

ENTERPRISE AGREEMENTS, LABOUR PRODUCTIVITY AND WAGE EARNINGS

**An Evaluation of the Impact of Enterprise Agreements on
Australian Labour Productivity and Average Wage Earnings.**

By

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of Master of Economics by Research

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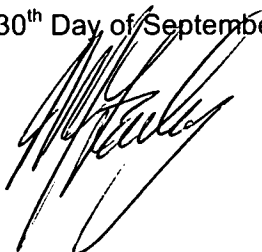
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Declaration of originality

The material comprising this thesis is original, except where acknowledged and has not been accepted for the award of any other degree or diploma.

Declared this 30th Day of September 2006

Martin Farley

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ABSTRACT

This thesis contains an evaluation of the impact of enterprise agreements on Australian labour productivity and wage earnings between 1992 and 2003.

After almost a century of centralised industrial relations decision making, enterprise level bargaining provided employers and employees with the opportunity to negotiate working conditions and wages. The policy to introduce enterprise level bargaining was implemented as part of extensive microeconomic reform designed to improve the international competitiveness of the Australian economy. The industrial relations policy objective was to improve productivity by increasing technical and allocative efficiency at the enterprise level.

The conclusions are that the introduction of enterprise agreements has contributed positively and significantly to labour productivity and that wage earnings are positively and significantly influenced by labour productivity. Both of these findings are significant. Australian labour productivity had previously been primarily influenced by growth in output, while wage earnings had been based on cost of living adjustments.

There is preliminary evidence to suggest that by internalising bargaining over wage and conditions, enterprises have used the bargaining process to introduce significant change and the agreement to formalise these changes.

The findings are based on a policy evaluation framework. This requires a comprehensive approach and as such the following perspectives are included:

- Policy evaluation;
- Organisational design, management and industrial relations theory and practice and their convergence;
- Production theory and productivity measurement; and
- Wages and wage earnings models.

Econometric techniques are used to quantify the impact of introducing enterprise level agreements. Generalised least squares and fixed effects modelling is applied to determine the impact of introducing enterprise agreements on labour productivity and wage earnings respectively. The analysis focuses on both the impact on the economy overall and within the production/resources, margins and service sectors.

The enterprise agreement data set comprises Department of Employment and Workplace Relations (DEWR) unpublished data relating to enterprise agreements registered in the federal jurisdiction from 1992 to 2003. This is combined with ABS industry level data.

The impact of enterprise level agreements on productivity is modelled using an expanded Cobb Douglas production function applied at the economy and sectoral levels.

The impact of decentralised agreements on wage earnings is modelled using empirical approaches consistent with Reserve Bank of Australia and international studies.

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CHAPTER ONE – THE BACKGROUND TO INDUSTRIAL AND WORKPLACE REFORM IN AUSTRALIA

1.1. Introduction and Thesis Objective

Australian governments of the 1980's, along with industry and labour institutions, recognised that full participation in the increasingly global economy was being constrained by the nature of the country's economic structures and policies. The recognition led to significant microeconomic reform. From an industrial relations (IR) perspective the focus of microeconomic reform was to increase the economy's competitiveness through increased productivity.

As a result the economy and its workplaces underwent significant reform in the 1980's and 1990's. During the 1980's established institutional arrangements and practices were dismantled under microeconomic reform policy. The exchange rate was floated, corporations and governments dramatically reduced staffing levels, services were outsourced, tariffs reduced and the economy, its institutions and businesses opened up in an attempt to reflect the characteristics of the global economy and to achieve economic competitiveness.

The reform agenda included the decentralisation of the prevailing rigid system for establishing wage rates and conditions of employment. The agenda's two major initiatives were the introduction of enterprise level bargaining and a focus on productivity improvement.

This transition to a productivity focus emerged from collaboration between the federal labour government and the union movement. From 1983 to 1996, the Australian IR framework was dominated by a series of Accords between Australian trade unions, Australian businesses and the Australian government. These Accords introduced partial wage indexation, a substantial change from the full indexation principles that had traditionally applied and established a principle that continued until 2006 when the notion of broadly based safety net adjustments for base level workers was introduced. While this policy created some stability in wage adjustments for business investors; it reduced Australian real wages by over 10 percent in the 13 years of the Labour Government and in this way contributed to the rapid growth of Australian employment. However the

weakness of these Accord agreements was their failure to correct restrictive workplace practices which were partly responsible for a 2.3 percent decline in productivity over the same period.

The Labour Government had recognised these problems and moved to elevate the status of enterprise bargaining in the Australian IR system. In 1993, this resulted in the introduction of Enterprise Bargaining Agreements (EBAs), a system within which employers could collectively bargain to establish wages and conditions that reflected the specific needs of the players involved. Importantly the Awards that had dominated the industrial landscape became subservient to the enterprise agreement. Unions were centrally placed as bargaining units in this negotiation process. The change to a Liberal-National party coalition government in 1996 led to the decentralisation of the bargaining system with bargaining agreements being more flexibly determined within minimum standards and removal of the requirement for union involvement. Interestingly few non-union agreements have been registered.

These significant changes to the manner in which wage rates were fixed, reflects a broader, 25 year long restructuring of the Australian economy. Designed to improve the country's relative performance in the global economy, these, and indeed current reforms, have often been contentious in both introduction and evolution. In particular, the industrial relations reforms, with their direct impact on long established wage setting practices and on the traditional roles and distribution of power between industry and employee organisations, resulted in acrimonious and ongoing debate. Change generally leads to some people trading off current certain benefits for uncertain benefits, while others perceive any change in the current state as a threat. There is little quantitative evaluation of the impact of these reforms on the economy and society in establishing the consequences of the changes, or their causal factors. Consequently the evolution of these reforms and the increasing decentralisation of the industrial relations system attracts debate more centred on ideology than on a demonstration of its impact and estimation of the likely future impact of additional reform.

The drivers for this prolonged period of reform have been premised on Australia's position as a small, open economy, in a large global market place and the need to achieve globally competitive productivity levels as the means of maintaining a high standard of living. It is demonstrated later in this thesis that Australia's relative productivity achieves world's best practice in relatively few sectors.

Both government and industry influenced the transition from a fully centralised, judicial industrial relations and wage fixing model towards an enterprise based model. The centralised, inflexible system was judged to be contradictory to the dynamic nature of the global market and a constraint on the competitiveness of Australian export and import replacement businesses. The protectionist nature of many Australian government policies, including full wage indexation and inefficient employment conditions, were established following federation and remained entrenched in the 1970's. Mulvey (1997) claims the economy's capacity to apply these principles was created by the high relative productivity of key export sectors. As a result of a deteriorating terms of trade performance post World War 2 and oil price shocks experienced in 1974 and 1978, the Australian economy had no further capacity to maintain full indexation and inefficient work practices without experiencing unacceptable balance of payments and foreign debt outcomes. Wooden (2001) identified that Australian policy makers consequently recognised the need for urgent reform to both policy and the decision making institutions.

Many institutional and policy players took the view that labour market reform was required for Australia's competitiveness. The wage structure was considered inconsistent with allocative efficiency, Mulvey (1997), because it was compressed, inflexible and unrelated to the needs of individual firms, while technical efficiency was compromised by extensive demarcation and restrictive work practices. The modernisation of the industrial relations system became a major focus of Australia's microeconomic reform as a consequence of these conclusions. The creation of minimum industrial relations standards allowed many centralised industrial relations decisions to be transferred to the enterprise level of the economy, while still protecting the interests of employees who exercised minimal bargaining power. This reform was a significant change from the previous

system where national standards tended to reflect those negotiated within the successful export sectors rather than wages and conditions prevailing economy wide.

Enterprise level, rather than industry level wage and condition determination, in the form of enterprise bargaining agreements (EBAs), was identified as the appropriate strategy for improving labour market flexibility and efficiency. EBAs were expected to improve allocative efficiency by achieving a wage structure more closely aligned to supply and demand for labour, while technical efficiency is achieved by trading away restrictive work practices. The most likely outcome was perceived to be improved technical efficiency, Mulvey (1997).

The Productivity Commission (1999) found that improvement in productivity was the major source of increase in Australian standards of living in the 1990s. In the 1970's and 1980s, living standards were predominantly improved through expansion in the use of inputs as the economy grew. By the mid 1990s the Commission found evidence of a correlation between enterprise bargaining (EB) and productivity growth.

In addition to the focus on industrial relations, the policy agenda included reform of financial, education and training processes, intergovernmental relations, trade systems and practices. Enterprises have simultaneously introduced significant and complementary organisational reform through restructuring, re-engineering processes, introducing new social structures within the workplace and by applying management tools focussed on gaining increased commitment and contribution from employees.

The objective of this thesis is to evaluate the impact of introducing Enterprise Bargaining Agreements (EBAs) into Australian workplaces on labour productivity and wage earnings and to develop an understanding of how resulting outcomes occurred.

The thesis is structured in accordance with policy evaluation approaches. Policy evaluation is a difficult and complex activity. Dror (1968) concludes that evaluating public policymaking is difficult not just from its complexity but also from the inclusion of values in its prior development. This is

particularly pertinent to industrial relations policy with views split between the relative ascendancy of capital and labour forming the core of the traditional debate.

Early approaches to evaluation depended on reductionist, input/output constructs. These were narrow in scope and depth and tended to ignore broader system influences and impacts. Consequently the capacity for such evaluation to determine causality and to support further policy development and processes was limited. Reflecting this developmental need from evaluation, Owen (1993) concludes that policy evaluation that fails to determine both the causes and the consequences of causal links to results has limited potential to support further development.

Reflecting this view, Sanderson (2000) argues that evaluation must be based on theoretical precepts drawn from underlying social and economic theory for example, in preference to a limited perspective based on measuring cause and effect in the goal formation process. The objective of theory based evaluation is challenging. Identifying the fact that policies are often implemented in different contexts, Weiss (1995) concludes that the determination and testing of theory and determination of causal factors is often problematic in determining generalised results. Sanderson (2002) argues that it is important to understand why a policy works (or not). He concludes that to achieve this there is a need for an appropriate mix of quantitative and qualitative information and analysis to identify relationships between processes, contextual factors, organisational and cultural changes and performance outcomes.

Evidence based evaluation (and policy making) implies a degree of certainty in resolving the complex question of what works for whom under what circumstances, and why? However the complexity surrounding many policy initiatives raises questions of both the ability to predict the outcomes of a particular policy and to generate a clear picture of causal inferences.

The following review of industrial relations and organisation theory and practice provides a theoretical context for later analysis. The intensity of policy implementation is demonstrated by the uptake of agreements and how enterprises have implemented such negotiation and agreement to facilitate complementary organisational changes.

This is followed by quantitative analysis of the economy using a mix of theoretical constructs and established practice at the macroeconomic and sectoral dimensions. This analysis is in the form of econometric modelling that specifically allows for the omission of other potentially significant independent variables. This approach provides a set of conclusions reflecting a balanced view of the enterprise context and the impact on labour productivity and wage outcomes arising in Australia from the introduction of EBAs over the period 1992 to 2003. Economy wide estimation for each dependent variable includes the 17 ANSZIC industry classifications making up the economy as a whole. The industry classifications include: agriculture, forestry and fishing, mining, manufacturing, electricity, gas and water supply, construction, wholesale trade, retail trade, accommodation, cafes and restaurants, transport and storage, communications services, finance and insurance, property and business services, government administration and defence, education, health and community services, cultural and recreational services plus personal and other services.

To determine whether the impact has had a differed across different sectors of the economy, modelling is also applied to three industry groupings. The groupings comprise a production/resources sector that includes Agriculture, Forestry and Fishing, Construction, Mining and Manufacturing; a services sector comprised of Electricity, Gas and Water services, Accommodation, Cafes and Restaurants, Communication services, Property and Business services, Government Administration and Defence, Education, Health and Community services, Cultural and Recreational services, Personal and Other services and finally, Wholesale Trade, Retail Trade, Transport and Storage plus Finance and Insurance, have been categorised as a margins sector.

The thesis is structured in five chapters. In Chapter One, I provide a description of the nature of the problem and policy response, the approach to the evaluation of policy performance and the context provided by the evolution and application of both organisational design theory and the industrial relations framework.

In Chapter Two, I examine the issues arising during the transition to the decentralised industrial relations system, the evidence of workplace and industrial reform, changes to the established bargaining institutions and preliminary evidence of trends in the desired policy outcomes.

In Chapter Three, I outline the data used to evaluate policy, the modelling foundations and develop the equations used to estimate the impact of EBAs on productivity and wages.

In Chapter Four, I provide the results of modelling and in Chapter Five draw conclusions in relation to the success of the enterprise bargaining policy and the comparative benefits of the enterprise approach relative to its predecessor and alternatives.

The remainder of this chapter is dedicated to an overview of the organisational and institutional environment in which EBAs, as a mechanism for decentralising industrial relations decisions, has occurred.

It is considered important that the evaluation commences with this overview. The reason for including an analysis of organisation and industrial relations theory is two fold. Firstly, while many Australian workplaces introduced contemporary management approaches as a means of improving productivity and achieving strategic objectives, it is argued that the centralised and rigid structure of the Australian economy shielded many sectors and firms from the need to be internationally competitive and as a result, they did not actively pursue such approaches. Secondly, by removing the need to make wages and employment conditions decisions, many firms neglected to develop the management systems and approaches of their overseas contemporaries. Introducing micro economic reforms and transferring industrial relations decision making to the enterprise resulted in many Australian firms simultaneously introducing organisational change initiatives with new bargaining arrangements. Enterprise bargaining became a common vehicle used to introduce and formalise contemporary management approaches into Australian workplaces. The following sections provide an indication of the scope of ideas, theories and practices introduced within the scope of bargaining and why positive results from bargaining were achieved.

The connections between management theory and micro-economics also provide an important platform for this evaluation. Much of the productivity and wages theory outlined in Chapter Three is a quantitative explanation of the organisation and behavioural theory outlined below. These theories are considered important causal factors when evaluating the impact of enterprise agreements on productivity and wage earnings.

Changes to the manner in which enterprises arrive at industrial relations decisions occur within a complex organisational and institutional framework. Workplace reform is comprised of two fundamental elements, reform in the way enterprises are managed to ensure sustainability and reform in the manner in which employers and workers negotiate and exercise power to optimise benefit. In effect, it is an explanation of how managers manage external and internal influences on business sustainability. In most of the 20th century, many firms had the internal dimension largely managed for them through centralised institutions, introduction of enterprise bargaining caught many of them ill prepared, limiting the potential for early gains from enterprise bargaining.

The balance of the chapter provides a summary of the development of organisation design and industrial relations thinking, principles and practice during the period from the industrial revolution, through the Harvester Case in 1907 until 2003. The convergence of industrial relations and organisation design thinking, culture and process is considered critical to understanding how the potential gains from enterprise bargaining are achieved. The key question addressed here is whether or not Australian enterprises have after a century of operating under externally developed, centralised systems setting employment conditions and wage rates, developed the capability to negotiate agreements effectively.

1.2. Evolution of Organisational Design and Management Theory

Large scale human endeavour, where the output demanded requires more input than that of an individual and in some instances many thousands of individuals, has always required the application of management skills and processes. Early European management models occurred within the rigid hierarchies and discipline of military and church models. In an industrial context, the

emergence of the industrial revolution, characterised by its concentration of production into factories and infrastructure created the need to organise large groups of people as the structured labour input into the production process in combination with capital, owned by the employer. This revolution in production coincides with the majority of the labour force moving from agricultural or craft based production system where labour was provided individually or by small groups of workers, placed into a concentrated, large group. This larger scale, industrial production system created concerns about productivity and the cost of labour for the employer. The industrial revolution not only revolutionised the application of technology, it also revolutionised the manner in which people worked and relationships between employers and employees.

Adam Smith (1776) identified the division of labour as a major source of potential productivity improvement, thus establishing an early link between management and economics. It is considered important to reflect on the ongoing interdependency of these disciplines in providing a systematic view of mechanisms applied in the enterprise when seeking optimisation of productivity and wages.

There are three major and interrelated dimensions within this management perspective, the distribution of power and authority within the enterprise reflected in the structure and management processes; the characteristics of the task and work performed and the motivation of employees to achieve increasingly productive behaviour.

While the foundations of management span thousands of years, the industrial revolution promoted a complementary revolution in management thinking and theory.

The work of Frederick Taylor (1911) is closely associated with the industrial revolution. Taylor based his work on the division of labour principles of previous periods, applying an engineering approach to the definition of one best way to perform a task with the dual goals of minimising effort and maximising productivity, applying science to the task. In reality Taylor's thinking went far beyond this to include the selection of people most suitable for the specific task and then providing training specific for the task. Cooperation with employees to ensure work was completed in accordance with the principles and science that had been developed for dividing work and

responsibility almost equally between management and workers were also part of Taylorism. These principles were viewed by Taylor to be the basis of both manager and worker prosperity. Taylor was able to demonstrate a productivity improvement of over 200 percent. The Taylorism principles have been widely adopted in the US, Europe, Australia, Russia and Japan.

Henry L Gantt, an associate of Taylor, adapted and extended his theories and approaches. In particular, Gantt (1919) introduced incentive schemes for operatives exceeding production benchmarks and a bonus for foremen for each of their employees who exceeded the benchmark, in this way extending the incentive scheme beyond operatives to include management staff. Gantt extended process thinking beyond the act of completing a reduced, specialised task, to include program planning and performance management by introducing a chart identifying work planned on one axis and time on the other. Still widely used, the approach highlighted the capacity of planning and performance management to contribute significantly to productivity improvement.

The usefulness and acceptance of scientific management lies in the early 20th century production system's high dependency on labour, Robbins, Bergman & Stagg 1997) and the discipline that production lines and machinery introduced into work processes. The Taylorist approach enables the development of a mass production system, beyond anything previously seen. This production system is based on the application of technology and importantly standardisation of both product and labour. The resulting improvement in labour productivity had a significant impact in reducing product prices, facilitating increased consumption and further production efficiencies. The lengthening of production runs through product standardisation, and further enhancement of economies of scale and scope were significant in multiplying the productivity benefit from labour management reform. A two dimensional approach combining an efficient scale of production with real price reductions contributed to increasing standards of living in industrialised countries.

While making major contributions to improving labour productivity, scientific management was generally task or activity based. Other theorists and practitioners of this period took a broader, organisation wide perspective to what constituted management. European practitioners such as

Fayol (manager of a French coal-mining firm) and Weber (a German sociologist) took an administrative approach to the development of management theory. Fayol (1916) developed a set of management principles extending scientific management's specialisation and reward approaches to include aspects of authority, structure, to supply chains and importantly work and job characteristics such as equity, stability and empowerment. Weber (1947) described an ideal form of organisation known as bureaucracy. While recognising it did not in reality exist, he provided bureaucracy as a basis for theories about work and how work could be performed with large groups of people. The Weber bureaucracy, similar to Taylor's scientific management, emphasised rationality, predictability, impersonality, technical competence and authoritarianism, but at an organisational as opposed to a task oriented level. The resulting theories still provide a partial reference point for organisational design. The application of these theories in the early part of the 20th century were the source of significant competitive advantage and an example of the importance of improvement in human capital, albeit within an impersonal, technical framework. The administrative school increased the scope of standardisation to encompass administrative procedures and management techniques, extending thinking beyond Gantt's earlier planning model.

The humans as machines characteristic often attributed to scientific management theory is an overstatement. Although many of the productivity improvements were technically based, the inclusion of more equitable rewards, providing some form of "zero sum" outcome recognised the need for cooperation and the satisfaction of employee needs. This approach challenged the view that labour supply was homogenous in terms of capability and suitability to tasks. Introduction of these approaches at the production and organisation levels resulted in two major developments; productivity based wages, creating wage differentials between employees and between industries and a differentiated labour supply based on skills and productive capability. This environment is conducive to the formation of unions, in particular craft based unions able to negotiate wages and conditions reflecting upper limit benchmarks across employers and sectors.

The focus on the contribution of people to productivity outcomes, albeit primarily through

impersonal, technical and dollar based utility approaches, promoted the consideration and development of behavioural theories as an explanation of labour productivity.

Munsterberg (1913) created the field of industrial psychology in his publication "Psychology and Industrial Efficiency". Munsterberg suggests the use of psychological testing to improve employee selection, identifies the value of learning theory in the development of training and applies the study of human behaviour to develop understanding of the most effective techniques for motivating employees. He saw these techniques as being complementary to Taylor's approaches, both being based on science.

In addition to a focus on the individual's behaviour in the workplace, the human relations school also considered group behaviour in the workplace. Mary Parker Follett was a philosopher and, although a contemporary of Taylor, promoted a more people oriented approach to management practice, arguing that much individual potential remained as potential only, until it was released through group association. This argument implied that the manager's job was to achieve employee productivity potential through the management of group behaviour and effort, developing partnerships within the group and between management and labour. This approach raised the concept of leadership as opposed to authority as a primary management characteristic underpinning high work motivation and thus performance. The inclusion of this group dynamics dimension underpinned the work of Chester Barnard (1938) argued organisations were cooperative social systems.

These views are important in that they introduce dimensions of productivity which relate to an individual's internal motivation to become productive in addition to the traditional external motivation of wages and economic incentives.

The Hawthorne Studies, conducted from 1924 through until 1932, reinforced the finding that group pressure and the social norms of the group had more effect on productivity than did economic incentives. Mayo (1933) created increased interest in the human factor in production and in management approaches that looked beyond wages to promote productivity.

More recent technically oriented approaches to workplace reform have emerged from the focus of the Japanese economy's mass production system. The Japanese identified their workforce as its comparative advantage over the US. Resisting the single task orientation of the traditional mass production system and adopting multi-skilling as their job design principle, they adopted a continuous improvement model, superseding the one best way model inherent in the mass production approach. These diversions from the traditional mass production system were responses to both Japan's much smaller internal market and the need for the Japanese to be more focused on external demand. This is in contrast to the internally driven supply side focus of the original Taylor model applied in the U.S. The result of these changes led to the development of the lean production system, a model that migrated to other parts of the world and is currently in ascendency in Australia. Matthews (1994) views it as an open system, encompassing production, design, co-ordination within the supply chain, customer linkages and the overall management of the enterprise.

Critics view the lean production system as being a mere modification of the mass production system and similarly limited in its consideration of the human dimension to work. Regardless it demonstrates the progression in thinking and integration of theoretical approaches to achieve incremental advances in management and organisation design.

The post World War 2 period was also characterised by an integration of the management themes emerging from the earlier industrial revolution. This integration was driven, in particular by the impact of introducing new technology that potentially disrupted the organisational social structures established over the preceding fifty years. Trist & Bamford (1951), along with other writers associated with the Tavistock Institute, promoted the introduction of new technology in a manner minimising disruption on these social structures. As a result of their work in the mining industry, they identified that the introduction of new technology reduced productivity until integrated with the social needs of the workers.

Australian researcher, Fred Emery (1965) published studies on systems theory and thinking. This theory and the subsequent work of Woodward (1957), led to the conclusion that management techniques should vary relative to the factors present at the time, again challenging the one best way tradition. This finding is particularly relevant in the context of the Australian system which was then characterised by highly rigid institutional mechanisms and agent principle negotiation and decision models. Australian firms managed in a manner reflecting the centralised wage setting system. Replacing this with a decentralised system requires different management approaches. This allows the scope of management issues to expand to include that of wages and conditions, factors largely outside the domain of Australian manager in the centralised system.

Emery's systems approach encompassed two dimensions, open and closed systems. The open system is influenced by external factors, reflecting a dynamic relationship with the business environment, a now commonly accepted view. The closed system operates without reference to external factors, the basic model applied by Taylor.

Thinking of the market, workplace and production process as a system provides value when considering the dynamics of the mass production system. The scale and price characteristics of the mass production system opened up a large scale market, itself attractive to new producers competing firstly on price attributes but also on other factors such as quality and critically in their ability to be more flexible and adaptive than the rigid, standardised large scale producers. Much of this flexibility and quality is arguably derived from a relatively highly motivated workforce and the adoption of new technology. Another fundamental difference is that much of the development of the mass production system during Taylor's period was supply side oriented, and applied within less discerning product markets than those post World War 2. As market expectations grow, the capacity of the mass production system to adapt is limited by its rigidity, suggesting that the early industrial revolution's mass production system match to Emery's closed system approach. The rigidity and externality of the Australian industrial relations system at the time provided a significant barrier to encouraging adaptability within enterprises. While it is recognised many Australian firms

did apply contemporary management and industrial relations approaches, the external nature of the wage fixing system allowed many firms to remain disengaged from such initiatives.

