

**AGRICULTURAL LABOR AND ECONOMIC TRANSITION IN
COLONIAL INDIA: LESSONS FROM WAGE DATA**

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This paper is a by-product of an ongoing work on standards of living in colonial India. Although the goal of the larger project is statistical, there are interpretive questions involved in the study of real wage of agricultural laborers. The paper discusses some of these questions. It discusses three sets of themes in particular.

First, the official data on wages pose a problem for economic historians. The standard sources on agricultural wages provide contradictory information. Briefly, there are two major sources for wage statistics pertaining to the last quarter of the nineteenth century: the *Prices and Wages Statistics of India* (annual publication; 1873-1910 volumes report agricultural wage), and the *Enquiry on Prices* conducted by K.L. Datta, G. Findlay Shirras, and others (publication year 1914; coverage 1892-1912). The agricultural wages in the former display a great deal of money wage stability and real wage variability (declining real wage between 1890 and 1900), whereas those from the latter display money wage variability and real wage stability (probably rise in real wage between 1890 and 1900). Scholars who have used official wage statistics at all have tended to use one of the two, at best merely noting the existence of the other (Bagchi, 2003; Collins, 1999; Mukherjee, 1965). On the whole, it appears, the use of wage data has remained restricted because of the apparent contradiction. How do we resolve the contradiction? I suggest here that the two sources might be looking at dissimilar types of workers, which is possible when the labor market is in transition.

Second, wage data can help measure poverty, and perhaps explain its origins. Agricultural laborers were among the most numerous occupational classes in colonial India, growing in number, and growing as a proportion of the work-force. Labor was also the principal site of absolute poverty. In 1875, a family of four would have needed Rs.

115 per year (Rs. 15 = £1) to purchase the consumption basket required to be above the official poverty line defined in 1973. The average income of a rural labor family was between one-third and half this norm (assuming 180-260 days of work per year, and one earner per family). A labor family barely emerged from acute poverty, and it seems that a few families did, in the presence of exceptional employment intensity and at least two earners in the family. The distance between average income and the poverty line did not change significantly in colonial India, but the number of labor families grew, from three and a half million in 1875 to anywhere between six and nine million in 1931. The poorest did not become poorer, but more people joined their ranks. In this sense, there was increase in absolute poverty in colonial India.

Perhaps the most popular explanation of the historical origins of poverty in rural India attributes poverty to a process of stratification, whereby small peasants and tenants lost access to land and became wage laborers in large numbers (Patel, 1952; Patnaik, 1983). The reason proposed is a combination of adverse power relations and increasing market risk. In this view, the risks attendant on shifting from subsistence production to exports in the wake of the nineteenth century globalization, together with colonial policies on taxation, weakened the ability of poorer peasants to command land and credit, whereas it also made the non-cultivating moneylenders richer and in command of land. This perspective, which Neil Charlesworth had called the 'stratifier' view of rural Indian history, as opposed to a 'populist' or Chayanovian view, has been tested mainly by observing the ratio of labor in the rural work-force (on these perspectives, see Tomlinson, 1993; see also Patel, 1952; Krishnamurty, 1983; Thorner, A., 1962). Given the well-known problems of interpretation of census occupational data, the project has not reached

any definite consensus. Curiously, wage trends have not been used at all in the debate. Can wage statistics shed new light on the stratification thesis? I propose here that the wage trends do support increasing inequality, but do not support the reason often suggested for it. Wages in rural India responded to a host of variables, including demographic transition, industrialization, cropping intensity, and yield, along with colonial policies.

The stratification thesis and research around it rather simplified the effects of globalization on the labor markets, by paying excessive attention to the actions of the colonial state. In fact, the effects were many-sided, and a good wage series enables us to test some predictions about the effects of the growth of trade and factor markets in the nineteenth century. This is the third theme taken up here. Interest in such questions has grown of late. Collins (1999), for example, tests whether or not regional labor markets integrated rapidly enough in the late nineteenth century. Were *trends* in real wages also influenced by these processes? Integration of India into the international economy happened in two principal ways: increased world demand for agricultural goods, and import of manufactures. This is what we would expect to happen when the world market meets a region abundant in land and unskilled labor, and short of skilled labor and financial capital. Agricultural prices were increasing throughout the period 1870-1914, manufacturing prices were either depressed or falling, and real interest rates consistently high. In a two-sector specific-factors scenario such as the one employed by O'Rourke and Williamson (1999) to analyze the Atlantic economy, this should have the effect of shifting labor demand curve downward in industry, outward in agriculture, and shift of laborers from industry to land. If we assume that net labor demand did not increase, the

process should leave wages unchanged, raise the rent to wage ratio in land, increase rural inequality, and bring urban and rural wages closer.

If we have a good wage dataset, we might ask the following questions. Did wage-to-rent ratio fall? Did inequality increase? Was there labor transfer between urban and rural areas? Were urban and rural wages correlated? I propose in this essay that wage-to-rent ratio did fall and inequality did increase. However, the distance between urban and rural wages widened and not narrowed. To explain this, we need a different interpretation of labor supply than that of a simple inter-sectoral shift. There was increasing labor mobility in colonial India, but along segmented routes, rural-rural and urban-urban were more common than rural-urban. Urban wages were not depressed because demand for labor in industry was maintained between 1870 and 1914. It was maintained not only because the skilled labor and financial capital disadvantage could be bridged partially through the colonial connection, and a measure of industrialization occur, but also because artisan industries did much better than has been believed. Rural wages, on the other hand, did not rise despite increased demand for labor in land, because of changes in the rural labor market that increased rural-rural labor mobility and enabled large numbers of women to enter the rural labor market.

In the rest of this essay, I deal with these three themes in turn.

THE PROBLEM OF CONTRADICTIONARY INFORMATION

The historical data on wages are fragmentary, but not insubstantial when the fragments are put together. The data have not been exactly neglected in regionally oriented agrarian history, but that scholarship has rather shied away from large-scale

generalizations using the data. By contrast, the postcolonial labor experience has been a field of extensive research, reviews, estimation, and generalization.¹ Work on national income could become a link between general economic growth and rural wage trends. But this link has not developed enough due to technical reasons. Research on national income could afford to bypass wages because agricultural income is conventionally estimated by the production method using crop output statistics.² At the same time, national income research is yet to address income inequality in a serious way.

Official agricultural wage data come from two main sources. The first is a publication of the Department of Statistics, *Prices and Wages in India*. This source covers the period 1873-1923, when it was discontinued. The agricultural wage data in this source, however, become too thin and unusable after 1910/1911, when the dataset was discontinued and replaced by quinquennial wage surveys conducted in the major provinces. The content and quality of the latter datasets vary. The second source is the sizable *Report on an Enquiry into the Rise in Prices in India*, better known as the K.L. Datta Committee (1912). This publication independently collected data on wages and published this data for the period 1892-1912. Neither source gives sufficient details of collection procedure, or methods of dealing with the usual problems of reading rural wages.

