

# Malnutrition and Famine



**World Poverty and Economic Development  
ECRG 3240 Fordham University New York Fall 2008**

**Photos: Sebastião Salgado's Photo Essay: Famine in the Sahel 1**

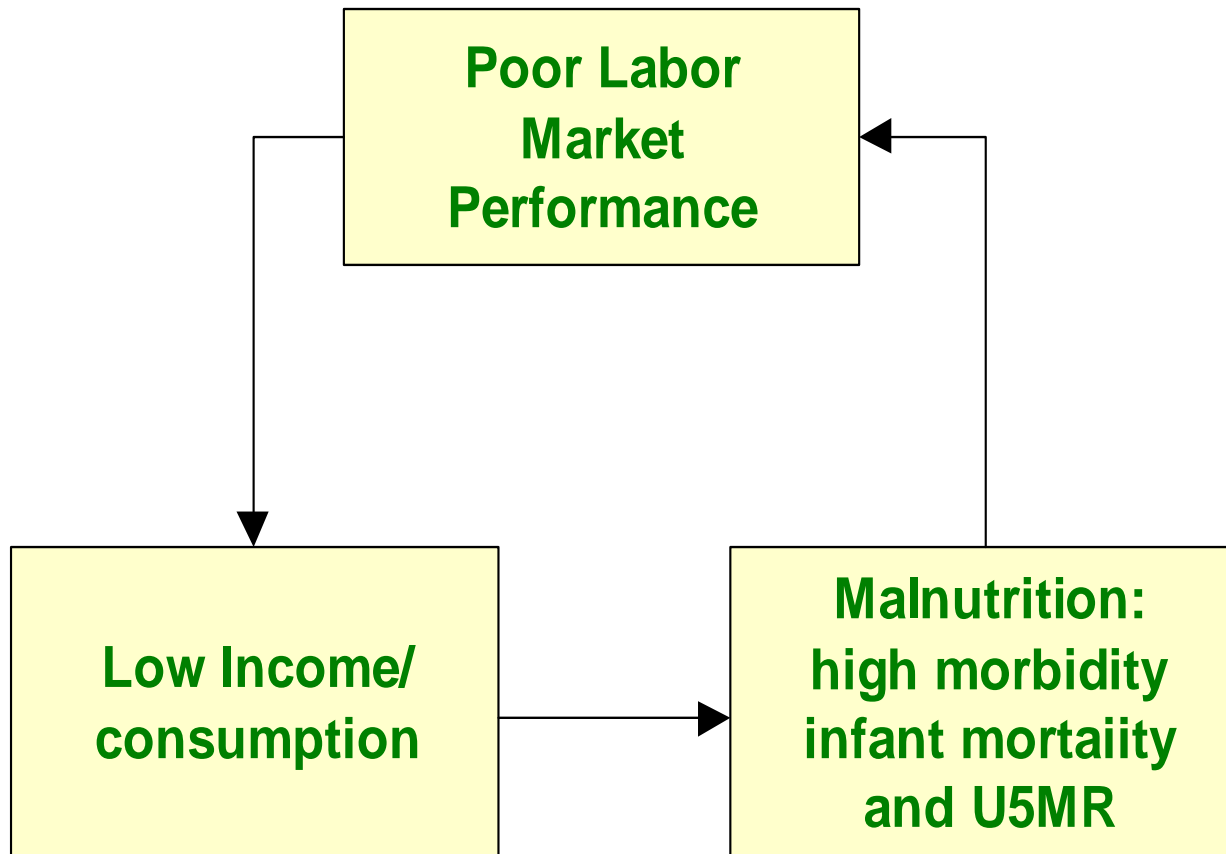
# Nutritional Status = Gross caloric Intake minus claims

## **Claims include: Basal Metabolic Rate or BMR**

depends on height and weight, a typical South Asia male: 5'4" tall 120 lbs has a BMR of about 1375 calories. So a **survival diet** =  $1.27 * BMR$  (note that  $1.27 * 1375 = 1750$  calories or about  $.75 * 2250$  meaning about 75 cents a day covers only a survival diet whereas a \$1/day buys about 2250 calories...

