wage share of GDP will thus partly or wholly negate the impact of higher SG rates on superannuation contributions measured as a share of GDP.

large part because of deliberate policy choices.[47] This decline in labour compensation has occurred *despite* the requirement under the SG system that employers must make significant payments toward the post-retirement incomes of their workers. But can it be credibly argued that the erosion of relative labour compensation was the *result* of superannuation?[48] Hardly. Even in the extreme case of a full and automatic one-to-one trade-off between wages and superannuation contributions (a finding which, as noted above, is expected only in an extreme special case of neoclassical theory), the labour share would not be *reduced* by the introduction of new superannuation contributions (or other compulsory social contributions). In most neoclassical models, the labour share is expected to be stable over the long-run,[49] potentially influenced only by gradual changes in technology or relative factor endowments.[50] The observed reality that labour's total compensation (including both superannuation and wages) has fallen well behind ongoing economic growth is evidence of the importance of structures, institutions, and power to the determination of income distribution – factors which are not taken into account by the neoclassical models which expect an automatic trade-off between compulsory social contributions and wages.

In summary, this overview of the broad historical trends in wage growth and superannuation contributions in Australia has failed to find evidence of a clear or consistent correlation between changes in the SG rate and wage growth. The increase in employer labour costs resulting from the introduction and expansion of the universal superannuation system has been modest. Even the increases in the statutory rate imply an average annual increase in costs equal to just 0.2% of wages per year from 1992 through the present. And the actual effective increase in superannuation costs seems to have been smaller than this, measured relative to base wages and salaries and relative to GDP (due to numerous offsetting factors: including the role of voluntary employer contributions, shifts in the share of income subject to SG contributions, the decline in workers' compensation premiums, and

[47] A comprehensive description of the sea-change in Australian labour and macroeconomic policy since the 1970s, and its impact on the distribution of national income, is provided in Stanford (2018b).

[48] Coates (2019) advances a version of this argument, claiming that the observed decline in the labour share of GDP even as the SG was rising confirms that wages naturally decline as an offset to increases in superannuation contributions. This does not seem consistent with the theoretical models underpinning the assumed one-to-one trade-off between wages and compulsory non-wage social contributions: even if such a trade-off was automatic and complete, it should be reflected in *stability* in the labour share of GDP, not its long-run and substantial *decline*. The profound shift in the factor distribution of income apparent in Australia since the 1970s is more consistent with a model in which structural and institutional factors normally and centrally determine income distribution – a view which is inconsistent with neoclassical presumptions about the market-clearing determination of wages.

[49] In fact, in one common popular formulation of the neoclassical model, incorporating the famous Cobb-Douglas production function, factor shares of total output are constant by design.

[50] Again, in traditional neoclassical growth theory the wage share, if anything, should increase as an economy develops and accumulates more capital, and labour consequently becomes a relatively more scarce factor input; the opposite has occurred in Australian history.

others). Wages were more likely to accelerate, and to grow faster than average, in years when the SG rate was increased, than to decelerate or fall below average growth rates. In short, there is no observable or statistically significant negative correlation between changes in the SG rate and the growth of wages.

Overlying all of these findings is an immense and ongoing structural change in Australia's labour market, reflected in a long-run historic redistribution of income (and power) from workers to employers over the last generation. Since the mid-1970s the share of total output allocated to labour has declined, by a cumulative total of over one-tenth of GDP (a shift currently worth around $200 billion per year in foregone labour compensation and extra corporate surplus). That shift largely reflects a deep restructuring of the institutions and regulations governing Australia's labour market. This problem was not caused by the introduction of compulsory superannuation, but neither was this problem "solved" by it. Whatever impact superannuation contributions have had in stabilising workers' share of total output, was overwhelmed by a much larger decline in relative wages and salaries. From the perspective of workers' concern with winning a fair share of the output they produce, the more important question is not how superannuation contributions affect wages (if at all). It is why wages have been so weak in the first place. Employers, meanwhile, have benefited from a long-term decline in unit labour costs, and a corresponding long-term expansion in the profit share of total output. In that context, it is clear that there ample economic space exists to provide for *both* a recovery of wage growth to traditional levels *and* increases in compulsory superannuation contributions. We simply need to make sure that policy, regulatory and institutional preconditions are aligned with that goal.

FORMAL TESTS OF THE RELATIONSHIP BETWEEN WAGES AND SUPERANNUATION

The previous section broadly reviewed historical trends in the evolution of wage growth, in search of evidence of an inverse correlation between changes in the SG rate and wage increases for Australian workers. No obvious correlation was observed; if anything, wage growth appeared to be stronger in years when the SG rate was increased. This section will now consider three more formal statistical tests for a negative impact of changes in the SG rate on wage growth: on the basis of time-series data in Australia, cross-sectional comparisons across Australian industrial sectors, and international comparisons of other industrial countries.

Testing the Historical Correlation Between Wages and Superannuation Contributions

We have examined historical data in search of broad correlations between changes in required superannuation contributions and the pattern of nominal wage growth in Australia, without finding direct evidence of a negative trade-off between these two forms of compensation. Of course, wages reflect the simultaneous influence of many different causal factors, so a simple test for correlation might be inadequate given the numerous other determinants at work – such as labour market conditions, the general state of inflation, and the degree of institutional support for wage growth. To see if a negative impact of the SG rate on wage growth is visible within a more complete description of Australia's historical wage trends, we construct a simple multivariate regression model that incorporates several other wage determinants.[51]

We begin by constructing a "base" model of wage determination for the period from 1985 through 2018 that reflects the normal wage determinants commonly identified in other empirical studies of wage trends in Australia.[52] Average annual growth in nominal weekly wages is regressed on a matrix of traditionally accepted wage determinants including expectations of consumer price inflation,[53] the unemployment rate, proportional changes in an index of Australia's terms of trade (capturing the effect of higher export prices on domestic profits and hence potentially on wages), and proportional changes in the legislated minimum wage rate.[54] We also include a shock variable to account for the temporary effects of the global financial crisis on wage growth in 2009. This base model is estimated; the minimum wage and global financial crisis variables were never statistically significant and hence were eliminated from the regressions. Results are presented below. Table 3 reports results for weekly wage growth for all employees; Table 4 reports results for growth in average ordinary time earnings for full-time employees. Both equations are reasonably effective, explaining 45-60% of the variation in nominal wage growth over the period 1985 to 2018. The regression for all employees is more successful, with a higher explanatory power and a larger negative coefficient on the unemployment rate than the regression for ordinary time earnings of full-time employees.[55]

[51] Taylor (2019) also considers the relationship between changes in the SG rate and wage growth in a multivariate regression, and also fails to find evidence of a consistent or significant negative correlation.