There are well-known difficulties in using any given set of wage data for rural labor to read trends in earning. Three of these are particularly important. First, individual work-capacities can vary a great deal, and vary especially with respect to wage at low levels of nutritional intake. Wage rate may include an implicit investment in work-capacity. In that case, one wage and another, and one worker and another, are not

comparable. Second, wages vary according to casual or permanent status, because the employer may trade-off the advantages of a spot market for that of tying labor for peak season work. Wage may be adjusted by an implicit insurance premium. Again, there is a comparability problem. Third, wages vary a great deal according to season, especially in monsoon-dependent agriculture. Neither source of data is clear on capacity, casual-permanent distinction, or the seasonality issue.

When wages are paid by tasks, which are in turn very standardized tasks, the first problem is unlikely to be serious. If all wage data are taken to refer to the peak season, which is a reasonable assumption since wages were often collected by tasks that occurred only in the peak season, the third problem may be ignored too. A new problem will then arise, that of converting daily or monthly rates to annual earnings, which can be ignored as long as we are interested in trends in wage rates. The second problem is perhaps the most serious one, as I shall argue in a moment.

Further, in the Indian case, wages in kind create a problem. Rural wages typically contained a cash and a kind component (later called ‘perquisites’). In principle, this problem does not affect the analysis here, because *Prices and Wages* supposedly collected its raw data in grain terms and converted it into cash, whereas the Datta Committee made adjustments for ‘perquisites’. In practice, neither procedure is easy to implement and leaves some doubt about the veracity of either source. Subject to these cautions, what do the data show?

Prior to the start of *Prices and Wages*, wage data are fragmentary and unsystematic. Collating what exists for two major regions, Sumit Guha and Dharma Kumar suggest that in Bombay and Madras respectively, the first half of the nineteenth

century saw no clearly discernible tendency in real wage (Guha, 1985, Kumar, 1965). M. Atchi Reddy's seminal work reiterates this conclusion for the southern coastal Andhra region, but does observe a rising tendency after 1844 (Atchi Reddy, 1986). The rise continued until the mid-1870s, when a devastating famine occurred. From whatever other scattered evidence that we have, a break in trend around the mid-century seems plausible. Data collated in the *Wage Census of Bengal* suggest broad stability in money and real wages in the first half of the nineteenth century, but a doubling of money wages (and a rise in real wage of about 50-60 per cent) between 1852 and 1911.³ Chaudhuri (1983) gathered a larger set of sources that suggest that cash wages increased significantly in Bengal after the mid-century. Francis Buchanan-Hamilton's Dinajpur surveys c. 1820 had reported 'many landless farm labourers, who were the poorest of all', earning a cash wage of half a rupee a month 'besides food and clothing' (Baden-Powell, 1896). If this figure is taken seriously, Bengal wages would seem to have increased through much of the nineteenth century. What do we make of these pieces together? One certain point is that there is no strong evidence of a real wage decline in the first three quarters of the nineteenth century.

Data resources on wage changed from 1873. *Prices and Wages* allows us to create a time-series of real wages for 1873-1909. Figure 1 shows that, in the 1870s, there was possibly some gain for labor, a large part of which was taken away in the 1876-8 famine. Consistent with the findings of Atchi Reddy, who uses a different source, the *Prices and Wages* seems to capture the end of a gradually rising tendency in real wages in the 1870s, if the effects of the famine are ignored.

There occurred a remarkable change after this period. Much of the 1880s and the 1890s saw decline in real wage. The fall derives from stability in money wages even as prices were rising. This result on real wages in the late nineteenth century has made *Prices and wages* famous, or infamous, depending on how credible it is seen to be. The conventional practice among historians has been to take the wage stagnation to be authentic, and explain it as a result of distress. There was sustained upward pressure in food prices in the 1880s because of exports and depreciation of the currency. The nationalists argued that these circumstances intensified a subsistence crisis. In recent scholarship, Bagchi (2003) cites *Prices and Wages* data as evidence of emiseration caused by currency problems of the end of the century. There is truth in the inflation argument. But there is also lack of caution. Both exports and depreciation exerted an upward pressure on commodity demand. Even if prices increased, one would expect the demand pull to lead to a general expansion, rise in labor demand, and rise in money wages. Now, all the signs of a rise in labor demand were present, why should wages not respond? The last quarter of the century saw continued expansion in net cropped area, no change in population of laborers, and considerable exit of labor from agriculture. The stability in money wages in the last quarter of the nineteenth century is remarkable precisely because it does not respond to acreage expansion. This is counterintuitive, unless of course we are prepared to accept that rural wages were decided by non-market factors.

Dharma Kumar too accepts the decline in real wage for Madras to be authentic, and attributes it to land-person ratio (Kumar, 1983). But like currency-based

explanations, resource-based ones cannot be taken very far for the late-nineteenth century when the land-frontier was still quite some distance away.

If neither of these hypotheses for stagnation in real wage seems completely credible, both are firmly contradicted by the Datta Committee dataset. For overlapping years (1890s), Datta Committee dataset shows that money wages rose sufficiently to register a healthy increase in real wage, at the peak of a monetary inflation. Datta Committee criticized the *Prices and Wages* for not being too scrupulous about recording the actual market wage every season. Seemingly confirming this suspicion, long series of years in Berar, Orissa or Assam return identical money wage rate. Average rural annual wage estimates based on the *Prices and Wages* show that money wages did not change *at all* in the 1880s. Both datasets suggest a relative slowdown in the late-1880s and the 1890s, compared to the decades before and after these years. To that extent there is agreement. But the levels of flexibility in money wages differ markedly.

Even within the *Prices and Wages* dataset, the stability in money wages seems to disappear after 1900. I take this unexplained change of dynamics as a clue to the contradiction. I suggest that the *Prices and Wages* data show signs of a transition from non-market to market-driven wages. In other words, perhaps the two sources were looking at different types of laborers.

K.L. Datta, whose painstaking effort at compiling a wage-price series for India became legendary even though his conclusions were frequently slipshod (see Williams, 1915 and Moreland, 1916, for two contemporary reviews), was explicitly looking for casual labor wages. He drew a vast number of primary and secondary sources together, often traveling through the countryside for the purpose. He did not explain all the sources

in adequate detail, but was clear on the point that the only wage rate worth comparing across regions was peak season casual wage. The Datta dataset, therefore, referred to tasks. By implication, the wage data in the *Prices and Wages* were time wages collected by village-level administrative officers. Now, why this preference for time wage? Which component of the rural work-force could be called ‘laborers’ irrespective of the task and season at 1880? Many casual workers could not be so called, because they did other work in other seasons. Some among them were artisans, others left home in the slack season to look for construction and other labor. The census called such groups ‘general labor’. By contrast, there was indeed a non-casual ‘permanent’ component of the labor force too. Perhaps the largest body among them was called ‘farm servants’ by the censuses. And these people received payment by time. Others among them received grain-share wages. Others still were tied to plots of land and were *quasi*-slaves. The common feature of such relationship was the presence of caste-based hierarchy, and very infrequent wage negotiations. The *Prices and Wages*, I believe, captured relatively more of such wages, whereas the later reports practically ignored them.