The development of motivational theory in the 1950's became the reference point for many subsequent explanations of employee behaviour. The theories provide a basis for identifying appropriate techniques to achieve and importantly to sustain and improve productivity.

The resultant focus on groups and collective responsibility, performance and reward, is an important construct in the Australian industrial relations framework, particularly when applying EBAs. It provides a logical structure within which to define the appropriate industrial unit to optimise the performance of the enterprise in the relation to their market and competitive advantage, and from this, the appropriate bargaining entity. Within some sectors and markets, the appropriate bargaining unit is the enterprise level, in others a work unit or team and in others sole individuals. The definition is dependent upon how an individual or group can influence the performance and productivity of the enterprise. In the Taylor, mass production model, while individual productivity could be motivated by incentive, individuals arguably lacked the capacity to affect corporate performance. In other sectors, such as the service sector, the role of the individual has much greater direct impact on performance.

Just as the industrial revolution and the mass production system was the catalyst for large scale employment creation and the need to develop models to improve the management of individuals and groups producing physical outputs, the last 30 years has seen a similar revolution in the provision of services.

In contrast to a physical product, a service is consumed as it is produced, generally as an interaction between customers and employees. In this form of transaction, the enterprise is much more dependent upon the employee for the quality of service, the satisfaction of the customer and resulting impact on the enterprise's reputation compared with the purchase of a product where quality can be engineered within the production process. Increased firm dependency on an individual is created through high relative levels of both worker autonomy and influence on the

consumer's perception of value. This requires the employee's performance to be aligned to the purpose and requirements of the enterprise and to be motivated to perform. This business model highlights the increased scope in needs that employees satisfy through work.

Maslow (1954) published a hierarchy of needs theory. He proposed that each individual has a hierarchy of 5 needs; *Physiological*, food, shelter and other bodily requirements at the base of the hierarchy and ascending through *Safety*, *Social*, *Esteem* to *Self Actualisation Needs* at the peak of the hierarchy. Maslow further proposed that unless the preceding, lower order need was satisfied, the next could not be fulfilled. The intuitive nature of this work saw wide acceptance of it in formulating motivation and reward frameworks, although no real empirical support for the theory was identified. The focus on an individual's needs led to research into the identification and satisfaction of human needs as a basis for managing people.

The human centred socio-technical production system, Mathews (1994) characterised by semi-autonomous work groups and industrial democracy principles, can be traced through the Tavistock institute back to human relations theorists such as McGregor (1960). The approach incorporates many of the attributes of the lean production system but places people in the centre of the system and as the source of continuous improvement.

McGregor (1960) proposed two distinct views of human nature with respect to work. The assumption that employees must be coerced to work because they dislike work, are lazy and seek to avoid responsibility was labelled as *Theory X*, while *Theory Y* proposed that individuals can exercise self direction because they see work as natural, are creative and seek responsibility, indeed they are internally motivated with a propensity to work in a productive and creative manner. McGregor's distinction is in essence a cultural or ideological position, in some ways reflecting the differences between the scientific management, human relations and behavioural approaches. Interestingly there are examples where both approaches are successful. The distinction between X & Y characteristics is however informative in highlighting the importance of culture and values in framing the management and industrial relations framework.

Psychologist Frederick Herzberg (1957, 1982) considered the connection between satisfaction, motivation and productivity. Herzberg categorised a cross section of factors such as working conditions and other physical attributes of the workplace as hygiene factors and other factors such as the way work is performed, recognition and other internalised factors, analogous to Maslow's higher order needs, as motivating factors. The critical proposition in Herzberg's work is that the omission of hygiene factors while reducing dissatisfaction did not lead to satisfaction, but merely to lack of dissatisfaction, while lack of motivating factors will lead to a state of no satisfaction, rather than dissatisfaction. In many industrial awards, the historic focus was on hygiene factors rather than motivating factors. In light of this theory, the impact of changing hygiene factors as a means of increasing satisfaction and productivity is questionable.

The recognition of motivating factors including achievement, recognition, responsibility and advancement as factors leading to job satisfaction is central to Emery's (1976) job characteristics model. As a framework for work and job design, Emery's characteristics provide a practical demonstration of the socio-technical approach while Herzberg's conclusions have provided a model for increasing maturity in management thinking and introducing a sense of realism into the return on investment that various initiatives may contribute.

These theories have influenced the Australian workplace, particularly through the 1970's and 1980's. The Australian public service and progressive private enterprises were the leader in introducing industrial democracy and team based models based on successful Scandinavian organisations through this period. However many organisations and sectors retained very traditional, almost master/servant organisational models.

The preceding motivational theories focused on the job and workplace content; in other words, what is needed to motivate the worker. An alternate view, proposed by Robbins, Bergman & Stagg (1997), recognises that the infinite variation in scope, degree and priority of people's needs and how motivation is energised through individual and organisation processes. Termed process theory its three streams are goal setting, reinforcement theory and equity theory.

The importance of these approaches is their use in connecting contemporary management and industrial relations approaches through both the implementation of enterprise based agreements that include the development of business processes.

Goal setting theory is based on the proposition that defining specific goals increases performance and challenging goals, when accepted, result in higher performance than do easier goals, Naylor & Ilgen (1984). Reinforcement theory is based on the argument that consequences, immediately following behaviour, will increase the probability that behaviour will be repeated, this approach is particularly focused on reward for positive behaviour. The combination of these into a management process provides the basis for high levels of performance based on motivation aligned to organisations goals. These are aspects easily able to be formalised in the industrial framework.

Equity theory reflects relativity across a number of dimensions, including the employee's calculation of the outcomes they receive from their job relative to the inputs they provide, and with the inputs-outcomes of others with whom they compare themselves, and relative to employer outcomes. A state of equity exists if people perceive that relativities are fair. This theory, developed by Adams (1965), provides a framework for identifying the productivity impact associated with employees considering themselves to be over or under rewarded compared with others, also recognising the reference point for comparative analysis as a key variable. The theory suggests that both absolute and relative levels of reward are important in motivating workers. The theory is important when considering the need for management to achieve an equilibrium between marginal product and marginal cost (and to convince workers they are at that reward point in absolute and relative terms) and the role of unions in pursuing relativities between enterprises and between roles, where knowledge and understanding of what comprises inputs and outcomes is difficult to achieve and apply.

The expectancy theory, developed by Vroom (1964) states that an individual tends to act in a certain way based on the expectation that the act will be followed by a given outcome and the perceived attractiveness of that outcome. The relationship of this theory to productivity is derived

from the *effort – performance linkage*; the perception of how much effort a certain level of performance will require; the *performance – reward linkage* and *attractiveness*- the value the individual places on the reward. The effort – performance question is one that also challenges employees, in particular where reward is based on time based rates of pay. This highlights the expectation that the time variable is an accurate proxy for effort applied by an individual.

Goal setting theory formed the basis of management tools such as Management by Objectives (MBO) and integrated models such as Planning & Performance Management Systems (PPMS). These tools reflected an increasing focus on managing outcomes, rather than inputs.

The work of the systems and process theorists in the development of motivational theory raises serious questions about the role of agents in the industrial relations framework. Such questions arise from concerns over the ability of unions and/or employer associations to understand the variation in the needs of their members and the complexity of the open system in which enterprises operate. The agent/principal concerns are raised in relation to the characteristics of the potential game theory sums able to be derived from negotiation by such agents and is particularly pertinent to the historic Australian industrial relations model where enterprises were bound by such negotiated and/or arbitrated outcomes.

The preceding theories reflect management thinking, approaches and tools that have been generally applied as part of the process of introducing enterprise agreements. It is argued that the enterprise focus encouraged this development where the earlier centralised system did not encourage wide spread application of contemporary management models.

1.3. Evolution of Australia's Industrial Relations System

Although industrial relations has underpinned the employer/worker transaction for millennia, modern approaches, ideas of equity, employer/employee responsibility and the labour contract emerge from 18th century thinking. Robert Owen was a successful Scottish businessman and factory owner of the late 18th and early 19th centuries who was repulsed by harsh practices such as

the employment of young children, thirteen hour workdays and miserable working conditions. He chided other owners that they treated their machines better than people and while they bought the most expensive machines, they then bought the cheapest labour to run them. He argued labour was one of the best investments an owner was able to make and that, showing concern for employees was indeed, highly profitable. In 1825 he argued for regulated hours for all employees, child labour laws, public education and for other business contributions to public welfare. Many of his ideas formed the basis of the traditional industrial relations system and union claims.

The history of IR in the Australian environment provides a critical context for this thesis. Industrial relations formed a significant policy stream within Australia, at some times responding to and at other times influencing complementary policy dimensions for the past century. Mathews (1994) characterises the policy framework within which Australia has operated as an amalgam of trade and industrial relations policies implemented at the time of federation and surviving to the 1980s.

Prior to the 1860's wages were mainly set by agreement between the individual and employer, with reference to local benchmarks. Between 1850 and 1890 a form of collectivism to facilitate negotiations between employers and employees emerged. This process had little or no third party involvement in negotiating industrial relations issues such as terms and conditions of employment. Towards the latter part of the 19th century this system experienced long and acrimonious strike action, threatening the extinction of the emerging unions. In combination with the recession of the 1890's this industrial environment led to the formation of the Australian Labour Party and interest in intervention mechanisms the States could use to reduce the disruption from such strike action. This was the point where Australia deviated from other western democracies and economies by introducing third party mechanisms between the employer and employee negotiations.

While each state developed individual mechanisms, the newly developed federal constitution contained a clause providing the federal government with the power to make laws with respect to conciliation and arbitration for the prevention and settlement of industrial disputes, extending beyond the limits of any state. The *Conciliation and Arbitration Act 1904* gave effect to this and led

to the formation of the Commonwealth Court of Conciliation and Arbitration, a predecessor to the Australian Industrial Relations Commission.

The priority for these tribunals was the development of parameters to guide the fixation of wages. The dominant wage fixing theme arose from the Justice Higgins' decision in what became known as the Harvester Case of 1907. This case related to an industrial dispute in a Victorian harvesting equipment manufacture plant where strike action had occurred over the failure of wages negotiations, which then resulted in a wage rise of 27% applied by the Court. The basis of the judgement was the establishment of a view as to what was a fair and reasonable living wage. This fair and reasonable wage was characterised as a "basic wage" for unskilled workers; above this basic level, margins rewarding workers who exhibited additional skills required for the job or other attributes meriting reward, were applied. This wage fixing system remained as the foundation of the Australian system until 1967.

At the system's core was a centralist policy model, one where consideration of enterprise level issues was initially negligible and even in its halcyon days, was arguably limited to those characteristics that reflected the performance of key industries, such as those of the mines and metals industry. The policy was socially oriented, aimed at sustaining living standards rather than considering wages as an input into improved labour productivity. It inferred skilled people were more productive than unskilled and that time was a proxy for effort and productivity.

The principles of Australia's rigid, inwardly looking, protectionist policies including those relating to industrial relations, were established soon after federation and lasted until the 1970s.

From 1922 the basic wage was adjusted on a quarterly basis, reflecting changes in a retail price index, reinforcing the needs premise underpinning the approach. In 1953 the automatic adjustment mechanism was replaced with a capacity to pay principle and in 1956 with an annual review of the basic wage.

The protectionist tariffs and living wage based industrial model was underpinned by the success of

specific export industries, initially agriculture, followed by the resources sectors, in particular metals and energy.

The margins element of wages was fixed on two components, a work value component and a comparative component, Whitfield & Ross (1996). Work value components determined a monetary value for the requirements of workers in different jobs, in particular the nature of the work, its skills and responsibilities. The comparative component reflected the need to maintain relativities between different levels and between sectors. The balance between these elements changed over time. Prior to the Second World War, they tended to be evenly balanced see Dabscheck & Niland (1981). However between the second world war and the early 1960's the balance altered to reflect a strong bias toward the comparative component.

The wages and conditions applied in the successful sectors driving the economy became benchmarks for other industry awards. The Metal Trades Case became the 'test case' for the adjustment of margins and flow-on wage increases to other sectors. The consequence of the margins and comparative components was adjudication on two national wage cases, one for basic wages and the other for margins. In 1965, these were amalgamated into one case and in 1967 the two part wage model was replaced with a total wage concept. This period saw attempts to introduce increases in work value as the basis for award increases, in reality few work value cases were able to break the hold of the comparative wage approach, and when an increase was granted in one award area it flowed on to other award areas on the claim of increased work value in similar jobs, Whitfield & Ross (1996). The benchmark metal trades were strongly represented within sectors of the economy, often the successful export sectors. Industrial relations in these sectors were characterised by relatively high levels of union power placing unions in the position where the achievement of their goals was central to maintaining market share and revenue flows. Although the flow-on to other industries achieved the goal of maintaining wage relativities, it made only limited reference to an industry's capacity to pay. This resulted in some sectors paying wages that resulted in those sectors being unsustainable.

For most of the last century, the craft based unions had been able to achieve work practices dominated by rigid demarcations between activities and decision making responsibility. These rigidities, along with other workplace conditions and allowances, significantly reduced the productivity of labour in comparison with its potential. As a result not only was the wage fixing method rigid, but the way in which employees applied themselves to tasks was also inflexible. In some sectors this meant enterprises had more employees than they would need if the demarcations were absent and that as a proportion of costs, the cost of labour was too high to be sustainable. The environment in which organisations attempted to introduce new management approaches to increase productivity was inconsistent with the rigid industrial relations rules and long established workplace culture.

Not all workers were paid a minimum wage, over award payments reflected the value employers perceived employees made to the enterprise. These payments were made to groups and/or individuals. Such actions reflected an uptake of management practice in terms of incentives, behavioural and group theory.

Post 1967 the validity of the centralised system was seriously questioned and the incidence of award by award negotiation increased significantly. This was designed to provide a circuit breaker to the automatic flow-on of conditions appropriate for one sector inappropriately into another.

The Federal Arbitration Commission had attempted to limit increases, beyond those granted by the wage cases, by introducing stringent rules for the provision of increases. This strategy was designed to ensure continuity of centralised wage fixation. During the 1960's, the Federal Arbitration Commission had also attempted to absorb over award payments into its decisions, a policy leading to significant industrial unrest.

The tensions between agents, institutions and employees during this period provide an indication of the difficulties in introducing changes to the industrial relations system that are at odds with the culture and practice of the society and the interests of many of the agents. The preceding 60 years of wage fixing based on social, behavioural and income needs rather than on productivity and on

an ethos of comparative wage justice in an income rather than productivity context saw these income protection and relativity principles accepted and valued by many workers and their families.

The inflation and unemployment experienced in the late 1970's also worked against change to the centralised model and its indexation based wage fixing. Rapid inflation ensured pressure from unions and employees to maintain the real purchasing power of their incomes. The preceding ten years had seen a marked increase in the incidence of award increases outside the centralised model. This had occurred to the extent that the centralised system only contributed some 40% of the increase in average male wage earnings from 1969/70 to 1974/75, Hancock (1985). However, the increase in inflation and unemployment led to significant industrial unrest and led the government and the Federal Arbitration Commission to introduce wage indexation based on the consumer price index (CPI). From 1975 to 1981, 19 wage cases provided either a full or partial flow on from the index. Some of the partial increases discounted the CPI, while others provided the full flow on to workers up to a certain threshold and a flat rate increase for those above the threshold. This model, affirming the welfare approach to wage fixing was abolished in 1981, and replaced by a series of industry agreements.

In the early 1980s, the need and opportunity to change this long standing model was recognised by the Australian Labour Party (ALP). Upon the ALP's election in 1983, Australia commenced the most radical change to economic, social and industrial reform experienced since Australia's Federation in 1901. The industrial changes were introduced alongside other reforms such as foreign currency market deregulation designed to open up the Australian economy. These IR reforms were introduced as a series of Accords, agreements between the ALP & the Australian Council of Trade Unions (ACTU) on a wide range of social and economic matters, Whitfield & Ross (1996).

The initial accord period was characterised by a very strong centralised wage indexation system. This accord applied from 1983 until 1985 and was characterised by full wage indexation and no bargaining outside the accord process. In 1985, Accord Mk II reflected a different policy setting; the

general wage increases were discounted to reflect a decline in the terms of trade in exchange for tax cuts, while productivity payments took the form of employer contributions to employee superannuation. This mix demonstrates a change in the thinking in the way industrial relations contributed to the policy mix. This was highlighted by inclusion of the country's relative competitiveness, the role of taxation in the perception and structure of real income, and the use of superannuation as a tool in generating wealth and providing a source of internal financing within the economy as considerations.

In 1987 Accord Mk III was introduced and with it enterprise bargaining in a two tiered system. Specifically, the Accord provided for enterprise based productivity bargaining for the second tier of a two part wage increase. The first tier having been provided by the national wage case based on negotiation of cost offsets against proposed wage increases. Introduction of productivity dimensions at the enterprise level was an important break with the needs principles of the period prior to the accord period. This model introduced an important challenge to the Australian wages and industrial relations culture and the application of contemporary management alongside the industrial relations framework. For the first time, at a national level, there was a requirement to integrate the two aspects; the national wage adjustments and enterprise productivity as the basis for wage adjustment.

The policy goal was to develop a nexus between productivity performance and earnings at the enterprise level and was motivated by the slide in Australia's comparative productivity over the 70 years of the centralised industrial relations system. The policy was directed towards making efficiency gains, it did reduce labour costs and, according to Dowrick (1993), produced a once-off growth stimulus by introducing the notion of a Structural Efficiency Principle (SEP) into wage determination in Australia. The SEP identified conditions under which wage increases could be justified. These included a focus on improvement in work skills and increased flexibility in workplace practices.

Some positive outcomes are associated with the mid 1980s reforms including strong jobs growth

over the period 1984-1989, a ten percent reduction in real wages in an overlapping period 1984-1993 and a clear diminution of hidden unemployment – see Chapman (1990). However, critics pointed to the negative outcomes of the period including both a slow down of productivity growth and substantial increases in the natural rate of unemployment.

During 1988/89, Accords MkIV/V were characterised by their lack of national wage increases. In its stead the productivity theme was reinforced, by allowing wage increases where it could be demonstrated that they were based on productivity improvement. This included an emphasis on award restructuring and accordance with structural efficiency principles. These principles required award respondents to focus on changes in work practices, working patterns or reductions in demarcations as a pathway to improved productivity. This accord included further wage, tax trade-offs and increases in employer contributions to employee superannuation. This accord demonstrates increased sophistication in the policy applied to wages and in particular the linkages to other industry, taxation and general economic policy. For such policy to be effective, the enterprise dimension needs to work.

The previous agreements containing no general wage rises were a major break with earlier centralised industrial decisions. In reasserting the centralist position, the Federal Industrial Commission, rejected the Accord Mk VI claim and reinforced the structural efficiency principle by agreeing to a general wage increase for claims compatible with the principle. The accord also encouraged enterprise bargaining outside the central system and provided for a flat rate rise for those not securing enterprise bargaining increases. The transition to enterprise bargaining was facilitated through the introduction of amendments to the 1988 *Industrial Relations Act*. Sloan (1993) identifies the consequences of the amendment, in changing the role of the commission to one of awarding pay increases to those not achieving increases through the enterprise bargaining process, as the catalyst for the highly centralist accord framework becoming the vehicle for the decentralisation of wage fixation.

Accord Mk VI became the benchmark in industrial thinking and practice within Australia, with the

following two accords, operating from 1993 to 1999, characterised by no general wage increases, some form of mechanism for those not achieving enterprise bargaining increases and superannuation contributions.

During the period 1988 to 1990 change was promoted by new policy positions was developed by business and the unions. The Business Council of Australia was advocating a more decentralised, enterprise based industrial relations model while the Federal Government established the Australian Industrial Relations Commission (AIRC). These changes supported the transition to formalised enterprise bargaining as the dominant approach to industrial relations and wage determination decisions.

The reform process was given further impetus by legislative reform. Importantly the *Industrial Relations Act 1993* resulted in the award becoming subservient to the enterprise agreement and the ability to negotiate an enterprise flexibility agreement without union involvement.

During this period most states introduced complementary legislation, reinforcing the application of the principles to employees working under state jurisdiction. In Victoria, the state government transferred its industrial relations decision making to the federal jurisdiction.

The industrial relations negotiating system within Australia had previously operated within an agent/principal model in which employees were represented by unions and in the centralised system, employers represented by employer associations. Similarly in the transition to enterprise agreements, employees were represented by their union, while employers often negotiated under guidance from employer associations. In 1997, an amendment to the *Industrial Relations Act 1996*, allowed the registration of collective agreements where the respondent was able to be either a union or non-union entity. The ability of employees to directly negotiate an agreement with employers without union involvement represented a significant change to the IR system. It potentially eroded the power of the union movement at a time when they were challenged in retaining membership.

The Accord agreements and changes were associated with other complementary legislative changes initiated at the federal and state levels during the same period. The labour Accords initially increased the centralised nature of wage determination, however by aligning the industrial relations framework with management practices, an increasingly decentralised model of industrial relations decision-making emerged.

The centralised system of wage fixing and industrial relations decision making had externalised much of the responsibility of managers, in effect quarantining them from a considerable element of what was the responsibility of the overseas counterparts. In this way Australian managers had less incentive than many of their overseas competitors to introduce management change. As a result of the introduction of EBAs many of these managers were unprepared for the negotiating process and in designing management solutions that provided the potential improvement. The EBA period has been characterised by rapid organisational change through the introduction of management techniques over a relatively short period of time.

1.4. Convergence of Industrial Relations and Organisational Design

The preceding outline highlights the parallel, but in many ways disconnected development of industrial relations and management theory and practice within Australia. This is interesting in view of the management decisions that provoked the Harvester Case and where the resulting court decision effectively broke the nexus between industrial relations and enterprise based decisions in Australia for 80 years. From the 1980's onwards, the policy makers within the Australian IR system and managers within enterprises, faced major challenges in introducing change that was relevant to the dynamics of the global marketplace.

In addition to the industrial reform, the election of the Labor Government in 1983 resulted in an increased focus on workforce training. A tripartite agreement, known as the Accord, between the government, unions and employer groups developed a national structure for the identification and delivery of industry based training at the state level. This training combined technical, management and social skills development programs. The program was the first attempt to integrate industry and

enterprise training and by facilitating the development of industry based skill profiles, training needs identification and structured delivery. The linkage between industry and enterprise strategy and skill development was highlighted in this period, along with new training mechanisms such as traineeships and competency based systems. The competency based system, in association with concepts of management/autonomy, were combined with classification structures based on levels as opposed to job titles (contributing to the reduction of demarcation problems) as part of the award restructuring initiatives of the early 1990s. An important aspect of the new classification structure was the deepening of the concept of management to include individual and group self management in addition to it being a concept solely focused on the management of subordinates. The tripartite industry model was replaced by an enterprise level system based on the training guarantee model where employers were required to spend a fixed proportion of company revenue on training.

The 1980's were also characterised by major change in Australia, driven by social and economic policy reform and the integration of the economy into the global model through reductions in tariffs and international agreements. This period also saw the momentum for the convergence of industrial relations with management into a comprehensive enterprise management system increase. The industrial and training policy mix provided the framework for an integration of strategy, organisation design and the industrial relations system into an enterprise management framework. This integrated policy framework overlayed a strong and extensive institutional framework, where the centralist, institutional model could be construed as the constraint to that convergence.

However, as with many institutional approaches, interests were represented by agents; including legal advocates, industrial relations specialists, employee and employer representatives. The changes were at times a threat to these players and their specific goals. These agents have specific and powerful roles within the system. Agents can make the system efficient and effective. Equally, it is argued that agents can at times also work to ensure perpetuity of an inefficient system.

This scenario reflects the problems associated with the agent, principal framework as a truly representative framework, free of distortions and open to improvement in the interest of the key

parties. Dunlop (1957) viewed the industrial relations system as being comprised of

“certain actors, certain contexts and an ideology which binds thesystem together”.

This statement is considered important in that it introduces other variables associated with agent based organisations and structures, in particular it introduces ideology into the system in an institutional way, as opposed to the differences between the people centred and technical approaches outlined in the previous section. Dunlop reinforces systems thinking as a way of considering the industrial relations framework. This approach was further developed by Kochan, Katz and McKersie (1986). It is useful in representing the manner in which industrial relations have been integrated into enterprises and how industrial relations and management/organisation design had converged. The framework represents both the focus of the players and the relationships between them.

