Taiwan’s Private Sector Labour Market Prior to 1996

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Abstract

[Excerpt] Analysis of the inter-industry earnings differentials revealed that these differentials were quite small by international standards, and indeed, that earnings were rising at roughly the same rate in every sector of the labour market in Taiwan. Wage differentials in Taiwan's private sector are generally in line with the economy as a whole; quite small by international standards, with real wages rising at very similar rates throughout all of the major private sector industries, whilst also demonstrating similar growth and decline patterns. For example, the agricultural sector in Taiwan is a declining sector of the economy, relative to non-agriculture, whilst within the manufacturing industry, textiles is a declining sector relative to electronics; and yet, the incomes of farm and non-farm households grew at essentially the same rate, as did earnings in both the electronics and textiles sectors. This chapter therefore proposes a labour-market model which provides a good fit with these aspects of the private sector.

We consider three kinds of models: (i) a segmented labour-market model in which the wages in each sector are set by the demand and supply for labour in that sector alone; (ii) a Harris-Todaro-type model with wage dualism/segmentation (Harris and Todaro, 1970); and (iii) an integrated multi-sector labour-market model. This chapter aims to demonstrate why the integrated labour-market model is better suited to the Taiwan case than any of the other models and that this model can help us to gain a better understanding of some of the important aspects of Taiwan's economic development.

Keywords
Taiwan, employment, earnings, development, private sector, labor market

Disciplines
International and Comparative Labor Relations | International Economics | Labor Economics | Labor Relations

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INTRODUCTION

The preceding chapters have already reached some important empirical conclusions with regard to the labour market in Taiwan, and indeed, one of the most noteworthy of these is that virtually full employment was successfully maintained in Taiwan for more than a quarter of a century. It is also very clear that during the course of the island's economic development, considerable improvements have been made in the types of employment available to workers. As a result, real earnings have risen dramatically throughout the entire economy, poverty has fallen sharply and inequality in Taiwan remains the lowest of any country in the world for which current data exists.

The pseudo-cohort analysis (presented in Chapter 2 of this volume) demonstrated that rather than being caused by the mobility of prime-age workers, the inter-sectoral shifts which had occurred in Taiwan were actually brought about more by young workers coming into the labour force and entering into sectors that differed from those that were being vacated by older workers. Some potentially important labour market institutions were also examined in Chapter 2, with one particularly important finding (with regard to institutional factors) being that wages, benefits and working conditions were, on average, much better in the public sector than in the private sector (Chang, 2000). However, many other institutional factors which have been found to be very important in other countries (such as unions, the minimum wage, and so on) are seen as having only a minor role to play in Taiwan (Lee, 1988; Chang, 2000; Chuang and Jiang, 2003).

Analysis of the inter-industry earnings differentials revealed that these differentials were quite small by international standards, and indeed, that earnings were rising at roughly the same rate in every sector of the labour market in Taiwan. Wage differentials in Taiwan's private sector are generally in line with the economy as a whole; quite small by international standards,
with real wages rising at very similar rates throughout all of the major private sector industries, whilst also demonstrating similar growth and decline patterns. For example, the agricultural sector in Taiwan is a declining sector of the economy, relative to non-agriculture, whilst within the manufacturing industry, textiles is a declining sector relative to electronics; and yet, the incomes of farm and non-farm households grew at essentially the same rate, as did earnings in both the electronics and textiles sectors. This chapter therefore proposes a labour-market model which provides a good fit with these aspects of the private sector.

We consider three kinds of models: (i) a segmented labour-market model in which the wages in each sector are set by the demand and supply for labour in that sector alone; (ii) a Harris-Todaro-type model with wage dualism/segmentation (Harris and Todaro, 1970); and (iii) an integrated multi-sector labour-market model. This chapter aims to demonstrate why the integrated labour-market model is better suited to the Taiwan case than any of the other models and that this model can help us to gain a better understanding of some of the important aspects of Taiwan’s economic development.