Now, from some time in the last quarter of the nineteenth century, the proportion of casual workers began to rise and that of the permanent workers began to fall. If indeed the *Prices and Wages* were capturing these wages relatively more, we can expect two things to happen. Since the wages of those under permanent arrangement were generally lower than casual wages (but their employment more secure), we can expect *Prices and Wages* figures to be lower. And second, because these wages sometimes contained a customary element, they were likely to have remained relatively unchanged for long periods of time. A comparison of the two sets shows that both predictions are true.

What would 'custom' mean in this case? In an agrarian situation where grain output fluctuates too much, it is likely that those paid a customary grain wage will receive a fixed share of the grain output rather than a fixed quantity of grain. There are many references to customary grain-share wages (including Buchanan-Hamilton's Dinajpur report cited above) in nineteenth century sources that either disappeared later or were reclassified and merged into share-tenancy after reforms of tenancy laws. In that case, a negative association between real wage and prices is likely to develop, and money wages are likely to remain stable. For, bad seasons raise prices and also reduce grain wages. But this association works in the short term, it should not work in the long term, because the inflation of the 1890s was not due to sustained shortfall in grain output. If wages were paid mainly in cash, as some authors believed to be the case (Atkinson, 1902, 1909), we need a different mechanism to get real wage decline with rising grain output. If all wages are equilibrium wages, and prices rise, money illusion can produce such a result. But would money illusion work for fifteen years? Another option was that population growth or de-industrialization eased labor supply so much that wages fell. In fact, there are no strong sign of increase in labor supply overall in the last quarter of the nineteenth century. Although sectoral and spatial movements were beginning to increase, I will argue further that these movements were segmented in nature. A yet third option is that many laborers found themselves trapped in customary arrangements. The farm servant contract was strongly hierarchical, and that can explain why wages were infrequently and imperfectly negotiated. In that case, inflation, fall in real wage, and rise in output can exist together. The group that could negotiate wage every season was a relatively small one in 1880. The group that found itself in customary wage arrangements was a large one. The inflation,

together with growth of labor markets and opportunities of migration, contributed to the shrinking of the latter group and expansion of the former.

Finally, it is possible that the price index used to derive real wage was a wrong index. In fact, nearly all price indices for colonial India are indices of output prices, not prices of goods purchased by the poor. There are reasons to believe that the two prices could diverge systematically. Even as output prices increased because of world demand for wheat or rice, the peasants produced more wheat and consumed more millets, as they did in Punjab in the 1870s (Connell, 1885).

Whether or not the decline in real wage was spurious or real, in periods when prices were rising as steadily as prices did in the late-nineteenth century, a change in customary labor services had to happen. From the employer's side rising prices would make grain payments costlier, and might well encourage a shift to cash wages or hiring in from the spot market, as Radhakamal Mukherjee suggested for western United Provinces. From the worker's side, rising prices would make fixed cash payments costlier, and therefore, induce more frequent bargaining. Indeed, we do have a massive quantity of evidence suggesting that the customary arrangements began to dissolve from about this time.⁴

What evidence do we have of institutional change? Between 1891 and 1921, the percentage of farm servants among laborers dropped from 25 to 16, after which the usage of the term was discontinued in the census. In Madras, which had long been the principal concentration of long-term contracts, the proportion of farm servants among laborers fell from half before 1891 to about a third in 1921. It declined further to just 1 per cent in

1951 (India, 1954). If farm servant arrangement was in general decline, so were wages in kind and grain-share payments.

In later reports, the nearest equivalent to long-term contracts was 'attached' labor. Till the 1950s, the distinction between 'casual' and 'attached' laborers was maintained in official statistics, but the term 'attached' was discarded thereafter on the ground that 'attached labour is no longer attached to any particular household in the old sense. Such attachments are now conditioned more by economic considerations and may not extend beyond a season or a year at the most' (India, 1973:65). Attached laborers, who accounted for about 12 per cent of the labor families in 1951, were nearly all attached because of a recently contracted debt. The old sense of the term 'farm servant', on the other hand, referred to an attachment that was usually caste-based and hereditary.

About 1900, it was often the case that the farm servants 'get into debt to their masters, and as it is usually impossible for them to repay it, they become hereditary bond servants and their sons succeed them' (India, 1931c:213-4). In the mid-twentieth century sources, the so-called 'attached' laborers were usually debt-servants. The Dublas and Kolis of Bombay, the Halis of Gujarat, the Kamias of Bihar, the Goti of Orissa, figured to some extent among the farm servants of 1901, but were usually bonded by debt about 1960. Debt bondage was usually, though not always, a legal and documented contract. The farm servant relationship too was sometimes backed by paper though our knowledge about these documents or usage thereof is very inadequate.⁵ The transition from farm servant to debt-servant was not a smooth one. Both forms existed side by side for a long time, especially in the Tamil-speaking regions.⁶

There is a subsidiary point about regional variation in wages. There were differences in agricultural wages between regions, and these differentials persisted. Over the long period, rankings of the major provinces changed, but not dramatically. The relatively faster growth of wages in the agriculturally developed Punjab and UP continued in the long run, with the result that their rankings changed over the colonial period. The most dramatic fall in rankings occurred in Bombay. In principle, we would expect labor mobility to reduce variations over time due to easier supply conditions. On the other hand, the uneven pace of agricultural growth and urbanization can create unequal 'demand-pulls' upon regional wages. The net effect may be unpredictable in the medium term, but should be convergent in the long run, as the land-intensive agrarian growth process slows because land runs out, and population growth and migration further ease labor supply. The evidence on dispersion, however, is ambiguous. If we use the *Prices and Wages* figures as benchmark, then statistical measures of dispersion between 1901 and 1951 show a rise. If we use the Datta Committee as the benchmark, these measures show a significant fall.

If we assume that all wages were equilibrium wages, and isolation was the chief characteristic of the labor market before the railways made migration easier, then the process of integration of labor markets should lead to a convergence in wages. For, migration implies that some low-wage areas would experience exit, and some high-wage areas experience entry. If we assume, on the other hand, that some wages were customary before, and not decided by demand and supply, then the same process can lead to divergence in wages. In that case, the railways would enable not only spatial mobility but also contractual mobility. That is, some workers and employers would be able to break

out of custom and demand or offer equilibrium wages. If customary wages were generally less than equilibrium wages before, then the new wages offered would be higher than the earlier ones. In that case, the cluster of wages observed after mobility, a mix of customary and market wages, may well show *divergence* rather than convergence. In a recent study, Collins (1999) finds no evidence of either convergence or divergence in the *Prices and Wages* dataset, but finds evidence of divergence in the Datta Committee dataset. The paper concludes from this evidence that there was insufficient mobility of labor. Implicitly, it is assumed that all wages before and after migration were equilibrium wages. If we modify that assumption somewhat, and allow for the existence of customary wages, the interpretation of these findings would be that there was in fact accelerated mobility. On the other hand, in the long run there should be convergence, which is also satisfied by a comparison between the Datta Committee dataset and the Rural Labour Enquiry of 1951 (see above).