Level	Employers	Unions	Government
Long-term strategy and policy making	Business Strategy Investment Strategy Human resources strategy	Political Strategy Representation Strategy Organising Strategy	Macroeconomic Policy and social policy
Collective Bargaining and personnel policy	Personnel policy Negotiation strategy	Collective Bargaining strategy	Labour law and administration
Workplace and individual/org relationships	Supervisory style Worker participation Job design and work organisation	Contract administration Worker participation Job design and work organisation	Labour standards Worker participation Individual rights

Table 1.1 Kochan, Katz and McKersie Institutional Framework

The policy reform of the 1980’s created the environment that enabled this integration in a manner not possible for the previous 70 years. In particular the framework highlights the link between business strategy and management through the collective bargaining process a factor absent in many enterprises until this time.

The collective bargaining model, applied through an enterprise rather than industry or economy wide approach, has enabled enterprises to integrate these elements into the negotiation process. Business strategy is arguably a function of product/service mix and attributes, market positioning

and the delivery model. Some firms produce physical outputs, ranging from commodities to sophisticated durable products; others derive a margin from transactions and others provide a direct service. Each of these sectors operates in a markedly different business environment. While managers will perform similar roles, the variation in business models and approaches to achieving some competitive advantage results in them applying enterprise specific techniques to the activities presented in the employer column. This variation reinforces the risk of using an agent/principal approach in attempting to achieve an optimum outcome for the enterprise.

The capacity to integrate business strategy considerations in negotiations is arguably affected by the degree to which negotiations include and are influenced by, agents such as unions. The traditional negotiating role of unions is challenged by the transition from a predominantly input and control focus within both enterprise management and industrial relations practice, to a model that includes concepts such as outputs and commitment as the dominant framework for negotiation of not only wages and conditions but organisational change initiatives within an enterprise.

The development and negotiation of an enterprise agreement has provided employers and employees with the opportunity and incentive to introduce improved management models, develop employer/employee relationships based on common ground and establish industrial relations approaches that balance productivity improvement and wage outcomes. As with most new initiatives it has taken employers and employees some time to learn how to adapt to this decentralised environment. In essence it is the focus of the agreements, the manner in which the agreements are negotiated and the scope of issues included that lead to improvements in productivity.

The decentralisation of industrial relations decision making has occurred within the context of broad policy and practice transition. The next chapter reviews evidence of this convergence, some evidence of the impact and issues arising from the changes before proceeding to analyse the impacts of formal Enterprise Bargaining Agreements (EBAs) on labour productivity and wage earnings.

CHAPTER TWO - THE TRANSITION TO THE DECENTRALISED INDUSTRIAL RELATIONS SYSTEM - EVIDENCE, ISSUES AND IMPACTS

2.1. Introduction

The introduction of the Structural Efficiency Principle (SEP) was the catalyst for many organisations to reconsider their involvement in industrial relations activities and as a result, their approach to industrial relations (IR) reform. Prior to this principle being implemented, the external, centralised nature of industrial relations decision making had resulted in firms and their employees accepting the associated IR and wage benchmarks as the natural order of things.

Australia's highly centralised industrial relations structure left many firms and their employees with no real knowledge of what could be achieved from different modes of thinking about IR issues and with little experience in negotiating options that could be advantageous to the firm and employees. As a result, most early initiatives flowing from the SEP were limited to negotiating trade-offs between working conditions and wage increases as a strategy for reducing inefficiencies and gaining increased productivity.

For more strategically oriented and experienced firms, organisational development initiatives designed to improve the quantity and/or quality of labour's contribution to business performance, were negotiated as SEP implementation strategies. While both dimensions were aimed at improving productivity, each reflects significantly different management approaches, consequently naïve firms achieved some one off improvements, while the astute firms established a management framework that supported continuous improvement.

The SEP facilitated this development by providing a linkage between organisational development practices, management and the industrial relations framework. These established the culture for later enterprise based organisational improvements. In their early manifestations, enterprise bargaining initiatives did not necessarily demonstrate significant

organisational change and had limited impact outside the parameters set by Awards. The enterprise bargaining contribution to wage setting and work practice reform depended upon the interaction between awards and bargaining outcomes in individual workplaces. Hawke and Wooden (1998) provide some evidence of this interdependency, suggesting that in the early days of reform the majority of enterprise bargaining agreements were read in conjunction with relevant Awards. Further, Edwards (1999) indicates that early enterprise bargaining typically took the form of productivity agreements and often involved trade-off's or merely agreement between the parties on the importance of improving productivity. As awards were reduced in scope to core conditions, the effective scope of bargaining at the enterprise level, broadened.

This broadening of the scope of enterprise agreements resulted in the relocation and modification of factors previously subject to award conditions, modified to suit the enterprise and included in EBAs. As a method of formalising organisational change, many organisations included strategically oriented workplace reform initiatives within the scope of EBAs. These strategic reform initiatives focused on both improvements in market performance and in productivity. Included in this mix were monetary and non-monetary reward mechanisms designed to motivate reform.

In Section 2.2 of this chapter the evidence of changes resulting from decentralising the industrial relations system and issues surrounding the introduction of the change are considered. Section 2.3 contains an analysis of institutional and structural change occurring within the business environment and explores the consequences. Section 2.4 examines evidence of the impact of enterprise bargaining on productivity, while Section 2.5 includes a review of their impact on wages. Productivity and wage effects are key labour market outcomes impacted by the IR reform and are the focus of later chapters.

2.2. Examples and Evidence of Change within Enterprises and Institutions

2.2.1. The Enterprise Level

The first measure of the success of any policy is the level and speed of its uptake, followed by understanding of its implementation and effectiveness.

Measurement of the uptake of agreements provides an indication of the primary effectiveness of IR decentralisation policy at the enterprise level. In this thesis collective agreements registered in the federal jurisdiction provide the sample used to reflect uptake. This sample has been utilised as the basis for research because of the robust and consistent nature of the federal collection and the comprehensive definition of agreements.

Collective agreements, which are enterprise agreements made between the employer and the employee union, have been registered in the federal industrial relations jurisdiction since 1992. The data set is comprised of agreements registered in the jurisdiction, its form, industry sector and number of employees covered by it. As agreements are made for a predetermined period, beyond the first two to three years the data set includes replacement agreements. As a result this measure provides an indication of the level of bargaining activity within the sector, where the term coverage is used throughout the thesis it refers to coverage by agreements established during the period, an indicator of agreement making activity and influence represented by the proportion of industry or sector employees involved.

The agreements have been categorised by the Department of Employment and Workplace Relations (DEWR) in the following manner:

- All agreements – the total number of agreements certified;
- Productivity agreements – agreements with a focus on achieving productivity gains;

- Wage agreements – all agreements that contain wage provisions. This classification excludes agreements containing only conditions of employment;
- Quantifiable wage agreements – a subset of wage agreements where annual percentage wage increases are quantified.
- Comprehensive wage agreements – agreements containing a comprehensive scope of bargaining elements.

The definitions reflect a progression in the complexity of issues included in the agreement and potential to improve productivity.

Industry sectors have been categorised as output, margin and service sectors in line with the framework outlined in Chapter 1.

The all agreements category also includes agreements using various mechanisms to calculate wage increases as the agreement progresses through time, in particular, those agreements including productivity and pay conditions and those applying independently of any award.

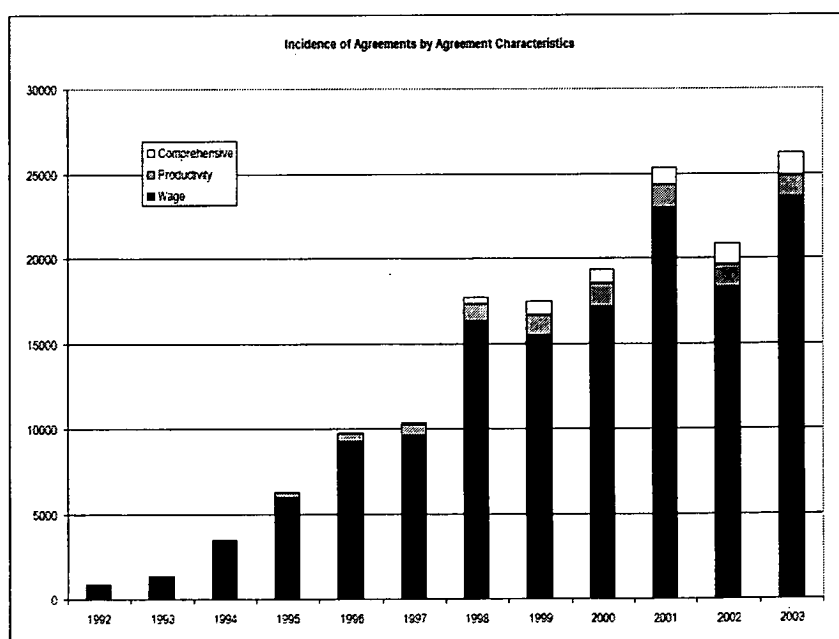


Figure 2.1. Incidence of Agreements by Agreement Characteristics

Figure 2.1. shows the growth in federally registered collective agreements from 1992 to 2003, the sample comprises both new and replacement agreements. While there is a growth in all agreement types, the period is dominated by the wage agreements. The three year cyclical pattern emerging post 1997 may reflect the common agreement duration and their subsequent replacement, when added to newly negotiated agreements, the combination results in the step increase evident in 2001.

The most common form of the agreement is the wage agreement; these include those with general wage clauses and the most rapidly growing form, those specifying the quantum of wage increases. From 1994 onwards there has been a consistent growth in agreements with a productivity focus and more latterly including agreements that include a broad scope of conditions and business initiatives, the comprehensive agreement. These trends reflect a transition to a more performance centred and improvement focused approach than is inherent in the wage agreements, which are often read in conjunction with parent awards. The profile in Figure 2.1 provides some evidence that a small, but significant number of enterprises have used the decentralised system to integrate the industrial relations framework into their specific business model.

Figure 2.2. below demonstrates the growth in the number of people covered by agreements certified each year by sector. At the beginning of the bargaining era industry sector take up occurred on a relatively equal basis. Since the mid 1990's, growth in the incidence of EBAs introduced annually has been largely derived from the service sector and to a lesser degree from the margin sector. This reflects both the early uptake within the production/resources sector and the growth of the service and margin sectors.

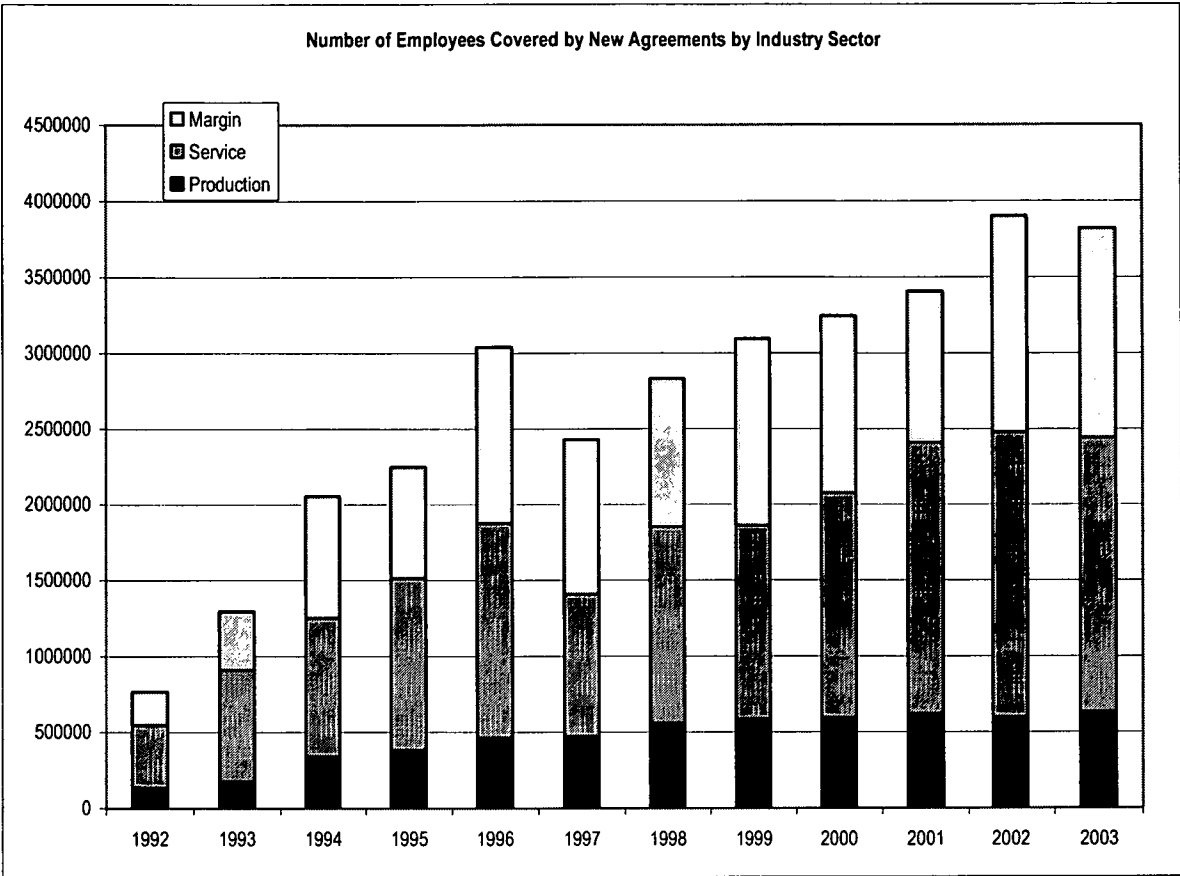


Figure 2.2. Number of Employees by Sector Covered by Agreement Signed Per Annum

The characteristics demonstrated in the above agreement profile indicate that there has been a significant uptake of enterprise based bargaining across each sector. Figure 2.1, reflects the dominance of wage agreements. A significant bias towards wage agreements rather than productivity or comprehensive agreements can be argued to reflect the both interest in wages during introductory period and the challenge to enterprises in moving to more comprehensive use of industrial relations as an organisational development strategy.

The transition has not been an easy process for many enterprises. The decentralisation of wage and condition decisions has challenged enterprise managers and the relationships between employers and employees. In the centralised system managers and employees were both unaccustomed to such wide and complex negotiations and as a result, the relationships between unions and employers have been realigned to reflect the change in

the scope of issues included in negotiations. In many instances employees were introduced to business factors and the business implications of claims for the first time. The initial result of this new industrial environment was a learning period where agreements to merely agree that change should occur and agreements to pay for future change became the common themes. The implication of this was little initial progress in aligning wages and conditions to the business enterprise environment.

Decentralisation policy was designed to accelerate the transition in wage setting decision criteria from cost of living adjustments through a productivity trade-off phase to performance based wage increases. At the enterprise level, interest in the absolute level of wages, their relativity with other employers and growth in wage earnings is based on both their impact on cost and the ability to retain, motivate and attract employees. Consideration of cost and productivity trade-offs within the context of the labour market is central to the negotiation of industrial agreements. Enterprise agreements are made in recognition of the enterprises market position and of its supply and demand characteristics. In addition to the consideration of wages as an input cost, their role as a motivating factor is arguably critical to long run sustainability and productivity.

While wage agreements are enterprise based, they are made in recognition of the characteristics of both the product/service provided and of the conditions in associated consumer and labour markets.

A key objective of a decentralised industrial relations system was to achieve a wage earnings structure aligned to enterprise strategy and capacity to pay, subject to externally determined minimum standards, rather than economy wide wage increases based on cost of living adjustments, or the capacity of a few well performing industry sector's capacity to pay. The capacity for managers to align business strategy, performance and wages is considered a precondition to business and industry success.

Matthews (1994) argues that enterprises operating close to best practice approach change

in a different way to those remaining with traditional production models. He also argues that enterprises generally make limited strategic choices, responding only to the immediate market state and technological options obvious to them. Matthews observes that those enterprises introducing change, such as IR reform, on a reactive or coercive basis, compared with those who are considering the future and basing change on the optimal means of achieving strategic goals, approach change in fundamentally different ways. This mirrors the earlier Dunphy & Stace (1990) finding.

Matthews (1994) utilises case studies to demonstrate the manner in which enterprises implement enterprise bargaining. The most effective achieve significant transformation by integrating contemporary human relations, management and industrial relations approaches.

Individual companies have adopted differing approaches reflecting their market and business environment. ConZinc Rio Tinto (CRA) for example, adopted a unitarist approach to reform, seeking to place all employees on individual contracts and, according to Hearn & McKinnon (1996) restricting the bargaining activities of trade unions. Other enterprises have adopted a more collaborative approach with trade unions.

Successful change models were adopted by other organisations. There was a particular focus on using the EBA process to enable enterprises to adopt socio-technical approaches to align structures, processes and people to organisational goals and productivity improvement initiatives. A summary of these cases follows, and are used to demonstrate the convergence of industrial relations and management principles and practice by utilising EBA negotiation as an enabling tool and contract to formalise the change.

Matthews (1994) argues that success in the following cases is based on the sense of strategic purpose, collaboration and the coincidental implementation of new technology and social change. This complete transformation model contrasts with approaches attempting to overlay an existing technology with a new social system or to implement new technology into

a social system reflecting the firms existing business model.

Matthews' cross section of case studies highlights the role of enterprise bargains as the contract to bind the parties to a plan of action designed to achieve a particular result, as well as to detail conditions of employment and the reward framework. This is a major deviation from the focus on conditions of employment, classification and wage scales within the centralised award model that focused on inputs. The case studies examined by Matthews include Bendix Mintex, Ford Plastics, CIG Gas Cylinders, Colonial Mutual and the Australian Tax Office.

Bendix Mintex commenced introduction of cellular manufacturing into its automotive brakes plant in 1992. This strategy combined the introduction of new technology and cellular plant layout. Previously the plant had been organised as a linear workflow. In the new model each cell of people was responsible for the production of a whole product, responsibility for production was internalised within the team, rather than externalised in a supervisor role. The whole product focus contrasted with the task orientation of jobs within the previous linear flow model. Introduction of the cell structure, new technology and social change facilitated the other manufacturing techniques such as just in time inventory management and smaller batch sizes that reduced the stock and finished goods holdings. By combining these initiatives with workflow and quality improvements, Matthews (1994) identifies that Bendix Mintex achieved a 20% improvement in overall plant productivity.

Introduction of these team based work design models was not limited to plants producing physical outputs. Colonial Mutual introduced a client centred system in which the team was responsible to meet the total service and administrative needs of a specific group of customers. This again contrasted with the previous model where people or groups were responsible for a part of the process, for example, changing the clients contact details in the firm's record system. The new model treated the customer as having a number of interrelated needs, capable of being addressed by a single multi-disciplinary team. The

organisational transformation significantly reduced query and contact turn around times and improved performance. Teams were rewarded with a bonus if they met a mix of profit, customer satisfaction and process improvement indicators.

At Ford Plastics, the strategic choice was the introduction of a quality assurance model and focus on process intent, the achievement of the necessary standards inherent in the process. This initiative included job redesign that reintegrated tasks previously treated as separate, this enlarged the scope of jobs, increased responsibility and combined separate jobs into teams with authority and accountability for production and quality. This combination of changes is consistent with Emery's (1976) job characteristics model. The initiative was developed as a particular compliance strategy during negotiations associated with the implementation of the 1989 structural efficiency principle requirements, in response to the identification of teamwork as a specific concern within the organisation. The subsequent enterprise agreement supported implementation of the strategy and also reinforced an increased focus on training.

CIG Gas Cylinders initiated comprehensive organisational reform. This was supported by team based performance pay and gainsharing calculated on reductions in benchmark costs identifiable as being subject to team control. The model and implementation tools were developed with the cooperation of the workforce. In implementing the strategy, teams applied quality control, value management and continuous improvement techniques at each step in the production process. Successful implementation reduced turn-around times by 400% and stock holdings by 300%. This improvement enabled the firm to achieve long term customer contracts. The wage system was changed to an annualised salary model, augmented with team performance bonuses, a significant change from the earlier hourly rate with the associated penalty rate model. This approach broke the long established use of the time equals effort and output proxy.

The public sector also pursued vigorous reform. The Australian Taxation Office negotiated a

long-term agreement to introduce electronic lodgement technology over a period of 5 years with the goal of improving its processing efficiency as a strategy to control costs. This technological change progressed in conjunction with significant negotiation and staff involvement in workchange programs.

These examples reflect approaches typical in large scale organisations, those prepared and able to make significant investment in organisational change to protect their market position and/or to achieve a strategic advantage from such investment. The resulting management flexibility and innovation and capacity to invest is not reflected in all Australian business. However the evident transformation of large organisation was also mirrored in a cross section of small to medium sized enterprises. Conformity with structural efficiency principles, the introduction of award restructuring and increasing competition meant many organisations were seeking reform to compete more effectively in the market, by reducing costs and providing improved value. The adoption of associated processes and initiatives was promoted through government support programs.

Barrett & Mutabazi (1996) demonstrate some typical organisational responses to the opportunity for reform in a case study of changes at Billingbrook College. This example typifies the approach to introducing change in many organisations through the mid 1990s in terms of both the scope of improvement sought, the process and motivators used to implement such changes as well as the difficulty of making the transition in a small organisation. The college's certified agreement was developed through an enterprise bargaining process designed to involve staff in organisational change required to move the college from what was perceived as a teacher focused culture to that of a student focused one. The process and agreement were used to formalise outcomes of the organisational change process and to legitimise a number of associated issues. Barrett & Mutabazi (1996) observed that organisational change at Billingbrook College was developed and implemented as an ongoing process based on enterprise bargaining to formalise outcomes

and to provide issues associated with change a legitimacy they would be otherwise denied.

The above case studies demonstrate that enterprise agreements are neither limited in scope nor homogenous in nature. They are an enabling mechanism, taking the form of a contract between the employer and employees to confirm an agreement as simple as a pay scale or reward framework or as comprehensive as a major, strategic organisational change program inclusive of time frames; structures; processes; decision criteria and reward mechanisms. The critical point is that enterprise agreements are not merely an enterprise level version of an award, they may be complementary to an industry award, may replace an award and be much more comprehensive and targeted in outcomes sought than an industry award. Importantly they are renegotiated frequently, ensuring managers and employees have an ongoing focus on both productivity and wage returns.

Case studies provide examples of specific instances where there is evidence of congruency between organisational design and industrial relations. Much evidence indicates that organisational design and industrial relations approaches and practices have been used in an integrated and complementary manner to improve alignment between the organisation's goals and employee's focus and effort. How representative are these case studies?

The National Institute of Labour Studies, NILS (1998) Workplace Management Survey provides a qualitative and more representative view, than the case studies, of whether the changes in management practice are widespread. Wooden & Drago (2000) cite the results of the survey of a representative sample of approximately 220 businesses each employing more than 20 people where a collective agreement was in place. The survey reflected manager's perceptions of workplace differences between 1995 and 1998 in relation to profitability; labour productivity; output quality; employee skills levels; management employee relations and their ability to introduce change. The results are summarised as follows.

PERFORMANCE INDICATOR	% Perceiving Positive Results	% Perceiving No Change
Ability to introduce change	66	29
Management – employee relations	59	31
Labour Productivity	59	44
Employee Skill Levels	53	44
Profitability	48	44
Output Quality	46	51

Table 2.1. Managers Perceptions of Key Business Performance Indicators

Source NILS 1988

The results provide an indication of the value attributed to the impact of introducing collective agreements into the workplace on a number of business variables. The positive results for the firm's ability to introduce change and the state of workplace relations tend to indicate changes in process within the enterprise. This impact, in conjunction with improvement in input skills, (a matter outside most industry awards except as a mechanism around which to determine wage differentials) sits alongside the perception of improved labour productivity and to some degree profitability. Profitability, affected by both revenue and expenditure performance, is the least controllable of the variables tested in the NILS (1998) survey. It is subject to market conditions, fixed cost structures and a range of influences that reflect external market factors, interest rates and other fixed costs established in earlier periods. Output quality was the only indicator where the perception of no change outweighed the perception of improvement.

These results provide an indication of manager's increased satisfaction over this time period from the introduction of enterprise agreements. Wooden & Drago find that in the 1998 NILS study 71% of managers expressed satisfaction with how the enterprise agreements were working with only 12% indicating dissatisfaction.

While enterprises and their employees were progressing through a period of learning about

change, significant structural change was also occurring in the institutional environment as well, in particular in the structure and role of the union movement, the labour market and in the economy overall. These factors further reinforce the need for change at the enterprise level.