What all of these models have in common is that they are judged against specific facts underpinning Taiwan’s economic development, some of which are well-known, including the growth of the manufacturing sector vis-à-vis the contraction of the agricultural sector, the transfer of employment from agriculture to manufacturing and the equitable rise in wages throughout the economy. The share of national output accounted for by agriculture fell from 23.6 per cent in 1965 to just 3.7 per cent in 1993, alongside a corresponding fall in the share of total employment accounted for by agriculture, from 46.5 per cent to 11.5 per cent over the same period.¹

In real terms, labour earnings have been doubling every ten years; however, what has not been explored thus far is the labour earnings growth structure. We therefore proceed with a breakdown of the labour earnings growth structure by economic sector, although, given the available data, the closest that anyone can get to a comparison between labour earnings in the manufacturing and agricultural sectors is a comparison of the per capita disposable incomes of farm and non-farm households. Such a comparison reveals that the incomes of farm households were 70.6 per cent of those of non-farm households in 1964 and 70.8 per cent in 1991, demonstrating that the earnings structure had remained virtually unchanged for over a quarter of a century. However, by 1995, the relative earnings of farm households had increased to 76.2 per cent, and yet, the share of total employment accounted for by the agricultural sector had been in continuous decline. Such a comparison of farm/non-farm households clearly indicates that the employment growth which was going on in the manufacturing sector did not
Employment Development in a Flexible Labour Market

lead to any higher earnings growth within that sector, relative to the agricultural sector.

A parallel conclusion can be reached if we focus instead on the various industries within the manufacturing sector. Figure 4.1 illustrates the growth in earnings vis-à-vis the growth in employment for various manufacturing sectors between 1980 and 1990, the last year for which such information was available at the time when the study upon which this chapter is based was carried out.

![Figure 4.1 Employment growth vs. earnings growth](image)

The lack of correlation is apparent, with the correlation coefficient being statistically insignificant, at +0.1. What is also striking about Figure 4.1 is the way in which the indicators of growth in earnings are closely bunched (with the exception of the petroleum sector which is a publicly regulated monopoly industry) and the way in which those on growth in employment are scattered.

An issue which is of particular interest is a comparison between the electronics sector (a rapidly growing sector) and the textiles sector (a correspondingly rapidly declining sector); we can see that throughout the 1980-1990 period, nominal earnings grew by 89 per cent in the former and 85 per cent in the latter. It is therefore clear that the construction of any labour-market model must be able to fit these data. After considering a number of simple models in this chapter that do not fit the data, a model is subsequently presented that does.

This section presents another feature in the labour force, which are determined by the purpose of this section on Taiwan's situation.

Let each individual in the manufacturing sector, each sector. Each individual in the manufacturing sector experiences an individual wage curve, which is the manufacturing curve for the individual wages in that sector.

![Figure 4.2 Wage curves](image)

The mode of the wage curve, which includes the decline in Figure 4.2, is that each sector...
SEGMENTED LABOUR-MARKET MODELS

This section proposes a number of labour-market models, all of which have one feature in common, that employment and wages within any given sector are determined by the labour market conditions within that sector alone. The purpose of this section is to demonstrate that when attempting to explain the Taiwan situation, such models do not work. We begin with the following simple model.

Let each of two sectors (agriculture and manufacturing) have its own labour force, with the inelastic supply of labour being readily available to each sector. Each sector has its own labour demand curve which is derived from the demand for a product. Wages are set in the usual way, by the point of intersection of demand and supply. Now let the manufacturing sector experience an economic boom.

As Figure 4.2 demonstrates, the boom leads to a shift in the labour demand curve for the manufacturing sector, from $D_M$ to $D_M'$, which causes wages in the manufacturing sector to rise from $W_M^*$ to $W_M'$, although manufacturing employment is unaffected. Since the demand and supply curves in the agricultural sector remain unchanged, both employment and wages in that sector are also unaffected.

![Figure 4.2](image)

Figure 4.2 A simple segmented labour-market model with inelastic supply of labour

The model predicts that there will be no change in employment for the two sectors, which is clearly at odds with the growth in manufacturing employment and the decline in agricultural employment. For this reason, the model outlined in Figure 4.2 must be rejected. The problem with this model is the assumption that each sector has its own labour supply curve and that such labour supply
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curves are vertical. This assumption may be relaxed by positing instead a labour supply curve which slopes upwards; that is, a situation in which higher wages in a given sector will induce more workers to offer their labour to that sector. Some of this additional labour will come from outside of the labour force and some from other sectors of the economy.