- **Physical Activity**— hard physical work consumes about 2 BMRs a day or 300-400 calories per hour.
- **Morbidity**— illness saps energy (calories), it takes extra calories to fight disease.

# Malnutrition: a cause and a consequence of severe poverty



# Breaking the circle of Malnutrition and Poverty

- Raising income, reducing the cost of food or food rations are obvious ways to reduce malnutrition and morbidity, thereby improving work performance.
- But low cost health care methods can also reduce malnutrition and improve labor market performance.
- Example: ***Oral Rehydration Therapy*** (ORT) reduces illness and U5MR reducing the birth rate falls and family calorie requirements.

# Low-cost methods of reducing malnutrition and under 5 mortality:

- **Nearly 20,000 children under five die daily-- 8 million per year--from malnutrition related, but highly preventable illness:**
  - 28% from dehydration due to diarrhea inducing diseases
  - 21% from viral disease: tetanus, measles etc. (vaccines)
  - 15% from respiratory infections (antibiotics)
- **Oral re-hydration salts:** 10 grams of glucose, 2.5 grams potassium chloride and 3.5 grams bicarbonate of soda, cost: 10 cents per treatment– almost homemade.
- **Vaccines,oral antibiotics:** cost less \$1 per treatment.
- **Birth-spacing** to allow breast feeding: Brazil <2 year spacing U5MR 138 per 1000, >2 years 58 per 1000.

# A theory of Malnutrition & Rural Poverty: preconditions

- **Landless workers**: unskilled labor account for 15-25% of typical village.
- **Smallholders** have some land, but not net sellers of food, often 25-30% of community.
- Net sellers of food— **small landholders** or farmers (20-25% of village population).
- **Larger landowners**, skilled crafts people, professionals, government officials (10-20%)

# The efficiency-wage hypothesis:

- Unlike wheat or cement, the quality of labor varies with price – high wages result in **greater work effort, loyalty, fear of being fired**, etc.
- People work harder and produce more per hour (**productivity rises**) when they are paid more—above average wages elicit above average effort as workers strive to keep a good job.
- **Turnover rates fall** as people value their jobs more (the pay is better relative to other jobs) the cost of being fired and unemployment go up for the worker, so less **supervision** is needed by employers.

# Definition: the reservation wage

- The minimum (personal) wage one is willing to accept for their work – may vary over time if one really needs a job.
- **Rule:** if the offered “market” wage is greater than your reservation wage at that moment, you take the job, and start work... If the market wage is lower than your reservation wages, wait– look for a better job.
- Typically this is wage at which you are willing to work, but at very low wages your reservation wage may be the minimum need to buy the calories to do the work– under **Nutrition Based Efficiency Wage (NBEW)** the floor on the reservation wage may be the minimum at which a landless worker can work.