[52] See, for example, the econometric estimates of wage growth specified in Kennedy and Borland (2000), Jacobs and Rush (2015), and Bishop and Cassidy (2017).

[53] As calculated on the basis of interest rates on real-return government bonds, reported by the Reserve Bank of Australia, Statistical Tables G3.

[54] Consumer price inflation expectations and changes in the minimum wage rate are lagged a year to account for time lags and to reduce the risk of simultaneity between those variables and current wage growth. Minimum wage data from Bray (2011) and Fair Work Commission.

[55] The unemployment rate variable is not quite significant at the 10% level in the full-time ordinary time earnings regression.

Table 3. Base Regression Results: Growth in Average Weekly Earnings, All Employees

Dependent Variable: WGROWALL
Method: Least Squares
Sample (adjusted): 1987 2018
Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.039435	0.008114	4.860253	0.0000
CPIEXPECT(-1)	0.006369	0.001078	5.907713	0.0000
UNEMP	-0.003757	0.001278	-2.938796	0.0065
D(LOG(TOT))	0.053681	0.028922	1.856063	0.0740

R-squared	0.614503	Mean dependent var	0.038349
Adjusted R-squared	0.573200	S.D. dependent var	0.016500
S.E. of regression	0.010779	Akaike info criterion	-6.105874
Sum squared resid	0.003254	Schwarz criterion	-5.922657
Log likelihood	101.6940	Hannan-Quinn criter.	-6.045143
F-statistic	14.87785	Durbin-Watson stat	1.736511
Prob(F-statistic)	0.000006		

Source: Author's calculations as explained in text from ABS Catalogues 5206.0, 6202.0, and 6302.0; RBA Statistical Tables G3.

Table 4. Base Regression Results: growth in Average Ordinary Time Weekly Earnings, Full-Time Employees

Dependent Variable: WGROWFTOTE
Method: Least Squares
Sample (adjusted): 1987 2018
Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.038965	0.008663	4.497621	0.0001
CPIEXPECT(-1)	0.004745	0.001151	4.121954	0.0003
UNEMP	-0.002149	0.001365	-1.574420	0.1266
D(LOG(TOT))	0.055371	0.030882	1.792989	0.0838

R-squared	0.454428	Mean dependent var	0.042789
Adjusted R-squared	0.395974	S.D. dependent var	0.014810
S.E. of regression	0.011510	Akaike info criterion	-5.974761
Sum squared resid	0.003709	Schwarz criterion	-5.791544
Log likelihood	99.59617	Hannan-Quinn criter.	-5.914029
F-statistic	7.774093	Durbin-Watson stat	1.278967
Prob(F-statistic)	0.000628		

Source: Author's calculations as explained in text from ABS Catalogues 5206.0, 6202.0, and 6302.0; RBA Statistical Tables G3.

To these two base regressions, we then add a series reporting annual changes in the SG rate, to see if any additional explanatory power is added to the analysis by considering the spillover effect of higher superannuation contributions on wage determination (after

accounting for the effects of other wage determinants).[56] The included variable measures the percentage-point change in the statutory SG rate (if any) within each calendar year.[57] The results are reported in Table 5 for all workers, and Table 6 for ordinary full-time incomes. In both cases, the change in the SG rate appears in the equation with an unexpected positive sign: that is, implying that wage growth is *faster*, even after adjusting for other factors, when the SG rate is increased. This reinforces the simple analysis of bivariate correlations analysed in the previous section.

In the regression for wages of all employees (Table 5) this variable is not significant, and it should be discounted as a causal factor. In the regression for ordinary time earnings of full-time employees, the SG rate is significant (at the 10% level, Table 6), and with a *positive* sign (implying SG rate increases lead to faster wage growth, not slower). It seems counter-intuitive to conclude from this evidence that higher SG contributions *cause* faster wage growth; but the statistical evidence certainly indicates that higher wages and a higher SG rate are correlated in historical experience.[58] In neither case is there evidence, even in the context of a multivariate analysis, that increases in the SG rate cause a significant reduction in the rate of growth of nominal wages. If anything, the evidence suggests the opposite: increases in the SG rate tend to be associated with faster wage growth, not slower.

[56] The overall results of this approach are no different than if changes in the SG rate were included in the original equation, and then insignificant variables dropped; this sequential approach is adopted here merely to highlight that considering the SG rate does not incrementally improve the explanatory power of the model.

[57] Since SG rate changes occur in the midpoint of each calendar year (on 1 July), and since the changes are announced years in advance, it is appropriate to consider their impact on wages in the concurrent year. Allowing for a 1-year lag on changes in the SG rate did not affect the sign or significance of the results. The growth of compulsory SG contributions by employers in the years prior to the creation of the SG rate in 1992 (through collective agreements and awards) is proxied by a gradual phase-in of 0.5 percentage points per year from 1987 through 1992. From 1992 through 1996, the effective SG rate is assumed equal to the average of the small-firm and large-firm rates.

[58] The inclusion of changes in the SG rate (with the opposite-to-expected sign) also improves the explanatory power of the regression for ordinary time earnings of full-time workers. Interpretation of the behavioural meaning of this finding is difficult; it is likely that increases or freezes in the SG rate were coincident with other factors which influenced wages in other directions but are not captured by other explanatory variables in the model – including, perhaps, macroeconomic developments. For example, in the full-time ordinary time earnings regression with the SG rate included, the unemployment rate becomes a stronger determinant of wage growth; hence it is possible that increases in the SG rate happened to occur in years in which a higher unemployment rate should have exerted a stronger negative effect on wages than was observed (and vice versa for years in which the SG rate was frozen – such as in 2015-2018)

Table 5. Regression Results with SG Rate: Growth in Average Weekly Earnings, All Employees

Dependent Variable: WGROWALL
Method: Least Squares
Sample (adjusted): 1987 2018
Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.041290	0.008795	4.694989	0.0001
CPIEXPECT(-1)	0.006252	0.001109	5.638139	0.0000
UNEMP	-0.004135	0.001445	-2.862610	0.0080
D(LOG(TOT))	0.052783	0.029305	1.801114	0.0829
D(SGRATE)	0.003964	0.006734	0.588660	0.5610

R-squared	0.619388	Mean dependent var	0.038349
Adjusted R-squared	0.563001	S.D. dependent var	0.016500
S.E. of regression	0.010908	Akaike info criterion	-6.056127
Sum squared resid	0.003212	Schwarz criterion	-5.827105
Log likelihood	101.8980	Hannan-Quinn criter.	-5.980213
F-statistic	10.98460	Durbin-Watson stat	1.813314
Prob(F-statistic)	0.000020		

Source: Author's calculations as explained in text from ABS Catalogues 5206.0, 6202.0, and 6302.0; RBA Statistical Tables G3.