Let us now consider a simple lagging sector model, which is illustrated with the aid of Figure 4.3. If we assume that the labour supply curve is upward-sloping, we can link the labour market to a standard development economics account of changing agricultural conditions, in an otherwise segmented labour market, armed with the knowledge that agricultural employment in Taiwan has fallen. A story which is commonly recited in Taiwan in an effort to explain this issue is that labour-saving technological changes have occurred within the agricultural sector. Such technological changes induced both a substitution effect (with less labour being required to produce a given level of output) and a scale effect (production is now cheaper, so more labour and more capital will be used to produce greater output). When the technology is labour-saving, the reduction in labour demand as a result of the substitution effect may be assumed to outweigh the increase in labour demand arising as a result of the scale effect. The net effect is therefore a leftward shift in the curve of the derived demand for labour in agriculture from $D_A$ to $D_A'$, along with a resultant fall in agricultural employment from $E_A$ to $E_A'$.

According to this model, some of those workers who are no longer employed in agriculture will, as a result, start crowding into the manufacturing sector, or at least into whatever sector is growing. Clearly, this is a reason why labour participation rates have not fallen as much as agricultural employment in Taiwan. Figure 4.3 illustrates this model.

A sequence of events leading to a shift in the demand curve. A boom takes place in the boom industry, raising the demand for labour from $D_m$ to $D_m'$. Manufacturing employment rises accordingly.

Some of the workers who were formerly employed in agriculture may have to seek work in manufacturing, or in another sector, or at least in sectors that are growing. Clearly, this is a reason why labour participation rates have not fallen as much as agricultural employment in Taiwan.
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sector, driving manufacturing wages down. Furthermore, since it is very likely that some of those who are no longer employed in agriculture will, as a result, leave the labour force, there will be a consequent fall in the labour force participation rate within the economy as a whole. The problem with this model is that it is inconsistent with a number of known facts about the Taiwanese economy. The model predicts that wages in the agricultural sector, as well as other sectors of the economy, will fall, but as we know, they have risen. The model also predicts that there will be a fall in the labour force participation rate for the economy as a whole, but again, this has risen. Clearly, therefore, this model will not do.

A segmented labour-market model is an alternative model in which the leading sector, manufacturing, also faces an upward-sloping labour supply curve. As shown in Figure 4.4 (left-hand diagram), when a manufacturing boom takes place, the demand curve for labour shifts rightward from \( D_M \) to \( D_M' \). Manufacturing wages rise from \( W_M^* \) to \( W_M' \) and manufacturing employment rises from \( E_M^* \) to \( E_M' \).

Some of this increase in manufacturing employment is accounted for by those who are drawn into manufacturing from outside of the labour force, thereby raising the labour force participation rate, whilst others who are drawn in from the agricultural sector account for the remainder of the increase in manufacturing employment. As shown in Figure 4.4 (right-hand diagram), the effect of the move of the latter group is to shift the supply curve for agricultural labour leftward from \( S_A \) to \( S_A' \); in consequence, agricultural employment falls from \( E_A^* \) to \( E_A' \), with a resultant rise in agriculture wages from \( W_A^* \) to \( W_A' \).

Figure 4.4  *A segmented labour-market model with manufacturing as the leading sector and agriculture as the lagging sector*
Several of the predictions of this model are actually consistent with the facts; the shift in employment from agriculture to manufacturing, rising wages in both manufacturing and agriculture, and rising labour force participation rates in the economy as a whole. There are, however, some problems. Indeed, what drives the model is that economic growth in manufacturing leads to a rightward shift in the labour demand curve of that sector. Consider now the effects of accelerated economic growth (Figure 4.5).

![Diagram](image)

**Figure 4.5 Accelerated economic growth in manufacturing in a segmented labour-market model**

When there is a shift in the derived labour demand curve from $D_0$ to $D_1$, we have a corresponding rise in manufacturing wages from $W_0^*$ to $W_1^*$, and an increase in manufacturing employment from $E_0^*$ to $E_1^*$. If the manufacturing sector had grown more rapidly, resulting in a shift in the labour demand curve to $D_2$ rather than to $D_1$, the prediction of this model is that manufacturing wages would have increased to $W_2^*$ as opposed to $W_1^*$, and that manufacturing employment would have increased to $E_2^*$ as opposed to $E_1^*$. The model therefore predicts that, within any given sector, the growth rate in employment will have a positive correlation with the growth rate in wages within that sector. So what does the data on Taiwan reveal with regard to this issue?