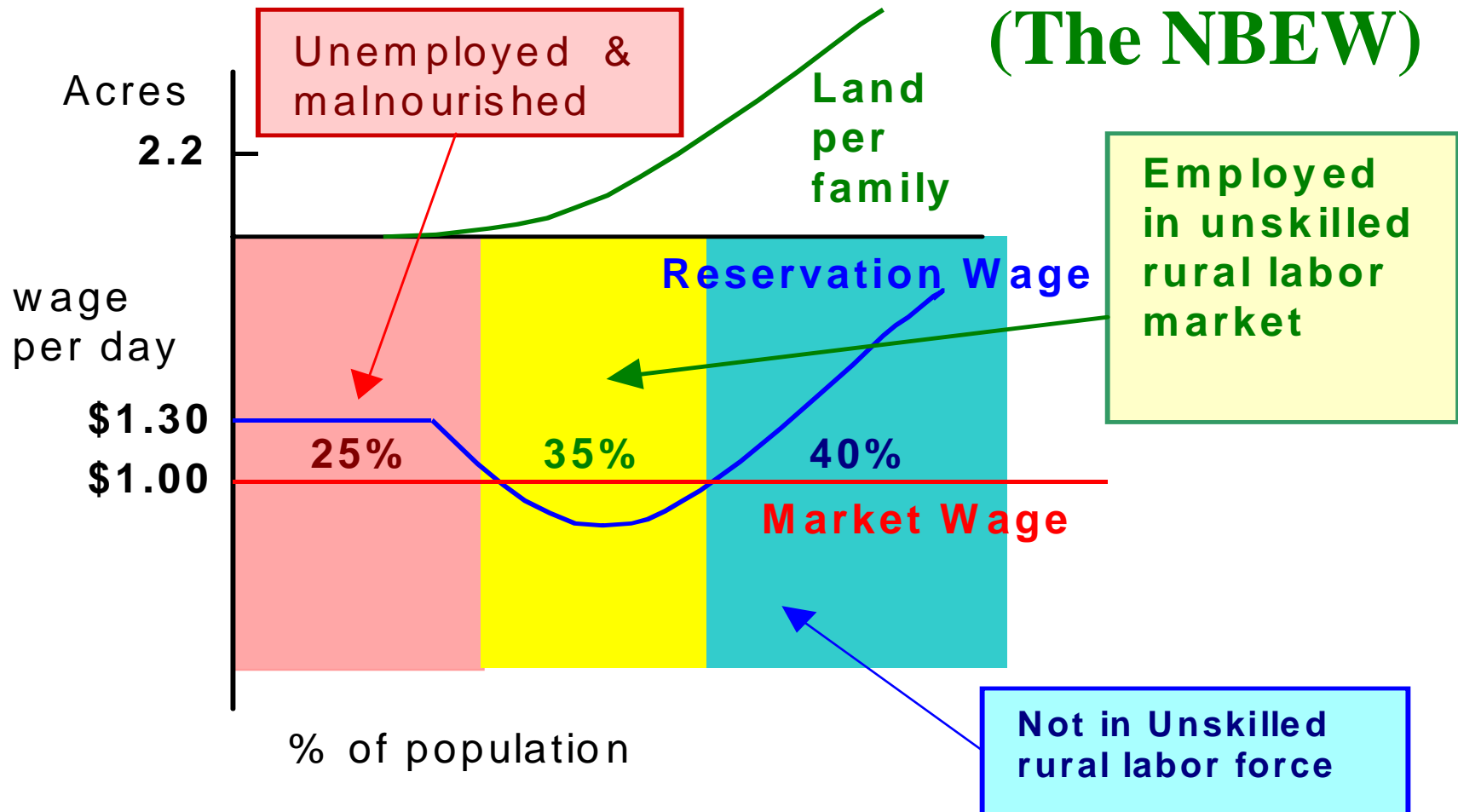
**Question:** *How could an employer ever pay less than the calories consumed by worker's effort?*

- **Answer:** *employers pay the market wage - - blind, anonymous market forces can drive wages below the biological minimum—this means workers actually expend more calories than their wages replace causing them waste away and fall victim to disease.*
- **Unless...** *they have another source of food...* *and are desperate for cash.*