Table 6. Regression Results with SG Rate: Growth in Ordinary Time Average Weekly Earnings, Full-Time Employees

Dependent Variable: WGROWFTOTE
Method: Least Squares
Sample (adjusted): 1987 2018
Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.044809	0.008915	5.026428	0.0000
CPIEXPECT(-1)	0.004376	0.001124	3.893493	0.0006
UNEMP	-0.003341	0.001464	-2.281783	0.0306
D(LOG(TOT))	0.052540	0.029705	1.768715	0.0882
D(SGRATE)	0.012482	0.006826	1.828625	0.0785

R-squared	0.514550	Mean dependent var	0.042789
Adjusted R-squared	0.442631	S.D. dependent var	0.014810
S.E. of regression	0.011056	Akaike info criterion	-6.029018
Sum squared resid	0.003301	Schwarz criterion	-5.799997
Log likelihood	101.4643	Hannan-Quinn criter.	-5.953104
F-statistic	7.154612	Durbin-Watson stat	1.534753
Prob(F-statistic)	0.000460		

Source: Author's calculations as explained in text from ABS Catalogues 5206.0, 6202.0, and 6302.0; RBA Statistical Tables G3.

Economic policy debates are rarely resolved through econometric regressions. There are many choices that can be made in specifying the models estimated: variable selection, sample period, data frequency, estimator choice, and lag structure. Econometric results

depend on those choices. Further research is justified to explore the statistical relationship (if any) between changes in compulsory superannuation contributions and observed wage growth in Australian economic history.[59] However, this initial econometric analysis of wage growth in Australia since 1985 (when superannuation systems began to be negotiated) suggests that there is no evidence, even when other potential wage determinants are considered, that increases in compulsory superannuation contributions over this time have suppressed wage growth. If anything, increases in the SG rate have been associated with stronger (not weaker) wage growth (a correlation which should not be imbued with causal significance). This is consistent with the simpler bivariate analysis of historical evidence conducted in the previous section.

Testing for Cross-Industry Correlation Between Wages and Superannuation Contributions

Using cross-sectional rather than time-series analysis can help to identify the impact of longer-lasting economic relationships, which may take considerable time to be fully felt. In this spirit, we consider here variations in wage growth and effective superannuation contribution rates across different industries in Australia. While the base SG rate applies equally to employees in all parts of the economy, there is nevertheless a limited variation in effective superannuation contribution rates across different industries in Australia. These differences result from several factors:

- The differing importance of overtime and some bonus payments (which do not attract compulsory superannuation contributions).
- The number of workers in each industry who earn below the minimum threshold for SG payments ($450 per month) and/or who earn incomes above the maximum threshold ($55,720 per quarter).
- The share of work in each industry accounted for by various forms of self-employment, contracting, or "gigs" – jobs which generate income (in some cases reported as wage income) but which do not qualify for compulsory superannuation contributions.

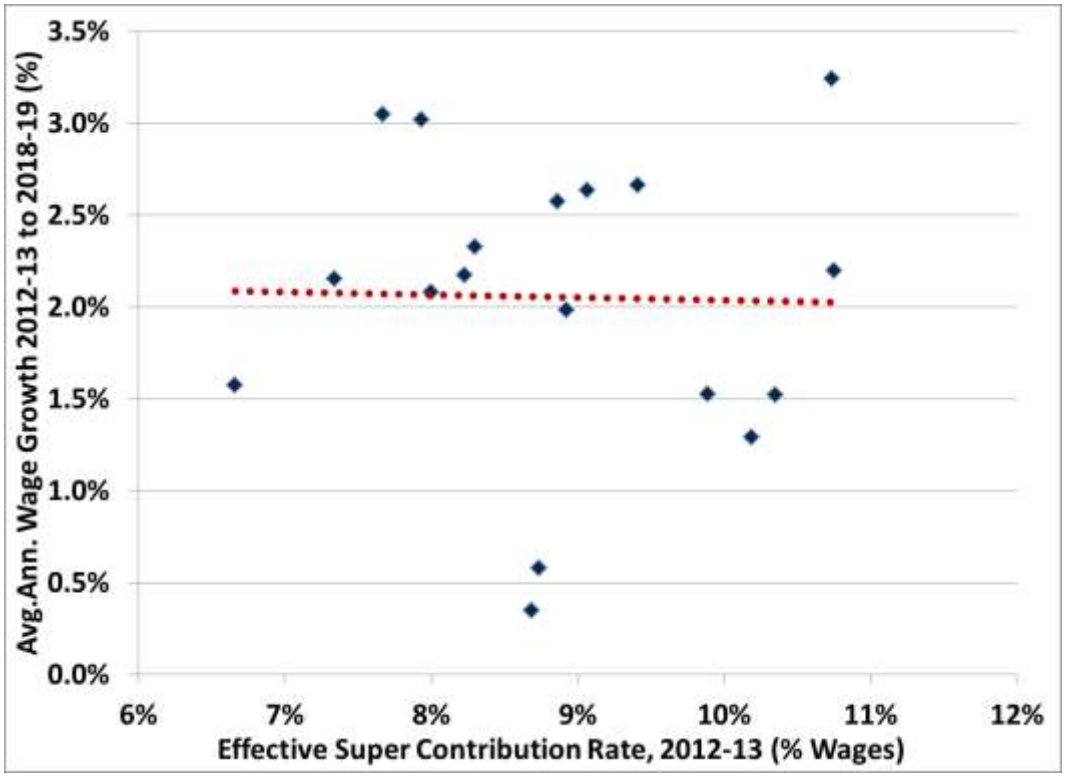
Industry-specific data on effective superannuation contribution rates can be calculated from public ATO data on corporate tax payments. We therefore compare the different effective

[59] In critiquing the work of Taylor (2019), who similarly finds no econometric evidence of a negative impact of SG rate increases on nominal wage growth, Nolan *et al*. (2019) argue, "Econometric time-series modeling … is notoriously hard to do well, and easy to get badly wrong." That may be true, but in the absence of robust empirical evidence for the *existence* of a negative trade-off between wages and the SG rate, the challenges of time-series analysis hardly constitute a reason to accept a proposition that has not been confirmed in real data.

superannuation rates across industries, to see if they are systematically related to recent patterns of wage growth. We utilise the most recent increases in the SG rate (of 0.25% of wages in each of 2013 and 2014) as a natural experiment, to see if industries which incur a relatively larger incidence of superannuation contributions experienced weaker wage growth in the wake of those increases.

