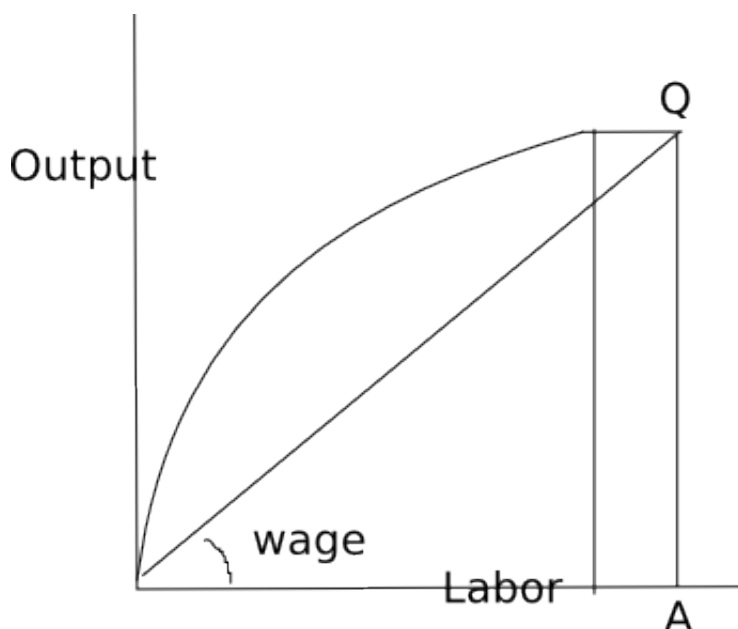


1 Migration

Informal and Formal economy coexist because of migration (a side-effect of urbanization and modernization). The two models for this are:

1. Harris-Todaro - migration driven by wage differences - the probability of getting a job in formal market is $\frac{L_F}{L_F + L_I}$. For urban wage (wage floor) \bar{w} , equilibrium wage w^* and agricultural wage w_A , $\bar{w} > w^* > w_A$ and the expected urban wage (considering informal wage) is $\frac{L_F}{L_F + L_I} \bar{w} + \frac{L_I}{L_F + L_I} w_I$. In equilibrium, $w_A = \frac{L_F}{L_F + L_I} \bar{w} + \frac{L_I}{L_F + L_I} w_I$ ¹.
2. Lewis-Rani-Fei - Surplus labour $\Rightarrow MPL = 0$



1.1 Fields - HT - Notes

Three policies were considered by HT:

1. Modern Sector Enlargement (MSEN) - a job creation scheme - requires spending
2. Traditional Sector enrichment (TSEN) - rural development - requires spending
3. Modern Sector Wage Restraint (MSWR) - wage limitation in Urban Economy - costless

HT conclusion was that as long as \bar{w} and w_A remain constant, any attempt to eliminate urban unemployment through urban job creation (raising L_F) would raise unemployment, not lower it - that the solution to urban unemployment is rural development (raise w_A). MSWR would lower unemployment if the demand for labor in the formal sector is sufficiently inelastic ($n > \frac{y}{2}$, where $y = \frac{\bar{w}}{w_A} - 1$) and η - the arc wage elasticity of demand for labor in the modern sector evaluated between w_A and \bar{w}) and raise unemployment if the demand for labor is sufficiently elastic ($\eta > -\frac{y}{2}$).

Lorenz curves are used to see which policy is more equal.

¹Todaro Paradox - If we increase formal sector employment (the probability of finding employment in formal sector increases) which also raises the expected wage. This results in higher migration to formal sector and thus a downward pressure on employment rate in formal sector (increasing the informal sector instead).

The government can try to reduce informal sector i) physically - which doesn't work ii) subsidizing formal sector which works by pushing up equilibrium agricultural wages iii) use a combination of i) ii) and/or subsidize agriculture as well.