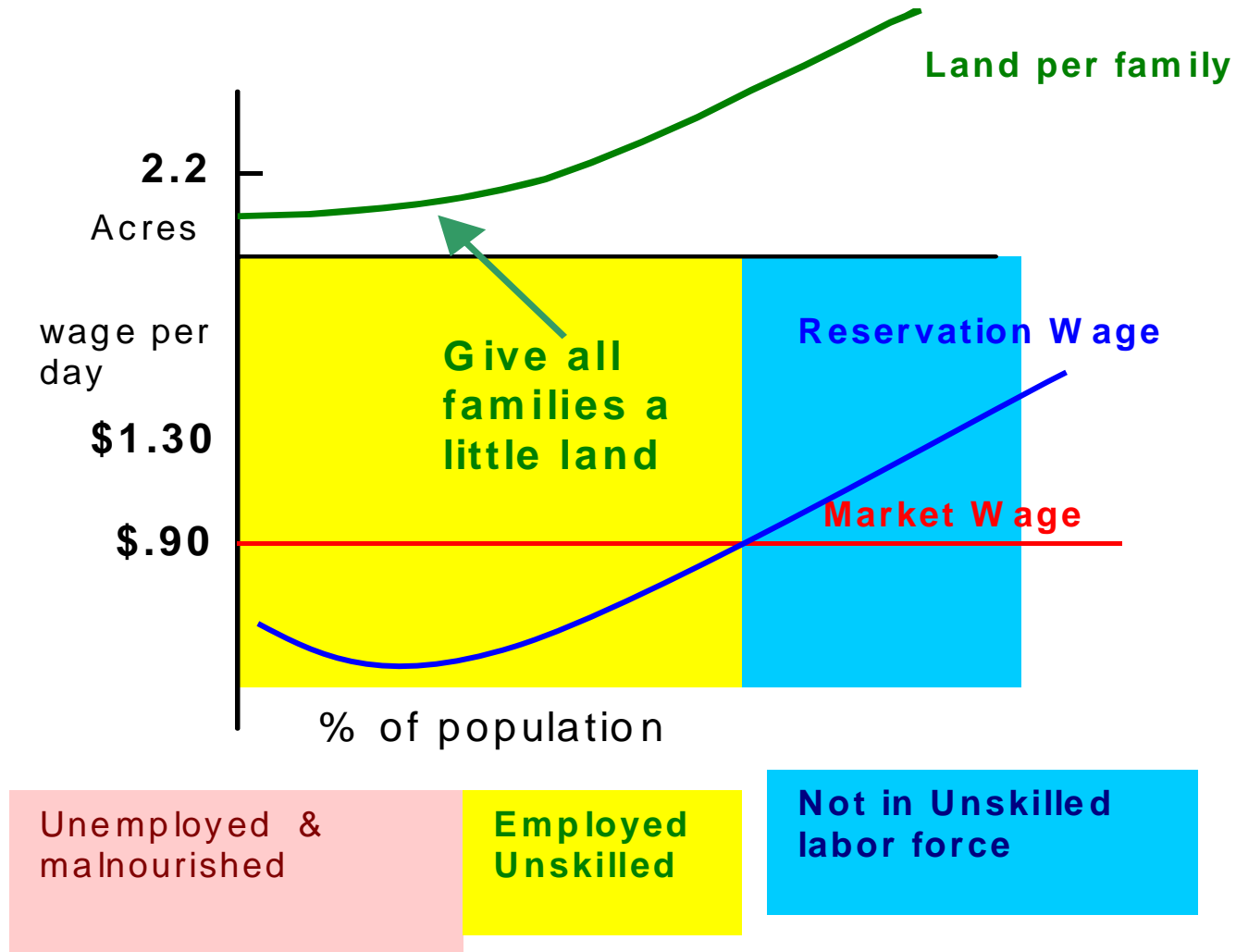
# NBEW: Key Assumptions

- At very low wage rates, performance improves with better nutrition— well fed workers take fewer sick days & have more energy to work— aka as the **Nutrition Based Efficiency Wage (NBEW)**
- Work effort increases with nutrition, up to a point: hard manual labor burns up to 300 calories/hour.
- For landless workers— with no other source of food-- calorie requirements create a *biological minimum* **reservation wage**
- But, landless workers often compete with other workers who have access to some land.
- If workers are abundant and jobs scarce, the market wage may fall below the reservation wage of landless workers -- result: malnutrition & illness.