WHAT EXPLAINS TRENDS?

How do we extract a trend in real wage from these contradictory datasets? Once we resolve that the sources were really not contradictory at all, we can simply join the two series together, converting *Prices and Wages* into approximate daily rates, and use the series that results, with the understanding that over time the representative rural laborer was simply negotiating more often and harder than before (Table 5).

Having done this, first of all we observe the increasing fluctuations in money wages, and second, that the falling trend in real wages about the end of the nineteenth century reverses by the early twentieth century.

About the first decade of the twentieth century, nearly all available sources show that there was rise in money and real wages. In some cases a mild rising trend continued till 1925.⁷ The fastest growth in the last phase was recorded in Punjab, Madras, and UP – the main regions to experience continued agrarian growth based on canals, cash crops in the early twentieth century. In parts of Madras, not only had wages of casual laborers ‘more than doubled in the last twenty years’ (1896-1916), these wages were higher than the customary payment made to the permanent servants.⁸ Further, while women rarely worked as permanent servants, in the casual labor market, both men and women participated. The family income from labor, together with a shift from non-market to market contract, increased rapidly in Madras between 1896 and 1916. Indeed, in South India, this phase of rising wages was inseparably linked with the breakup of permanent relationships all round. Wherever agriculture was doing relatively well, the opportunity to migrate to Burma or Ceylon present, and there was some influx of immigrant laborers, the wage-gap between the servant and the casual worker became stark, leading to emigration of the former. These circumstances caused what one contributor to Gilbert Slater’s enterprise called ‘a dislocation in the [local] labor market’. Interestingly enough, this whole episode of dislocation saw ever more insistent pronouncements on the part of the employers, whenever they had a chance to express their view, about the sanctity and moral authority of the old patronage relationship.⁹

For the interwar period we have a collection of regional datasets that are only approximately consistent. The most complete of these series refers to Bombay and was compiled by the Labour Gazette of the provincial government, later used by Rath and Joshi (1966) and Sivasubramonian (2000). We add to these dataset, a fairly

comprehensive set of observations on real wages for field laborers in five other provinces, based on the quinquennial provincial wage censuses that replaced the *Prices and Wages* (see Appendix for details). The Bengal figures were cross-checked by those reported by other contemporary sources. They tally closely. UP and Punjab data were likewise cross-checked with two other sources. The resultant levels can be questioned. But, as the variation between wage figures across regions was small and narrow over time, the trends are representative.

The trends (see Figure 2) can be summarized as follows:

1. The few years from the end of the War to about 1920/1921 saw a rise in money and real wage. In Madras, spurred by a groundnut boom, this was the case. The first half of the 1920s saw no significant change in money and real wage.
2. From the second half of the 1920s through the 1930s, money wages were falling. Food prices were falling too. Real wage decline started within a few years of this trend. After the adjustment was complete, real wages about 1935 were usually slightly below those about 1925.
3. Halfway into the massive inflation generated by the Second World War, real wages were depressed, but thereafter, some adjustments in money wages to inflation did occur. However, the adjustment did not result in a steady upward rise in real wage. Rather real wage fluctuated sharply. At the end of the decade, real wages were again below or about comparable with levels that prevailed shortly before the First World War.

Grafting 1951 money wage on this chart suggests that the stagnation that set in after and in the course of the post-Depression adjustments in money wage was long lasting.

Later research has shown that the stagnation in real wage lasted right until the late-1960s, in some regions until the mid-1970s, with only a short episode of rise in the early-1960s.¹⁰ Table 5 shows the stagnation using Mukherjee's series for the purpose (see Appendix for sources and the data on wages). For a remarkably long period of time, 1930-1970, laborers on average either did not gain monetarily or could not retain the fruits of short-term prosperity. If we compare the *Prices and Wages* figures with those that later wage surveys produced, we cannot escape the astonishing result that the average worker in rural India earned an amount in 1965 that was not higher, possibly even smaller, than that earned in 1875. More precisely, the laborer gained in the early twentieth century, to regress in the 1950s and 1960s. Not surprisingly, the 1960s ended in fairly widespread outbreak of revolutionary sentiment in rural India.

To sum up the discussion on trends, in the first quarter of the twentieth century, there was evidence of a rise in real wages. Forces of expansion in demand for labor, in other words, outweighed the forces that shifted the supply curve outward. At the height of the Great Depression, real wages rose. But all regions experienced adverse adjustments from the late-1930s, leading to a long spell of stagnant wages. The spell was finally broken in 1970, when productivity became the chief source of growth in agriculture.

The big picture qualifies the left-nationalist stratification story on the agricultural laborer. In this view, between the census years 1881 and 1931, the supply curve of rural labor shifted out due to de-peasantization and de-industrialization, which should imply a rising proportion of laborers in the workforce. There is some support for this in the census data. But, it should also imply a fall in real wage, the evidence on which is conflicting. Clearly, this story was unduly pessimistic on demand for labor, which should

expand with cropped area and cropping intensity. What, then, influenced trends in real wage?

Table 1 shows separately rates of change in some of the major variables that might have influenced the agricultural labor market. There are four variables in the table. Two of these, population growth and net job-loss in nonagriculture, should depress wage-rate or indicate an outward shift in the supply curve. Cropped area and cropping intensity should indicate an outward shift in the demand curve for labor. The variables did not all change in the same direction in every period. Rather, their effects were usually contradictory, suggesting a picture of long-term stagnation rather than a significant push either way. A second point is the contrast between the late-nineteenth century and the mid-twentieth century. The effect of land-extension was relatively large in the former and the effect of population growth large in the latter. Through the 90 years shown in the table, the importance of cropping intensity increased, and the negative effect of job-loss declined, both gradually.

In the colonial period, net job-loss was positive, as the de-industrialization thesis suggests. However, extension of land, and later, cropping intensity, sustained labor demand. The period between 1865 and 1915 saw steady rise in the net sown area, and the emergence of significant pockets of demand for rural labor from within agriculture. Table 1 confirms the well-known stylized fact that improvements in efficiency or yield-per-acre played a rather small role in the agricultural growth in colonial India. Demand for labor was dependent on quantity of land, whereas quality of land was at best stagnant, at worst degrading. In turn, this is consistent with the negligible rates of investment in land per acre. Aggregate private investment (in rural and urban sectors) was one per cent of

national income in the 1930s. The ratio of public investment was small too. Investment in agriculture was a minuscule share of national income.¹¹

The dynamics changed somewhat in the first 20-odd years after independence. Both expansion in non-agriculture and land yield played a positive role, but population played a strongly negative role.