1. With lowering of Lorenz curve for MSEN, we conclude that MSEN increases income inequality.
2. TSEN reduces income inequality.
3. Two cases occur for MSWR -
 - (a) Formal sector demand Inelasticity - $\eta > -\frac{y}{2} \Rightarrow$ reduction in income inequality
 - (b) Formal sector demand elasticity - $\eta < -\frac{y}{2} \Rightarrow$ ambiguous effect in income inequality

Wage ratio is another way to analyse inequality:

1. Inequality unchanged for MSEN
2. Inequality falls with TSEN
3. Inequality falls for MSWR

With social welfare functions:

1. Ambiguous for MSNL (unemployment and inequality rise, poverty headcount falls)
2. Total labour earnings falls but unemployment, inequality, poverty fall in TSEN
3. Total labour earnings unchanged and reduced poverty - MSWR

Ercolani Wei China

- Rural-Urban migration soared with rise of industrial sector in China
 - Dualistic development was proposed by Lewis (1954) and formalized by Ranis and Fei (1961) - this is the so-called Lewis point
 - In Lewis paper (1954) - the agricultural wage rate is presumed to follow sharing rule be equal to average productivity (institutional wage). The non-agricultural sector employs labor at a wage rate higher than the agricultural institutional wage (~30%). Subsequently, when surplus labor is exhausted, the Lewis turning point is reached (labor-surplus stage => labor-scarce stage).
 - The three phases are 1. breakout (redundant agricultural) 2. shortage (disguised unemployment) 3. commercialization (turning point)
 - Before China, people believed (based on learnings from Eastern European reforms) that faster reforms underperform (gradualist/experimentalist school of thought). This is often attributed to (rapid) convergence of socialist goals with those of capitalism (convergence school of thought). Both schools agree that market reforms have worked. gradualists/experimentalists now attribute China's growth to industrial innovation (one of which were use of 15-year leases instead of land privatization).
 - Cai said that turning point had already been achieved (before Deng reforms) while others say that it is yet to arrive. The discrepancy is because of the way household data was recorded - some look at household incomes while others look at surplus labor in rural China.
 - The key growth has been through industrial growth - In the model, an economy enters phase two if agricultural MPL starts to increase above its near-zero value (but still lower than the low agricultural institutional wage).
 - Removal of Hukou restrictions on migration would result in Phase III (by letting labour incomes rise).

2 Land

Sharecropping tenancy is evaluated as $R = \alpha Y + F$ ($\alpha = \text{fraction of output}$, $Y = \text{rented land}$, $F = \text{Fixed rent}$). Sharecropping is more popular because of risk-aversion (output has a more downside risk). Fixed rent puts all risk on worker, fixed wage all on owner - sharecropping is an intermediate solution. People with less assets or less diversified assets cannot undertake risk.

Formally, if the share s needs to be handed over to the landlord, then expected output is $psG + (1-p)sB$. If this is set to R , then $s = \frac{R}{pG + (1-p)B}$. For good returns, tenant gets $G - R$ under fixed rent and $(1-s)G$ in sharecropping, while in bad state, he gets $G - R$ under fixed rent and $(1-s)B$. Sharecropping is better if $(1-s)G - (G - R) > 0 \Rightarrow R(1 - \frac{G}{pG + (1-p)B}) > 0$. However, $G > B \Rightarrow 1 - \frac{G}{pG + (1-p)B} < 0$. In other words, good times require less payment from the tenant.

2.1 Large Farms

Large farms require higher costs of monitoring. However, small farms use more labour than large farms. Pooling farms recreates agency problems.

2.2 Principle Agent Theory (PAT)

The theory attempts to resolve interaction between risk and moral hazard. An optimal contract is chosen to yield highest possible return. The screening model follows this approach. Screening also lead to eviction policies.

2.3 Collier, Dercon - Smallholders in African Agriculture - Notes

A rush to megafarms is unlikely to be the answer. Three major dimensions show the flaws in megafarm model:

1. Skills and Technology
2. Access to Finance
3. Logistics Trading

2.4 Deininger, Jin, Yadav - Bengal Reforms

Three steps were undertaken as reforms:

1. Registered tenants (bargadars) are protected from eviction
2. Fixed-rent contracts are outlawed
3. Transfer of tenanted land (subleasing of barga) by the tenant to third parties is not allowed

Long-term gains in productivity and investment from land reform haven't been realized. Suggestions include

1. opening up a broader range of contractual options.
2. providing mechanisms for credit access to allow tenants to buy out landlords if needed.