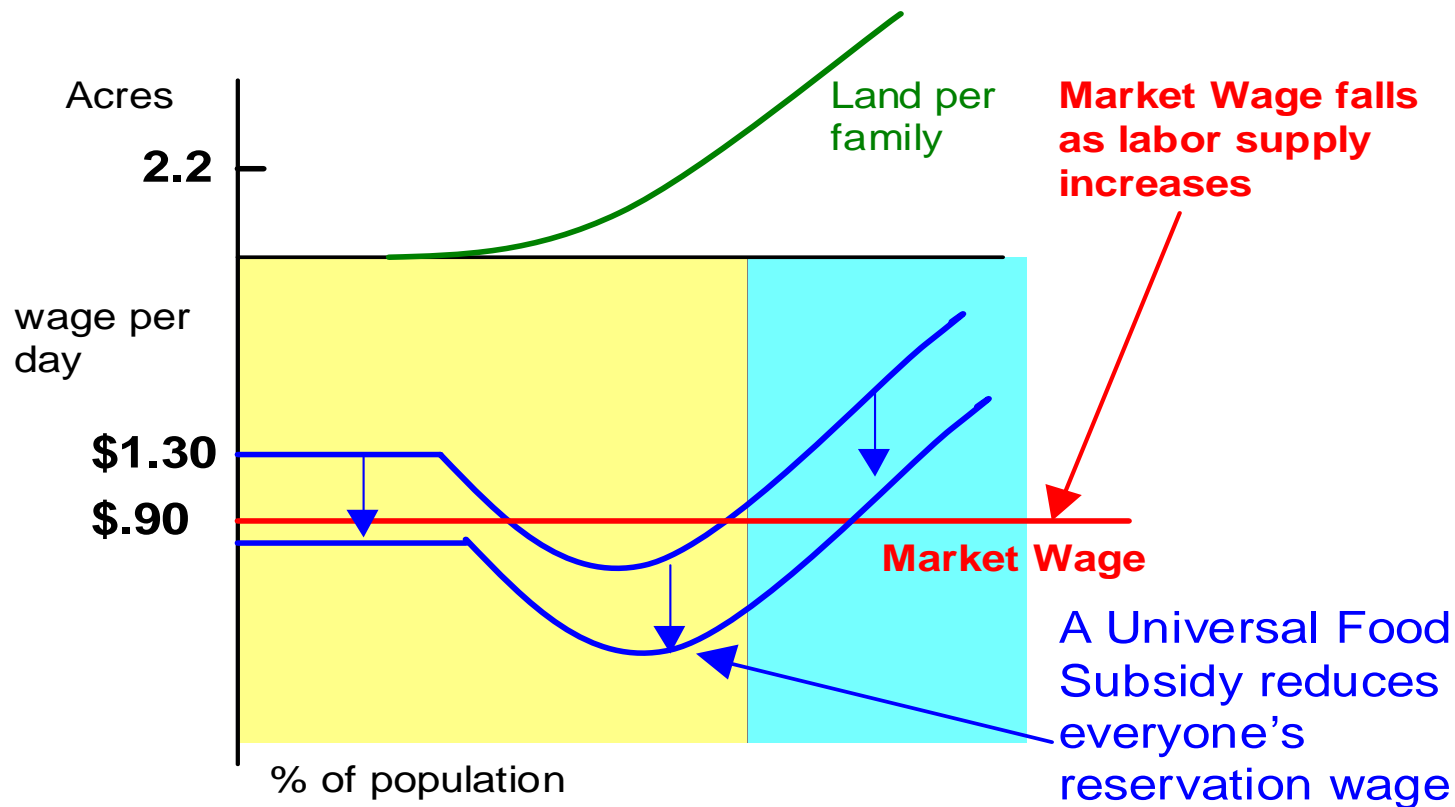
# An Explanation for Malnutrition: Nutrition-based Efficiency Wage Hypothesis