The horizontal axis of Figure 20 measures the effective rate of reported superannuation payments as a share of total reported wages and salaries in 18 different industries defined at the 2-digit level by the ABS.[60] This rate was calculated on the basis of company tax returns for the financial year 2012-13, immediately before the first of the two SG rate increases considered (which was effective on 1 July 2013). The effective super contribution rate varies widely across sectors, for the reasons identified above: from a low of 6.7% in the mining sector, to a high of almost 11% in the education and health care sectors (where collective agreements specifying superannuation contributions by employers in excess of SG minimums are especially common). These significant variations in the effective "burden" on employers of superannuation contributions provide an opportunity to consider the possible spillover effects of changes in the SG rate on wages.

Figure 20. Wage Growth and Effective Superannuation Contributions



Source: Author's calculations as explained in text from ABS Catalogue 6302.0, Table 10I, and ATO Taxation Statistics 2012-13, Companies, Table 4.

[60] Agriculture is excluded from this analysis because of a lack of data on weekly wages in that sector.

The vertical axis of Figure 20 measures the average annual rate of increase in weekly wages (for all employees) in each sector, in the six years following that 2012-13 starting point. This allows for ample time to consider the full adjustment of wages to the two consecutive increases in the SG rate. Figure 20 confirms that there is no relationship between the intensity of superannuation contributions at the time of the two announced SG rate increases, and the subsequent pattern of wage growth. The linear trend line illustrated in the figure has a slope that is almost exactly equal to zero. Some industries with relatively low effective superannuation contribution rates (such as mining) experienced relatively weak wage growth in the intervening years. The sectors with highest superannuation contributions (education and health care) experienced relatively faster wage growth. Not coincidentally, those are two sectors with among the highest union density of any parts of Australia's economy, and where workers have enjoyed a relatively stronger degree of bargaining power – which they have used to extract *both* relatively stronger wage increases and above-minimum superannuation contributions from their employers. This provides a good example of the importance of bargaining power considerations in wage determination, and how incorporating those facts into the analysis can explain why strong wages and higher superannuation contributions might very well go together.

The other industries pictured in Figure 20 reveal the full range of possible combinations of wage growth and superannuation intensity: sectors with relatively high or relatively low superannuation contributions have experienced both relatively fast or relatively slow wage growth. The lack of any systematic correlation visible in this analysis merely confirms that wage growth depends on a wide array of more powerful determinants, that will normally overwhelm the impact (if any) of changes in superannuation policy. Again, there is no evidence of an automatic and significant negative trade-off between changes in the SG rate and changes in wages.

Testing the International Correlation Between Wages and Social Contributions in Industrial Countries

Another cross-sectional strategy for exploring the long-term relationship (if any) between compulsory employer social contributions and wage growth can be conducted with the use of international data. Across the set of industrial countries there is a wide variety of institutional and policy practice regarding employer social contributions – which are used in many countries, most commonly to fund post-retirement benefits for workers.[61] This variation provides another opportunity for a natural experiment to consider whether

[61] We focus here on employer-paid social contributions, since this is the case of relevance to the debate over SG contributions in Australia – and our preceding review of theoretical and empirical research found that the impact of changes in payroll taxes on wages may indeed depend on whether they are paid by the employer or the employee. However, similar results prevail if the comparison is conducted for total social contributions (including those deducted from workers' wages).

requiring higher employer contributions necessarily results in lower or slower-growing wages.

Average effective rates of compulsory employer social contributions vary enormously across OECD countries. Some countries (like Denmark) have no such contributions, financing social programs through other revenue sources (such as income taxes or value-added taxes). Other countries have very high rates of employer contribution – exceeding 30% of wages in countries such as France, Italy and Sweden. If the presumed one-for-one trade-off between direct wages and employer social contributions was valid, these differences should be reflected in wages as well.[62]

The OECD publishes comprehensive data on the incidence of payroll taxes (levied on both employers and employees) relative to pre-tax wages.[63] We consider the prevailing level of employer-paid social security contributions as a proportion of labour compensation in each country, among a set of 28 Western industrial countries.[64] We then compare that rate of employer payroll taxes to the level of pre-tax wage compensation in each country. To allow for comparability among countries with different levels of development and productivity, we use a measure of unit wage costs as an indicator of labour compensation. Unit wage costs are calculated as gross (pre-tax) wages per worker as a ratio of GDP per worker (both expressed in terms of purchasing power parity exchange rates).[65]

Figure 21 illustrates the relationship between unit wage costs and the intensity of employer-paid social security payments. Country combinations are scattered across the graph, with no obvious relationship between the two variables. The slope of a linear trend line fitted to the scatter plot is almost zero (slightly negative, but not statistically significant). Some countries with high employer payroll taxes have relatively high wages relative to productivity (such as Germany, Austria and Belgium); and some countries with low employer payroll taxes (like the U.S. and Ireland) pay wages that are relatively low relative to productivity. Across the whole set of 28 industrial countries there is no clear relationship one way or the other between the two variables.

[62] It could be suggested that the level of payroll taxes should affect the level of wages, and/or that changes in payroll taxes should affect the rate of change of wages. We consider both potential formulations below.

[63] See the OECD dataset "Taxing Wages," comparative tables: https://stats.oecd.org/Index.aspx?DataSetCode=AWCOMP.

[64] Our analysis excludes the eight new members of the OECD in Eastern Europe, where normal democratic and collective bargaining processes are still evolving, and where for historical and political reasons reliance on payroll taxes as a general source of government revenue is very high.

[65] Unit wage costs are thus a measure of the extent to which workers in each country are compensated relative to average productivity.