3 Labour

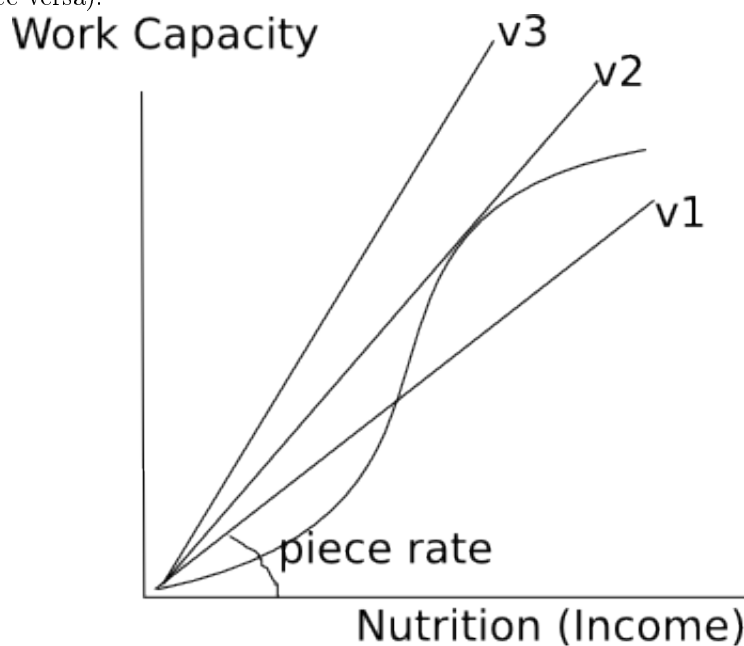
3.1 Basic Model and drawbacks

Demand of Labour is Downward sloping and vice versa. The problem with this model is that it ignores:

1. Casual vs Long term labor
2. Makes no distinction in the power structure (labour vs labourers)
3. No inertia model i.e. everything is fully monitored.
4. No involuntary employment model exists
5. Uncertainty and seasonality missing

3.2 Nutrition

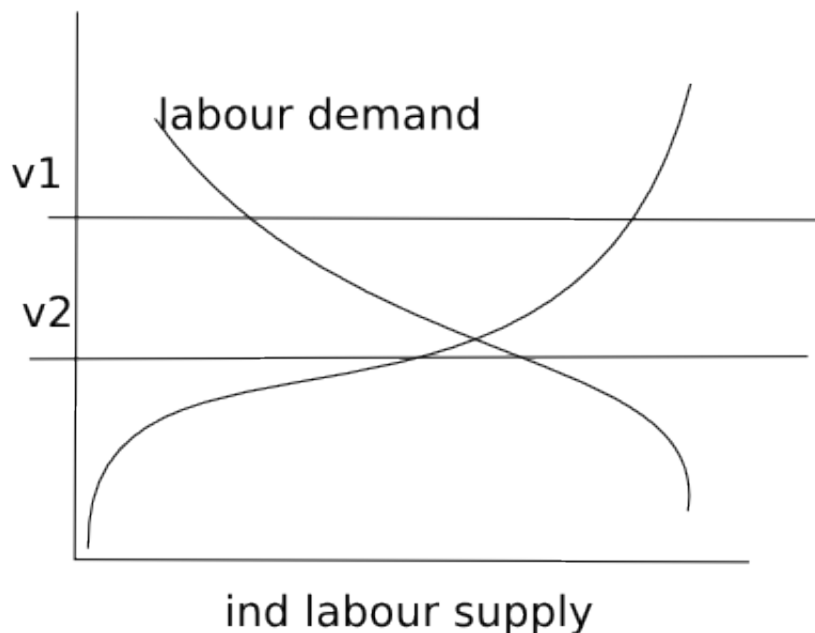
The curve of nutrition is S-shaped because of most nutrition goes into resting. The fundamental energy balance equation is: $x_t = r_t + q_t - b_t$ where r_t = resting metabolic rate, q_t = physical-work and b_t = heat released. Higher mass requires higher r_t (lower wage results beneficial in the short-run for the employer has low r_t and thus low mass). Since investment in nutrition is a long-term investment, the employer would prefer stability (low turnover). More casual labour in other words is not good for health (and vice versa).



$$v1 > v2 > v3$$

With individual labour vs piece-rate study, we may have a situation when determination of equilibrium piece rate is difficult. This happens when downward demand labour slope crossed the dotted area. If the piece-rate goes any higher, then the supply would be up away from demand (that bring wages down). However, if we let unemployment in the model, a slightly higher than equilibrium v^* would send a flurry of workers and increase the probability of unemployment.