# Land Reform ends Malnutrition



# A Universal Food Subsidy also works, but is often expensive

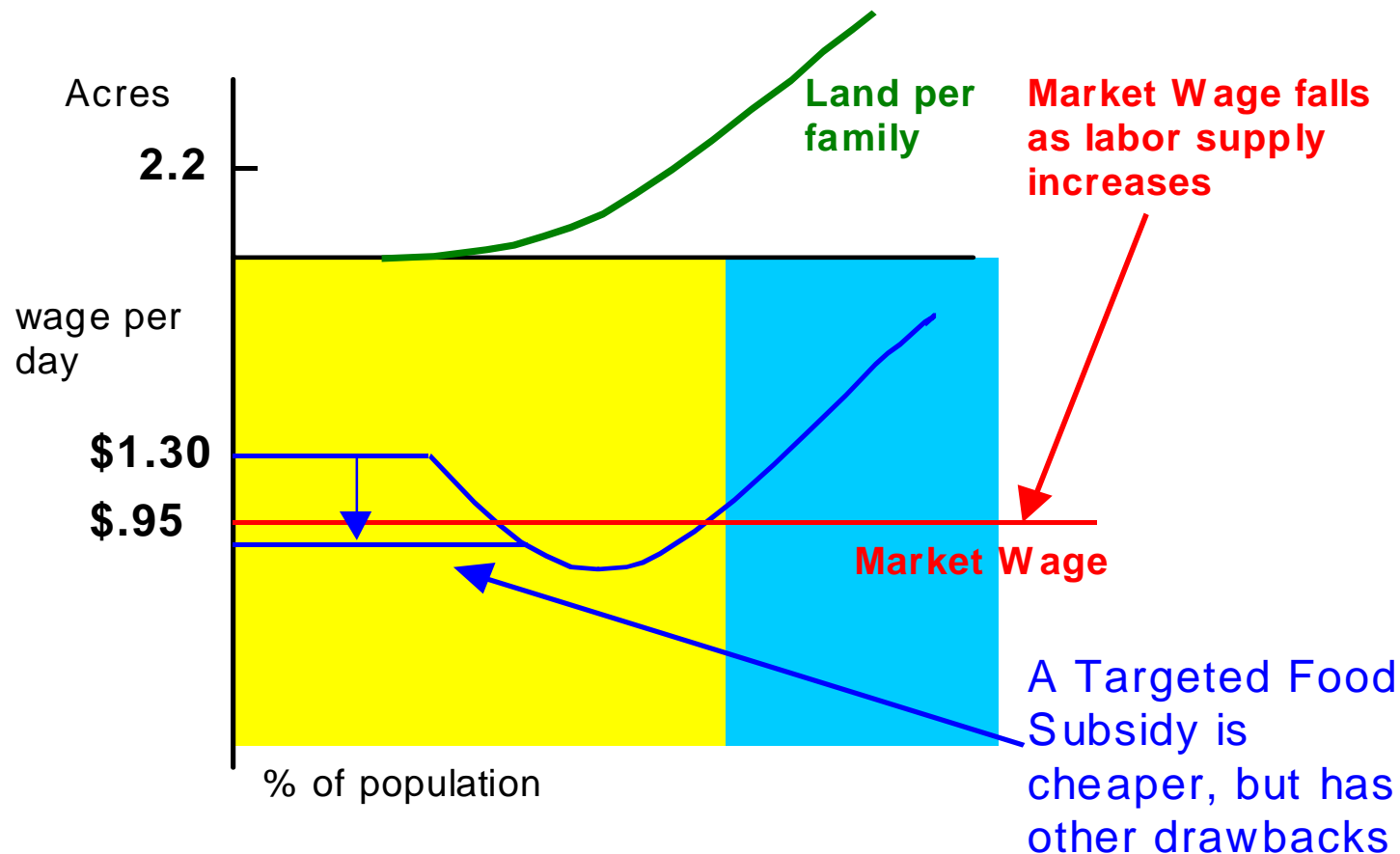


Unemployed & malnourished

Employed Unskilled

Not in Unskilled labor force

# A Targeted food subsidy is cheaper, but can be problematic