Figure 4.6 plots the growth of employment in manufacturing against the growth rate of real wages in manufacturing for each year from 1980 to 1993. It is clear that there is no statistically significant correlation between the two. This poses a puzzle to which there is an easy, yet profound, answer, since all of the preceding models share a common problem; they assume that the wages sector which
wages in a sector are determined by the supply and demand for labour in that sector alone. This, however, ignores inter-market equilibrium, a feature which this author argues is an essential element of a complete understanding of the labour market conditions in Taiwan.

Inter-market equilibrium refers to the general tendency for wages to equalize across sectors. If the wages for labour of a certain type are not equal across sectors, those workers in the lower-paying sectors will clearly have an incentive to migrate to the higher-paying sectors. In Taiwan, such migration is extremely easy, since information is good, transportation is ubiquitous and manufacturing employment is highly decentralized. Therefore, in such circumstances, any earnings differentials across sectors are likely to be only temporary in nature.

Inter-market equilibrium therefore brings into play a wage determination process which differs fundamentally from what we have so far examined here. We now find that wages are determined, not by supply and demand within a single sector, as in the preceding models, but rather, by the aggregate supply and demand in all sectors taken together. The models presented thus far have no such inter-market features; let us now consider models that do.
LABOUR MARKET EFFECTS ON ECONOMIC GROWTH

The Effects in a Harris–Todaro-type Model with Wage Dualism

A well-known multi-sector model of labour markets within the developing economies is the model devised by Harris and Todaro (1970), a model which posits an economy with a dualistic labour market. Within this model, manufacturing sector wages are set rigidly above the market-clearing level for institutional reasons; meanwhile, in agriculture, where such wage-setting institutions are absent, wages are determined by supply and demand. Manufacturing is thus the high-wage sector and agriculture the low-wage sector.

Unemployment arises in the Harris–Todaro model because the high manufacturing wage encourages migration of job seekers into the locations (presumably urban) where these high-wage jobs can be found. The Harris–Todaro model may be summed up algebraically as follows.

Let $W^*$ denote the wage that would have cleared the labour market; however, for some institutional reason, a wage floor is established in manufacturing, raising the wage there by $\gamma$ per cent, as compared to what it would otherwise have been:

$$W_M = W^*(1+\gamma). \quad (1)$$

The higher wage reduces employment in the manufacturing sector by $e\gamma$ per cent, where $e$ is the (arc) wage elasticity of manufacturing labour demand, evaluated between $W^*$ and $W_M$:

$$E_M = E_M (1 + e\gamma). \quad (2)$$

In the original variant of the Harris–Todaro model, it was assumed that in order to get jobs within the high-wage sector, workers must physically leave the low-wage sector; i.e., no 'on the job' searching was allowed. Under this assumption, whilst also assuming the probability of all hiring, the wages expected by those seeking manufacturing jobs are:

$$E(W_M) = W_M (E_M / L_M). \quad (3)$$

Those workers who settle for agricultural sector jobs will receive the lower wage $W_A$. In the Harris–Todaro equilibrium, these two expected wages are equal:

$$W_M (E_M / L_M) = W_A. \quad (4)$$

It is easy to see from Equation (4) that the wage floor in manufacturing causes unemployment; this is for two reasons: (i) because the higher wages in manufacturing would actually of some we relatively at the $W_M/W_A$.

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manufacturing lead employers in this sector to demand less labour than they would actually have hired at lower wages; and (ii) because it is in the interest of some workers to risk unemployment whilst trying to secure one of these relatively attractive jobs. It is also easy to see from Equation (4) that the higher the $W_M/W_A$ ratio, the higher the equilibrium rate of unemployment.

So, what would happen in this model if the manufacturing sector were to achieve economic growth? The derived demand for manufacturing labour would increase, thereby raising $E_M$; however, there would be no need for employers within the manufacturing sector to raise wages, since they could simply hire from the pool of unemployed labour. Hence, $W_M$ would remain unchanged.