Figure 21. Wages and Social Contributions, Industrial Countries

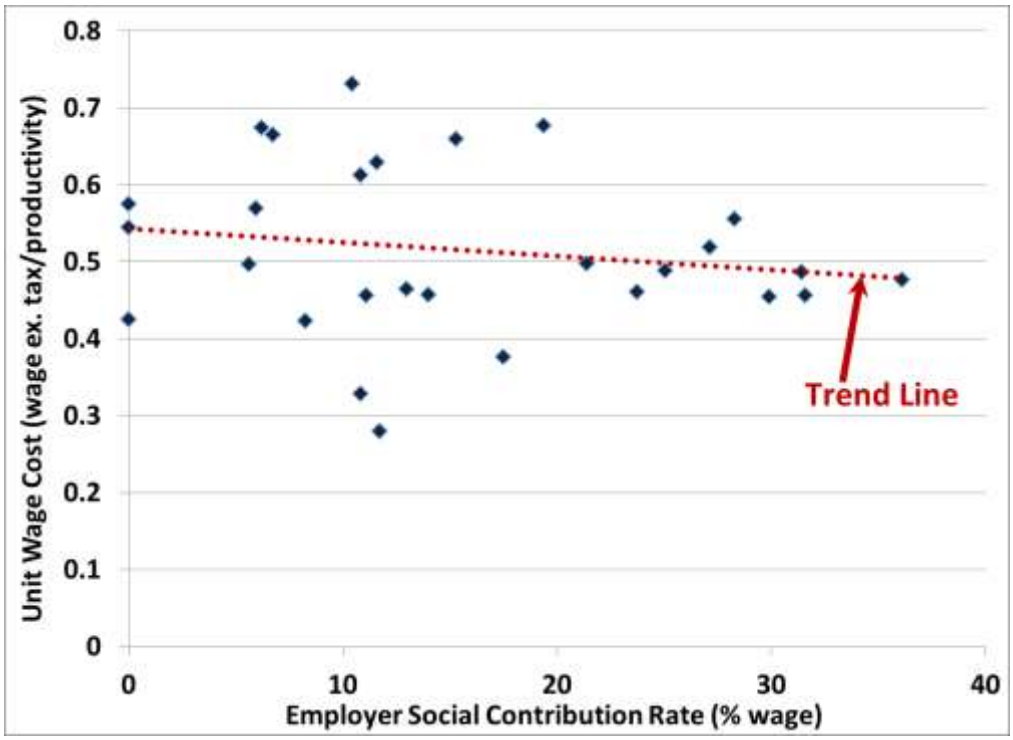
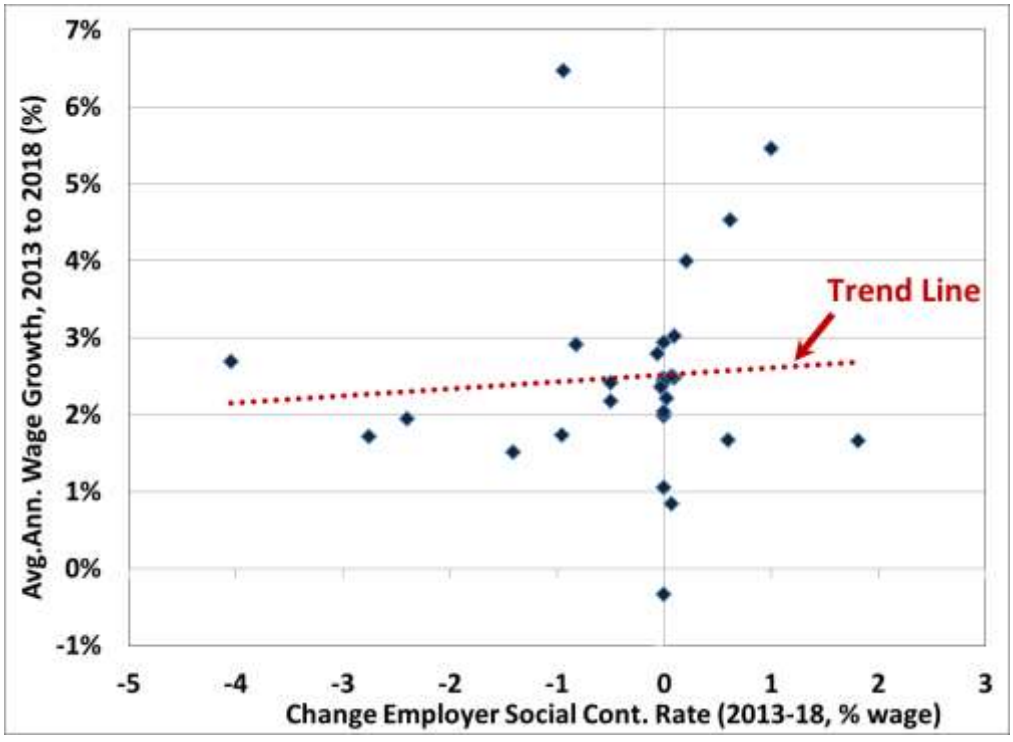


Figure 22. Wage Growth and Changes in Employer Social Contributions.



Source: Author's calculations as explained in text from OECD "Taxing Wages" and "Economic Outlook" datasets.

We conduct a similar international comparison using data on cumulative changes in employer payroll taxes over the past five year period, and the average annual rate of growth of nominal wages over the same period. This comparison is illustrated in Figure 22, and similarly provides no support for the hypothesis that increases in compulsory employer social contributions will necessarily be offset by a deceleration of wage growth. To the contrary, this time there is evidence of a weak (statistically insignificant) positive relationship between changes in employer payroll taxes and the rate of wage growth: some countries which cut employer payroll taxes in this time (such as Belgium and Greece) actually experienced relatively slower wage growth, while three of the countries with the fastest wage growth in the sample (Korea, Israel, and Turkey) all increased employer-paid payroll taxes during this period. Again, across the whole sample there is no indication of any consistent or significant relationship at all between employer-paid payroll taxes and either the level of wages or the rate of wage growth.

Neither in Australia nor internationally, therefore, is there evidence of any automatic or significant trade-off between wage payments and employers' compulsory contributions to the social security (including after they retire) of their workers. Where workers benefit from strong economic and institutional bargaining power, they tend to fight for and win both: higher wages now, and stronger income security after they retire.

CONCLUSIONS AND POLICY IMPLICATIONS

This submission has considered numerous dimensions of the potential relationship between compulsory superannuation contributions and wage growth in Australia. Economic theory does *not* expect a full and complete offset between wages and superannuation contributions. Even within competitive neoclassical models (which depend on far-reaching and unrealistic assumptions about efficient market-clearing behaviour in the labour market, and indeed in the entire economy), that finding is valid only in particular special cases (namely, with perfectly inelastic labour supply and/or perfect substitutability between voluntary and policy-induced savings). More realistic models which acknowledge the ongoing role of institutions and labour market regulations in determining wages, and do not assume automatic full employment, do not expect a perfect inverse relationship between wages and compulsory non-wage benefits; they may not in fact expect any relationship at all.

The assumption of a complete and immediate trade-off between compulsory employer social contributions and wages is not supported by economic theory or empirical evidence, and should be rejected. Policy simulations based on that assumption are invalid.

Legitimate concern about the stagnation of real wages, the growing gap between real wages and real labour productivity, and the resulting macroeconomic, financial, and social consequences should be addressed through targeted measures aimed at strengthening

nominal wage growth and restoring a normal relationship between real wage improvements and labour productivity. Policies which have been proposed by other writers to restore healthier wage growth in Australia include:[66]

- A reorientation of minimum wage policies, to ensure that minimum wages meet their original goal of ensuring a "living wage" for workers – according to which permanent full-time workers could be guaranteed a standard of living that exceeds the poverty line.