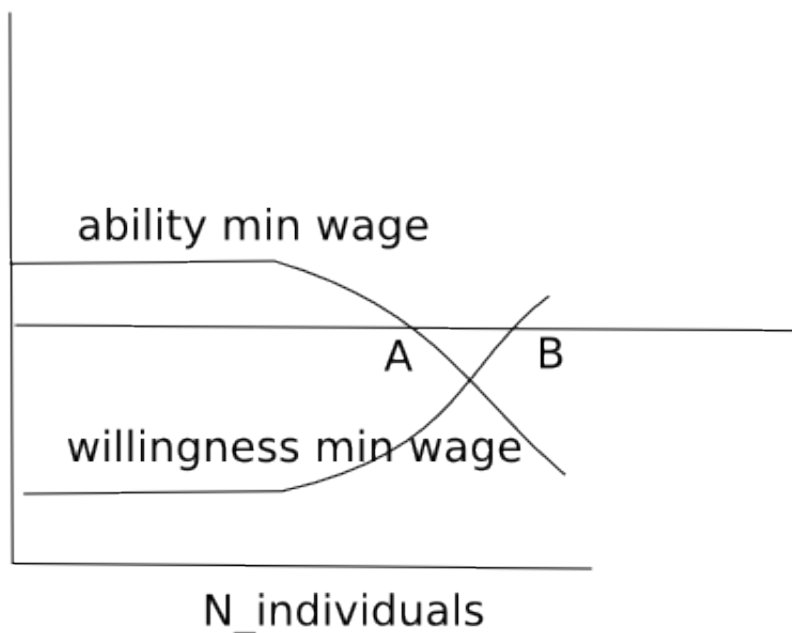
piece rate



If we compare two workers with different piece rate requirements, it is easy to see that their minimum piece rate requirement is higher (they can feed themselves etc.).

At low levels of nonlabour income, workers would be willing to work for anything so minimum piece rate would be really low. As nonlabour income rises, the minimum wage workers are willing to work rises. This is balanced by the minimum piece rate workers are able to work. Only the best (richest and healthiest) survive as the minimum piece rate drops.

min piece rate



With a given wage rate, the people to the left of A are willing to work (wage is higher than their min) but not able to work (involuntarily employed). People to the right of B are able to work but not

willing to work (voluntarily employed). In general, higher piece rate increases the overall output.

3.3 The case for Permanent Labour

Note that other than health investments, permanent labour is also one that requires less monitoring (reduces costs). (the equilibrium conditions requires that $\frac{w_p}{w_c} = \frac{L_c}{L_p}$) - to consider advantages of shirking we consider the gain by shirking is $G = N(w_p - w_c) \Rightarrow \frac{G}{w_p} = N(1 - \frac{w_c}{w_p})$. Here, $w_p > w_c$ (why shirk otherwise). Note that if w_c rises, w_p/w_c ratio must fall to support the equation.

3.4 Nutrition traps in Rural India

Only a subset are affection with nutrition traps.

3.5 A Theory of Two-Tier Labor Markets in Agrarian Economies

Trust and Loyalty is priced in the labour market.

4 Credit

Credit needed in agriculture and economic situations:

1. a time lag between investment and returns
2. income stream fluctuations (seasonality etc.)

Following are its classifications:

1. Fixed Capital - PPE etc.
2. Working Capital
3. Employee sustenance

Two problems with Credit in developing world:

1. Credit monitoring
2. Default

4.1 Credit Screening

Borrower would like to take up a lot of risk (because defaulting is easy). Banks prefer the rich (because they are less hit - see book). The lender's risk can be seen with the expected gain : $E = p(1+i)L - (1+r_f)L$. Now, $E \geq 0 \Rightarrow i \geq (\frac{1+r}{p} - 1)$. i would increase with lower p . The default-probability $(1 - p)$ does depend on the L .