politically

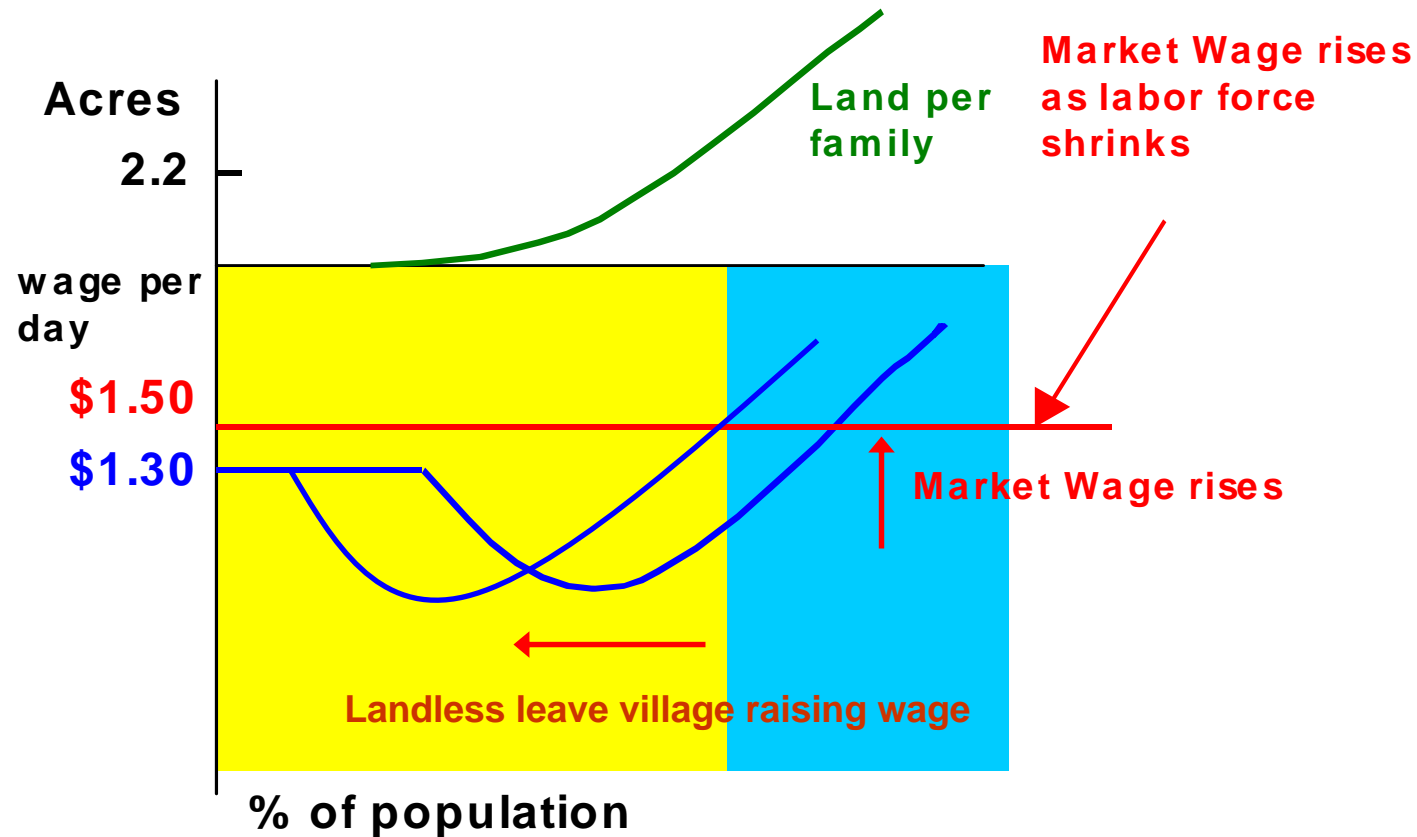


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# Often the best solution: migration from rural to urban labor market



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# Targeting Food Transfers can reduce costs, but ....