If agricultural wages are largely invariant with regard to the movements of workers into and out of that sector (an assumption that has been made in quite a few studies using the Harris-Todaro model), then, in order for the left-hand and right-hand sides of Equation (4) to remain equal, each single unit increase in $E_M$ must lead to an increase in $L_M$ by $W_M/W_A>1$ units. This is the famous conclusion reached by Harris and Todaro; that an increase in manufacturing employment actually increases unemployment as a whole because of the induced migration into those locations where the manufacturing jobs are to be found.

The preceding conclusion is logically correct, but doubts remain with regard to its relevance for Taiwan; firstly, because Taiwan had no significant unemployment problem during the period under examination, whereas the Harris-Todaro model does incorporate unemployment, and secondly, because the model predicts that manufacturing wages will not change in response to economic growth, essentially because they are set institutionally in the first place.

As for the agricultural sector, if wages do change at all, it will be largely due to the migration of labour from agriculture into manufacturing leading to an increase in the wages of those left behind in the agricultural sector. The model therefore predicts that if there is any correlation between the growth rate in employment within a given sector and the wage growth rate within that sector, then the correlation will be negative. However, empirically, no such negative correlation is found in Taiwan, since, as already reported, the correlation is positive and statistically insignificant. This is one empirical strike against the Harris-Todaro model; however, other empirical evidence also runs contrary to the model in the Taiwan context.

As demonstrated earlier, the institutional forces that might set wages above market-clearing levels are either absent or ineffectual in Taiwan; indeed, wage dualism is not an important feature of the Taiwanese economy, as is assumed in the Harris-Todaro model. The model states that workers must migrate from the low-paying rural areas in order to seek work in the higher-paying sectors of the economy, but as a result of Taiwan's exceptionally decentralized development profile, this has not proved necessary.
In 1964, about 65 per cent of the income of farm households came from agriculture; however, by 1994, this had fallen to just 20 per cent. This indicates that rural households have been able to diversify into non-farm activities to such an extent that they are able to derive four times as much of their income off the farm as they do on the farm. The model predicts a high rate of unemployment in those areas where manufacturing jobs are found, and indeed, even in an economy with a manufacturing sector as geographically dispersed as it is in Taiwan, manufacturing remains disproportionately urban. Yet, urban unemployment rates were no higher than rural unemployment rates in Taiwan; employment was essentially full in both urban and rural areas.

In sum, then, the empirical evidence also leads to a rejection of the Harris–Todaro model for Taiwan. The question therefore arises as to whether there exists a multi-sector labour-market model capable of fitting these and other facts better, and indeed, there is. Such a model follows.

The Effects on Economic Growth in an Integrated Multi-sector Labour-market Model

Consider an economy in which the standard neoclassical labour market assumptions are fulfilled, and within which the equilibrium forces posited by such models are free to operate. What then are the predicted effects of economic growth on the labour market? The single most important effect is that if the derived demand for labour increases in one sector of the economy it will result in an increase in wages, not only in that sector, but in all sectors of the economy. The analysis is aided by considering Figure 4.7.

Two sectors are assumed so that the effects of greatest interest can be easily plotted. As before, these sectors are referred to as manufacturing (M) and agriculture (A). Within the manufacturing sector, the initial labour demand curve, \( D_M \), is downward-sloping relative to origin \( O_M \). Similarly, the initial labour demand curve for agriculture, \( D_A \), is downward-sloping relative to origin \( O_A \). The labour market clears when the same wage is paid in the two sectors and the combined demand for labour by employers in the two sectors is exactly equal to the available labour supply which, for ease of graphical analysis, is assumed for now to be fixed and equal in amount to \( O_M O_A \). At the market-clearing wage, denoted in the figure by \( W_M^* = W_A^* \), \( O_M E^* \) workers will be employed in manufacturing and the remaining \( O_A E^* \) workers will be employed in agriculture. The total demand for labour in the economy, \( O_M E^* + O_A E^* \), is equal to the total supply of labour, \( O_M O_A \).

