Agriculture for Improved Nutrition and Health

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Agriculture, Nutrition and Health Links

Main points

• The role of public and private ag investment
• Proven high-return ag investments
• Is agricultural investment socially beneficial?
• Using the nutrition transition to define investment needs
• Investments to support F&V production
Role of Ag Investment

- Private sector requires
  - Competitive returns
  - Term-limited (usually short)
  - Capturable gains

- Public sector should produce
  - Social returns, broadly distributed
  - Over a long time horizon
  - “Enabling environment”
  - Aligned incentives
  - Avoid social harms
Proven agricultural investments

Extension Services
Smallholder Credit

Incentives

Productivity-enhancing research
Rural roads
Education
Communication infrastructure

Enabling Environment
Expenditures on ag/food subsidies

• HICs spent $252 billion in 2011 on agricultural and food subsidies (EU, US, Japan, So. Korea).

• CAP still absorbs 40% of EU budget (Anderson et al, 2013)

• 2013 US Farm Bill: direct payments of $4-18 billion/year on commodity crops (corn, wheat, soybeans, cotton, rice), >$9 billion/year in crop insurance subsidies.

• Ag taxation shifting into ag subsidization (India, China)

Economic and health benefits of changing the food supply

Fruits and vegetables in U.S.

- Save 127,000 lives
- Reduce health care costs by $17 billion
- Produce $11 trillion in lives saved (VSL method)

Source: Union of Concerned Scientists, 2013
## Evidence-Based Population Strategies to Improve Diet

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Media and Education</strong></td>
<td>• Sustained, multi-mode campaigns focused on specific foods/drinks, either alone (IIa B) or as part of larger multi-component strategies. (I B) †‡§</td>
</tr>
<tr>
<td><strong>Labeling and Information</strong></td>
<td>• Mandated nutrition facts, front-of-pack labels/icons, or menu labeling to influence <em>industry</em> behavior and product formulations. (IIa B) †</td>
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<tr>
<td><strong>Schools</strong></td>
<td>• Multicomponent diet and activity program including classes, teacher training, supportive policies, environmental changes, family components. (I A)†</td>
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<td>• School garden programs (IIa A)†; fresh fruit &amp; vegetable programs. (IIa A)†</td>
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<td><strong>Workplaces</strong></td>
<td>• Comprehensive worksite wellness programs for diet, activity, tobacco. (IIa A)†</td>
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<td></td>
<td>• Increased availability of healthier options and/or strong nutrition standards, combined with on-site prompts, labels, or icons. (IIa B)†</td>
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<td><strong>Economic Incentives</strong></td>
<td>• Subsidy strategies to lower prices of more healthful foods/drinks. (I A) †</td>
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<td>• Tax strategies to increase prices of less healthful foods/drinks. (IIa B) †</td>
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<td>• Long-term agricultural and related policy changes on infrastructure to facilitate production, transportation, marketing of healthier foods. (IIa B) †</td>
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<tr>
<td><strong>Bans and Mandates</strong></td>
<td>• Restrictions on marketing of less healthy foods/drinks to youth on TV (I B)†, near schools and public places (IIa B)†, and on packages (IIa B)†.</td>
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<td></td>
<td>• Direct bans (e.g., sodium, trans fat) or mandates (e.g., vegetable oils). (I B)†‡§</td>
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Mozaffarian et al, AHA Scientific Statement, Circulation 2012
## Fruit and Vegetable (F&V) Supply, Need, and Supply:Need Ratio, Overall and by Country Income Level

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Supply</th>
<th>Need</th>
<th>Supply:Need Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full Sample, all countries</strong></td>
<td>170</td>
<td>1.15 (0.01 – 524.25)</td>
<td>1.90 (0.02 – 282.50)</td>
<td>0.78 (0.05 – 2.01)</td>
</tr>
<tr>
<td><strong>Low Income</strong></td>
<td>34</td>
<td>0.97 (0.05 – 7.50)</td>
<td>2.36 (0.13 – 30.18)</td>
<td>0.42 (0.05 – 0.99)</td>
</tr>
<tr>
<td><strong>Lower-middle Income</strong></td>
<td>43</td>
<td>1.01 (0.01 – 142.51)</td>
<td>1.49 (0.02 – 241.62)</td>
<td>0.63 (0.19 – 1.72)</td>
</tr>
<tr>
<td><strong>Upper-middle Income</strong></td>
<td>50</td>
<td>1.52 (0.01 – 524.25)</td>
<td>1.71 (0.02 – 282.50)</td>
<td>0.87 (0.24 – 2.01)</td>
</tr>
<tr>
<td><strong>High Income</strong></td>
<td>43</td>
<td>1.60 (0.04 – 71.63)</td>
<td>1.64 (0.05 – 64.59)</td>
<td>1.02 (0.55 – 1.86)</td>
</tr>
</tbody>
</table>