4.2 Collateral

Two types

1. Both borrower and lender view it highly
2. Only borrower views it highly (this can be ensured by keeping information hidden).

If values are viewed differently V_B =big landowner perception, V_S =small farmer perception, F =loss from default in addition to the lost land (= V_S with land as collateral) , then borrower would repay only if

$$V_S + F > L(1 + i) \quad (1)$$

i.e. loss through default is lower than the money he has. From lender's perspective, borrower's default is desirable if $V_B > L(1 + i)$ - thus payment condition is -

$$V_B < L(1 + i) \quad (2)$$

Thus, for payment to occur : $V_B < V_S + F$.

Collateral and Interlinking can help the lender. The problem with land or labour as collateral is both land and labour could be illiquid for the institutions. Another requirement to address is exclusivity - i.e. lender ensures that borrower doesn't borrow from multiple lenders (lender wouldn't want to end up cross with another lender - who the borrower may have borrowed from to pay the loan).

Smaller institutions exist to address this liquidity since they have access to unofficial routes and local knowledge. They thus help with screening as well. The cost of screening itself is lower for informal sector.

This can lead to problems of segmentation -

1. Traders might just lend to their consumers (who buy grain) while landlords lend to their consumers (farmers).
2. Interest rates would vary depending on geography, source of funds and borrower-reputation (not an arbitrage). However, these rates are lower in informal markets (why?)

4.3 Credit Rationing

There is limit on the amount you can borrow - primarily because the incentive to default is higher for high loans. Lender Monopoly theory is bogus (since monopolies exist locally at best and interest is hardly available as profit because of lack of the arbitrage).

To model credit rationing, we consider opportunity cost = A (i.e. the per-period income that farmer may get elsewhere). For every period,

$$f(L) - L(1 + i) \geq A \quad (3)$$

If farmer defaults now (with $N - 1$ periods ahead), then he gets $f(L) + (N - 1) \cdot A$. If he doesn't default, then he gets to pocket $N[f(L) - L(1 + i)]$. For him to not default, he should have more profit from paying the loan than from defaulting. So condition of payment is : $N[f(L) - L(1 + i)] > f(L) + (N - 1) \cdot A$. This leads to additional factor $(\frac{N}{N-1})$ in the one-period equation :

$$f(L) - \frac{N}{N-1}L(1 + i) \geq A \quad (4)$$

It is easy to see that with all else the same, small N or increased i (or larger L), would encourage default.

The equilibrium is at the maximum value of production $f(L)$ subtracted by the modified cost line $\frac{N}{N-1}L(1 + i)$ i.e. Marg. Product = $\frac{N}{N-1}L(1 + i)$.

4.3.1 Information Asymmetry

If there are safe borrowers (pays back R for loan L with $p = 1$) and risky borrowers (pays R' with probability p), then the expected return safe borrower is $R - (1 + i_1)L$ and expected return for risky borrower is : $p(R' - (1 + i_2)L)$. Clearly, $i_1 \leq \frac{R}{L} - 1$ and $i_2 \leq \frac{R'}{L} - 1$. $R' > R \Rightarrow i_1 < i_2$ (i.e. risky borrowers compensates for risk).

If we assume that by choosing i_1 , the lender attracts both safe and unsafe borrowers with 50-50 chance and since we know that i_2 would prevent safe borrowers, we can compare the two returns to obtain the condition: $p < \frac{R}{2R' - R}$.

4.4 Kochar - Informal Credit in India - Notes

Informal credit is lower (and is in demand). Only 13% of rural cultivator households relied on formal loans. Screening costs are lower in informal sector. Informal credit is more popular.

4.5 Zeballos, Cassar, Wydick - Microfinance in Bolivia - Notes

Microfinance does enhance personal responsibility. In the conducted experiment, each subject had to choose between allocating her experimental loan either into a zero-risk project (consumption) or investment in the safer project. Results contradict the hypothesis that delinquent group borrowers risk too much. When the choice is between the zero-risk alternative (consumption - not risky enough) and investment in a modestly risky project, borrowers from delinquent groups chose the first option at nearly twice the rate (they care more for consumption than for risk). Defaulting microfinance borrowers are more likely to take little investment risk.