Wherever land quality and quantity remained unchanged, the long-term tendencies in real wage can be explained with reference to the land-person ratio. In Bengal, where land-person ratio fell the most, real wage fell by more than 60 per cent between 1911 and 1936. In Madras and Bombay, there was long-term stagnation. In Punjab and UP, especially western UP, where land-person ratio rose, real wages rose between 1900 and the middle of the 1930s. All regions, however, experienced adverse adjustments from the late-1930s. The spell was finally broken in 1970, when intensification became the chief source of growth in agriculture.

GLOBALIZATION AND LABOR

Figures 1 and 2 suggest no sustained improvement in real wage of agricultural laborers in the long run. Could this be due to the effects of globalization? The simple globalization story can be stated as follows. Trade in commodities increased return to land, and caused de-industrialization. The two tendencies together induced labor circulation between industry and agriculture. We then arrive at three testable propositions:

1. Within agriculture, inequality increased, since rents increased but wages were more stable due to labor circulation.

2. In the economy as a whole, inequality decreased. For, colonialism and trade weakened the economic position of the older elite groups, essentially the landed nobility, and strengthened the position of superior tenants and cultivating landlords.
3. De-industrialization, agrarian expansion, and labor circulation suggest a convergence between urban and rural wages. If initially urban wages were higher than rural wages, as indeed was the case, the two should come closer.

How well are these predictions borne out? I shall argue below that propositions 1 and 2 are confirmed by the data, but proposition 3 is not. There is evidence of a rise in rent-to-wage ratio, the rise probably accelerated with increasing land shortage. There is evidence too that inequality increased within agriculture, but declined overall. The part that is not confirmed concerns the relation between industry and agriculture. There was divergence between the two wages for as long as we can measure it. Urban wages rose relatively speaking. This was not an effect entirely of rising wages in the modern mill industry. Even artisan industries experienced rising wages relative to agricultural wages. Clearly, the de-industrialization and the labor circulation stories are not tenable, not at least in the simple form. I shall suggest below that the reason why rural wages remained depressed was increased labor supply *within* the rural areas. And, the reason why the urban wages increased was rise in productivity and demand for labor within the urban areas. There were barriers between the two worlds.

Two major works on rents (Reddy, 1996; Guha, 1993) suggest that rents in real terms increased on all qualities of land. Guha's sample from north India show rents increased several times between the early twentieth century and mid-twentieth century, but the

south Indian evidence is ambiguous. Reddy's sample from agriculturally prosperous coastal Andhra show rents more than doubled between 1860 and 1940. Agricultural real wages did not increase at all, between 1870 and 1940.

Did rural inequality increase in colonial India? Studies on inequality in land-holding generally find no significant change in colonial India (Kumar, 1975; Rao and Rajasekhar, 1991; Yanagisawa, 1993). This finding does not mean stasis, however. In general, the precolonial non-cultivating elite with considerable *control* over land but no well-defined and alienable property rights either declined or converted themselves into land-owners, as these rights became defined, recorded, and vested, not necessarily to the former classes. On the other hand, cultivating peasants with reasonable quantity of land and secure proprietary or tenancy rights strengthened themselves. And at the other end, many small peasants with insecure rights were pushed towards labor from the interwar period. The absence of a significant trend in asset inequality is produced by this process of a rising middle and flattening ends.

Asset inequality does not capture the situation of the wage-earners very well. We need income inequality, or wage-share in earnings. Observe first the short-hand used by O'Rourke and Williamson (1999), namely, real wage to income ratio (Figure 3). I track real wage rate in agriculture against total real agricultural income (the two are deflated by price series with different bases). Since the ratio of non-workers to workers declined, this trend underestimates the rise in inequality. Next, I include the work-force figures to estimate wage-share in agriculture, and this variable declined too (Roy, 2005a: Table 4.5). Significantly, the measure declined only until the late-1920s. Widespread peasant distress in the post-Depression years, which continued in milder form until 1970, seems

to have arrested the inequality trend from the end of the interwar period, and introduced a leveling tendency.

On the other hand, overall inequality declined. Gini coefficients can be estimated for 1875 (with the database compiles in Atkinson, 1902; see Roy, 2005b, for more details), again for the interwar period when the quality of income and work-force statistics improved, and finally for 1950 during the first round of construction of a national accounting system. These measures show decline, from a level well over 0.3 to 0.2. A closer look shows that the earlier high inequality derived to a large extent from a feature that the British rulers of India had copied from the Mughals - the presence of a tiny governmental elite that received fantastically large incomes. Raychaudhuri shows that in Mughal India, a few hundred families had access to nearly half the gross agricultural output of the nation (cited in Pomeranz, 2000:146). In British India, a few hundred civil and military officials earned salaries at rates one thousand times higher than that of the poorest wage-earner. This differential in wages declined in the twentieth century, to about 20:1 in 1950. Further, the middle was rising throughout. Lower-level officials, commercial elites, bankers and moneylenders, clerks in commercial houses, and middle-to-richer peasants – all improved their economic position between 1860 and 1930.

The one who could not was the agricultural laborer. Was this failure a result of influx of laborers from industry to agriculture? A simple reading of the census data immediately suggests that there was influx. The proportion of the work-force engaged in agriculture increased, and the proportion of work-force in industry decreased, even as the size of the work-force expanded (Table 2). Apparently, workers left industry and moved into agriculture. This is the reading Indian economic historians have long been familiar with,

and have taken for granted since the early canonical texts in de-industrialization appeared (Patel, 1952, in particular), notwithstanding Daniel Thorner's critique of the raw data (Thorner, 1962).

And yet, this reading is wrong, for two reasons. First, wages in the urban industrial occupations were increasing at the same time, relative to rural wages. Why, then, would anyone move out of industry and enter agriculture? The divergence happened not only with respect to mill wages, but also with respect to artisan wages (Tables 3 and 4). I follow a practice introduced by Sivasubramonian (2000), and use the wages of general-purpose artisans (carpenters, masons, blacksmith) as proxy for artisan wages. This practice can be questioned, but other ways of tracking net income in the major artisan industries would not affect the conclusion, that artisan real wages followed a trend different from that of the agricultural laborer.

The second reason why the labor circulation theory does not make complete sense is that there was a gender angle to the data I cite in Table 2. If we observe only the male workers, the proportions of agriculture and industry do not change at all, not significantly at least. Males did not circulate all that much apparently. This is, essentially, the Thorner critique of de-industrialization. What Thorner did not explore enough is that, with female workers, the proportions do change significantly. Women apparently did leave industry in a large extent, and entered agricultural labor. Was this evidence of *circulation*? Why women? Thorner ignored this finding on the somewhat specious ground that the data are unreliable. We would do well not to accept that ground.