2.3. Institutional and Structural Change and Background to Enterprise Bargaining

2.3.1. Unions

The approach taken to industrial relations and the perception of the role and value of unions is at times based on belief and ideology rather than evidence. Crockett, Dawkins, Miller & Mulvey (1992) find that the incidence of unionisation on site was associated with lower relative productivity, however they also conclude that the reduction in the number of unions may have diminished this union effect. Union's collective voice has been influential in determining the parameters of Australia's industrial relations system. An example of this influence is demonstrated by their role in influencing the underpinning philosophy and wage fixing decision criteria and then using these parameters to extend the capacity to pay within successful industries to the remainder. This combination of influence and negotiation criteria contributed to the absence of a nexus between labour productivity and wage rates for most of the 20th century in Australia.

However since the 1970's union membership levels have declined to the extent that from 1976 to 1996, union density, measured as the proportion of employees who are union members, fell from 51.2 % to 31.1% of the workforce (ABS 6325.0). Griffen and Svensen (1996) argue the decline has a complex set of causes. One significant explanation is derived from changes in the nature of the Australian economy. During the 1980's much of the economy's employment growth occurred in industries characterised by low union membership, the change in structure contributing to approximately 1/3 of decline in

membership density, Peetz (1990). The remainder of the decline results from people's reduced propensity to join unions. A number of factors are identified as contributors to not to join or to leave decisions; these include the decline of real wages in the 1990's and increased unemployment, together with the ability to enjoy wage increases without necessarily being a union member.

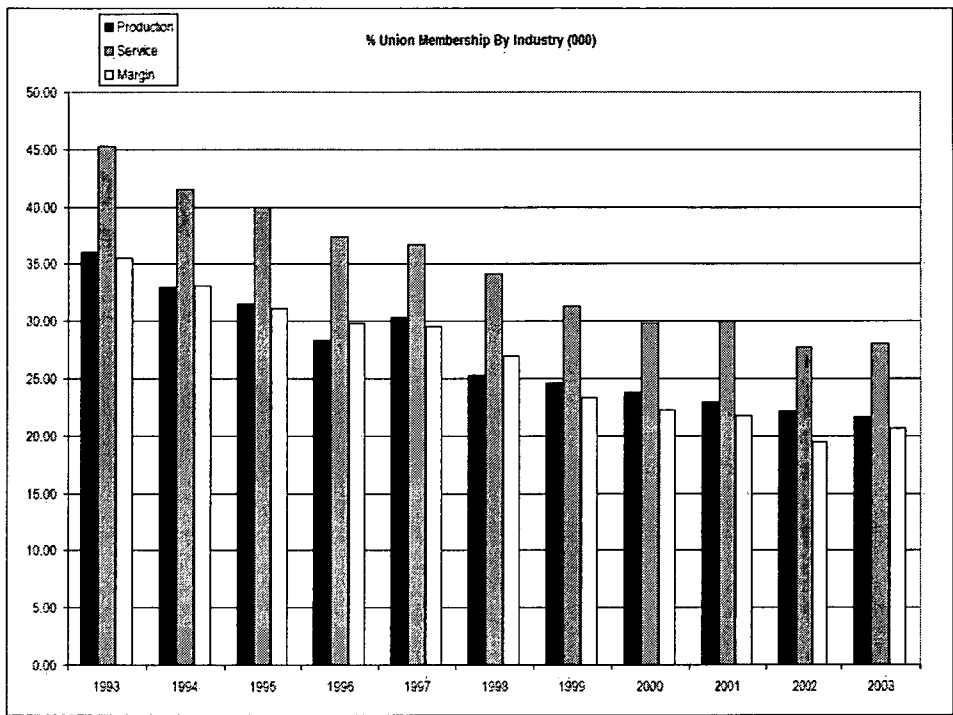


Figure 2.3. Union Membership by Sector

Since 1990 the reduction in membership has accelerated. Kenyon & Lewis (1996) and Pocock (1996) speculate that the transition to fewer, larger unions has contributed to this trend along with the decline of the closed shop model that had dominated sectors such as the manufacturing, building and minerals sectors. In the closed shop model, union membership was a prerequisite to gaining employment.

There was significant difference in union membership levels between the private and public sector workforces. In the private sector, the membership level was 24% of the workforce, while in the public sector it was 55.4% of the workforce. Part of the decline is attributed to the nature of the industrial relations system where union and non union members both

receive the benefits of flow-ons from national wage decisions regardless of membership. Kenyon & Lewis (1996) and Pocock (1996) speculate that the move from craft based to industry based unions has contributed to the decline in union membership, the trend having occurred in a period where the growth of enterprise bargaining requires less rather than more decentralisation in complementary institutions. During the 1990's, while the IR system was decentralising, the union movement was experiencing a period of increasing concentration. There was significant amalgamation of craft and sector based unions, concentrating them into major industry based unions.

Dowrick (1993) used simultaneous bargaining games to evaluate the wage effects of different industrial relations systems. Based on early experiences of enterprise bargaining, Dowrick found that union structures exert strongest wage pressure when unions are organised on craft lines at industry level and predicted that the abandonment of centralised bargaining and the splintering of employer/employee organisations into craft and industry units would produce greater wage pressure and wage inequality.

The involvement of such large scale employee organisations in negotiating enterprise level agreements leads to questions of the degree to which the interests of the industry based organisations coincide with the interests of employees within a small to medium sized enterprise. This concern is central to consideration of the agent/principal model. During the period that enterprise wages and conditions were set centrally to industry or on national benchmarks, enterprises worked within these standards. The involvement of a highly concentrated union structure, with centrally established policies, in an enterprise level agreement has the capacity to restrict the ability of players at the enterprise level to pursue their own best interests. The potential for the union, as the key bargaining agent leads to questions about how well the agreement's parameters reflect the specific needs of the employees represented.

That different agreements reflect similar or identical issues and rates of increase raises

concerns in relation to pattern bargaining. Pattern Bargaining occurs when unions are able to negotiate agreements reflecting similar conditions and payments across a range of enterprises. The effect of pattern bargaining on wages and conditions tends to be analogous to the result that could be expected from sector based award negotiation. Consequently the results may not be in the best interests of the employees of the specific enterprise. Wooden (1999) cites simultaneous conclusion dates for enterprise agreements across a wide range of enterprises as evidence of centralised collectivism in pattern bargaining. The implication of Woodens' finding is that union negotiated collective agreements are to some extent less focused on the interests of employees and more on the union's own agenda. Wooden (2000) perceives the correlation between the incidence of non-union agreements, low levels of union membership and the absence of formal registration as demonstrating an increased propensity for decentralisation and the value that both employees and employers place on such non agent based approaches as a means of them achieving their respective goals..

Must the level of union membership be above a minimum threshold for the union to be viewed as a valid, representative organisation and is the proportion of employee membership an appropriate proxy for union influence? The fact that unions are signatories to the agreement is of greater interest than the level of membership per se. Some employers prefer the option of negotiating with a union representative, skilled in negotiation and experienced in the process rather than directly negotiating with a representative group of employees who may lack these skills and knowledge.

Members of the institutional school view union membership as an appropriate measure of union influence. They perceive unions as influential, providing a collective, often positive, voice in contributing to both productivity and wages. If this is so, it will continue to place unions in influential positions, indeed it was not until 1996 that agreements were able to be negotiated without union involvement. Interestingly, there are very few examples of registered agreements that did not include union involvement in their development. In

response to this, Wooden (2001) argues that union membership is not a proxy for their level of activity and scale of influence.

There are direct benefits for an enterprise in dealing with a bargaining agent. The enterprise faces a transaction cost when negotiating agreements. As identified above the transaction cost and the benefit/cost of the negotiation within the agreement period may have more positive outcomes if it involves a mature negotiating entity in comparison with inexperienced employee representatives.

Uncertainty is inherently present in the negotiation process. Not only is the future of the enterprise uncertain, there is also imperfect information. It can be argued that managers have higher quality information in relation to the business and market environment, than do employees or other agents. This information and the employer/employee relationship can translate into an imbalance in the distribution of power involving negotiations between employers and employees.

Norris (1997) also identifies a potential union impact on productivity. From Freeman and Medoff (1986), Norris argues unions may, on balance, have a positive effect on labour productivity arising from the voice response. This argument is based on options available to employee in the face of dissatisfaction with some aspect of their employment. These options are identified as exit or voice responses. The exit response is to quit the job while the voice response is the ability to complain. The voice response is more likely to occur in unionised employment than non-unionised employment. Unions provide a collective voice to redress a range of issues, some of which are contributors to improved efficiency and productivity. Miller & Mulvey (1991) conclude that the collective voice response reduces workplace concerns and results in reduced employee turnover in these workplaces. According to Norris (1997), an added advantage of such stable workplaces is an increased likelihood of training, a contributor to increased productivity.

Noriss (1997) summarises the potential impact of unions on relative wages. He argues that

unions have a goal of increasing the wages of their members by exerting market power and while it does not follow that union members will earn more than non members, unions can affect wages in a number of ways. If union negotiated wage increases lead to redundancies and those displaced workers seek employment in sectors where crowding out has depressed wages in that sector, the net effect of the union activity is to reduce wages. Equally unions can have a positive effect on wages. As identified above, the union has a central role in negotiating national wage increases, and while this has tended to include minimum conditions, employers of non union labour may pay a union rate to ensure that the enterprise is not unionised. This is termed the union threat effect.

The existence of a union wage premium has been widely studied. While the studies are inconclusive as to the presence of a premium, it can be argued that penalty rates provide a mark up in unionised wages and that there is correlation between large enterprises, unionisation and higher wages. This relationship is potentially related to the following discussion on inter industry wage differentials, particularly if the industry sector is characterised by large firms, for example the mineral and metal manufacturing sector, or the petroleum sector.

The analysis of US wage differentials by Hellerstein, Neumark & Troske (1999) and of those within the UK economy by Booth and Frank (1999) both conclude that wage differentials match productivity differentials in the sampled firms. The wage premia in those studies represent performance based pay in the US and UK economies, but are instantiated as over-award payment regimes in Australia.

The influence of the union movement on the manner in which enterprises approach the process of developing the scope of enterprise agreements is ambiguous. There is evidence of both benefits and costs for the employer and employees in terms of both productivity and wages from union participation.

2.3.2. Changes to the Labour Market

While enterprises, unions and the industrial relations system were undergoing major change, the labour market itself was radically altering in profile. Some of this was a result of the organisational and industrial factors in play at the time, changes to patterns of trade and consumption and changing values and characteristics of the labour supply. The introduction of lean production systems to reduce costs as a means of achieving international competitiveness has resulted in significant restructuring and downsizing in large scale manufacturing. The high fixed costs associated with permanent workforces comprising operational, specialist and administrative personnel were reduced through redundancy programs that reduced employment to core production requirements. In many instances the previously employed specialists became sub-contractors to their previous employers, in effect becoming a variable cost to the enterprise. The benefit of this was that these specialities then became available to the broader business community, increasing their capacity and productivity. Similarly the public sector shed many thousands of permanent, full time positions, increasing the level of outsourcing in provision of support and technical services.

The growth in the service and margins sectors, and the market demand for access to products and services outside previously normal business hours resulted in the growth of new forms of work. These included an increase in the incidence of part-time work, in many instances in conjunction with a short and split span of hours and coverage over weekends.

Differences in the employment patterns between sectors are highlighted below. Employees are categorised as either full time or part time, with part time including both those who work less than full time hours and those employed on a casual, as needed basis. There has been a significant and continuing increase in the incidence of part-time employment.

As highlighted in Figure 2.4. the production/resources sector has maintained both its employment level, albeit subject to a cyclical pattern and the general full time to part time

ratio of its employment profile over the study period. Contractors are not included in the profile. This is of significance because of the high level of outsourcing characterising the agriculture, forestry or manufacturing industries for example. The labour resource used by an enterprise is often significantly greater than those on an employee payroll, this is particularly evident in the output sectors but increasingly a characteristic of other sectors as well.

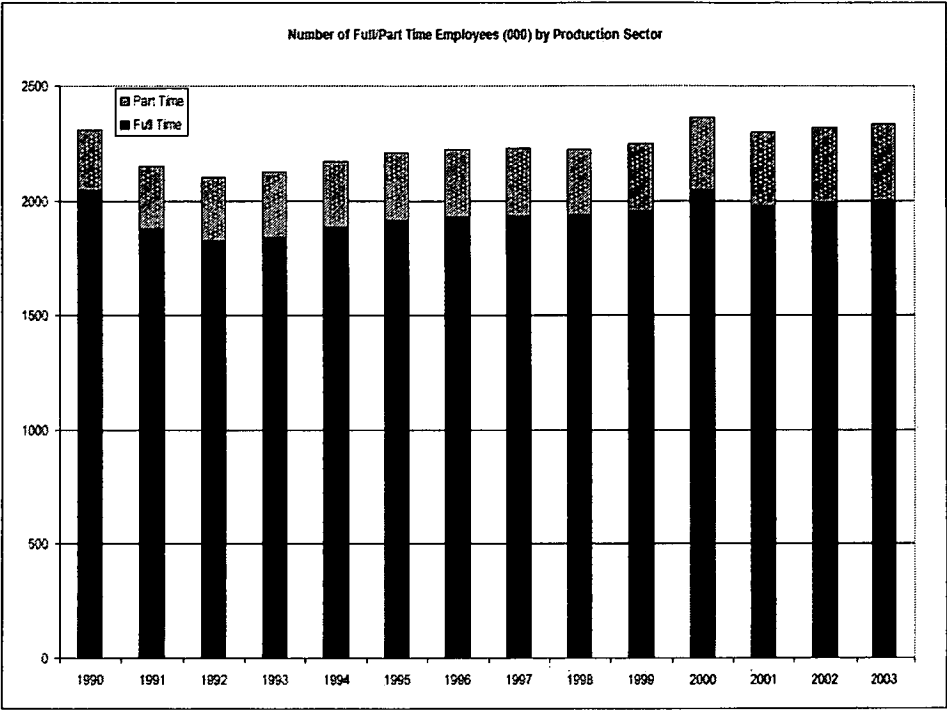


Figure 2.4. Production/RESOURCES Sector Employment Profile

The strong, consistent employment growth of the Australian services sector is identified below in Figure 2.5. While there has been growth in full time employment, part time employment has grown at a greater rate, resulting in a slight increase in the ratio of part time to full time employees in this sector. The scope of hours and periods of peak customer demand (both during the day and from a seasonal perspective) have generated the use of part time employment mechanisms to control input costs by both reducing hours worked and eliminating the significant penalty rates that have historically applied to overtime work.

The change in the ratio of full to part time employment has raised some concerns amongst

workers in relation to relative power in negotiations, the argument being that part-time employees are less able to participate in negotiations. Concern flows on to perceptions of gender inequity in wages. The inference is premised on the higher representation of female employees in the services sector and in part time roles. It is also recognised that part time employment allows some segments of the labour market to access employment that suits their personal circumstances.

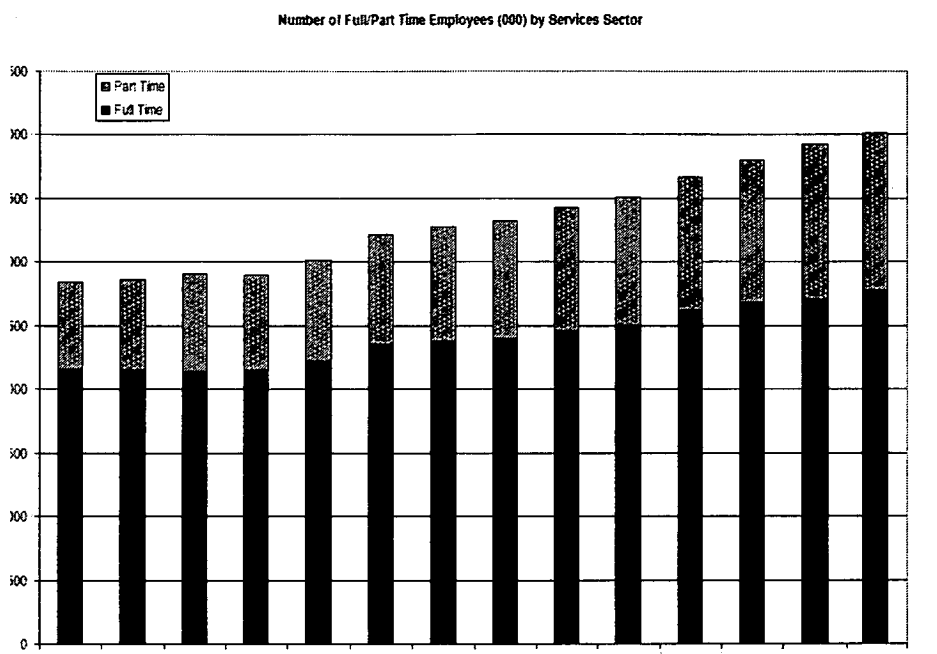


Figure 2.5. Employment Profile Services Sector

The margins sector has an employment profile that reflects mixed characteristics. There is both an overall growth of employment and a cyclical pattern similar to the production sector but with a constant level of full time employment. Employment growth in the sector is dominated by part time employment. This may be a function of the use by firms of part time employees to cover increased market demand and to simultaneously reduce the fixed cost and risk associated with the cost of full time employment.

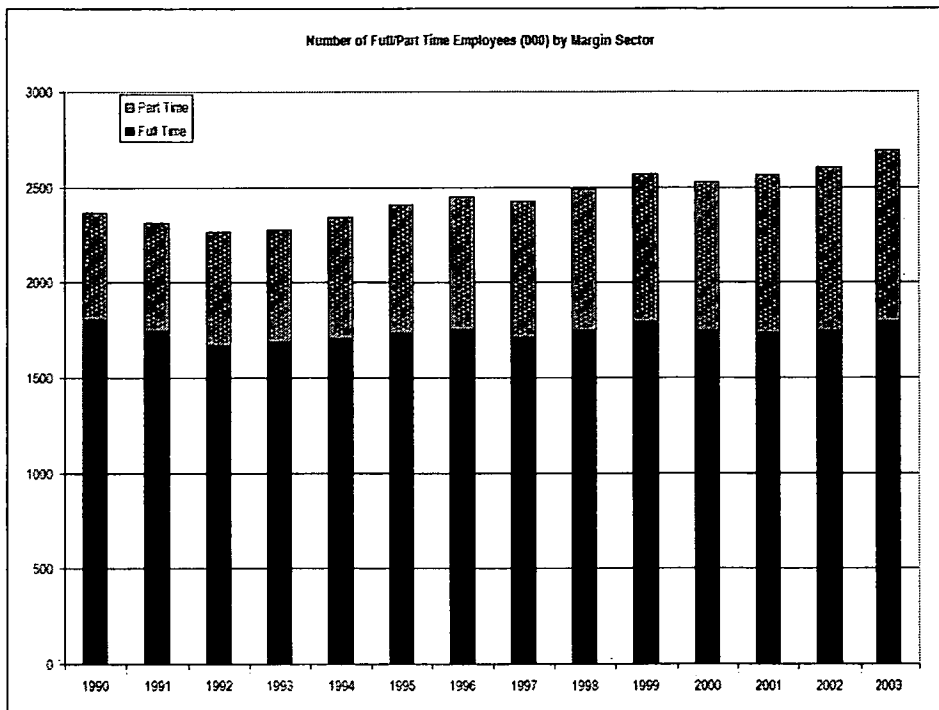


Figure 2.6. Employment Profile Margins Sector

2.4. Productivity

In Chapter One the export sector’s contribution to the Australian economy and the country’s relatively high standard of living is identified as being a significant one. This was based on agricultural exports in the early twentieth century and in the post war period, the minerals sector. The income derived from these export sectors is central to the performance of internally focused sectors of the economy and wage structures formulated in the centralised model. For this reason it is argued that the centrally based wage structures underpin Australia’s standard of living until the 1990’s.

The economy, while export dependent, was still relatively closed in comparison with its’ current status. The fundamental problem facing the Australian economy in the early 1990’s is crystalised when the relative productivity of the Australian economy is compared with trading parties and other similar mature economies. Its 1990 position is summarised in Table 2.2.

Industry Sector	United States	Australia	Other G7 (a)	Small OECD
Agriculture	100	54	37	59
Mining	100	95	45	64
Manufacturing	100	66	73	63
Electricity, Gas & Water	100	54	80	69
Construction	100	86	88	86
Wholesale & Retail Trade	100	75	80	84
Transport/Communication	100	63	57	54

Table 2.2. Relative Labour Productivity (Index) by Selected Industries (1990): International Comparisons (US = 100)

Source: Industry Commission (1997)

Note: (a) Canada, France, Germany, Italy, Japan and the UK

Reproduced from Wooden (2000)

The Australian economy's relatively low productivity performance in many sectors is indicated in Table 2.2. It highlights both the importance of productivity and the need to improve it, thus allowing Australia to compete internationally and to maintain its standard of living. From Table 2.2., Australia lagged a long way behind the United States in all sectors apart from mining. In comparison with the G7 countries, Australia is more productive in only Agriculture and Transport/Communications and lagged significantly in Electricity, Gas and Water and to a lesser degree, manufacturing. When compared with other small OECD countries, Australia tends to reflect similar patterns and levels of productivity. The exception is Electricity, Gas and Water, where Australia, at that time was significantly less productive.

Wooden (2000), highlights the potential for productivity improvement as a basis for closing the gap between current performance and best practice. In 1990, Australia had much potential for improvement. Dowrick (1993) analyses the impact of employee bargaining structures on productivity. This analysis, for the period 1960 to 1989, concludes that economies with either highly centralised or highly decentralised bargaining structures experienced the highest incidence of total factor productivity growth over the period, while

those with highly decentralised structures performed slightly better than those with highly centralised systems. Dowrick's analysis coincides with the starting point of Australia's industrial relations system transition to increasing decentralisation.

In 2000, the Australian Productivity Commission examined issues surrounding the productivity of the Australian economy. The analysis identified a significant increase in labour productivity growth from 1990/91 onwards when compared with the period from 1964/65 until that time. The commission plotted labour productivity (measured in output per labour hour) against the capital labour ratio (measured in capital per unit of labour) from 1964/65 to 1997/98 and found that labour productivity tracked the capital labour ratio until 1990/91 until, as indicated, labour productivity observations began to plot significantly above the capital labour ratio trend, with each observation moving significantly further above the trend line. Parham (1999) concluded that Australia's labour productivity was some 15% higher than it would have been had the economy remained on its 1964/64 to 1990/91 growth path. Wooden (2000) observes a productivity change unparalleled in Australia's history, summed up in the following way: with the same level of labour and capital, Australian workers are producing far more as a result of working harder and/or smarter.

Productivity change has occurred in a period of not only significant industrial relations reform but also of industry restructuring driven by both commercial imperatives and National Competition Policy (NCP) reform.

This productivity reinforces the NILS (1998) findings to the effect that management perceived improved productivity as a consequence of introducing collective agreements in Australia. While managers also identified less improvement in quality, the participative processes associated with enterprise agreements is consistent with approaches that lead to both quality and productivity improvement. Towe (1990) identifies the essential elements of the quality issue – employee involvement, skills training, and an organisational structure that allows the implementation of creative solutions to problems, all leading to reduced costs and

improved performance. Such findings reinforce the role of enterprise agreements as tools to integrate organisational development and industrial relations practices in a manner that potentially improves productivity.

The coincidence between labour productivity and the introduction of enterprise agreements is identified in Table 2.7. Consistent with other analyses this does not prove causation but provides a strong indication of a positive relationship between the introduction of enterprise agreements and increases in labour productivity. When combined with Towe's conclusions, there is strength in the argument that the processes associated with the negotiation and introduction of enterprise agreements are fostering increases in innovation and contribution, leading to improved labour productivity.