- Strengthening and expanding the Modern Awards system, so that a greater range of jobs and occupations would benefit from regular Award-determined wage improvements (rather than positioning Awards solely as a minimum "safety net" for lower-wage workers).

- Measures to restore the influence of collective bargaining in wage determination, particularly in the private sector – including measures to extend the scope of collective bargaining (to multi-employer and industry-wide tables), relax harsh restrictions on union activity, and ensure that collective agreements are enforced.

- Align government fiscal policies to be consistent with restoring wage growth, rather than suppressing it – including by lifting arbitrary caps on wage increases for public sector workers, and ensuring that fiscal support for state-funded service delivery (in areas such as child care, disability services, and aged care) is adequate to ensure healthy wages.

The historic decline in wage growth in Australia in recent years is not an automatic or inevitable market-determined outcome. Rather, it is the product of deliberate policy choices which have aimed to weaken traditional institutional supports for wage growth for decades. This negative aspect of Australia's present labour market condition bears almost no relationship to parallel decisions regarding the superannuation system. Neither increases in the SG rate, nor freezes in that rate, have had a visible impact on wage growth – and that lack of correlation will almost certainly continue to prevail in the future.

Australians rightly concerned with the stagnation of real wages, and the resulting economic and social consequences, should support these direct and powerful measures to strengthen wage growth. Meanwhile, Australians concerned with enhancing the income security of workers after they retire should also support direct and powerful measures to strengthen the retirement system. Policy decisions regarding future changes in the SG rate should not be distracted or diverted by false claims that historically weak wage growth could somehow be fixed by foregoing post-retirement compensation, in order to provide a supplement for current incomes.

[66] Discussion of broad policy options for addressing wage stagnation and achieving faster wage growth is provided by Stewart *et al*. (2018), Chapter 20, Isaac (2018), Bornstein (2019), and Stanford (2019).

If wages are successfully reinvigorated through deliberate policy measures to support wage growth, and compulsory superannuation contributions also grow in line with the currently agreed schedule, there could conceivably come some point in the future when the growth of labour compensation encounters fundamental economic constraints. In particular, if and when the growth of labour compensation exceeds the growth of labour productivity on a sustained basis, if and when consumer price inflation rises to and beyond the targeted range for an extended period of time,[67] and if and when profit rates are suppressed below levels necessary to elicit required investment, then perhaps a case could be made that labour compensation has reached a limit. At that point, and not before, it may become sensible to discuss pragmatic trade-offs between further wage growth and further increases in compulsory superannuation contributions. Such a trade-off would need to be facilitated through active policy dialogue and decisions – not by automatic market mechanisms. Until then, however, the overarching concern of workers is to rebuild their share of economic output, using every lever available to them. That quite rightly involves demanding higher wages *and* greater employer contributions to their well-being after retiring.

The historical record shows that there has been a trade-off between wages and superannuation contributions only when workers have accepted it, as a condition for a broader economic and political compromise. The conditions for repeating such a compromise do not remotely exist today. Ample economic space exists for workers to demand and win both higher wages and higher superannuation contributions. They deserve a better standard of living now, and after they retire as well. And Australia's policies and structures governing both wages and superannuation should be aligned to help achieve those complementary goals.

REFERENCES

Adam, Stuart, David Phillips, and Barra Roantree (2018). "35 Years of Reforms: A Panel Analysis of the Incidence of, and Employee and Employer Responses to, Social Security Contributions in the UK," Journal of Public Economics (171), pp. 29-50.

Arpaia, Alfonso, and Giuseppe Carone (2004). "Do Labour Taxes (and their Composition) Affect Wages in the Short and the Long Run?", European Economy: Economic Papers (Brussels: European Commission), October.

Association of Superannuation Funds of Australia (2018). "ASFA Pre-Budget Submission for the 2018-19 Budget," ASFA, Sydney, February.

Attorney General's Department (2019). "Trends in Federal Enterprise Bargaining Report," Government of Australia, March.

[67] Realised year-over-year consumer price inflation in Australia has fallen below the 2.5% midpoint of the RBA's target range for the last five and a half years.

Australia Parliament House (2012). *Hansard*, Senate Economics Legislation Committee, Minerals Resource Rent Tax Bill 2011, 22 February.

Australian Prudential Regulation Authority (2019). *Annual Superannuation Bulletin June 2018* (Sydney: Australian Prudential Regulation Authority).

Australian Taxation Office (2019). "Super Guarantee Percentage," https://www.ato.gov.au/rates/key-superannuation-rates-and-thresholds/?anchor=Superguaranteepercentage.

Baker, Andrew (2013). "Not Looking for Work: The Rise of Non-Jobseekers on Unemployment Benefits," Centre for Independent Studies, Sydney.

Bateman, Hazel, and John Piggott (1998). "Mandatory Retirement Saving in Australia," *Annals of Public and Cooperative Economics* 69(4), pp. 547-569.

Bédard,Marcel (1998). "A Primer on Payroll Taxes in Canada," Applied Research Branch, Human Resources Development Canada, Ottawa.

Bhaduri, Amit, and Stephen Marglin (1990). "Unemployment and the Real Wage: The Economic Basis for Contesting Political Ideologies," *Cambridge Journal of Economics* 14(4), pp. 375-93.

Bishop, James, and Natasha Cassidy (2017). "Insights into Low Wage Growth in Australia," *Reserve Bank of Australia Bulletin*, March, pp. 13-20.

Blumberg, Linda J. (1991). "Who Pays For Employer-Sponsored Health Insurance?," *Health Affairs* 18(6), pp. 58-61.

Bornstein, Josh (2019). "Employees are Losing: Have Workplace Laws Gone Too Far?", *Journal of Industrial Relations* 61(3), pp. 438–456.

Borys, Stephanie (2019). "Superannuation Shouldn't be Compulsory for Low-Income Earners, Liberal Andrew Bragg Says," *ABC News Online*, 24 July.

Bowles, Samuel, Richard Edwards and Frank Roosevelt (2005). *Understanding Capitalism: Competition, Command, and Change* (Oxford: Oxford University Press).

Bradbury, Bruce (2012). "Lifting the Super Guarantee isn't Good for Everybody," *The Conversation*, 9 January.

Bray, J. Rob (2011). "Reflections on the Evolution of the Minimum Wage in Australia: Options for the Future," Australian National University, March.

Brittain, John A. (1974). "The Payroll Tax for Social Security," *Journal of Business* 47(1), pp. 114-116.

Carney, Shaun (1988). *Australia in Accord: Politics and Industrial Relations Under the Hawke Government* (Melbourne: Macmillan).