There can be a completely different explanation of trends in the sector-shares in employment. Potential women workers in rural India very rarely took part in long-term

labor contracts such as the farm servant contract. As long-term contracts began to disappear, women began to enter labor more and more. There was thus increased supply of labor within agriculture due to institutional change. On the other side, industry was experiencing a different kind of institutional change, one that Boserup (1970) once called, in a pan-Asian context, relocation of work ‘from the hut to the factory’. Household industry declined steadily, and wage-labor increased. For a number of reasons, men could take part in the transition much more successfully than could women. The percentage of manufacturing workers among women fell through the twentieth century, and the percentage of agricultural workers increased.

In any case, the process meant rising productivity in industry, mainly via rising hours of work supplied. Labor supply expanded within industry, but in a manner that could generate higher time-wages. I shall not explore these transitions any further here, because I do so elsewhere in more detail (Roy, 2005a).

I do not rule out completely the possibility of labor circulation between industry and agriculture. Some circulation did happen. And some circulation happened in a manner that has escaped the notice of economic historians. One deserves mention. Many among rural artisans were rather distinct groups socially and economically from the urban artisans. The latter had easier access to distant markets, capital, technical knowledge, skills, and information. The former had little prospect of reaching beyond the areas where they lived and worked. Such rural artisans often took part in casual agricultural labor on the side, to such an extent that the early censuses used (and gave up later) terms such as ‘general labor’, ‘village menials’, or ‘village servants’ to refer to such groups. Economic transition that increased the role of the market and long-distance trade hurt the prospects

of these groups. They did not exactly get ‘de-industrialized’ due to imported textiles or other goods; but their place was indeed taken by the more enterprising, skilled, and resourceful urban artisan groups. Some among the former joined urban labor, some specialized in agricultural labor, and some others joined mill work.

CONCLUSION

This essay set out to answer three questions. First, how do we choose between the *Prices and Wages* dataset, which suggests that real wages fell towards the end of the nineteenth century, and a slightly later source, which suggests that real wages increased in the same period? It is proposed here that the two sources might be looking at different types of contract, given that the time-span covered in these sources did witness institutional change. Second, do trends in wages and the number of wage-earners tell us anything about the reasons for intensification of poverty? The essay answered that poverty intensified because of an interplay of several variables, in which land yield and demography figured as much as did loss of jobs in manufacturing. Third, how did globalization affect labor markets? The essay answered that some of the effects of globalization can be easily predicted: de-industrialization, agrarian expansion, rise in rents, and reduction in overall inequality, for example. But some other effects may seem surprising. For example, despite de-industrialization, urban wages increased and despite agrarian expansion, rural wages were depressed. This is explained with reference to segmentation between urban and rural labor markets, and to distinct forms of institutional changes within each sphere.

In the long run, both industry and agriculture experienced increased labor supply, and both persisted with extremely labor-intensive processes of production. The key difference between these was that in agriculture, prospects of factor substitution and induced innovation seem to have been limited, producing a crisis in land yield. Industry, even small-scale labor-intensive industry, could stave off diminishing returns by means of increasing industriousness.

Fig. 1. Average wage (Rs./month)

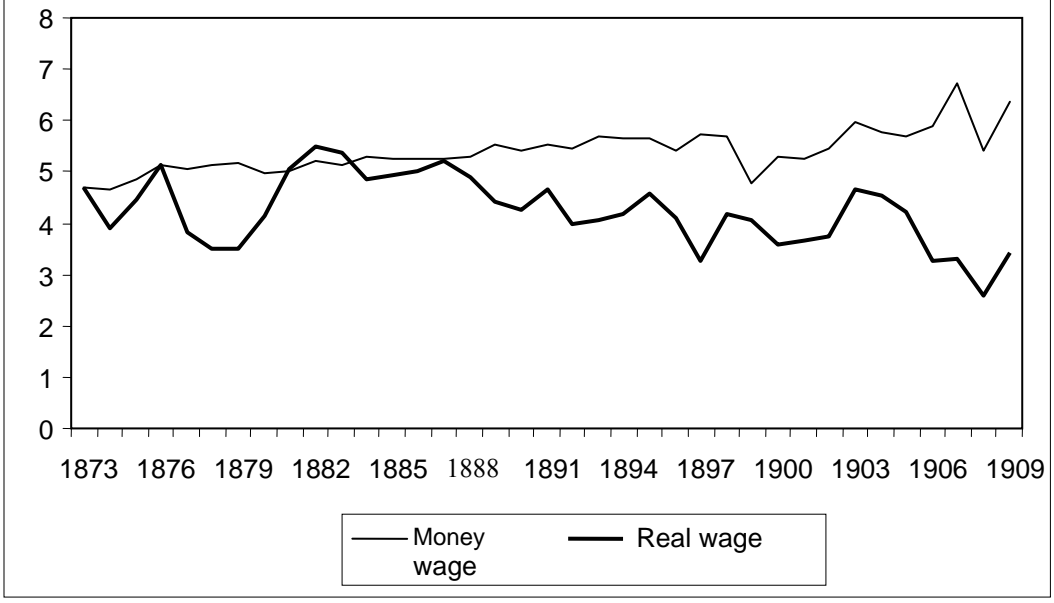


Fig. 2. Wage rates, 1920-51
(Rs/day, real wage in 1873 prices)