Suppose now that economic growth occurs in the manufacturing sector as a result of improved product market conditions. More labour will be demanded in manufacturing, thereby producing a rightward shift in the demand curve for manufacturing labour, from \( D_M \) to \( D_M' \).
Figure 4.7 An integrated labour-market model with fixed labour supply and full wage equalization

Following the same logic as in the preceding paragraphs, the model predicts that the labour market will equilibrate at a new, higher wage level in both sectors of the economy ($W_M' = W_A'$) along with some reallocation of the labour force towards the growing manufacturing sector ($E'E'$ workers shifting out of agriculture into manufacturing). This provides us with a key prediction which distinguishes the integrated labour-market model from all other models; i.e., that wages in both manufacturing and agriculture are predicted to grow at the same rate as each other, irrespective of the rate of growth or decline in employment within the different sectors.

The empirical evidence for Taiwan provides strong support for this prediction. As we have seen, the incomes of both farm households and non-farm households have moved in tandem, whilst the earnings of workers in the different sub-sectors of manufacturing have also maintained a similar pace. The way in which the preceding labour-market model explains this is that the wage growth rate within a given sector is determined not by output and employment growth within that sector, but rather by the growth in output and employment within the economy as a whole. These and other implications of the integrated multi-sector labour-market model are detailed further in what follows; although first, we should consider two refinements to the model.

Integrated labour-market model refinements

One criticism of the integrated labour-market model, as formulated above, is that it assumes that the total labour force is fixed in amount at level $O_MO_A$. This was merely a simplifying assumption which can now be relaxed. Suppose that the aggregate supply of labour to the labour market is an
upward-sloping function of wages which, in the integrated labour-market model, is the same across all sectors. Figure 4.8 depicts this aggregate labour supply as curve S.

![Graph](image)

Figure 4.8  An integrated labour-market model with variable labour supply and full wage equalization

As wages rise, so too does the aggregate labour supply, which leads to the origins, $O_M$ and $O_A$, moving further apart. Sector-specific growth within the manufacturing sector shifts the labour demand curve of that sector from $D_M$ to $D_A'$. As origin $O_A$ moves, the labour demand curve for agriculture ($D_A$) moves along with it in order to maintain the same distance as before from the origin.

When the labour market is in equilibrium, the new wage level in the two sectors is $W'$, the total labour force is $O_M O_A'$, and employment levels within the two sectors are $O_M E'$ for manufacturing and $O_A E'$ for agriculture. As a result, the wages in the two sectors have increased by $W' - W^*$, the labour force has increased by $O_A' - O_A$, manufacturing employment has increased by $E_M' - E_M$ and agricultural employment has decreased by $E_A* - E_A'$. This approach allows for changing labour force participation rates.

An objection which differs somewhat from those of the integrated labour-market model is that wages are not really equal across sectors. It will be demonstrated later in this volume that a large firm/small firm wage differential does exist in Taiwan, and indeed, that it has done so for quite some time. The model can, however, easily be amended to allow for this.
Suppose that the large firm/small firm wage differential is fixed in amount and equal to $\Delta$; if there was no wage differential, then the market would clear at wage $W^*$, as shown in Figure 4.9.

![An integrated labour-market model with fixed wage differential $\Delta$](image)

**Figure 4.9** An integrated labour-market model with fixed wage differential $\Delta$

*Note:* The fixed wage differential $\Delta = W_L* - W_S* = W_L' - W_S'$

However, because of the large-firm/small-firm wage differential, wages in the large firms are $W_L^*$, whilst wages in the small firms are $W_S^*$. Assuming that everyone is employed at these wages, either in the large-firm sector or the small-firm sector, $O_L^*E^*$ workers are employed in the large-firm sector and $O_S^*E^*$ workers are employed in the small-firm sector.

Now, assume that sector-specific economic growth takes place within the large-firm sector. The labour demand curve in that sector shifts rightward from $D_L$ to $D_L'$. Wages in the two sectors must increase by equal amounts in order to maintain the fixed wage differential $\Delta$. The wage rate increase will be such as to once again equalize the total amount of labour demanded to the total amount of labour supplied. This is depicted in the figure as an increase to $W_L'$ in the large-firm sector and to $W_S'$ in the small-firm sector, with corresponding employment levels, $O_LE'$ and $O_SE'$.