**Notes:** All numbers provided as median (range). Supply and Need are reported in billions of kilograms of fruits and vegetables. Country Income Level defined according to World Bank categories.

Siegel et al (Unpublished)
Policy Framework for Investment in Ag

- Investment policy
- Investment promotion and facilitation
- Human resources and skill development
- Trade policy
- Environment
- Responsible business conduct
- Infrastructure development
- Financial sector development
- Taxation

Source: NEPAD-OECD (2011)
# Locally-determined Investment Needs

<table>
<thead>
<tr>
<th>Stage of Transition</th>
<th>Infrastructure</th>
<th>R&amp;D</th>
<th>Education and Training</th>
<th>Institutions</th>
<th>Financing</th>
<th>Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-transition, low-income</td>
<td>Farm to market roads</td>
<td>Local varieties, tolerant to drought, flood, and biotic risks. Orphan crops. Nutrient dense foods</td>
<td>Nutrition-sensitive extension. Increased use of herbicides to reduce weeding.</td>
<td>Farmer coops</td>
<td>Microfinance, especially insurance and other risk management devices.</td>
<td>Pest control</td>
</tr>
<tr>
<td>Transitional, low-income</td>
<td>Climate change mitigation</td>
<td>Local varieties, tolerant to drought, flood, and biotic risks Nutrient dense foods. Orphan crops.</td>
<td>New crops. Increased use of herbicides to reduce weeding.</td>
<td>Farmer coops</td>
<td>Value chain financing</td>
<td>Mobile technology for market information, post-harvest fortification</td>
</tr>
<tr>
<td>Transitional, middle-income</td>
<td>Remove constraints on small investors. Improve cold chain and storage.</td>
<td>To develop packaging, branding, product differentiation</td>
<td>Nutrition-sensitive agribusiness</td>
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<tr>
<td>Post-transition, high-income</td>
<td>Align commodity priorities toward quality and diversity</td>
<td></td>
<td>Regulation and monitoring of food system outcomes</td>
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## What investments are needed for F&V Production?

### Farm Level
- Labor or labor-saving mechanization
- Irrigation
- Agribusiness services: financing inputs, technical assistance
- Small-scale post-harvest storage and processing
- Risk management advice

### Societal Level
- R&D for productivity enhancement
- Upgrade traditional markets
- Crop insurance
- Market infrastructure: distribution facilities, loans, **marketing programs**
## Comparing Investments

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<tr>
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<th>Private Sector</th>
<th>Public Sector</th>
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<tr>
<td><strong>R&amp;D</strong></td>
<td>$2 billion/year maize (Monsanto, DuPont Pioneer)</td>
<td>$121 million/year for maize</td>
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<tr>
<td></td>
<td>$181 million/year for 22 vegetable crops (Monsanto)</td>
<td>$13 million/year for green leafy vegetables</td>
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<tr>
<td><strong>Commodity Marketing</strong></td>
<td>$300 million/year for dairy and livestock</td>
<td>5-a-Day</td>
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<td>$7 million (est.) required for a major marketing campaign</td>
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P.A. and Diet-related Prevention Policies

Source: C. Lachat et. Al, PLOS Medicine, June 2013
Conclusions

• In the short-run, for health purposes, prefer nutrition subsidies to ag commodity subsidies
• In the long-run, need allocative shifts in ag (probably not with a health rationale, maybe a development one would fly)
• Move towards a “do no harm” stance
• Urge transparency in policies (politicians choose inefficient tools if they can be less transparent-EWG)
THANK YOU
Making the Investment Multi-sectoral

Incremental investment

Source: FAO, State of Food and Agriculture, 2012