- **Means Tested Transfers** -- food stamps, ration shops, expensive to check -- no social security #s in LDCs
- **Indicator Targeting:** certain groups are more vulnerable such as children or the elderly in rural areas, certain geographic areas, etc. Ration shops in bad neighborhoods.
- **Self-Targeting:** poor select themselves-- food only the poor eat-- e.g. coarse corn tortillas, or baladi bread in Egypt or most popular: food for work programs.
- **Universal or no targeting** for basic food products-- e.g. food, grain, certain oils, etc.

# Striking implications of the NBEW Hypothesis:

- Unfettered **market forces** lead to malnutrition—government intervention may be warranted.
- **Landless workers** are **vulnerable** group not due to big plantations or export agriculture, in fact food crop production may make it worse.
- **Supply-Side Bonus:** Reducing malnutrition or severe poverty via land reform or food subsidies increases the effective labor supply.

# Malnutrition: comparing explanations

	<u>NBEW</u>	<u>Food-First/Oxfam</u>
• Export crops divert food abroad	<b>no</b>	<b>yes</b>
• Unequal land dist.	<b>yes</b>	<b>yes</b>
• competition from small-holders	<b>yes</b>	<b>no</b>
• free competition in rural labor market	<b>yes</b>	<b>?</b>
• Big landowners the problem?	<b>no</b>	<b>yes</b>

# The causes of famine



# What Causes Famine?



- **Amartya Sen's** book *Poverty and Famines* (1973) argues *famines are rarely* due only to natural disasters— though government committees almost always claim a “food availability decline” (FAD) caused their most recent famine.
- More often, famine is due to loss of ***income*** or ***entitlement by vulnerable groups, especially landless workers-*** food prices rise too high for the poor to afford as was the case during the 1946 Bengal “boom famine”...
- ***Government policy mistakes or neglect are also a common cause:*** e.g., India vs. China's great famine in the 1950s is blamed on the poor lack of political power.

# Some debate the causes of famine:

- **Food availability decline (FAD)**, Natural Disasters, wars cause famine by reducing the supply of food.
  - **Solution: increase the food supply— food aid?**
  - **FAD and Entitlement** approach overlap when a natural disaster deprives of the poor of assets/income.
  - **Entitlement Failure** (Sen, 1981) argues cause of famine is typically loss of purchasing power or other means of accessing food.
  - **Solution: restore incomes of the poor**— redistribute food and purchasing power is more important than food supply— social capital and assets protect the poor.
- \***See [Ravallion \(1997\) pp. 1207-09](#) for a summary of this debate.**

# Famine Prevention Policy

## Implications of Sen's theory:

- **Famines are generally preventable**— e.g., in England 1600-1640 Stuart & Tudor Kings James I & Charles I stopped periodic famines for 40 years by storing grain and regulating grain prices during famines.
- **Botswana**— used food for work and targeted distribution of grain to increase access of poor to grain— did not just increase supplies.
- **Self-Targeting Food For Work programs** restore access of landless poor during crises or off-season months.

# Famine in a typical Medieval Village

The Effect of a 5% Crop Shortfall (35% price increase)  
by Social Group in a Rural English Village 1830-1860

Village Group:	Food Budget Share	Normal Grain Share	Food Shortage Share	Decline in Consumption Per Person
Landlords, Servants	15%	18%	20%	-1%
Farmers and Small landowners	17% (40% grain)	39%	44%	-1%
Shopkeepers craftsmen	35% (60% grain)	11%	11%	-12%
Landless Labor and the unemployed	70% (90% grain)	33%	25%	-28%

Fogel (1989) "Second Thoughts on the European Escape from Hunger..."

**The pictures in this presentation are all from the Brazilian photographer Sebastião Salgado's [wonderful photo essays](http://www.terraclick.com/terraclick/terraclick.asp?ID=100) on famine in the Sahel (see also his essay on migrant workers)  
[www.terra.com.br/sebastiaosalgado/index.htm](http://www.terra.com.br/sebastiaosalgado/index.htm)**