Clare, Ross (2019). "Better Retirement Outcomes: A Snapshot of Account Balances in Australia," Association of Superannuation Funds of Australia, Sydney.

Coates, Brendan (2019). "Do Superannuation Increases Come Out of Workers' Wages?," *Grattan Blog*, 17 April.

Connolly, Ellis (2007). "The Effect of the Australian Superannuation Guarantee on Household Saving Behaviour," Research Discussion Paper 2007-08, Reserve Bank of Australia, Sydney.

Cowan, Simon (2019a). "Millennials and Super: The Case for Voluntary Superannuation," Centre for Independent Studies, Sydney.

Cowan, Simon (2019b). "Living Wage is Living in the Past," *Sydney Morning Herald*, 16 March.

Cox, Lisa, James Massola and Gareth Hutchens (2014). "Mining tax repealed after deal struck with Palmer," *Sydney Morning Herald*, 2 September.

Daley, John, and Brendan Coates (2018). "Money in Retirement: More than Enough," Grattan Institute, Melbourne, November.

Davidson, Peter (2012). "Building super on a fair foundation: Reform of the Taxation of Superannuation Contributions," Australian Council of Social Service, Sydney, February.

Debelle, Guy (2018). "Twenty-five Years of Inflation Targeting in Australia," Reserve Bank of Australia, 12 April.

Department of Social Security, Government of Australia (1988). "History of Pensions and Other Benefits in Australia," *Year Book Australia*, ABS Catalogue 1301.0.

Deslauriers, Jonathan, Benoit Dostie, Robert Gagné, and Jonathan Paré (2018). "Estimating the Impacts of Payroll Taxes: Evidence from Canadian Employer-Employee Tax Data," IZA Institute of Labor Economics, Discussion Paper, June.

Englebrecht, Ted D., Laurie J. Henry, and Govind S. Iyer (2001). Payroll Tax Incidence: An Empirical Investigation of Shifting the Payroll Tax Burden," *Journal of Small Business Strategy* 12(2), pp. 82-95.

Evesson, Justine, and Sarah Oxenbridge (2011). "Enterprise Case Studies: Effects of Minimum Wage-Setting at an Enterprise Level," Research Report No. 7/2010, Fair Work Australia, Melbourne.

Fair Work Commission (2013). "Decision, Annual Wage Review 2012–13 (C2013/1)," 3 June.

Fair Work Commission (2014). “Decision, Annual Wage Review 2013–14 (C2014/1),” 4 June.

Falk Armin, Ernst Fehr, and Christian Zehnder (2006). “Fairness Perceptions and Reservation Wages: The Behavioral Effects of Minimum Wage Laws,” *Quarterly Journal of Economics* 121 (4), pp. 1347–1381.

Fine, Ben (1998). Labour Market Theory: A Constructive Reassessment (London: Routledge).

Forsyth, Anthony, and Carolyn Holbrook (2017). “Australian Politics Explainer: The Prices and Incomes Accord,” *The Conversation*, 24 April.

Freebairn, John (2004). “Long-Term Issues in Superannuation: Some Long-Run Labour Market Effects of the Superannuation Guarantee,” *Australian Economic Review* 37(2), pp. 191-197.

Freebairn, John (2007). “Some Policy Issues in Providing Retirement Income,” Working Paper No. 6/07, Melbourne Institute of Applied Economic and Social Research, University of Melbourne, February.

Fullerton, Don, and Gilbert E. Metcalf (2002). “Tax Incidence,” in A.J. Auerbach and Martin Feldstein (eds.), *Handbook of Public Economics, Vol. 4* (Amsterdam: North-Holland).

Grudnoff, Matt (2015). “A Super Waste of Money: Redesigning Super Tax Concessions,” Australia Institute, Canberra.

Hargaden, Enda Patrick, and Barra Roantree (2019). “Does Statutory Incidence Matter? Earnings Responses to Social Security Contributions,” Oxford University Centre for Business Taxation, Oxford.

Hart, Robert A. (2010). *The Economics of Non-Wage Labour Costs* (London: Allen and Unwin).

Hetherington, David, and Warwick Smith (2017). “Not So Super, For Women: Superannuation and Women’s Retirement Outcomes,” Per Capita, Melbourne.

Humphrys, Elizabeth (2018). *How Labour Built Neoliberalism: Australia’s Accord, the Labour Movement and the Neoliberal Project* (Leiden, The Netherlands: Brill).

Industry Super Australia (2018). “Super Scandal: Unpaid Super Guarantee in 2016-17,” Industry Super Australia, Melbourne.

Isaac, Joe (2018). “Why are Australian Wages Lagging and What Can be Done About It?”, *Australian Economic Review* 51(2), pp. 175–190.

Jacobs, David, and Alexandra Rush (2015). “Why Is Wage Growth So Low?,” *Reserve Bank of Australia Bulletin*, June, pp. 9-18.

Katz, Lawrence F. (1996). “Wage Subsidies for the Disadvantaged,” NBER Working Paper #5679, National Bureau of Economic Research, Harvard, July.

Keating, Paul (2019). “This Reckless Government and its Business and Media Mates are Determined to Damage Superannuation,” *The Guardian*, 24 October.

Keegan, Marcia, and Laurie Brown (2012). “Impact of the increase in the Superannuation Guarantee on wage costs in the health sector,” NATSEM at the University of Canberra, November.

Kennedy, Steven, and Jeff Borland (2000). “A Wage Curve for Australia?,” *Oxford Economic Papers* 52(4), pp. 774-803.

Kirchner, Stephen (2012). “Compulsory Super at 20: ‘Libertarian Paternalism’ Without the Libertarianism,” Centre for Independent Studies, Sydney, December.

Korkeamäki, Ossi, and Roope Uusitalo (2009). “Employment and Wage Effects of a Payroll-Tax Cut: Evidence from a Regional Experiment,” *International Tax and Public Finance* 16(6), pp. 753-772.

KPMG Econtech (2010). “CGE Analysis of the Current Australian Tax System: Final Report,” KPMG Australia, March.

Lavoie, Marc, and Engelbert Stockhammer (2012). “Wage-led Growth: Concept, Theories and Policies,” International Labour Organization, Geneva,

Lee, David, and Emmanuel Saez (2012). “Optimal Minimum Wage Policy in Competitive Labor Markets,” *Journal of Public Finance* 96(9-10), pp. 739-749.

Marx, Ive (2001). “Job Subsidies and Cuts in Employers' Social Security Contributions: The Verdict of Empirical Evaluation Studies,” *International Labour Review* 140(1), pp. 69-83.