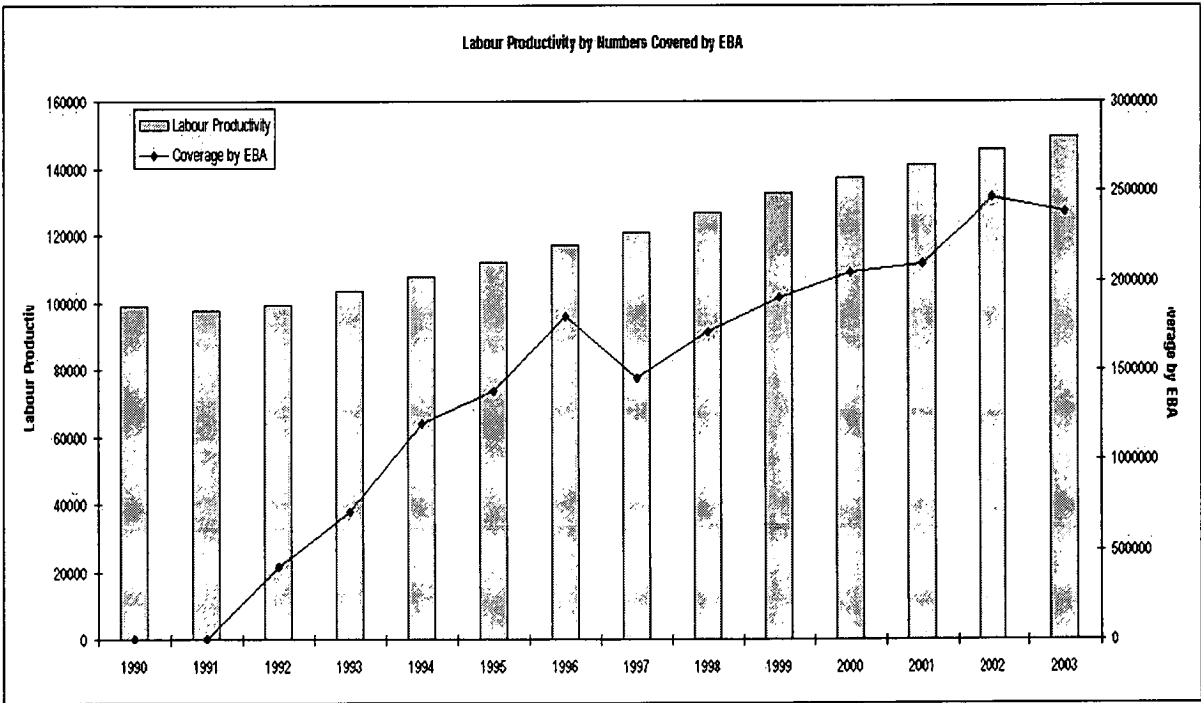


Figure 2.7 Labour Productivity Relative to Employees Gaining Coverage by Enterprise Agreements

Figures 2.8 to 2.10 map the relationship between labour productivity and EBA coverage for each of the three sectors; the production/resources sector, the margins sector and the service sector. While the productivity trend line demonstrates similar patterns the trend in coverage demonstrates slight variations between sectors.

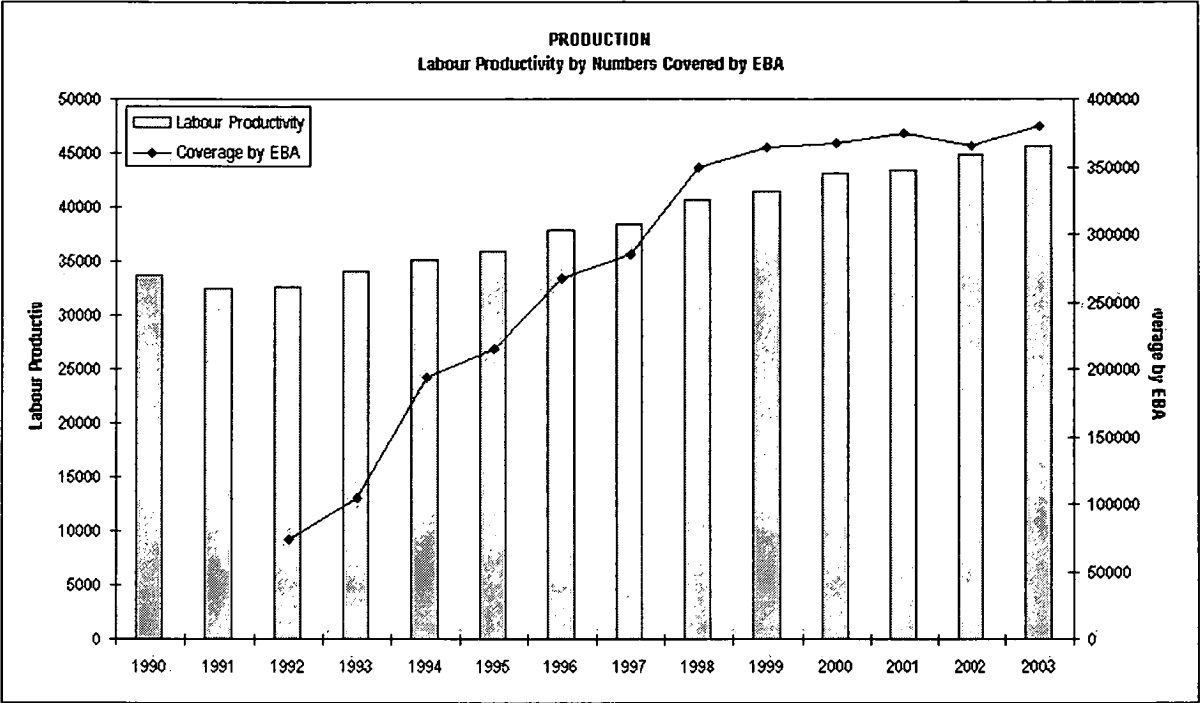


Figure 2.8 Production/Resources Sector - Labour Productivity Relative to Employees Gaining Coverage by Enterprise Agreements

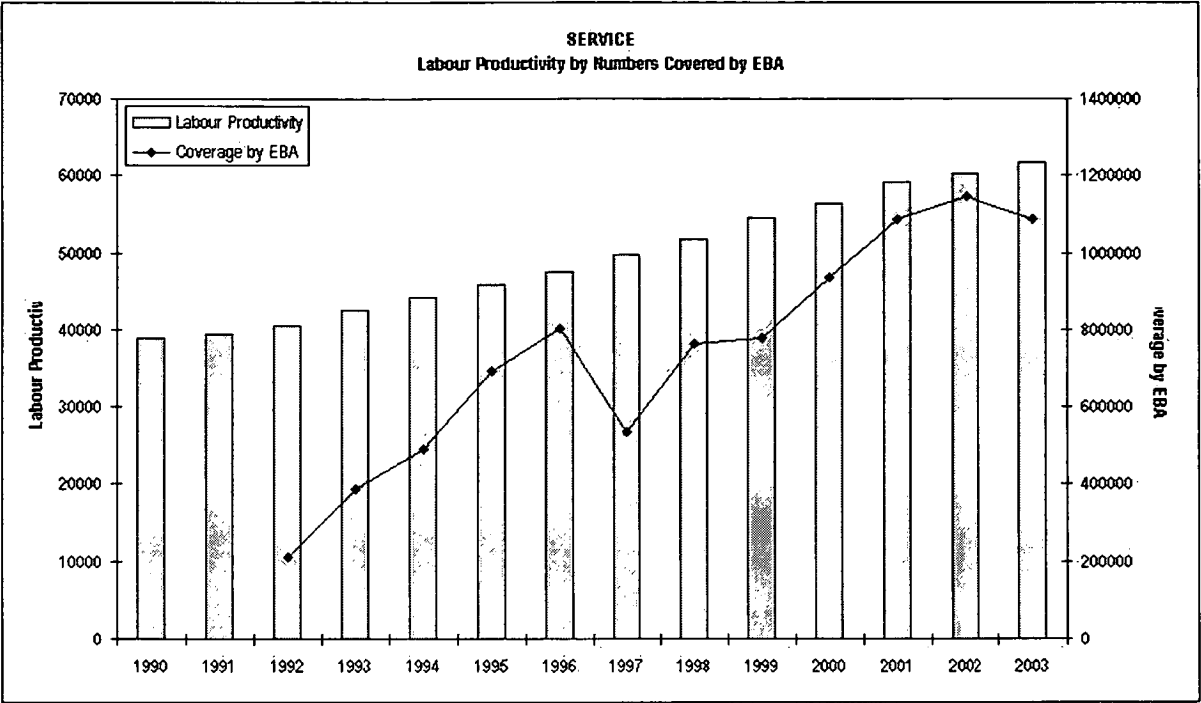


Figure 2.9 Service Sector - Labour Productivity Relative to Employees Gaining Coverage by Enterprise Agreements

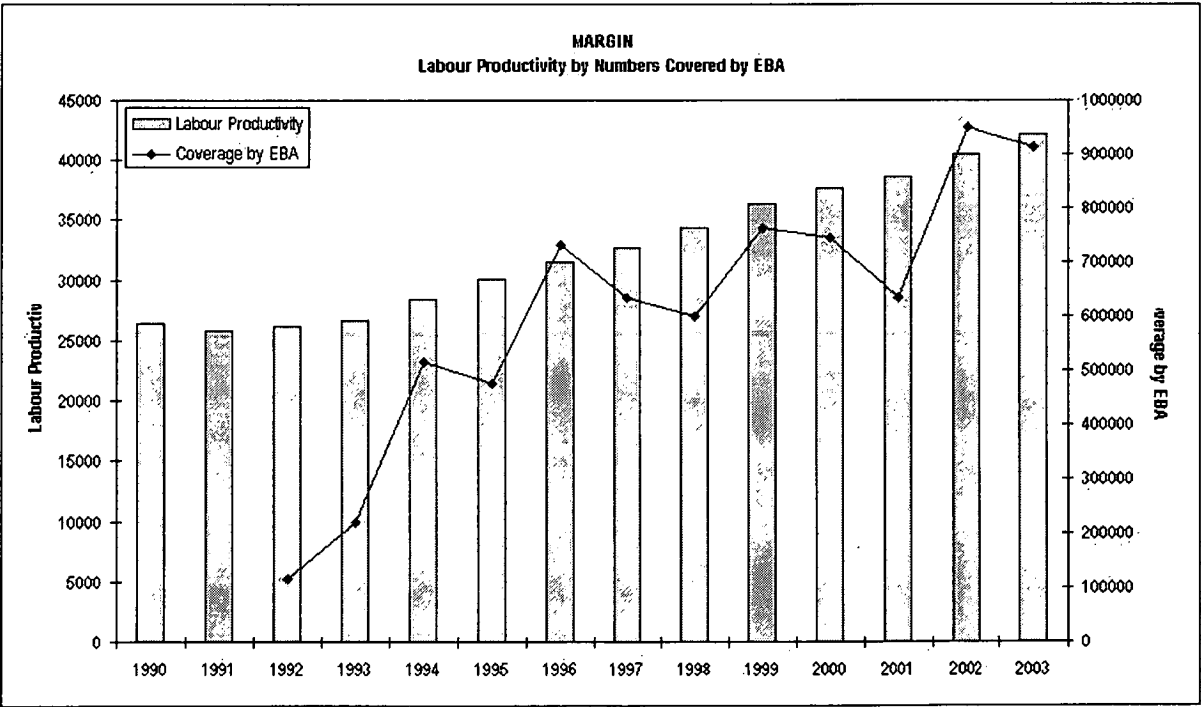


Figure 2.10. Margin Sector - Labour Productivity Relative to Employees Gaining Coverage by Enterprise Agreements

The relationship between labour productivity and the number of employees gaining coverage by enterprise agreements represented in Figures 2.8 – 2.10 highlights one of the key questions addressed in this thesis – is labour productivity influenced by the negotiation and uptake of enterprise agreements? If so is that influence consistent across each sector of the economy? These questions are addressed in the following chapters of this thesis.

2.5. Wages

This section is dedicated to an examination of the influence and impact of the introduction of enterprise agreements on wages. Wage earnings and the factors that determine them are of central interest for economic policy. This interest arises from the flow on effect from wage earnings into consumption, inflation and interest rates. From a microeconomic perspective wage earnings are central to employee recruitment, retention and motivation. These dimensions have led to tensions in the philosophy underpinning wage fixation and between notions of wages as a measure of employee contribution and as a method of establishing equity.

There are concerns expressed about the demise of comparative wage justice in this new bargaining environment. The focus of the Australian Industrial Commission at the end of the period under examination was the determination of minimum standards underpinning enterprise agreements and to provide coverage for those employees not employed under an enterprise agreement. Judgements were legally enforceable throughout the industrial commission jurisdiction. Notwithstanding, writers have expressed concern for wages justice.

Alexander and Green (1992) consider that the introduction of decentralised bargaining will result in a two tiered system, one group which is well organised and well paid and a periphery of low paid insecure employees filling positions of low status. They argue that tariff policy has been central to the establishment of the centralised industrial relations system in Australia and equally responsible for its unravelling because of the need to match wages to

enterprise performance in the face of international competition.

It is the view of Pocock (1995) that full enterprise bargaining processes will disadvantage female workers by expanding the gender gap in wage income; through reduced salary loadings and through the loss of union protection. More generally, Burgess (1995) notes a trend towards greater wage disparity under enterprise bargaining and rejects the argument that wage growth in the first half of the 1990s was excessive. Green (1997) argues for the extension of the living wage concept to address disparities between award and enterprise bargaining wage increases otherwise he sees the transformation of awards and tribunal decisions into a low pay ghetto with little if any relevance to the mainstream dynamic of Australian wage fixation. Dabscheck (1997) also shares Green's concerns specifically those in relation to the living wage concept. Dabscheck observes that those without bargaining power are falling behind in real and relative terms.

The general contention about the effects of enterprise bargaining on the gender-earnings gap is analysed by Wooden (1997). In contrast to this negative view, Wooden finds that enterprise bargaining is not the cause in this instance, rather the gap is explained largely by the concentration of female workers in part time employment where bargaining is actually less prevalent. In fact, females in female dominated industries are benefiting from favourable wage outcomes as a consequence of enterprise bargaining. Wooden (2001) also examines the union – non union wage gap and finds that earlier studies, in particular Mulvey and Miller (1996), have underestimated this second gap and by so doing have understated the role of union wage effects. In determining that substantial union induced wage effects exist, Wooden used matched employer/employee data to allow union wage outcomes in specific workplaces to be identified.

Wooden's study indicates that there are earnings benefits in workplaces covered by enterprise or workplace based agreements, and that the emergence of a union wage mark up in the enterprise bargaining process may attract workers back to union membership.

These beneficial aspects of enterprise bargaining include its role in obtaining agreements in the process of redundancy or retrenchment. This is the main finding of Campbell and Rimmer's (1994) evaluation of four management approaches to redundancy/retrenchment.

Wages are critical within the economy from equity, productivity and competitive perspectives. The concept of wage flexibility is the key differentiator between the neoclassical approach to labour market mechanisms and other approaches. Neoclassical labour market theory proposes that wage rates are flexible, adjusting to imbalances in labour supply and demand. The neoclassical proposition is challenged by other schools of thought contending that in the short run wage rates are rigid, resisting downward pressure in the face of excess supply.

Drago & Perlman (1989) find that firms resist cutting wages, even in the presence of substantial unemployment, because of the negative impact on motivation. The concept of an efficiency wage is widely recognised, however the motive underlying the efficiency wage differs across economic schools of thought. The neoclassical school emphasises its role as a sanction, while for example, the institutional school identifies it as an investment in trust building.

The tension between the economic rationalist or free market, neoclassical approach and the institutional school, is derived primarily from the difference in policy prescription. Green (1995) argues that in the modern context the neoclassical approach identifies low wages as the basis of the economy's future, rather than a future based on highly skilled and productive firms focused on value adding and on knowledge based products and services. Such an approach reinforces the segmentation of the labour market, one of the key concepts within the institutional school.

Wage rigidity is traditionally demonstrated in the Phillips Curve. Phillips (1958) concludes that the relationship between unemployment and the rate of change in wage rates is likely to be non-linear, but downward sloping. This conclusion was premised firstly on the reluctance of

people to offer their services at less than the prevailing rates even when the demand for labour is low and unemployment is high. In Australia this sticky wage characteristic is institutionalised by way of minimum employment conditions. Secondly Phillips proposed that periods of excess demand for or excess supply of labour influence the rate of change in wage rates and finally he proposed that the rate of change in consumer prices only influenced wage rates when there was a very rapid increase in retail prices.

Borland & Kennedy (2002) adopt the Phillips approach as their starting point to analyse wage rigidity in Australia, concluding that wages are indeed “sticky”, and reflect similar downward rigidity to those in other developed economies.

The development of an enterprise agreement can lead to the introduction of motivation, retention and attraction strategies within the organisation. In developing and negotiating a sustainable wage position the enterprise now has to determine both the level and the criteria for any increases. In the previous wage fixing regime such decisions were, for the most part, carried out by external bodies. The previous discussion indicates that the decision cannot always be totally internalised as it is made within a competitive market environment subject to minimum standards.

However the development of a nexus between labour productivity and wages is an important baseline, around which policies required to ensure social outcomes can be applied. The following table indicates that since the mid 1990's, the relationship between labour productivity and earnings, as measured by total employee compensation, has undergone significant change.

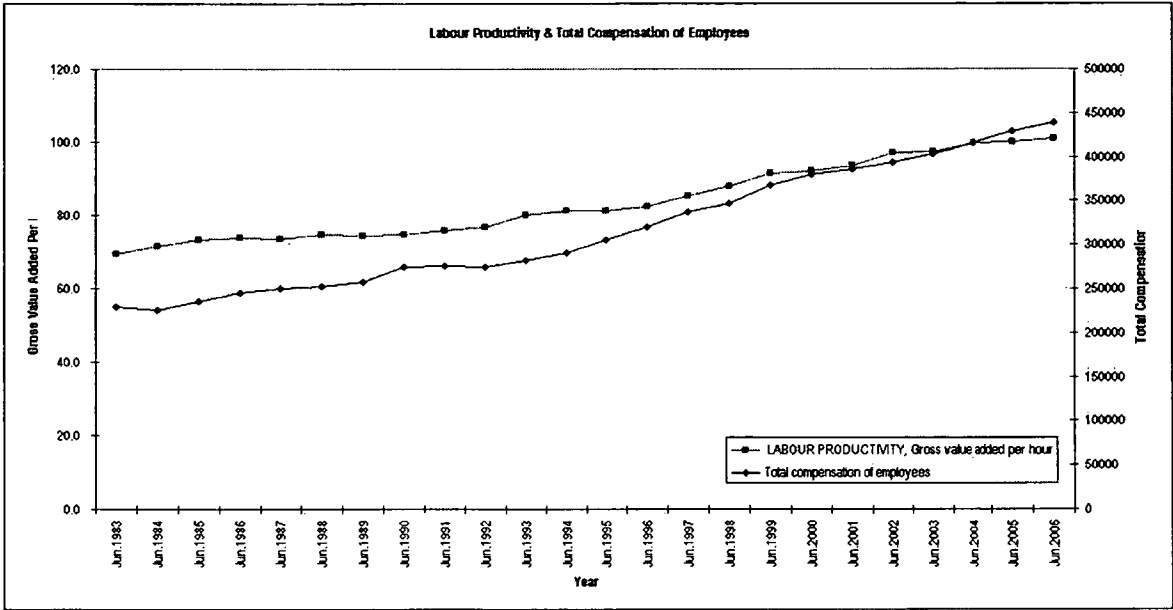


Figure 2.11. Comparison of Labour Productivity and Total Compensation of Employees

Figure 2.11. provides an indication that since 1983 earnings, measured by total compensation for employees and labour productivity, exhibit differing characteristics. From 1983 until 1997 compensation grew at a faster rate than labour productivity. From then until 2004, employee compensation and labour productivity exhibited a relatively parallel course, while from 2004, employee compensation has begun to grow at a faster rate than labour productivity. The rate of convergence demonstrates the difficulty of achieving significant structural change in an economy such as Australia. Enterprise agreements were introduced from 1993, 3 to 4 years after this event, there is preliminary evidence that changes in labour costs tended to match changes in labour productivity. The parameters of this relationship are the focus of much of the balance of this thesis.

In this chapter I have demonstrated that the uptake of enterprise level collective agreements was influenced by the approach taken in specific enterprises and by their general relationship to labour productivity. Case studies have been used to highlight the organisational changes introduced to achieve productivity improvement introduced as part of agreement negotiations. The role of the enterprise agreement to formalise the changes

negotiated and processes to be implemented has been highlighted. In particular they provided an opportunity for enterprises to use the negotiating process to implement strategies that allowed them efficiently meet and adapt to market needs. From a larger sample perspective, the NILS (1998) comparative analysis identified a range of positive outcomes associated with the introduction of enterprise agreements, but was ambiguous in the perception of their impact on productivity.

Wage justice has emerged as a significant issue when wages are set and adjusted at the enterprise level, and particularly so in particular in enterprises and sectors characterised by high proportions of part-time employment where employee power is arguably reduced relative to organisations characterised by high proportions of full-time employment. Again, writers express significant variation in their views and conclusions in relation to the impact of enterprise agreements on wages. Similarly the role and influence of unions as a negotiating agent in enterprise agreements is subject to debate and ambiguity as to the impact of their role.

In the following chapter I derive a theoretical framework on which to test the impact of the decentralisation policy on both labour productivity and wage earnings.

CHAPTER THREE – MODELLING FOUNDATIONS, ESTIMATING TECHNIQUES AND DATA

3.1. Introduction

The purpose of this chapter is to determine an appropriate econometric approach to confirm the findings and issues outlined in Chapter 2. This chapter presents the econometric modelling foundation and approach used to answer the questions posed in Chapter Two; whether the negotiation of enterprise level collective bargaining agreements had an impact on labour productivity and whether there was a flow-on to wage earnings.

The identification of any flow-on from productivity to wage earnings is important. In Australia wage earnings had traditionally and primarily been determined by changes in workers' real purchasing power, if the negotiation of enterprise level agreements resulted in wage earnings being determined by an output/efficiency measure (labour productivity), it would be a major change and demonstration of the success of the EBA policy.

In Section 3.2 I detail the foundations of the productivity and wage modelling and derive the econometric form of the equations used in estimating the results. Section 3.3 is a discussion of modelling techniques appropriate to the characteristics of the data set and the diagnostics applied to ensure the validity of the results. The final section 3.4, is a description of the data set used in the econometric estimation.

The explanation of labour productivity is based on the well established use of the Cobb Douglas Production Function, see Rogers (1998). Wages are modelled using an established empirical foundation, based on the seminal paper by Johnson, Mahar & Thompson (1974).

3.2. Modelling Foundations

3.2.1. Production Function and Productivity Equation

Chain volume added per employee hour has been selected as the dependent variable in analysing the impact of the introduction of EBAs on productivity in Australia. Chain volume added has the advantage of including partly completed production in addition to finished units, thus providing a complete measure of the level of production from the production chain over any specified period.

Chain volume added by industry i is the variable to be explained in expression (1) below and the explanatory variable are evident in the following production function:

$$Y_i = F_i(K_i, L_{p_i}, L_{f_i}, EBA_i, U_i) \quad (3.2.1)$$

This identifies that chain volume added in industry (i) is explained by the capital stock (K_i) consumed in production by that industry; part time employment (L_{p_i}) and full time employment (L_{f_i}) both measured in hours expended; the number of EBAs in industry (i) and the number of union members (U_i). If constant returns to scale are assumed to apply to the productions function (3.2.1.), then it may be written as explaining the average product of labour ($Y_i = Y_i/L_i$) in industry (i), as follows:

$$\frac{Y_i}{L_i} = F_i\left(\frac{K_i}{L_i}, \frac{L_{p_i}}{L_i}, \frac{L_{f_i}}{L_i}, \frac{EBA_i}{L_i}, \frac{U_i}{L_i}\right) \quad (3.2.2)$$

Output per worker (Y_i/L_i) is determined by the capital/labour ratio (K_i/L_i) in industry (i), the proportion of the industry labour force employed part-time (L_{p_i}/L_i), the proportion of the industry labour force employed full time (L_{f_i}/L_i), the proportion of industry employees covered by enterprise bargaining agreements (EBA_i/L_i) in industry (i), and union density

(U_i/L_i) being the proportion of union members in an industry. Equation 3.2.3 includes both the full and part-time employment proportions. The basis for inclusion is that over the time period and within specific industries different employment patterns may emerge, for example over a number of years part-time may increase to be later replaced by full-time employment, in both instances they may have similar influence on productivity. As the two are not necessarily binary in their influence they are both included.

Equation 3.2.3 includes both the full and part-time employment proportions. The basis for inclusion is that over the time period and within specific industries different employment patterns may emerge, for example over a number of years part-time may increase to be later replaced by full-time employment, in both instances they may have similar influence on productivity. As the two are not necessarily binary in their influence they are both included.

A log linear form of (3.2.1) yields an econometric interpretation of (3.2.1.):

$$y_i = \alpha_{i0} + a_1 k_{it} + a_2 l_{pit} + a_3 l_{ft} + a_4 eba_{it} + a_5 U_{it} + \varepsilon_{it} \quad (3.2.3.)$$

In (3.4.3), lower case notation indicates the logarithmic value of the variables defined above: y_i , k_i , l_{pit} , l_{ft} , eba_{it} and U_{it} are the logarithms of industry labour productivity, the industry capital labour ratio, the part and full-time labour proportions l_{pit} and l_{ft} , the industry incidence of EBAs and union membership as a proportion of industry employment respectively. The t subscript is included to accommodate the following panel data approach to the estimation of (3.2.3.). The notation ε_{it} indicates an error term.