4.6 Morduch - Microfinance promise

While many hope that weak financial performances will improve over time, even established poverty-focused programs like the Grameen Bank would have trouble making. The microfinance program was started by Yunus personally and his attempt was to formalize the market of intimidation and ostracism.

Group-lending schemes provide incentives for similar types to group together - allowing a price-discrimination not possible with individual lending. Safe types may get out of the market if the interest-rate is not sufficiently low. Group lending improves opportunity for lender (pooling) - but increases hazards for the borrower (Grameen disallows all groups members in case of default) . A key issue with this the domino-effect that a default may trigger (if we're going down anyway, then let's default - GB does sequential loans to minimize this).

Dynamic Incentives - Incentives can be given with the anticipation of larger loans (good history guaranteeing access to better funds). These may require low mobility.

The motivation is that - raising the poorer borrower's income by one dollar has five times greater impact than doing the same for the less poor borrower (Thorbecke).

Administration costs are difficult to model in microfinance still - and a cost-benefit model hardly suffices. There is a risk of selection bias at work (borrower women rise household consumption more while borrower men spend more of leisure).

Future looks bright - banking can provide hedging services not-available to the poor otherwise.

Grameen II - uses progressive lending (starting with a basic loan), allows more screening, individual lending, provides flex-loan and clock-reset, instead of becoming a defaulter.

5 Insurance

Negative correlation is of importance in insurance - this is why externality becomes important. If a farmer produces $Y = A + \theta + \epsilon$ where aggregate (beta) variation is θ . Idiosyncratic risk can be insured way and leaves us with $\tilde{Y} = A + \theta$.

5.1 Information

Misrepresentation can hide the true risks. Moral Hazard problem persists as well. For example, if high efforts are with probability p and no efforts with q , then expected utility with high efforts is $pU(H) + (1-p)U(L) - c$ while no efforts yield $qU(H) + (1-q)U(L)$. Without insurance, the farmer puts extra effort if $pU(H) + (1-p)U(L) - c > qU(H) + (1-q)U(L)$. With insurance, if farmers with H pool their harvests and with L receive a compensation, then we have $pH + (1-p)L$ assured for every farmer and since, $U(pH + (1-p)L) > pU(H) + (1-p)U(L)$.

The question that one may ask is how much insurance can be offered without worsening incentives? $pX + (1-p)Y = pH + (1-p)L$ for farmer's output X and Y . High efforts are chosen as long as $pU(X) + (1-p)U(Y) - C \geq qU(X) + (1-q)U(Y) \Rightarrow (p-q)(U(X) - U(Y)) \Rightarrow C$. Under the second best scheme, individual consumption must move with individual income.

Considering, the reliability of a mutual insurance scheme, let us consider the gain from a high output individual who breaks the contract $G = U(H) - U(M)$. This should be equal to $\geq U(H) - U(M) = N[U(M) - \{pU(H) + (1-p)U(L)\}] + S$ (social sanctions = S). This implies that large S , N , $L-H$ would encourage breaking of contract. If the possibility for self-insurance exists, then mutual insurance is likely to fail.

Linking credit with insurance can occur when insurance claim payouts are used as credit history.

5.2 Rural Philippines Fafchamps, Lund - Notes

Consumption smoothing is an important motivation for gifts and informal loans, but gifts and loans are unable to efficiently share risk at the village level (gifts and loans take place not at the village level but within closed networks). Informal loans charge no interest; mutual insurance is largely confined to networks; and not all shocks are insured. Risk sharing takes place through repeated informal transactions based on reciprocity and mutual insurance takes place through a mix of gifts and no interest loans.

Not all categories of shocks are equally insured, even within networks. Crop and livestock sales do not appear driven by a precautionary motive, nor do households seem to deal with shocks by increasing labor supply or drawing upon other sources of income. Financial savings, on the other hand, responds to shocks.

5.3 Jalan Ravillion - Credit in China - Notes

Even by the standards of poor rural economies, credit markets appear to be under-developed in rural China. Formal financial institutions seem uncommonly reticent to lend to poor people, particularly in remote rural areas, and there is little sign of the village money lenders that one finds throughout South Asia. The full insurance model is convincingly rejected on the Chinese panel data.