An important implication of both of these refined models should be noted; economic growth in one sector leads to parallel wage increases in all sectors. This is the essential feature of integrated labour-market models, a feature which accords closely with the empirical facts of the private sector in Taiwan, and which is precisely why such models are proposed here.
INTERPRETATION

The integrated labour-market model presented above is useful in terms of providing an understanding of many of the features of Taiwan’s economic development. Here we focus on three of these features; (i) how to interpret Taiwan’s remarkable ‘productivity growth’ (measured in the usual way as growth in real value added per worker); (ii) how to understand the growth and decline of the various economic sectors in the context of overall economic growth; and (iii) how to explain Taiwan’s extraordinary improvements in the standard of living for all households.

Productivity Growth

It is already well documented that economic growth in Taiwan was marked by a rapid increase in productivity; however, the integrated labour-market model offers a rather different interpretation of this productivity increase from the usual one. It is often said that rising productivity comes as a result of the push of labour out of agriculture due to the emergence of labour-saving innovations within that sector. However, it is suggested here that a better interpretation of this is that agricultural workers in Taiwan were pulled out of that sector as a result of the growth in employment opportunities elsewhere within the economy, which, in turn, led to a rise in agricultural productivity. The mechanism is as follows.

When the manufacturing sector and other sectors of the Taiwanese economy began to grow, there was a requirement for more labour in the textile mills, electronics factories, and the like. Once the Lewis/Fei-Ranis turning point had been passed and no surplus labour remained, the only way for employers within these growth sectors to obtain additional workers was to pay higher wages in order to attract workers away from the agricultural sector and other relatively stagnant sectors of the economy, as well as from outside of the labour force (Lewis, 1954; Fei and Ranis, 1964). This posed a difficult choice for employers in the stagnating sectors; they either had to pay the higher wages or watch their workers being lured away (in the case of self-employment, they themselves could leave).

For those choosing to pay higher wages, what enabled them to do so was that they were able to complement the remaining workers with additional productivity-augmenting machinery and equipment. There was indeed an increase in productivity, but this was not what caused labour to be released from agriculture. Causality ran in precisely the opposite direction, with the pull of labour out of agriculture leading to a rise in productivity amongst those who remained. Thus, the role of productivity growth in Taiwan’s economic development needs to be rethought.
Sectoral Growth and Decline

In planning Taiwan's future development strategy, there are those who contend that steps must be taken to increase the productivity of workers in textiles and agriculture. In the case of textiles, this call is motivated by the desire to keep the sector internationally competitive; in the case of agriculture, the desire is to maintain food security and self-sufficiency in staple products. The integrated labour-market model offers insights into the first of these (but not the second, since it is essentially a national security issue, not an economic one).

Although the decline of Taiwan's textiles sector is sometimes lamented, it should be viewed otherwise. From the point of view of production, the decline of the textiles sector was better than the alternative, because labour was redeployed to those sectors that were willing to pay workers the most, apparently because they could utilize these workers more productively and were willing to pay to do so. Although the textiles sector declined as a result, this was better than the alternative, both for workers in Taiwan and for Taiwan's economy as a whole; it was better for the former textile workers who earned more because their labour was sought elsewhere, and it was better for the economy, because economic growth would have been stifled had textiles not declined, releasing labour and other resources for use elsewhere. A country's development strategies must change in the same way as its comparative advantage does. The faster an economy grows, the faster its comparative advantage changes. This is to be welcomed not spurned.

Improvements in Household Standard of Living

The integrated multi-sector labour-market model helps us to understand how it was that Taiwan's labour market transmitted its extraordinary economic growth to households. Essentially, there were three mechanisms; (i) the economic growth in certain manufacturing and service industries raised the demand for labour and the real labour earnings of the workers who were already in those sectors; (ii) the economic growth in certain manufacturing and service industries enabled more jobs to be created at higher rates of pay for workers who moved into these sectors from the declining sectors of the economy; and (iii) employers in agriculture and other declining sectors raised the wages of the workers who remained in these declining sectors of the economy in order to prevent all of their workers from leaving.

The only important group to be left out was those who, for one reason or another, could not, or would not, move into the growth sectors. The parallel rates of growth in labour earnings across the major economic sectors therefore come as no surprise, since they are exactly what the integrated labour-market model would predict.
NOTES

3 See, for example, the figures presented in CEPD (1994), *Statistical Data Book for the Republic of China*, Tables 2-13, 4-3 and 4-4.

REFERENCES