Lags are introduced to reflect the nature of the relationship between the introduction of a change to industry award conditions and the time required to observe the impact. In (3.2.3.) agreement variables are lagged one year to reflect the time lag associated with implementation of the initiatives within the enterprise.

The reasons for including the proportions of labour employed part time and full time, and union density in industry (*i*) are discussed in the following sub sections 3.2.2. and 3.2.3.

3.2.2. *The Employment Contract and Productivity*

The trend to part-time work is one of the most evident and contentious manifestations of increased workplace flexibility. There is a tendency towards the incidence of part-time and away from full-time employment particularly in the service sector. This is a feature of several reformed IR systems prevailing in the developed world and is more attractive to some employers, particularly when it comes to questions about redundancy and dismissal. The working conditions of full-time workers are often protected by the terms of the full-time contract and the dismissal or redundancy options can be relatively expensive. Part-time workers are often employed on a casual basis allowing managers to terminate them at short notice and at a smaller cost to the employer. The distinction between part time and casual work has been clarified by judicial decision, limiting its misuse as a means of reducing the termination conditions of permanent part time employees. According to Madden (2003), there is a close correspondence between part-time employment and casualisation of the workforce and that employers prefer the flexibility afforded by part-time contracts. By way of contrast, Madden finds that employees prefer the job security provided by the terms of full-time contracts in comparison with the lack of it in part-time or casual employment. As identified in Chapter Two, other writers contend that part time employment provides opportunities to those for whom full time work is unsuitable or unavailable.

Given opposing attitudes to part and full-time contracts between Australian workers and employers, it is possible that part-time and full-time employment have different effects on overall labour productivity. To capture this effect, proxies for part-time (L_p) and full-time (L_f) employment are included as separate arguments in the industry production function underpinning the analysis of productivity. In this context, it is appropriate to regard part-time

and full-time employment as substitutes with the stock of industry capital (K_i).

3.2.3. Unions and Productivity

Two fundamental changes within the Australian IR environment are the increasing incidence of industry Enterprise Bargaining Agreements (EBAs) and decreasing levels of union membership (U_i) across Australian industries. The proportion of industry employment signed to an agreement in that year features as an argument in the production function used to analyse the labour productivity impact of agreements.

The effect of unions on productivity may have declined along with the reduced proportion of union membership although the effects are unclear. The level of union membership within a sector, as a proxy for the degree of influence of the union on productivity is problematic. A concern associated with this traditional measure is that the density of membership is not necessarily correlated with union influence in the bargaining process. This is evidenced as follows; the EBAs included in this data set are collective agreements. These agreements are negotiated between employer and employee representatives, where the union is recognised as a formal partner to the agreement (as is often the case in any underlying Award). In this instance the union is involved, regardless of, for example, diminishing membership. While it may be only a proportion of the workforce formally represented in, and voting on, the agreement, the balance of employees are also bound by such agreements.

If the introduction of EBAs as an IR tool, or its conditions, are opposed or not directly supported by union members, then the union contribution to productivity may be negative. However, some Australian unions and their members have willingly supported the introduction of EBAs and in such instances the union contribution to productivity may be positive. Union density across industry (U_i) is included as an argument in the underlying production function (3.2.1.).

3.3 Earnings Equation

This section seeks to determine whether wage earnings, as a result of introducing enterprise bargaining agreements are now determined by some output measure (productivity), rather than being determined by a price index measure designed to ensure the maintenance of purchasing power.

The estimation of the impact of the decentralisation of industrial relations decision making through EBAs on earnings is empirically based. The variable used to measure earnings is wage earnings per hour worked. This is constructed from two data sources, the amount spent on wages and salaries and hours worked by all categories of labour, full or part time, normal hours or overtime hours. This has provided a picture of the average return to the employee per hour worked.

Approaches to the study of wages and earnings are influenced by differing schools of industrial relations thought. In some instances the approaches are based on comprehensive models designed to reflect behavioural and management theory. In others, the approaches are based on reduced forms, for example determining whether wages affect employee retention or motivation. While writers such as Layard (1991) have developed broad systems based models, there is a significant and accepted practice of building models reflecting the key economy wide determinants of wages, or as in the Phillips case, only a few factors are used to determine interrelationships. In some models, such as with Kennedy and Borland (2000) , these base models are then expanded to include the explanatory variables of interest. This latter approach has been adopted as the foundation for modelling the potential impact of EBAs on earnings. It is however important to review the key interrelationships and the associated modelling to ensure the expansion of the basic model is valid.

Wages, in their most basic form, are an economic exchange between an employer and employee reflecting some valuation of the contribution the employee makes to the

employers enterprise. The parameters of this exchange are affected by a wide range of factors, including the profitability of the enterprise, the supply of and demand for labour and competition for particular characteristics of labour. In essence, the application of many of these parameters can be condensed into a measure of the distribution of relative power between employers and employees. In the longer run a range of institutions and interventions are developed to ensure that perceived maldistribution of power in the exchange is moderated to reflect dominant societal views of equity in earnings and the principles of the labour/earnings exchange. Interventions, such as those of the legal system and government arising from the Harvester Case outlined in Chapter 2, can be viewed as either a valid reflection of national values manifesting themselves in wages, or unnecessary distortions of the labour market.

Much of the theory and associated modelling is based on the assumption of immutable tension between employers and employees and lack of goal congruence. This assumption is at odds with much contemporary organisational behaviour theory and modelling that is underpinned by cooperative, outcome oriented approaches to business.

The next section of this chapter focuses on enterprise level issues associated with the determination of wage earnings, including the impact of institutional aspects and economy wide factors such as unemployment. These provide the modelling parameters used as the basis for the earnings model.

3.3.1. Earnings and Employee Motivation, Retention and Recruitment

The ability to associate earnings with effort and contribution as the primary determinant of wages, rather than a transaction determined primarily on time spent in the workplace, has proven to be a major challenge to Australian firms and employees in the transition to enterprise level bargaining. The traditional Australian award system focused very much on hours of work and pay rates, with penalty clauses for additional hours of work, leaving the

productivity aspect of the relationship as a separate management issue. This highlights the proposition that unless people are motivated, the time people spend at work is not necessarily productive. The interdependency between a firm's output performance and its wage levels, the firm and other enterprises, and the firm's wage and labour market conditions is addressed in the motivation, recruitment and retention wage analysis framework.

The interdependency between a firm's output performance and its wage levels, between the firm and other enterprises and between the firm's wage and labour market conditions is addressed in the motivation, recruitment and retention wage analysis framework.

Assume each employee produces E units of output where effort (E_i), in the firm depends on the firm's relative wage and also on unemployment. This assumption is underpinned by the argument that motivation is a function of the relative treatment (reflected in wages), of the characteristics of an unemployed state being less attractive than work. This relationship is presented below.

$$E_i = e(W_i/W_u, u) \quad (3.3.1)$$

If output depends on total effort $E_i N_i$, the profit maximising condition will ensure the firm will negotiate a wage based on the following relationship:

$$\pi = R(E_i N_i) - W_i N_i = R(E_i N_i) - (W_i/E_i) E_i N_i \quad (3.3.2)$$

subject to the relationship between wages and effort, R being real revenue earned by the firm. Firstly the firm will seek a wage to minimise cost per unit of effort (W_i/E_i) and secondly to maximise profit, given wages and effort. To minimise W_i/E_i , wages must be raised so long as effort rises faster than wages. Both W_i and E_i increase at the same level at the optimum.

This is defined as the Solow condition, implying that:

$$e_i(W_i/W^e, u)W_i/W^e = e(W_i/W^e, u)$$

This partial equilibrium gives the firm-level wage equation (W_i) as a function of the expected wage outside the firm (W^e) and the level of unemployment (u). The relationship highlights the interdependency between firm-level wages and external factors. And if power is relatively evenly distributed between employers and employees, it highlights also the importance of organisation development and negotiation as a means of achieving non-wage benefits to retain employees and achieve optimal profit outcomes.

This model implies that in a period of high unemployment, firms can apply less effort to motivating employees because of both the employer's relatively powerful position and that sanction can be used as the motivational force.

Wages are also used to prevent people leaving the firm, in particular where the embedded human capital is considered critical to performance and where training is a costly process.

Depending on their desire for higher wages and their perceptions of the cost of migration between employers, employees will have individual propensities to migrate to higher paying sectors. Resignations also incur a cost to the firm. The loss of personnel equates to a loss of human capital, the replacement of which costs the firm in the form of recruitment of new personnel and their training, a factor of increasing importance in knowledge and relationship based business models.

The quit rate is defined by Layard (1991) as a function of internal and external wages, with the likelihood of gaining alternate employment

$$q = q(W_i/W^e, u)$$

From this, the firm's steady state of profit is as follows

$$\pi_i = R(N_i) - [W_i + \phi q (W_i/W^e, u)]N_i$$

where R is recruitment cost and N_i represents the leavers in period (i). This relationship is optimised by minimising the cost per worker and achieving the appropriate employment level.

However, the variables included in this equation are not necessarily within the control of the firm. Competitive behaviour by other firms, particularly in areas of skill shortages, creates a need to respond to labour market rates in an effort to retain skills and enterprise capability. The responses can take the form of rates that are over the award or agreement derived wage structures. Wages drift, a general upward movement of wage rates within a firm or sector, can be initiated by earlier short run requirement to pay a wage premium for a particular skills set. The initial step can establish a new internal benchmark around which relativities are then established. The factors that contribute to employee retention by providing relatively attractive employment conditions, can also contribute to the firm's ability to attract new employees

Factors contributing to employee retention, also contribute to the firm's ability to recruit new employees. Firms may consider that they can attract and recruit personnel more quickly if they offer a higher relative wage. As a result hires (H_i) is given by

$$H_i = h(W_i/W^e, u) V_i$$

Where V_i is the firms vacancy level.

The firm has N_i leavers per period, and wishes to replace them. It can secure a flow of recruits by either raising wages or by creating job vacancies. Both options incur costs, the first by increasing the direct wages bill and the second by incurring a net cost of an empty workplace (ϕ).

The firm's profits are then defined in the following manner:

$$\pi_i = R(N_i) - (W_i + \phi V_i/N_i)N_i$$

Since, in a steady state, the firm sets $H_i = sN_i$,

$$\pi = R(N_i) - (W_i + \phi/h(W_i/W^e, u)N_i).$$

The wage is again set to minimise the net cost of labour, including hiring costs, an increase in vacancies costs or turnover rate increases equilibrium unemployment.

There are three key factors emerging as factors affecting wages when the motivation, retention and recruitment dimensions are considered, they are as follows:

- The ability to generate revenue;
- Relative wages; and
- The unemployment rate.

Where able, firms choose wage and employment levels to maximise profits. The motivation, retention and recruitment factors in determination of wages introduce externalities and dynamic elements into the enterprise level decision making processes. Within the collective bargaining construct firms are not able to operate independently of the market influences on wages, nor in periods, of high unemployment, would they want to, if the relationships identified above held true. Firms operate within an industry sector, their decisions are influenced by the demand side of the market and their competitors, the supply side. Firms responses seek to maintain or expand market share and to recruit the human resources underpinning their supply capability and competitiveness.

The focus on recruitment, retention and unemployment suggests a short-run perspective where the firm is adapting to high staff turnover. The perspective need not be the case. Many firms experience low turnover and still have significant long term investment in developing human capital, rather than being reliant on recruiting such skills. In such an

environment, unemployment levels are arguably overemphasised as a wage determinant. The focus on recruitment, retention and unemployment infers a short run perspective where the firm is adapting to a high staff turn-over . This situation is not always the case, many firms experience low turnover and have significant long term investment in developing human capital, rather than being reliant on recruiting such skills, in this environment, unemployment levels are arguably overemphasised as a wage determinant. Within the firm's decision making, unemployment may be a greater issue as an indicator of the likely demand for products or services, rather than as a factor in labour relations.

The retention and recruitment relationships identified above place considerable emphasis on the unemployment rate as a proxy for the ease with which employees can move between employers and from this, access improved wage earnings. The unemployment rate could be considered a useful supply side variable if labour was homogenous, that is, a uniform input into the production process. In many instances, for example, in the delivery of services where the quality of human capital is critical, a demand side variable such as the vacancy rate within the sector may have greater validity as an indicator of the potential for employees to be able to find alternate employment and from this, to increase their relative power in such bargaining.

3.3.2. Inter-industry Differentials Between Wage Levels

While it has been observed that employee capability is not necessarily homogenous, there are many employee attributes that can be applied across different sectors. Consequently enterprises not only compete for labour with firms in their sector, they also compete with firms operating within other sectors and industries.

The interest in industry differentials is in response to the question as to whether wages for similar workers with the same job characteristics are the same across industries an issue raised by Layard (1991). Australia has historically experienced consistency in wage levels

and employment condition within Industry Awards. This situation results from the centralised industrial decision processes ensuring flow-on effects from benchmarks established in the successful export sectors. There is evidence in Australia of some sectors being characterised by higher wage earnings for particular skills than in other sectors, in these instances the award rates applied only to less highly performing sectors. This provides a linkage between sectors that are performing relatively well at a particular time, traditionally it has been the major resource export sectors and more recently, in financial and business services sector stimulated by the IT revolution and increasing globalisation.

Layard (1991) identifies that the most powerful explanatory variables for the existence of wage differentials include the capital/labour ratio, profitability and the degree of unionisation. Firms that are more intensive in their use of capital, and often larger, pay more, in part because the technology applied through the use of capital induces more discipline in worker effort by ensuring standard operating procedures are applied. Profitability allows these employers to bestow a *gift*, while the union effect in a collective bargaining model, bestows a threat effect in negotiation. The ability for unions to apply a greater threat effect in sectors experiencing high profitability introduces an opportunity cost effect of strike action; whereas in less profitable, or loss making sectors, the threat is transferred as a cost to their members.

3.3.3. Unionisation, Bargaining and Wages

Following centuries of collective association by craft specialists, craft unions were developed in the last quarter of the 19th century to provide a collective voice and basis of action to counter perceived power imbalances between employers and employees in negotiation of wages and conditions. The structure of unions in Australia has altered at the close of the 20th century to reflect an industry/sector characteristic. This has resulted in an increase in the incidence of enterprises negotiating with a single union to produce a single award and/or agreement of fixed duration for the enterprise. Allegations of union processes resulting in pattern bargaining and upward drift in wage rates arise from the simultaneous use of a

single bargaining unit to negotiate agreements within a number of enterprises. The concern is that this outcome diminishes the enterprise specific nature of the agreement and replaces it with what is effectively a sector level agreement. These claims are made particularly in sectors where agreements fall due on approximately the same date.

In Australia, much of the wage setting occurs within a collective bargaining environment, involving labour unions as the employee bargaining entity. As identified in Chapter 2, very few non-union agreements have been lodged in the federal jurisdiction, despite the ability for firms and their employees to develop them, independently of union involvement. This is despite the downward trend in union membership resulting in many firms having a lower proportion of their employees in union membership.

At the most basic level, bargaining over wages centres on the balance between wages and effort. Layard (1991) contends that the union is concerned only with existing workers and the objective of maximising the income of the median worker. The objective is given by

$$V_i = S_i W_i + (1-S_i)A_i$$

Where W_i is the real wage of firm i measured in units of GDP, S_i is the probability of being employed by the same firm the next period (dependent upon the wage bargain) and A is the expected real income of the worker who loses or changes their job. At the time of bargaining it is assumed that there is some uncertainty about some aspects of the firm's future performance. The expected alternative income (A) is given by $A = (1-\phi u)W^e + \phi uB$, where W^e is the expected real outside wage, B is the real unemployment benefit and ϕ is a constant that depends positively on the discount rate and negatively on the turnover rate.

While this approach to modelling the role of unions reflects the retention model identified above, it introduces a strategic element missing in the former. This occurs through the inclusion of the probability of being employed by the firm in the next period, a factor dependent on the future success of the business. It further introduces the potential to

consider the likelihood of a greater differential between expected outside wage than that of the firm, if the firm is successful. This approach provides an opportunity to consider multi-layer rewards, those combining base increases and performance based rewards.

Introducing business strategy into the union negotiating process, results in ambiguity in the direction of union influence on wages. If the firm fails to meet its strategic objectives, the two tiered approach identified above, may dampen the short term influence of the union on wage earnings.

3.3.4. Unemployment and Wages

The above models indicate unemployment is a key influence in determining wage levels. The influence of unemployment on wages is evident in both firm wage theory and in insider power theory. The evidence about unemployment as an influence on the direction of wage movements in Australia and other developed economies is mixed.

The relationship between wages and unemployment is explored in a wages curve model, analysed by Kennedy and Borland (2000). This analysis established that a wages curve, similar to that existing in the UK and US, did exist in Australia, although the wage setting institutions and standards in the sample of countries were markedly different. The influence of unemployment is generally found to limit the rate of increase in wages, rather than to drive wages downwards across developed industrial economies.

3.3.5. Macro Approaches to Modelling Wage Earnings

Jonson, Mahar & Thompson (1974) undertook experimental work using single equation estimation to determine the factors explaining movements in average weekly earning per employed male unit. The structure of this experiment was built on previous econometric analysis in the United Kingdom, United States and other overseas countries, based in particular on the work of Phillips (1958). The Phillips Model identified the three main

determinants of the rate of increase in wage earnings per man to be as follows:

- The demand for labour;
- The rate of change in the demand for labour;
- The rate of change in both wage and commodity prices.

Jonson, Mahar & Thompson's (JMT) single equation estimate is designed to explain the movement in average money wage earning per man on a quarterly basis. Recognising the uniqueness of the Australian Industrial Relations System, JMT introduced award wages as a factor affecting wage earnings as part of a set of independent variables. Unlike Phillips who identified U , the percentage increase in unemployment, as the demand for labour variable, Jonson, Mahar & Thompson used the percentage change in V/U where V is the vacancy level as a proxy for the demand for labour. Further inclusions in the set of independent variables were the level of foreign reserves, world prices and domestic productivity.

The rationale for the inclusion of the level of foreign reserves was the impact of foreign reserves on future inflation rates. The world prices variable was included on the basis that high world prices lead to more generous wage settlements in export and import competing industries. In relation to overseas studies, the inclusion of a domestic productivity variable was influenced by the finding which identified a strong relationship between productivity and/or profits and wage earnings per man.

The following variables, namely the percentage rate of increase in award wages, domestic productivity, world prices and import prices were lagged in the estimation.

JMT conclude that while the variables included in their estimation are significant and positive in affecting wage outcomes, Durbin Watson tests indicate they are neither satisfactory, nor unsatisfactory as explanatory variables. Challen & Hagger (1979) identify two elements of the findings as noteworthy. The first finding is the similarity of the Australian results with overseas studies in relation to commonly used variables and the second the influence of the

rate of change of the award wages variable. This variable was highly significant, but with a coefficient less than unity, implying award wage increases are not fully passed on into earnings. This is indicative of an industry response that reduces over award payments as a means of softening the impact of externally driven wage increases. The decision on the level and application of over award payment was one of few choices available to the employer within the centralised industrial relations system.

The influence of Arbitration Commission decisions on wage earnings was central to the JMT modelling. In particular, their study reflected the 1967 total wage concept, they reflected this by considering the basic wage element of the overall award wage decision; which was comprised of the basic wage and metal trades margins, against the National Wage Case decision post 1967.

In some respects the pre 1967 approach, a basic wage decision and a metal trades margin component, was analogous to the current system of minimum standards above which enterprises could negotiate with employees. While the earlier model was centrally negotiated, it also reflected performance and differing sectors capacity to pay. As argued by the craft based unions at the Arbitration Commission, these included sectors employing metal trades.

In reaching the above conclusion JMT designed their model to test a range of views on the decision criteria applied by, and operations of, the Industrial Relations Commission. At one extreme is the view that the Commission was merely a rubber stamp, implying that it merely applied an award increase reflecting the rate of increase in wage earnings occurring in the labour market, in effect capturing the wages drift criteria and providing a safety net for those employees whose wage rates had not drifted upwards. The view that wage decisions were made on political criteria was also considered. This view was premised on the conclusion that the nature of the decision reflected an appropriate wage increase ensuring maintenance of the system itself. A third, intermediate view was that while increases in award wages

flowed on to wage earnings, the increases were offset by enterprises reducing over award payments. JMT's modelling supports the third view, the first and second being rejected. The finding is important from a number of perspectives, because it identifies that the Commission, through its award wage decisions was significant in influencing wage earnings and the flow on from award wage decisions to average wage earnings occurs almost immediately. However, enterprises diminish the impact of the award decision by reducing over award payments to achieve an acceptable wage earnings result.

The wage earnings findings indicate that enterprises had developed mechanisms to accommodate the external changes centralised industrial relations processes imposed upon them.

The variables included by JMT reflect the 1974 policy settings, in particular a fixed rate of exchange between the Australian dollar and its trading partners and the centralised industrial relations system. Challen & Hagger (1979) criticise the modelling for its theoretical weakness, however its exploratory nature, consistent with approaches with earlier US and UK modelling is also acknowledged.

An important finding of the Jonson, Mahar and Thompson research is the identification of "wages drift", this is an upward drift in wages arising from enterprise and sector based negotiation outside and above the formalised wage structure in response to excess demand for labour and productivity gains. Firms periodically moderated the rate of drift by reducing award payment flow-on where over award remuneration existed. This finding allowed a separation in modelling by viewing drift as a time based variable reflecting the dynamic adjustments in the market.

The Reserve Bank of Australia (RBA) developed a different specification to explain changes in Average Weekly Earnings (AWE) within the centralised system policy settings. The small scale model (RBA76) developed a composite variable reflecting real wages, labour supply

and demand, real stock of money and the ratio of real award wages to the level of real award wages consistent with growth at the regular rate.

The earnings model in this thesis uses earnings per hour as its dependent variable. This measure reflects the labour productivity measure used in the productivity estimate, labour productivity per hour. This provides a direct comparison between the productivity and earnings. The variable is also considered appropriate given the flexibility that has developed within the Australian labour market, demonstrated by the incidence of part time, including casual work, an hourly employment system.

3.3.6. Earnings Estimate

The structure of the following estimation has been informed by the preceding analysis of models.

$$W_i = f(P_i, K_i/L_i, u_i/L_i, CPI, U_i/L_i) \quad (3.3.1)$$

Earnings per hour (W_i), within this model is determined by labour productivity (P_i), the industry capital/labour ratio (K_i/L_i), the unemployment rate, the rate of change of prices (CPI) and the degree of union membership (U_i/L_i).

The variables reflect issues identified by Layard, the single equation modelling approaches applied by JMT(1974), Phillips (1958) and Kennedy & Borland (2000). Productivity is used as a measure of industry performance, the capital labour ratio, CPI, unionisation and unemployment are included as in the earlier models.

A log linear interpretation of (3.3.1) provides an econometric basis for the application of the model, detailed in the following chapter along with the productivity model (3.2.3).

3.4. Modelling Technique

3.4.1. Panel Data and its Application to Estimation

A primary concern in attempting to evaluate the impact of enterprise agreements is the selection of an appropriate modelling technique. As EBAs were introduced from 1992, there are only a relatively small number of time series observations available. The suitability of panel data techniques for modelling cross sectional data, with a limited time series, make it an appropriate approach. The choice of panel data was reinforced by the presence of a small number of explanatory variables potentially comprising the cross-section analysis.

Hsiao (2000) identifies the advantages of panel data sets over time series and cross-section data sets for this form of analysis. Panel data sets are comprised of 2 dimensions: the cross sectional dimension n and the times series dimension T . Hsiao (2000) concludes that panel data analysis provides significant advantages over cross sectional or times series techniques (points (n, T)), as it increases degrees of freedom and reduces collinearity amongst explanatory variables. Panel data analysis is an effective tool when applied to labour market analysis because it captures change over time while facilitating the modelling of more complex behavioural relationships within cross sections (Hsiao 2000).

The basic regression model for panel data analysis is of the form

$$Y_{it} = x'_{it}$$

One further major advantage of panel data methods is a capacity to deal with omitted (mismeasured or unobserved) variables that may or may not be correlated with the explanatory variables in the model. When such correlation occurs and factors are fixed, the model is defined as a fixed effects (FE) model.

The alternate form is a random effects (RE) model where there is no relationship between omitted variables and the explanatory variable, this is only appropriate when there is no

relationship between the error term in the model and the explanatory variables.