Mees, Bernard, and Cathy Brigden (2017). *Workers’ Capital: Industry Funds and the Fight fort Universal Superannuation in Australia* (Sydney: Allen and Unwin).

Melguizo, Angel, and José Manuel Gonzalez-Paramo (2013). “Who Bears Labour Taxes and Social Contributions? A Meta-Analysis Approach,” *SERIEs: Journal of the Spanish Economic Associatio*n 4(3), pp. 247-171.

Meyer, Bruce D. (1995). “Lessons from the U.S. Unemployment Insurance Experiments,” *Journal of Economic Literature* 33(1), pp. 91–131.

Nickell, S and Layard, R (1999). “Labor Market Institutions and Economic Performance,” in Orley C. Ashenfelter and David Card (eds), *Handbook of Labor Economics, Vol. 3C* (North Holland: Amsterdam).

Nolan, Jonathan, Will Mackey, and Brendan Coates (2019). “McKell Makes Unsupportable Claims About Superannuation and Wages,” *Grattan Blog*, 20 September.

Organization for Economic Cooperation and Development (1990). “Employer versus Employee Taxation: The Impact On Employment,” *OECD Employment Outlook*, Chapter 6.

Palley, Tom (2017). “Wage- vs. Profit-Led Growth: The Role of the Distribution of Wages in Determining Regime Character,” *Cambridge Journal of Economics* 41(1), pp. 49-61.

Pandey, Swati (2019). “Australian Weak Retail Sales, Jobs Point to Need For More Stimulus,” *Reuters Business News*, 3 November.

Pelly, Sam, and Anupam Sharma (2019). “Australia’s Ageing Population: Understanding the Fiscal Impacts over the Next Decade,” Report 02/2019, Parliamentary Budget Office, Canberra, April.

Piketty, Thomas, Emmanuel Saez and Gabriel Zucman (2016). “Distributional National Accounts: Methods and Estimates for the United States,” NBER Working Paper #22945, National Bureau of Economic Research, Harvard, December.

Potter, Michael (2016). “Don’t Increase the Super Guarantee,” *Policy* 32(3), Centre for Independent Studies, pp. 27-36.

Productivity Commission (2018). *Superannuation: Assessing Efficiency and Competitiveness*, Inquiry Report, 21 December.

Ralston, Ben (2018). “Does Payroll Tax Affect Firm Behaviour?”, Treasury Working Paper 2018-02, The Treasury, Australian Government, April.

Richardson, David (2019). “Tolerate Unemployment but Blame the Unemployed: The Contradictions of NAIRU Policy Thinking in Australia,” The Australia Institute, Canberra.

Rothman, George P. (2012). “Modelling the Sustainabilty of Australia’s Retirement Income System,” Paper Presented to the Twentieth Colloquium of Superannuation Researchers, Dept. of the Treasury, July.

Saez, Emmanuel, Manos Matsaganis, and Panos Tsakloglou (2012). “Earnings Determination and Taxes: Evidence from a Cohort-Based Payroll Tax Reform in Greece,” *Quarterly Journal of Economics* 127(1), pp. 493–533

Saez, Emmanuel, Benjamin Schoefer, and David Seim (2017). “Payroll Taxes, Firm Behavior, and Rent Sharing: Evidence from a Young Workers’ Tax Cut in Sweden,” NBER Working Paper 23976, National Bureau of Economic Research, Cambridge MA, October.

Senate of Australia (2012). Economics Legislation Committee Minerals Resource Rent Tax Bill 2011 [Provisions] and Related Bills, Australia Parliament House, March.

Shorten, Bill (2010). Closing Address to OECD/IOPS Global Forum on Private Pensions, November.

Sloan, Judith (2019). "Super Lobbyists Work the House," *The Australian*, 28 September.

Smith, Robert S., and Ronald G. Ehrenberg (1983). "Estimating Wage-Fringe Trade- Offs: Some Data Problems," in Jack E. Triplett (ed.), *The Measurement of Labor Cost* (Harvard: National Bureau of Economic Research).

Stanford, Jim (2015). *Economics for Everyone: A Short Guide to the Economics of Capitalism* (London: Pluto).

Stanford, Jim (2018a). "The Declining Labour Share in Australia: Definition, Measurement, and International Comparisons," *Journal of Australian Political Economy* 81, pp. 11-32.

Stanford, Jim (2018b). "'Fair Go' No More: Australian Neoliberalism and Labour Market Policy," in Damien Cahill and Phil Toner (eds.), *Wrong Way: The Legacy of Reform* (Carlton: Black Inc.), pp. 166-185.

Stanford, Jim (2019). "A Turning Point for Labour Market Policy in Australia," *Economic and Labour Relations Review,* 30(2), pp. 177-199.

Stewart, Andrew, Jim Stanford, and Tess Hardy, eds. (2018). *The Wages Crisis in Australia: What It Is and What To Do About It* (Adelaide: University of Adelaide Press).

Taylor, Kyle (2019). "Does Higher Superannuation Reduce Workers' Wages?", McKell Institute, Sydney.

Treasury, Government of Australia (1992). *Security in Retirement: Planning for Tomorrow Today* (Canberra: The Treasury), June.

Treasury, Government of Australia (2009a). *Australia's Future Tax System: Report to the Treasurer* (Canberra: The Treasury), Part II, Volume 1, December.

Treasury, Government of Australia (2009b). *Australia's Future Tax System. The Retirement Income System: Report on Strategic Issues* (Canberra: The Treasury), May.

Van Onselen, Leith (2018). "Labor Urged to Hold Off Raising Super Guarantee," *Macrobusiness* blog, 4 April.

Wagner, Kate, and Lok Pitticary (2018). "Trends Affecting the Sustainability of Commonwealth Taxes," Report 02/2018, Parliamentary Budget Office, Canberra.

Watson, Ian, and Jim Stanford (2018). *Restoring Security and Respect: Rebuilding NSW's Workers Compensation System* (Sydney: Centre for Future Work), April.

Webb, Richard (2009). “Economic Effects of Payroll Tax,” Parliament of Australia, Background Note, September.

Woodbury, Stephen A. (1983). “Substitution Between Wage and Nonwage Benefits,” *American Economic Review* 73(1), pp. 166-182.

Woodbury, Stephen A., and Wei-Jang Huang (1991). *The Tax Treatment of Fringe Benefits* (Kalamazoo: Upjohn Institute).

Wright, Chris F. (2014). “The Prices and Incomes Accord: Its Significance, Impact and Legacy,” *Journal of Industrial Relations* 56(2), pp. 264–272.

Wright, Sally, and John Buchanan (2013). “Award Reliance,” Research Report 6/2013, Fair Work Commission, Melbourne.