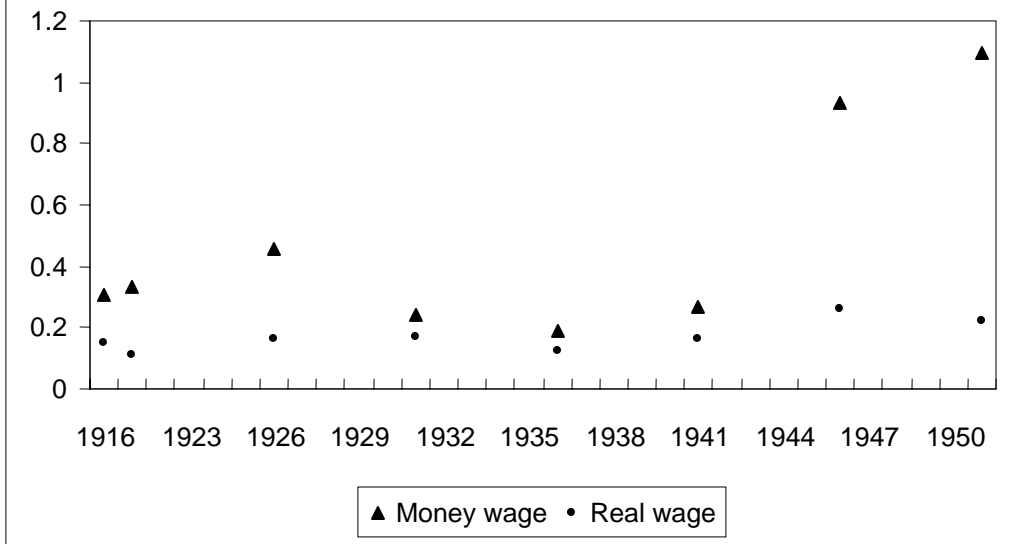


Figure 3. Wage-Income Ratio in Agriculture

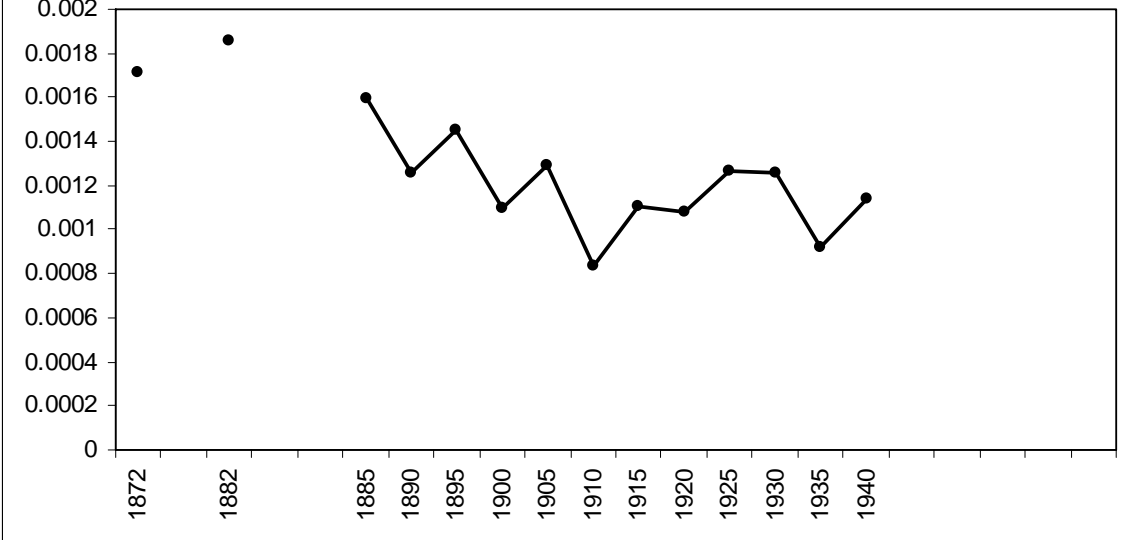


Table 1. Major factors affecting demand for and supply of agricultural labor

	<i>Average annual change</i>			
	<i>Population (%)</i>	<i>Cropped area (%)</i>	<i>Percentage cropped area Irrigated (%)</i>	<i>Net job-loss in nonagriculture (million)*</i>
1881-1911	0.6	2.7	0.2	0.2
1911-1931	0.6	0.1	0.9	0.1
1951-1971	2.7	0.9	1.2	- 0.8

* The difference between actual number engaged in small-scale industry in the end-year and the product of start-year percentage of workforce in small-scale industry multiplied by end-year workforce is calculated. The latter figure measures what should have been the number working in small-scale industry if industrial structure had not changed. This difference measures the number that notionally exited small-scale industry. The procedure is repeated for large-scale industry. The difference between the two figures is the extent of net job-loss. Minus sign indicates job-gain.

Table 2. Sector-shares in work-force (%)

	<i>1875</i>	<i>1900</i>	<i>1925</i>	<i>1946</i>
Agriculture	73.4	74.9	76.5	74.8
Industry	13.6	10.6	9.0	9.6
Modern	0.2	0.5	1.2	1.8
Small-scale	13.4	10.1	7.8	7.8
Work-force (%)	100.0	100.0	100.0	100.0
Work-force: millions	117.7	131.3	138.3	158.2

Source: Heston (1983) for 1875, Sivasubramonian (2000) for the other years.

Table 3. Daily wages of carpenters, blacksmiths, and masons: Urban

	Money wage Rs./day	Data points	Real wage Rs./day	Dispersion in money wage (s.d.)	Money wage of agricultural laborers Rs./day	1÷5
	1	2	3	4	5	6
1900	0.510	*	0.613	n.a.	0.176	2.9
1916	0.797	10	0.592	0.15	0.306	2.6
1920	1.363	7	0.642	0.17	0.333	4.1
1925	1.527	5	0.912	0.39	0.460	3.3
1937	1.110	10	1.034	0.23	0.243	4.6

Sources: various wage surveys

* Average taken from Sivasubramonian's estimate of urban skilled labor wages.

Table 4. Urban Wages: Skilled Manual Labor (Rs./day)

	Money wage	Real wage	Money wage as ratio of agricultural wage
1875	0.314	0.563	1.95
1895	0.373	0.537	1.97
1900	0.410	0.493	2.33
1916	0.688	0.511	2.25
1920	1.082	0.509	3.25
1925	1.497	0.894	3.25
1937	0.834	0.777	3.43

Source: Atkinson (1902) and Sivasubramonian (2000).

APPENDIX

Sources for wage data:

1873-1912: Government of India, Director-General of Commercial Intelligence and Statistics, *Prices and Wages in India*, Calcutta, various years.

1891-1912: *Report on an Enquiry into the Causes of Rise in Prices in India*

1920-51: India (1954); and quinquennial wage surveys in major provinces.

1951-64: Mukherjee (1974).

Some problems and adjustments relating to wage statistics:

The *Prices and Wages* report monthly wage, later sources report daily wage. I assume the monthly wage refers to the busy season when for all 30 days in a month the worker might find work. The tables above use monthly wages, but the converted daily wages can be found in the Appendix Table below.

When using the Datta Committee figures, we concentrate on the three basic operations: ploughing, sowing, and with rice, transplanting. Where applicable, we employ intensity of employment data from *Agricultural Labour Enquiry*, assuming intensity to be a function of the relatively invariant parameter, crop mix.

The data on female wage rate is generally less detailed than that on male wage rate. For the earlier years, *Prices and Wages* do not mention which sex the wage refers to. Where not mentioned explicitly, I take wage to refer to male wages. Elsewhere, I use the female-male wage proportion averaged over four provinces where detailed data on female wage is available, upon male wage rate, to derive the corresponding female wage rate.

The average wage for all of India is a weighted average over all states/provinces for which we have data. For colonial period, only one set of weights are used, 1901 agricultural labour population, to avoid biases implicit in the census occupational statistics.