The decision to use a fixed or random effects model is important because of the need to use the most efficient approach (see Hsiao 2000). This distinction matters less when the time series is large for if T tends to infinity, the LSDV and GLS estimators are identical.

While there are advantages derived from the panel data technique, there are problems, in particular, issues surrounding heterogeneity and selectivity bias. Heterogeneity bias arises when significant individual or time effects exist amongst cross sectional or time units and are not captured by the explanatory variables. Selectivity bias occurs when the sample is found not be random, an outcome affecting either the slope or intercept (or both) of the estimate.

In the data set applied to this analysis, both the size of the time series (14 years) and the number of explanatory variables ($n = 5$) are small, increasing the importance of selecting the appropriate model. The data set includes enterprises drawn from the 17 ANZSIC classified industries and could arguably be considered as random draws from the population of enterprises. In the RE model there are two basic assumptions. The unobserved effects are random draws from a common population and the explanatory variables are exogenous, meaning that the error terms are uncorrelated with past, present and future values of the regressors. However, there are frequently reasons to believe that in many cases the error terms and explanatory variables are correlated. Hsiao (2000) uses the example of the production function where output may be affected by unobserved management ability within the enterprise leading to more efficient production, as an appropriate use of an FE model. The same view applied to the wage earnings equation defined in this chapter where omission of factors which may influence union wage demand, for example Industrial Commission decisions, could be used to argue the appropriateness of a FE model as the preferred model. Greene (2003) provides a discussion based on a regression model of the form

$$y_{it} = \mathbf{x}'_{it}\beta + \mathbf{z}'_i\alpha + \varepsilon_{it}$$

where there are K regressors in \mathbf{x}_{it} , not including a constant term. Within this model, $\mathbf{z}'_i\alpha$ is defined as the heterogeneity, or individual effect, where \mathbf{z}_i contains a constant term and set of observed individual or group specific characteristics. As Greene (2003) identifies, in this instance the entire model can be estimated by least squares. If however, \mathbf{z}_i is unobserved but correlated with \mathbf{x}_{it} then the least squares estimate of β is biased and inconsistent as a consequence of the omission. This fixed effects model is defined by Greene (2003) as

$$y_{it} = \mathbf{x}'_{it}\beta + a_i + \varepsilon_{it}$$

where $a_i = \mathbf{z}'_i\alpha$ embodies all the observable effects and specifies an estimable conditional mean. In a fixed effects specification, a_i is a group specific term (that does not vary over time) within the regression.

Following this, if the individual heterogeneity is assumed to be uncorrelated with the explanatory variables, Greene (2003) expresses the model as

$$y_{it} = \mathbf{x}'_{it}\beta + a + u_i + \varepsilon_{it}$$

where u_i is a group specific random element that for each group is a single draw that enters the regression identically in each period. This is defined as a random effects approach that can be consistently modelled by least squares.

The nature of the effects present in the panel model can be formally tested using misspecification tests. Where the error term is assumed to be random and uncorrelated with the explanatory variables, the following hypotheses apply, where a represents the existence of correlation between the regressors and omitted individual effects

$$H_0: a \text{ equals } 0$$

$$H_1: a \text{ does not equal } 0$$

If H_1 holds and H_0 is rejected, the FE is the appropriate model but if H_0 holds then the RE model provides the most appropriate basis, Hsiao (2003). Mundlak (1978) developed a specification test using the F ratio, which under H_0 has a central F distribution K and $NT - (2K+1)$ degrees of freedom. Hausman (1978) tests the significance of the difference between the OLS and GLS coefficients of the explanatory variables. Under H_0 a Wald statistic is distributed asymptotically as central chi squared with k degrees of freedom. Under H_1 it has a non-central chi squared distribution. Where the chi squared statistic exceeds the critical value at the appropriate significance level and degrees of freedom, then misspecification of the RE model is inferred.

The fixed effects estimation requires the explanatory variable to be strictly exogenous. If there is an endogenous relationship between them, then the fixed and random effects models are both unreliable. This specification requires the model to be estimated using a generalised least squares (GLS) approach.

3.4.2. Methodology

The methodology applied to estimate both the labour productivity (3.2.3.) and the wage earnings (3.3.1.) models is now described. The first step is to use a serial correlation test developed by Wooldridge (2002) to determine whether the equation is appropriately specified. The Wooldridge test indicates the absence of serial correlation in both the labour productivity and wages equations. The second step is to apply the Granger causality test to determine whether the explanatory variables display endogeneity. In light of this the productivity equation was respecified by including a one period lag in the capital/labour ratio. The revised estimates on Table 4.1 to 4.4 in Chapter Four indicate that the revised form of the productivity equation is appropriately specified..

The wage earnings equation exhibited neither serial correlation nor endogeneity between the explanatory variables. The consequences of the tests were that a RE/FE approach could be applied to the wage equation but was inappropriate in application to the productivity equation because it does not reflect the necessary exogeneity requirement for explanatory variables.

The change to the modelling approach applied to the labour productivity equation is based on the high risk of heteroskedacity. There are a number of potential sources of heteroskedasticity including omitted variables; thus when applying a GLS procedure to panel data a standard GLS estimator can be applied if the variance components are known. As they are unknown, feasible generalised least squares (FGLS) estimators are used to estimate the impact of EBAs on labour productivity following Greene (2003).

Consequently a feasible generalised least squares (FGLS) approach has been applied to estimate impact of EBAs on labour productivity.

The third step applies to the wage earnings equation. This involved testing to see if an FE, or RE, estimation is most appropriate for the wage equation. Using the Hausman test,

outlined above, I found that the most appropriate method for the wage equation was the fixed effects (FE) model.

The remaining three estimates for each of the dependent variables are applied at the sector level. The sectors comprising groups of ANZSIC classified industries reflecting their differing output and business model characteristics as defined in Chapter One. This places a research emphasis on an important, complementary question: does the impact of enterprise bargaining activity on productivity and earnings vary between industry sectors? It is conceivable that federal EBAs have a different impact on the production and manufacturing industries when compared with their impact in the services sector of the economy.

3.5. Data

The following analysis of the impact of enterprise bargaining on labour productivity and wage earnings is based on the profile of Enterprise Bargaining Agreements (EBAs) registered in the federal jurisdiction from July 1992 to June 2003. This is a subset of all agreements registered in Australia, the remainder being those agreements registered in State jurisdictions. The data set has been selected because it is a single source of information collected and classified in robust and consistent categories.

The data set comprises collective agreements, those enterprise agreements involving both employer and union representatives in a bargaining process. Only a relatively small number of agreements have been finalised in the federal jurisdiction since 1996 (until 2003), without unions having been party to the agreement. This agreement data set has been kindly provided by the Department of Workplace Relations and is not generally available.

The data is organised as a profile of the number of agreements, number of employees covered by agreements and is categorised by agreement type and associated industry at the 2 digit Australian and New Zealand Standard Industry Classification (ANSZIC) code level. For the purpose of this analysis, the ANSZIC codes have been aggregated to the single digit

level and modelled as the standard set of 17 industries and as 3 industry sectors, namely the production/resources, services and margins sectors of the economy as defined in Chapters 1 and 3, above.

Estimation is based on all agreements registered within the federal jurisdiction. The data set includes agreements which differ according to the mechanisms used to determine wage increases throughout the agreement period, in particular, those agreements that include productivity and pay conditions and those applying independently of any award. The modelling is restricted to use of the incidence of all Agreements rather than the range of categories identified in Chapter Two because limited sample sizes apply if the sample is disaggregated.

The remainder of the data is drawn from the Australian Bureau of Statistics (ABS) for the same period and is detailed as follows.

Labour Productivity: Index variable, base = 1999 = 100, ABS 5204.0 *Australian System of National Accounts*, Table 22, Indexes of Gross Product Per Hour Worked, by Industry (a).

Union: ABS 6310, Trade Union membership in thousands by Industry.

Labour: ABS 6291.0.40.001: Labour Force (EJ) Employed – Industry – Australia – Quarterly: Tables 9g and 9h: Full Time Employed and Part Time Employed by Industry.

Capital Labour Ratio: ABS 5204.0 *Australian System of National Accounts*, Table 68. Capital Stock, by Industry: created by using end of year net-capital stock from this series and the labour force from above and combining with 6302.0 Average Weekly Earnings, Australia. Table 0I. Average Weekly Earnings by Industry, Australia (Dollars) – Original – Persons, Total Earnings.

The entire data set is comprised of 238 pooled observations while the production/resources sector is comprised of (4 x 14 = 56) in the case of the service sector (9 x 14 = 136) and the margins sector (4 x 14 = 56) observations for the services industry sector.

CHAPTER FOUR – RESULTS PRODUCTIVITY AND WAGE EARNINGS

4. 1. Introduction

The aim of this chapter is to present the findings of an econometric evaluation of whether the introduction of Enterprise Bargaining Agreements (EBAs) has impacted on Australian labour productivity and subsequently whether productivity has become a determinant of wage earnings. Two structural dimensions are included in the evaluation, the Australian economy as a whole, combining its 17 industry sectors as described by the ANZSIC system, and this classification system aggregated into the 3 sectors described in Chapters 1 and 3 preceding.

The analysis uses data drawn from the Workplace Agreement Database (WAD) of federal enterprise agreements (EBAs) certified in the period dating from 1 January 1992 and 30 June 2003, applied at Level 1 of the ANZSIC Code. This data set, when combined with relevant Australian Bureau of Statistics data, forms a panel for analysis covering the period from July 1993 to June 2004. The industry level approach provides a different perspective from the recent studies by Tseng & Wooden (2001) and Wooden, Loundes and Tseng (2001), who analyse the contribution of enterprise bargaining to productivity using sample data from the ABS Business Longitudinal Survey and Australian Workplace Industrial Relations Survey respectively. Wooden, Loundes and Tseng (2001) conclude that evidence of possible links between enterprise bargaining and productivity growth is far from conclusive and if enterprise bargaining has given rise to positive productivity effects, virtually nothing is known of the mechanisms through which such effects are transmitted. Tseng and Wooden find that productivity levels in organisations characterised by the presence of registered enterprise agreements are estimated to be 8.8 percent above enterprises without such agreements in place and they also note that high productivity firms appear to have a

greater capacity and motivation for introducing enterprise agreements.

The case studies summarised in Chapter 2 are provided as some preliminary, typical examples of the mechanisms, applied as part of the EBA development process, that have resulted in positive productivity results at the enterprise level.

This study augments the existing Australian literature by analysing the effects of enterprise bargaining agreements (EBAs) on labour productivity at the industry level. It adds a further dimension by determining whether the introduction of enterprise based industrial negotiations has resulted in productivity becoming a significant determinant of wage earnings. This would be a significant departure from the cost of living criteria, measured by the Consumer Price Index (CPI) that was once a major determinant in the centralised system.

Both equations have been tested for the presence of autocorrelation by using the procedures of Drukker (2003) to apply Wooldridge (2002) test for autocorrelation in panel data models. The results appear are discussed below Table 4.1 and 4.6 revealing that there is no autocorrelation in the estimates of either equation.

4.2. Productivity Results

The explanation of industry labour productivity given in equation (3.2.3) is estimated as a cross sectional time series model in four replications: the entire data set including all 17 classified ANZIC industries; the production and resource based sector; the margins sector and services sector. The methodology used to determine the specification of the econometric form of the equation and validity of using the GLS cross sectional time series model, rather than panel data FE or RE estimation, is described in Chapter 3.

Table 4.1 contains the results of the GLS estimation of labour productivity for the Australian

economy overall.

Variable	Results		
	Coefficient	z	P > z
Const.	-1.743463	-8.30	0.000
Capital/labour	0.346004	4.25	0.000
Proportion of fte in the labour force	-0.4180255	-1.07	0.284
Proportion of pte in the labour force l_{ft}	-0.540909	-6.98	0.000
Proportion of employees covered by EBAs	0.0611061	6.28	0.000
Union Density	-0.1554857	-1.16	-0.248
Wald χ^2 -	592.43		
Prob > χ^2	0.0000		
Wooldridge Test F (1,16)	0.704		
Prob > F	0.4137		

Table 4.1: Results of Estimating (3.2.3) for ALL INDUSTRIES

The value of the Wooldridge test statistic indicates that autocorrelation is not a serious problem in this model.

The coefficients on agreements, capital/labour ratio and part-time employment are all significant. The impact of agreements and the capital/labour ratio are positive in sign, while the proportion of part-time employees is negative in sign. The full-time labour proportion is not significant.

The outstanding result identified in Table 4.1. is the significance of the proportion of

employees covered by enterprise bargaining agreements (EBAs) in determining Australia’s labour productivity. In the model the coefficient (+0.061) is highly significant and positively signed. The capital/labour ratio (k_i/l_i) increases industry labour productivity significantly while it is clear from Table 1 that the nature of the employment contract matters for Australia industry productivity. The model indicates that as the part-time proportion of the workforce increases, industry labour productivity declines. The implications of these results are explained in the concluding section.

It is conceivable that this explanation of the determinants of Australian labour productivity across the economy as a whole does not equally apply to specific sectors of the economy. The subsequent question is whether the economy wide results carry over into each of the three sub groups that have been defined. This question is addressed the following tables which provide the GLS results for those sectors.

Variable	Results		
	Coefficient	z	P > z
Const.	-8.593879	-5.30	0.000
Capital/labour	0.1319208	2.30	0.021
Proportion of fte in the labour force	6.301281	3.23	0.001
Proportion of pte in the labour force l_{ft}	-0.649041	-4.42	0.000
Proportion of employees covered by EBAs	.0392606	2.95	0.003
Union Density	-0.355905	-3.40	0.001
Wald Chi ² -	1355.08		
Prob> Chi ²	0.0000		

Table 4.2: Results of Estimating (3.2.3) for the Production/Resources Sector

The coefficients on agreements, capital/labour ratio, full-time employment, part-time employment and union density are all significant. The impact of agreements, the

capital/labour ratio and proportion of full-time employees are positive in sign, while the impacts of union density and proportion of part-time employment are negative in sign.

Again the proportion of employees covered by bargaining agreements (EBAs) is identified as significant in determining Australia’s labour productivity. The capital/labour ratio(k_i/l_i) , a measure of the capital intensity of the sector, increases industry labour productivity significantly. The nature of the employment contract is also important for the production/resources sector, in this instance it is the proportion of full-time employment that positively contributes to labour productivity, while as the proportion of part-time employment increase labour productivity decreases. Interestingly, union density is identified as having a negative, significant impact on labour productivity within the production/resources sector.

The labour productivity model (3.2.3) is then applied to the service industries as a group.

Variable	Results		
	Coefficient	z	P > z
Const.	-2.641524	-12.04	0.000
Capital/labour	0.2628273	6.10	0.000
Proportion of fte in the labour force	1.529747	3.81	0.000
Proportion of pte in the labour force l_{ft}	-0.070185	-0.80	0.000
Proportion of employees covered by EBAs	0.0345935	4.17	0.000
Union Density	-0.1019091	-3.16	0.002
Wald Chi ² -	621.71		
Prob> Chi ²	0.0000		

Table 4.3: Results from the Estimation of (3.2.3) for Service Sector

The service industries interpretation in Table 4.3 is identical to the interpretation that emerged from the production/resources sector.

The coefficients on agreements, capital/labour ratio, full-time employment, part-time employment and union density are all significant. The impact of agreements, the capital/labour ratio and proportion of full-time employees are positive in sign, while the impacts of union density and proportion of part-time employment are negative in sign.

Again the proportion of employees covered by bargaining agreements (EBAs) is identified as significant in determining that sectors labour productivity.

The final application applies equation (3.2.3) to the margins sector. The results of this final experiment are displayed on Table 4.4.

Variable	Results		
	Coefficient	z	P > z
Const.	-5.8963	-7.36	0.000
Capital/labour	-0.4205849	-3.06	0.002
Proportion of fte in the labour force	11.25495	5.52	0.000
Proportion of pte in the labour force l_{ft}	1.844399	3.43	0.000
Proportion of employees covered by EBAs	0.1145623	6.11	0.000
Union Density	0.4431423	3.06	0.002
Wald χ^2 -	202.31		
Prob> χ^2	0.0000		

Table 4.4: Estimates of (3.2.3) for the Margins Sector

In the margins industries EBAs are again significant and have a positive effect on labour productivity. However, while the variables are all still significant, the sector demonstrates some significant deviation from those preceding in the sign of the coefficients. The capital labour ratio has a significantly negative effect in contrast to the services sector and the production/resources sector where its impact is positive. The proportion of part-time employment is positive in sign, indicating the opposite compared with the two preceding

sectors. It appears that the sector is indifferent to the labour contract, both forms of employment contributing to increased labour productivity but with full time employment's contribution much larger.

There are clearly some generally applicable results in the 4 models which we have estimated although there are also important inconsistencies across sub groups of Australian industries. These inconsistencies are discussed in the concluding Section.

4.2.1. Interpretation

To summarise, Table 4.5 presents the signed effects of the variables explaining industry productivity in Australia.

Variables/Models	Constant	Cap/lab	Proppte	Propfte	Prop EBA	Union Density
All Industries	+	+	-	ns	+	ns
Production/resources	+	+	-	+	+	-
Service	+	+	ns	+	+	-
Margin	+	-	+	+	+	+

Table 4.5: Summary of Signed Effects from (3.2.3)

- ns means not significant
- + means a positive impact
- means a negative impact

The results summarised in Table 4.5 suggest that the innovation of EBAs had a positive effect on Australian labour productivity. This is evidenced by the fact that in 4 replications of the productivity model (3.2.3) on 4 occasions the EBA variable is significantly positive. So the general conclusion from this study is that the EBA variable has enhanced Australian industry labour productivity.

The union effect is to reduce industry labour productivity in the production/resources and service sectors, but presents as positive in the margins sector. From an economy wide perspective, union density is identified as being insignificant in determining labour productivity.

The nature of the employment contract creates a further interesting result. When considered across the economy as a whole as the proportion of part-time employment increases, labour productivity decreases. This finding is significant when the increased incidence of part-time employment increases, as it has done, in sectors of the Australian economy. The proportion of part-time employment is identified as having a positive impact only in the margins sector, but with a relatively low coefficient compared with the proportion of full-time employment. The higher is the proportion of full-time workers, the higher is labour productivity in that industrysector, this is particularly so in the production/resources and margins sectors and less so in the services sector.

The capital/labour ratio in Australian industries generally has had a stimulating impact on industry labour productivity. This result may be explained by the labour saving or capital augmenting nature of technical change associated with increasing capital intensity in production. The notable exceptions to these arguments occurs in the margins sector of the economy where the pace of technical change has often been rapid. The rapidity of such change has been absorbed in the margins sector of the economy, but at substantial adjustment costs particularly in relation to the redeployment of labour.

4.3. Wages Results Model

The model applied to the analysis of the impact of enterprise bargaining on wages, reflects an empirical approach and practice applied in Australia and internationally. The structure is based on the Johnson, Mahar and Turnbull (1974) equation and reflects the approach taken by Wooden (2003), Kennedy and Borland (2000) where a vector of characteristics for

explanatory variables under consideration is added to variables identified as core determinants of wages as identified in the section above.

The data set includes wage earnings per hour as the dependent variable, with explanatory variables Chain Volume Added per employee hour, the Capital Labour Ratio, Union Density, Price inflation (CPI) and the Unemployment Rate.

In each of these four replications of (3.3.1.) the model is estimated by fixed effects. The choice of estimation approach was determined by the application of the Hausman (1978) test to the estimating equation. Prior tests for serial correlation and endogeneity, as described in Chapter 3 had determined the application of a FE or RE model as appropriate. The fixed effects version of the model allows for the possibility that the constant term in (3.3.1.) labelled α_{i0} differs across individual industries although it must be stressed that these individual industry terms do not vary overtime.

Some authors argue that a choice between FE or RE model should be made on the basis of a specification test such as the one proposed by Hausman (1978). Others, such as Hsiao (2003) suggest that the choice between RE and FE models will depend on the circumstances surrounding the presentation of the data set in each case. Application of the Hausmann (1978) test, indicated the appropriateness of the FE model and as such, it has been applied to the estimation of the wage equation

The empirical explanation of industry wages provided above is estimated as a panel data model in four replications: the entire data set including all 17 classified ANZIC industries; the production and resource based sector; the margins sector and services sector.

4.3.1. Economy Wide

Table 4.6. below, contains the results of the FE model used to determine (3.3.1.) for all 17 ANZIC industry classifications.

Variable	FE		
	Coefficient	t	P > t
Const.	.0124899	9.69	0.000
Labour Productivity	.005577	8.96	0.000
CPI	-9.67e-06	-1.55	0.123
Unemployment Rate	.0002106	1.58	0.118
Union Density	-.000353	-1.07	0.287
R ² -Within	0.6225		
R ² - Between	0.2761		
R ² - Overall	0.3016		
Wooldridge Test	0.017		
F(1,12)			
Prob>F	0.8985		
Hausmann Test	12.34		
Chi ² (4)			
Prob> Chi ²	0.0150		

Table 4.6 Results of Estimating the Wage Relationship (3.3.1) for All Industries

The value of the Wooldridge test statistic indicates that autocorrelation is not a serious problem in this model. Within and between effects measured by the respective R² indicate that the model provides a more complete explanation of within effects than it does for between effects.

The outstanding result is that labour productivity is identified as having a highly significant and positive impact on wage earnings per hour. Interestingly, neither the CPI nor the unemployment rate are identified as significant at the economy wide level. The sign of the

significant variable reflects expectations, a positive relationship between productivity and wages. This is a strong indicator suggesting that the policy goal of increasing the nexus between wage rates adjustment and productivity, in preference to the inflation rate, is being achieved.

The finding of an insignificant and negative impact of union density on wages requires some consideration. The union density variable is defined as the proportion of employees in the workforce who are union members. Union membership as a proportion of the workforce has declined for the past 20 years. Equating this trend, however, with a reduction in industrial influence is, according to Mulvey (1996) inappropriate given the benefits that have flowed to both union and non-union members from the bargaining process. In this event the result is not unexpected, the findings indicate a free rider effect by non union members for even as membership levels decline, earnings increase. This finding provides some evidence of the institutional approach to the industrial relations framework and the roles of the union and industrial commission in determination of earnings. The Australian industrial relations framework underpins enterprise based agreements with minimum conditions and provides national minimum wage adjustments impacting on earnings. These adjustments also mitigate the impact of over award payments, such processes are reasonably considered to be correlated with explanatory variables in this model. Additionally, union density is not necessarily a proxy for union activity in the bargaining process as argued in Chapter 3.

While the results provide an indicator of the usefulness of the model at an economy wide dimension, Australia has not experienced the same growth characteristics across all of its industry sectors. The following analysis takes the same structure as applied to the analysis of productivity and examines the usefulness of the model in three sectors

4.3.2 By Industry Sector

It is possible that the economy wide results are not necessarily translated into each of the industry sectors defined in Chapter 3. As defined, the sectors are differentiated by their

business models, these reflecting different relationships between employee and employers based on, for example the role which labour plays relative to capital, the homogeneity of labour inputs, capacity for substitution, and the relative importance of human capital and motivational factors. This difference reflects insider power and internal labour market discussions Chapter 1 and 3.

The 17 industries are classified into three sectors: the production/resources; services and margins sectors described in Chapter 3. Do different factors influence wage outcomes in these 3 sectors. The following tables provide answers to this question.

Variable	FE		
	Coefficient	t	P > t
Const.	.0071713	3.53	0.001
Labour Productivity	.0016622	2.57	0.015
CPI	-8.04e-06	-1.16	0.257
Unemployment Rate	-.0001146	-0.54	0.596
Union Density	-.0001881	-0.72	0.477
R ² -Within	0.3922		
R ² - Between	0.7400		
R ² - Overall	0.1617		

Table 4.7: Results of Estimating the Wage Relationship (3.3.1) for the Production/Resources Sector

Within and between effects measured by the respective R² indicate that the model provides a more complete explanation of between effects than it does for within effects.

Results from the estimation of the wages relationship for the production/resources sector provides similar results as those evident at the economy wide level. Labour productivity is again significant and positive, although the CPI, unemployment rate and union density are

not.

These FE results for the production/resources sectors are similar to the FE model in Table (4-6), however they provide stronger results. In Table (4.6) when applied across all 17 industries, the CPI and unemployment variable are approaching acceptable significance, whereas in Table (4.7), applied to the production/resources sector, they are less significant.

The production/resources sector demonstrates the traditional neoclassical approach to the determination of earnings, substitution of labour with capital and use of unemployment to reduce earnings pressure, indicating a degree of homogeneity in the labour force and an ability to introduce new workers. The sector is characterised by the creation of products and as reflected by Matthews (1996) the introduction of lean production systems with a quality and efficiency focus based on standardised processes and systems.

The characteristics of the production resources sector are fundamentally different to the services sector. The services sector is characterised by an output consumed by the customer as it is being provided, much of this is on the basis of interaction with an employee. In this service industry business model the direct employer dependence on the attributes of the employee for enterprise success is arguably greater than in the production resources sector. The results of the model applied to the group of service sector industries are summarised in the following Table 4.8.

Variable	FE		
	Coefficient	t	P > t
Const.	.0178311	10.12	0.000
Labour Productivity	.0102559	8.20	0.000
CPI	6.94e-07	0.09	0.928
Unemployment Rate	.0001832	1.27	0.211
Union Density	.0001444	0.33	0.744
R ² -Within	0.6829		
R ² - Between	0.5864		
R ² - Overall	0.6283		

Table 4.8: Results from the Estimation of Wages Relationship (3.3.1.) for the Service Sector

Within and between effects measured by the respective R^2 indicate that the model provides a significant explanation for both between and within effects.

In the case of the service industries the model provides the same economic interpretation for both the Production/Resources Sector and the economy overall. Only labour productivity provides a significant effect. The positive stimulation provided to wage earnings by productivity improvement is consistent throughout the analysis. In the services sector, the proportion of unemployment, while not reaching significance, is approaching it, potentially identifying the requirement for specialist skills within the sector.

The remainder of the industry sectors have been characterised as the margins sector comprising, wholesale trade, retail trade, transport and storage, finance and insurance. The results of this final analysis are displayed in the following Table 4.9.

Variable	FE		
	Coefficient	t	P > t
Const.			
Labour Productivity	.0073497	5.73	0.000
CPI	-.000039	-3.04	0.005
Unemployment Rate	.0002115	0.76	0.452
Union Density	-.0009524	-1.26	0.219
R ² -Within	0.8692		
R ² - Between	0.9999		
R ² - Overall	0.9700		

Table 4.9: Estimates of Wage Relationship (3.3.1.) for the Margins Sector

Within and between effects measured by the respective R² indicate that the model provides a very strong explanation for both between and within effects.

In the margins industries productivity is again identified as the primary driver of wage earnings per hour. Interestingly, in this sector, the CPI variable is significant and negative; real wages rates fall. While the sign has been consistent throughout the application of the model thus far as the CPI rises, this is the only occasion on which the variable is significant. As intermediary organisations, many businesses in the sector are under price pressure from both customers and suppliers, for example transport firms are constantly under price and quality pressures from major retail or manufacturing customers. These sectors are not in a position to increase wage rates from sources other than productivity improvement.

There are clearly some generally applicable results across the 4 models, although there are some important inconsistencies across sub groups of Australian industries. These inconsistencies are discussed in the concluding Section.

4.3.2. Interpretation

The following Table, 4.10 provides a summary of the signed effects of the variables explaining average wage earnings in Australia.

Variables/Models	Constant	CVA _{dpp}	Price	Union	Unemp
All Industries	+	+	- ns	- ns	+ns
Production/Resources Sector	+	+	- ns	- ns	-ns
Service Sector	+	+	- ns	+ ns	+ns
Margin Sector	+	+	-	- ns	+ns

Table 4.10: Summary of Signed Effects from (3.2.3)

- ns means not significant
- + means a positive impact
- means a negative impact

The results summarised on Table 4.10 suggest that the since 1993, earnings per hour have been primarily influenced by labour productivity. This finding is consistent across all industry groupings. The conclusion that wage earnings are motivated by productivity indicates a transition away from an externally decided wage fixing system based on changes to the cost of living to one where wages are driven in part by labour productivity. This is reinforced by the constant –ve sign on the CPI variable. This is a major realignment in the structure of the Australian economy.

Of equal importance is the lack of significance in findings related to unemployment. This finding is consistent with the sticky nature of wage rates identified by authors such as Phillips(1958), Kennedy and Borland (2000) cited earlier in Chapters 2 & 3. This may be a reflection of the application of insider power arising from embodied human capital, the time and cost of training new employees and the opportunity cost associated with employees leaving. This relegates the overall level of unemployment to a redundant status in wage

negotiations.

The lack of significance and ambiguity of union density is a finding to be treated with caution. While a traditional variable in such analyses its usefulness is questioned in the current environment of low levels of disputation and unions working to establish their position within the industrial system. The finding may be related to the coincidence of declining union membership and increasing real wage earnings. It should not be forgotten that EBAs have all been negotiated with unions. It is more an issue of union power than membership. While there is most likely a critical mass of membership required for relevance and the ability to represent the union as the collective voice, unions are still a major institution within the industrial relations system. As proposed by the institutional school, much of the industrial outcomes are a function of the interaction of the industrial institutions. Unions and employers understand their complementary roles and while some enterprises would prefer not to deal with unions, others prefer to continue to have an organised institution with whom to negotiate. It is also in the union's interest to achieve a positive result for its employees. In some instances the positive result is the continuity of the enterprise, rather than maximisation of short run wage improvement.

CHAPTER 5 – THE IMPACT OF THE POLICY TO DECENTRALISE INDUSTRIAL RELATIONS ON PRODUCTIVITY & WAGES – CONCLUSIONS AND POLICY IMPLICATIONS

5.1. Introduction

Australian enterprises have made a rapid transition to the EBA based industrial relations system that has allowed them to negotiate wages and conditions, subject to minimum standards, that reflect the specific needs of the enterprise and employees. Introducing EBAs has made a significant and positive contribution to labour productivity in the Australian economy. Over the same period, productivity has also become a significant and positive determinant of average earnings per hour.

These findings are important because they indicate a major change in the foundations of the Australian economy and of the industrial relations system. They contrast the previous centralised award system where wage adjustments primarily reflected cost of living adjustments and an economy in which productivity improvement was largely derived from increases in scale of production as the domestic and international markets grew. The consequences of the centralised system were that when combined with structural inefficiencies, the economy was becoming globally uncompetitive.

The findings indicate a virtuous relationship between the industrial relations system, as a contributor to labour productivity that then flows through to influence wage earnings, the country's competitiveness in the global market and living standards.

During the transition period there has been a positive combination of output and productivity growth, relatively low inflation and containment of wages. Consumers have reaped the benefit of low priced consumer durable imports and domestic productivity improvement providing purchasing power improvement not dependent on increased earnings. This environment has allowed the export and import replacement sectors to compete more

effectively because productivity gains are not being eroded by excessive increases in labour input costs.

The industrial relations system can be a catalyst for significant change. The centralised model arguably limited change by reducing the incentive to explore options. It was not benign, while providing rules relating to conditions and wage rates it effectively removed an important element of management from enterprises and with it the capability or desire to introduce innovation. The introduction of enterprise bargaining has raised awareness of the value of industrial relations and the use of enterprise agreements and their development process to improve productivity and business performance.

The structure of this chapter conforms to the evaluation framework. The structure provides a summary of the results, revisits the policy objectives to provide a comparative analysis, develops conclusions as to the cause of the result and finally considers the current policy approach within the context of the findings of this analysis.

5.2. Results of the Decentralisation Policy

5.2.1. Impact on Productivity

Introducing enterprise agreements has had a significant and positive impact on Australian labour productivity.

The results at an economy wide level detailed in Chapter Four indicate a significant positive contribution to labour productivity, measured by chain volume added per employee hour as the agreements are introduced and updated. The capital labour ratio also demonstrates a significant, positive relationship with labour productivity.

These findings lead to the conclusion that the introduction of decentralisation into the Australian industrial relations system, through the introduction of enterprise agreements, has achieved its labour productivity improvement objective. The above findings also indicate the

agreement process works in concert with capital in achieving that result.

The results also indicate that the proportion of part-time employees is negatively and significantly related to productivity. This is a concerning result given the trend towards increasing levels of part-time employment across some sectors and indicates the need for caution in pursuing this policy, if productivity is the single objective. Interestingly at the all industries level, the proportion of full time employment was not found to be significant in determining labour productivity.

All of the agreements in the sample were collective agreements, involving the union in negotiation, with the union as a signatory, however using union density as the explanatory variable, the finding is that the variable is not significant as a determinant of labour productivity. This result should be treated with caution, as there are arguments that union density is not an accurate proxy for union influence, Wooden (2003). While union membership as a measure of influence may indicate declining importance of the unions, they will remain significant while they are considered by other parties to be legitimate bargaining agents.

The capital/labour ratio in Australian industries generally stimulates industry labour productivity. This positive relationship may be explained by the labour saving or capital augmenting nature of technical change associated with increasing capital intensity in production. As highlighted by the case studies in Chapter Two, the introduction of new technology in conjunction with behavioural change provides significant benefits both in terms of efficiency and quality.

Within the production/resources, services and margins sectors, the impact of EBAs is consistent with results across the economy as a whole. However within the margins sector, there is a negative relationship between the capital/labour ratio and productivity and both forms of labour contract contribute to labour productivity. The sector is characterised by a relatively stable trend level of full time employment , with the growth in overall employment

derived from part-time positions.

5.2.2. *Impact on Wages*

The wage impact of introducing EBAs is indirect. It occurs through the influence of introducing EBAs on productivity that in turn, significantly and positively influences wage earnings per hour.

The other significant finding is that wage earnings are not significantly influenced by the CPI, union density or the unemployment rate. The CPI result is a major change from the centralised system that was heavily influenced by this variable as the basis on which to maintain purchasing power. The unemployment result is consistent with the findings of Phillips (1958) and Borland & Kennedy (2002), indicating the stickiness of wages and little downwards pressure from increased unemployment.

These findings were consistent across all sectors, the only exception being the negative significant relationship between the CPI and wage earnings in the service sector. Real wages in the sector are falling. This sector has recruited a large number of people who had previously been denied job opportunities, in many instances into part-time roles and at minimum wage levels. As a result this sector reflects the decline in wage earnings evident across the economy.

The conclusion that wage earnings are positively affected by productivity represents a positive change in the Australian economy indicating a change in the accepted view of the nexus between the wage fixing system and changes to the cost of living and transition to one where wages are now driven in part by labour productivity.

5.3. Matching the Policy Objectives

5.3.1. The Purpose of IR Reform

The micro-economic reform of the Australian economy that commenced in the 1980s was in recognition of the need to improve the international competitiveness of the Australian Economy. Reform has continued to the present time although through the 1980s and 1990s major institutional foundations were dramatically altered. Central to this reform is the focus on improving productivity, where in comparison to world best practice, Australia has lagged in all sectors except for minerals extraction up to the 1990's.

This relatively low productivity performance provided the impetus for reform of the Australian Industrial relations system and in particular the subsequent decision to decentralise industrial decision making by introducing enterprise bargaining as a mechanism to improve efficiency. An earlier introduction of a series of accords between the labour government and the unions had introduced efficiency concepts into the wage adjustment system, a fundamental change from the previous decades of adjustments primarily reflecting cost of living decision criteria.

Additional reform introducing enterprise bargaining agreements was designed to align the industrial relations system to the needs of enterprises subject to minimum standards. Recognising the interdependency of employers and employees, these enterprise agreements were negotiated between worker and employer groups or their representatives. This accommodates the use of collective agreements, where the union represented the interests of employees or non-union agreements made directly between the employer and employees.

While the early agreements contributed to improvements in technical efficiency, the concept of agreements supporting the enterprise to achieve better overall performance and to adapt to forecast future changes, has contributed to achievement of improvement in allocative

efficiency within enterprises. This internal orientation facilitated both improvements in efficiency and in the enterprise's effectiveness in meeting market opportunities. These results are consistent with reform policy objectives.

The EBA mechanism and processes met the needs of employers and employees and has led to the development of a more appropriate industrial relations framework to the small, open nature of the Australian economy.

5.4. How has the Policy Worked in Enterprises?

The inputs to the bargaining process include employees, employers, unions and the values and resources brought by these parties. In the EBA model the bargaining process reflected a high level of consultation and consideration of important issues for both employers and employees. Critically, the negotiation results are formalised in agreements that confirm both the criteria for wage outcomes and often for organisational development initiatives agreed upon. These agreements are relatively short term, often three years, as a result requiring ongoing review and renegotiation

5.4.1. Convergence of Organisational Development and Industrial Relations Theory and Practice

The convergence of the two fields occurred through a process of organisational learning. The agreeing to agree outcome, signed off with an associated wage increase of early agreements reflected a lack of knowledge and experience of both parties in approaching these agreements. The recognition and subsequent demonstration of EBAs potential as a mechanism with which to negotiate, legitimise, implement and reinforce organisational change as a pathway to improved business and economic performance created a momentum that saw many enterprises implementing innovative change and improvement. The case studies included in Chapter Two provide some evidence of the change in the management, employee and business focus that occurred across all sectors of the

economy. The NLS findings in relation to organisational characteristics such as improvement in relationships between employers and employees and the ability to introduce change reinforced the conclusion that these approaches were widespread.

The positive productivity and indirect wages effects occurred because the strategic, operations delivery and human/industrial relations elements of an enterprise were considered and adapted as an integrated system. When considered as a system it can be demonstrated that a change in one element can have positive or negative effects on other elements. These changes could be contractually agreed between the employer and employees in agreements having legal standing. This provided both the ability and confidence for an enterprise to act on these elements and importantly identified the benefit of so doing.

5.4.2. People's Engagement in the Process

The sample of agreements used in this study was collective agreements registered in the federal jurisdiction. These agreements include both the employer and unions, as employee bargaining representatives and signatories. While the unions are signatories, the practice generally involves employees in the detailed design and development of an agreement. Union involvement ranges from being the bargaining agent through to employee mentoring and advising roles.

It is this notion of collectivism and involvement as causal factors in the success of enterprise agreements that is addressed in this section.

Organisations are collaborative endeavours formed for a purpose where an individual cannot, in isolation, achieve that purpose. As highlighted in Chapter Two, different organisational forms are required for different purposes. The degree to which an employee is committed to the purpose of the enterprise and their efforts aligned to strategic tasks and performance requirements, the greater is the potential for high levels of performance.

It can be argued that the establishment of processes to facilitate this engagement has been a major contribution of the decentralised industrial relations framework. While it is not argued that many of the consultative mechanisms and organisation development practices were not previously applied, the linkage to the industrial relations system ensured they were applied and then the results were legitimised in the agreement.

The connection between action and outcome meant that the industrial relations system became relevant to all those in the game through its direct linkage of change, performance and reward.

There are two important conclusions from this, which relate to issues of scale and relevance. The reorientation of the industrial relation system to the enterprise level ensured the industrial relations system complemented the balance of the business system thereby completing that system. This ensured that initiatives, agreements and associated outcomes were relevant and beneficial to the players and therefore worth the effort of involvement. What is the optimum socio-economic and therefore industrial unit from an organisational sense? If work is a collective activity an enterprise wide agreement can be used to create a logical and relevant effort/reward system. Where the results are highly dependent on the individual's performance, such as in elements of the service sector, an individual approach may be a more relevant scale, whereas in the production resources sector where there is a high capital dependency and labour is more homogenous, the enterprise scale is more reflective of the environment and contribution.

The reorientation of industrial relations to an enterprise level leads to the conclusion that the enterprise scale is closer to the optimum than was the centralised system.

5.4.3. Cultural Change – Transition from an Inputs to Outcomes Focus within Enterprises

The connection of the strategic, operational delivery and human/industrial relations elements

of the business system supported a change in the focus of payment and reward.

Australia's centralised wage system was based on input time. Adjustments were argued on cost of living increases and translated into a change in the reward per hour of attendance at work, this made allowance for the inconvenience associated with working extended hours or when other workers are enjoying recreational days. Employers argued against adjustments on an input cost basis.

The transition to the enterprise agreement structure has resulted in consultation that broke the nexus between input time and reward. This commenced with annualised salaries a process where employees worked the hours required to get the work done, the change achieving outcomes such as reduced levels of overtime worked, while giving the enterprise certainty in its wage bill.

The case studies included in Chapter Two provide an indication of the move to reward based on both the quantity and quality of outputs and outcomes. These indicators are used for example, to structure career progression through a classification structure or for performance oriented bonus systems, they provide an unambiguous connection between the employee and the purpose of the enterprise in the context of the employee's contribution.

5.4.4. Outputs from the Negotiation

In Chapter Two it was identified that the majority of agreements were focused on wages and associated initiatives, and less on productivity agreements. A few comprehensive (productivity and change) agreements replaced most award provisions. In effect most agreements were to be read in conjunction with parent awards.

The agreement negotiation process tended to legitimise issues of concern in relation to the performance of the enterprise from both the employer and employee perspective while a formal agreement formalised the outcomes sought, and associated performance rewards.

The construction of a contract at the enterprise level provided a strong vehicle as a basis for review and evaluation, a process missing in many enterprises prior to the bargaining era.

5.5. Why has the Policy Worked?

The wages result, when considered in conjunction with the productivity finding, provides a strong measure of the success of policies to decentralise the industrial relations system to an enterprise level. Wooden (2005) concludes the earlier centralised industrial relations system resulted in employer apathy about industrial relations, the enterprise based system has not only reduced apathy but awakened many employers to the potential of industrial relations as a key element of the management system, in improving enterprise performance.

Tseng & Wooden (2003) had earlier concluded that enterprise agreements had contributed to Australia's improving productivity, but indicated there was a shortage of plausible explanation.

Chapter Two of this dissertation attempts to place the introduction of agreements as one part of an enterprise system, as indicated, a tool to legitimise and formalise issues central to enterprise performance, thereby providing a linkage between performance and reward. Agreements were negotiated with a high level of involvement, relative to earlier approaches in many organisations, thus contributing to joint decisions and the necessary commitment and motivation to implement terms of the award.

It can be argued that the timing of the introduction of bargaining was also fortuitous. In Chapter One we indicated there was an existing framework of organisational development potential, a new industrial relations and an economic imperative that in combination provided the appropriate environment for significant change. In some organisations where participative approaches had been previously applied, the ability to negotiate enterprise agreements provided a mechanism to formalise and reward for positive change. In organisations without such a history, the enterprise agreement provided the catalyst for the

initiation of such change, learning from others experiences.

Success in implementation at an aggregate level has contributed to a virtuous cycle of improved productivity leading to reduced costs leading to reduced inflationary pressure. In part this cycle is supported by low cost consumer durables from emerging economies such as China and India.

The results at the enterprise, sector and economy wide levels have combined to legitimise the approach, the system and the specific output that is an enterprise agreement.

5.6. Evidence Based Policy, the Potential for and Impact of Further Decentralisation

The issue is raised as a concern that is inherent in policy. In this policy example if some decentralisation has been good, more will be better.

The “WorkChoices” legislation was passed by the Australian Parliament in December 2005, it's stated objective is for a simpler, national workplace relations system for Australia (DEWR 2005).

This legislation provides for a number of significant initiatives, including:

- Centralisation of the industrial relations system within the federal jurisdiction;
- Application of the Corporations Power to establish the system in the event of the States not conforming to the decision;
- Removal of the responsibility for the establishment of minimum wages from the Australian Industrial Relations Commission (AIRC) and establishing the Australian Fair Pay Commission (AFPC) to establish these minimum wage rates;
- Removal from awards, those conditions that are already prescribed in legislation and establishing by legislation a range of minimum conditions, including dismissal

provisions. In combination with the wage rates established by the AFPC, these will become the “Australian Fair Pay and Conditions Standard”, the stated aim is to simplify the “no disadvantage” test for agreements and to ensure consistent minimum standards for agreements;

- The role of the AIRC will be limited to the resolution of disputes;
- The process for making and lodging agreements will be simplified with agreements being effective from the date of lodgement with the Office of the Employment Advocate (OEA) rather than from the date of certification or approval.
- Alterations to unfair dismissal laws and exemption for employers with less than 100 employees.

The other principle element of the federal government's philosophy is the application of Australian Workplace Agreements (AWA) an agreement between the employer and an individual as the primary form of contract in preference to enterprise agreements.

The implications of these changes are wide reaching in terms of role and responsibility. The introduction of the Australian Fair Pay Commission effectively removes the role of the union movement and employer organisations in the establishment of minimum wage rates and with minimum conditions set in legislation from their negotiation as well. The application of the Corporation Power, to replace Conciliation and Arbitrations powers negates the need for a dispute to trigger change and could if applied at its limits result in an award free industrial environment Wooden (2000).

The Corporations Power allows government to establish legislation “imposing obligations on, or in favour of, trading, financial or overseas corporations” and is considered by Creighton and Stewart (1994) to be consistent with the regulation of virtually any aspect of a corporation's labour relations. This means all registered corporations must comply with such legislation. The corporate model is fundamentally different to the legal framework of the

current. AIRC.

Simplification and streamlining are catch cries and admirable objectives, however given the complexity of the system and range of factors affecting the development and sustainability of a highly productive and adaptive business systems it is critical that the policy initiative not be simplistic. The current enterprise focused system has delivered strong productivity growth. This is argued to be a function of the associated processes, employee involvement and results/reward focus of the manner in which the policy was implemented at the enterprise level. There is little existing evidence to support the view that the proposed changes would assist or constrain this enterprise model which is starting to prove its worth.

However the same conclusion does not apply if the model is to promote the application of AWAs as the dominant agreement mechanism. Organisations are collective, collaborative enterprises, required when an individual is incapable of producing the product or service in isolation. Following this observation and the discussion of organisational development theory, in particular aspects of wages as motivators or in some instances demotivators, the notion was extended to the definition of the optimum socio-economic work and industrial unit. This optimum reflects the size and characteristics of the unit based on where output can be corralled to enable people's performance to be identified and as a result a measurable reward determined which is based on their performance, independent of significant external influence. There are relatively few instances in an enterprise where this principle can be applied to the individual. Individual agreements in a collective work environment may raise significant barriers to performance.

From an organisation's perspective, the transaction cost of negotiating separate agreements, beyond the performance reviews that are generally part of the management process, may be costly.

This example is provided only to identify the risk of reducing allocative efficiency and introducing demotivating factors if the focus of the industrial relations system at the

enterprise level fails to reflect the business context.

The current enterprise focused model has delivered significant benefits to the Australian economy, appears to have created the environment for sustained productivity growth and in combination with other factors contained inflation. The implementation of the current policy must protect the convergence of organisation development and industrial theory and practice at the enterprise level that contributed much to those outcomes.

Central to the process is the distribution of power in the negotiation process. The current system has a number of institutional players providing a balance in the power exercised in negotiation. The promulgation of individual agreements, particularly for new, inexperienced workers, may move the power from balance to a bias in favour of the employer, resulting in these employees accepting lower wages. Fairbairn (2005) argues that this will enable more inexperienced people to enter the workforce, gain experience and from this achieve higher pay levels and in the short run the low wage is augmented by the social security system.

This reinforces the “insider power” argument put forward by Layard (1991) with its potential to create considerable wage differential within organisations that are not necessarily based on either traditional classification structures or real productivity difference, e.g. in the outputs sector where capital intensity is critical to output and productivity. Motivational theory highlights the critical importance in relativities and perceptions of equity to productivity. Individualising these factors may tend to work against the effective collective action that is required from a work unit.

It is clear that the transition to a more individualised industrial relations system introduces a new level of complexity to the business system, it is less clear that moving from an enterprise focused system to the AWA process will improve either productivity or reward for productivity gain.

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Gprod: Index variable, base = 1999 = 100, ABS 5204.0 *Australian System of National Accounts*, Table 22, Indexes of Gross Product Per Hour Worked, by Industry (a). Union: ABS 6310, Trade Union membership in thousands by industry.

Labour: ABS 6291.0.40.001: Labour Force (EJ) Employed – Industry – Australia – Quarterly: Tables 9g and 9h: Full Time Employed and Part-Time Employed by Industry.

Capital Labour Ratio: ABS 5204.0 *Australian System of National Accounts*, Table 68. Capital Stock, by Industry: created by using end of year net-capital stock from this series and the labour force from above and combining with 6302.0 Average Weekly Earnings, Australia. Table 0I. Average Weekly Earnings by Industry, Australia (Dollars) – Original – Persons, Total Earnings.

EBA: Data supplied on request by DEWRSB, number of employees under wage agreements specified measured in thousands by particular industries. Observations: data range 1991-2004.

Industries covered: Mining, Manufacturing, Electricity, Gas and Water, Construction, Wholesale Trade, Retail Trade, Accommodation Cafes and Restaurants, Transport and Store, Communications, Finance and Insurance, and Cultural and Recreational Services, Personal and other services, education, Health and Community Services, Government Administration and Defence, Agriculture Forestry and Fishing, Property and Business Services.