Wage estimates: 1873-1912:

The 1873-1901 figures based on *Prices and Wages* are averages of six major regions (Greater Bengal, Greater Punjab, Bombay, Madras, Central Provinces and Berar, United provinces). 1891-1912 figures based on Datta Committee are averages of six major regions. For 1891, the two datasets produce remarkably similar figures, for 1901 these produce very different figures. The index numbers are calculated taking Datta Committee figure for 1891. Price index used is the weighted agricultural price index in M. McAlpin, 'Price Movements and Fluctuations in Economic Activity' in Kumar, ed. (1983).

Wage-estimates: 1916-1946

The average wages shown in Fig. 2 are based on 42 data points on the six major provinces. The sources for these figures, and the Appendix table below, are:

- a. Bombay survey reported in Sivasubramonian (2000).
- b. Ghosh (1969) reports real wages for field labourers in the five other provinces, based on the quinquennial wage censuses that replaced the *Prices and Wages*. The Bengal figures were cross-checked by those reported by Radhakamal Mukherjee at the *Royal Commission on Agriculture* Evidences. They tally closely. UP and Punjab data were cross-checked with two other sources: Chaturvedi (1947), Bhattacharya (1981). The provincial average figures are averaged weighted by respective labour populations. The

figures that appear in the money wage column in the Appendix table are these weighted averages.

Wage estimates: 1951-1968:

The 1951 figure is from *Agricultural Labour Enquiry*. Raw data are daily wage, converted into monthly. Standard price indices covering pre- and post-1947 years are not available. The extent of price increase between 1946, the last year of the previous series and 1951, part of a new series, may not be precise. The estimates for 1951-1968 extrapolate the 1951 real wage to the series on average real income taken from 'Real income of agricultural labourer' in Mukherjee (1995).

GDP in agriculture and wage-ratio

The figures for the colonial period available in the standard sources are for all of India, whereas the labour force figures refer to British India. I scale down GDP agriculture by the ratio of population in British India vis-à-vis the states. Wage bill is estimated by multiplying wage rate with number of workers and average work intensity (for 1951 in all cases). This is done for male and female workers separately.

Table 5. Weighted Average Money and Real Wage of Agricultural Laborers in British India
(Rs./day, real wage in 1873 prices)

<i>Year</i>	<i>Money wage</i>	<i>Real wage</i>	<i>Year</i>	<i>Money wage</i>	<i>Real wage</i>	<i>Year</i>	<i>Money wage</i>	<i>Real wage</i>
<i>Source: Prices and Wages Statistics</i>			<i>Source: Datta Committee</i>			<i>Source: Quinquennial wage surveys, as reported in Ghosh and other works</i>		
1873	0.157	0.157	1892	0.182	0.133	1916	0.306	0.147
1874	0.155	0.130	1893	0.190	0.135	1921	0.333	0.114
1875	0.161	0.148	1894	0.189	0.139	1926	0.460	0.162
1876	0.171	0.171	1895	0.189	0.152	1931	0.270	0.171
1877	0.168	0.127	1896	0.181	0.137	1936	0.243	0.125
1878	0.171	0.117	1897	0.190	0.108	1941	0.187	0.161
1879	0.172	0.117	1898	0.190	0.139	1946	0.931	0.264
1880	0.166	0.138	1899	0.159	0.135	<i>Source: ALE and Mukherjee's series on real incomes</i>		
1881	0.167	0.168	1900	0.176	0.120	1951	1.094	0.219
1882	0.173	0.182	1901	0.175	0.120	1955		0.195
1883	0.171	0.180	1902	0.182	0.125	1960		0.193
1884	0.177	0.162	1903	0.199	0.155	1965		0.171
1885	0.176	0.164	1904	0.191	0.151	1968		0.189
1886	0.176	0.167	1905	0.190	0.141			
1887	0.175	0.173	1906	0.196	0.109			
1888	0.177	0.164	1907	0.223	0.110			
1889	0.184	0.148	1908	0.180	0.086			
1890	0.180	0.141	1909	0.212	0.114			
1891	0.184	0.155						

References

IESHR: Indian Economic and Social History Review

MAS: Modern Asian Studies

EPW: Economic and Political Weekly

IJE: Indian Journal of Economics

IJLE: Indian Journal of Labour Economics

JRSS: Journal of the Royal Statistical Society

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Notes

¹ See, for a review, Bardhan (1977). Other important contributions on post-independence trends in real wages include Mukherjee (1974) and Jose (1988).

² Thus agricultural wages are not a central dataset in Sivasubramonian's national income estimates, Sivasubramonian (2000).

³ Cited by Radhakamal Mukherjee before India (1927: 392), Evidence taken in the United Provinces.

⁴ See, for a similar argument relating wage trends with decline of farm servant arrangements, Atchi Reddy (1986, 1991). On decline of product wages and long-term arrangements generally, see Radhakamal Mukherjee in India (1927: 390, 397), evidence taken in the United Provinces. Keatinge (1921:141) placed the decline of long-term contracts called *saldari* in west-central India well before 1921. 'The tendency nowadays is for the labourers to prefer to work for daily wages'. Kessinger (1974: 123-4) placed the decline of *sepidari* in Punjab from about the early-1920s, but this was based on recall. G.C. Mukhtyar (1930:) wrote of the decline of the *hali* system of Gujarat. And Darling (1934:272) mentioned a 'a new wind' in the 1920s Punjab whereby customary payment obligations tended to be discarded and questioned even in the most traditionalist settings.

⁵ A notable exception is Atchi Reddy (1983b) who used a number of these documents collected from coastal Andhra Pradesh.

⁶ Any worker under contract is attached to the employer in the sense that leaving the contract while it is in force involves penalty. However, Indian scholars have frequently used the term 'attachment' to refer to an extra degree of unfreedom. In this implicitly coercive sense of the term, a worker is attached in not being able to choose employer at

entry, or not being able to leave the old employer at end of contract. See Basant (1983) for a discussion of the term ‘attached’ labour from these perspectives.

⁷ Real wages in Bengal increased in the pre-1914 decade, but stagnated thereafter until 1922. Mukherjee, *op. cit.*, p. 393. Although official real wages in Bombay remained steady for the first 20 years of the twentieth century, ‘the improvement in the position of the labourer is greater than the figures appear to indicate’ (Keatinge, 1921: 143). G. Findlay Shirras (1924) reported a significant rise in real wage in Bombay between 1900 and 1922. H.W. Lyons reported a rise in wages in the Narmada Valley in 1902-20, (Lyons, 1920-22:450). On rise in wages in the early twentieth century see also Charlesworth (1985:218-9). M. McAlpin quoted in Charlesworth (1985:224); Bhattacharya (1981); Fukazawa (1983:207); Kumar (1983:239); Atchi Reddy (1986).

⁸ Slater, ed. (1918:33). The wages of ‘padials’ or debt servants were also uniformly and significantly lower than casual labour wages.

⁹ For some examples from Malabar, see Slater, ed. (1918:145, 193).

¹⁰ Mukherjee (1974), India (1954), Bardhan (1977), Jose (1988).

¹¹ See also Islam () for a similar point on Bengal