

THE GRAIN CHAIN: Managing Wheat Imports in Arab Countries



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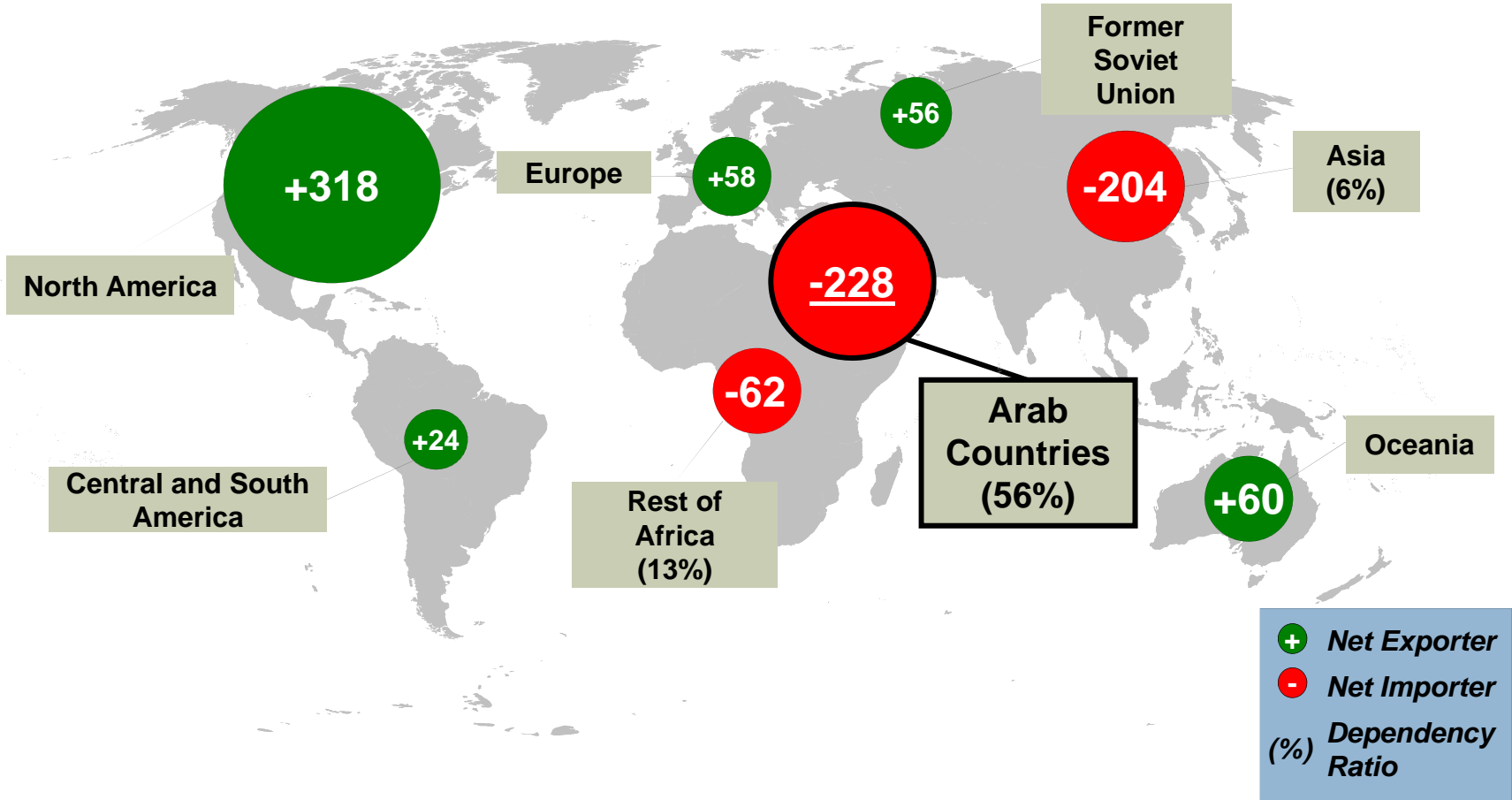
Outline

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- Context
- The grain chain: study objectives
- Key findings
 - ▣ Strategic reserves
 - ▣ Logistics
 - ▣ Procurement
- Next steps

Context: Arab countries are most dependent on imported grain

Net Exports of Grain (Trillion Calories), by Region, 2010



Source: Authors 2011.

Volatility is also a concern due to climate change and erratic policy behavior



Source: John Macdonald, "Parched Earth of Dead Vlei," on ImageKind. <http://www.imagekind.com/Parched-Earth-of-Dead-Vlei-art?IMID=991b7749-e990-470c-91e2-13f9d5eb9598>, accessed October 4, 2011

The objective was to evaluate the WISC from port to mill, identifying opportunities to improve efficiency

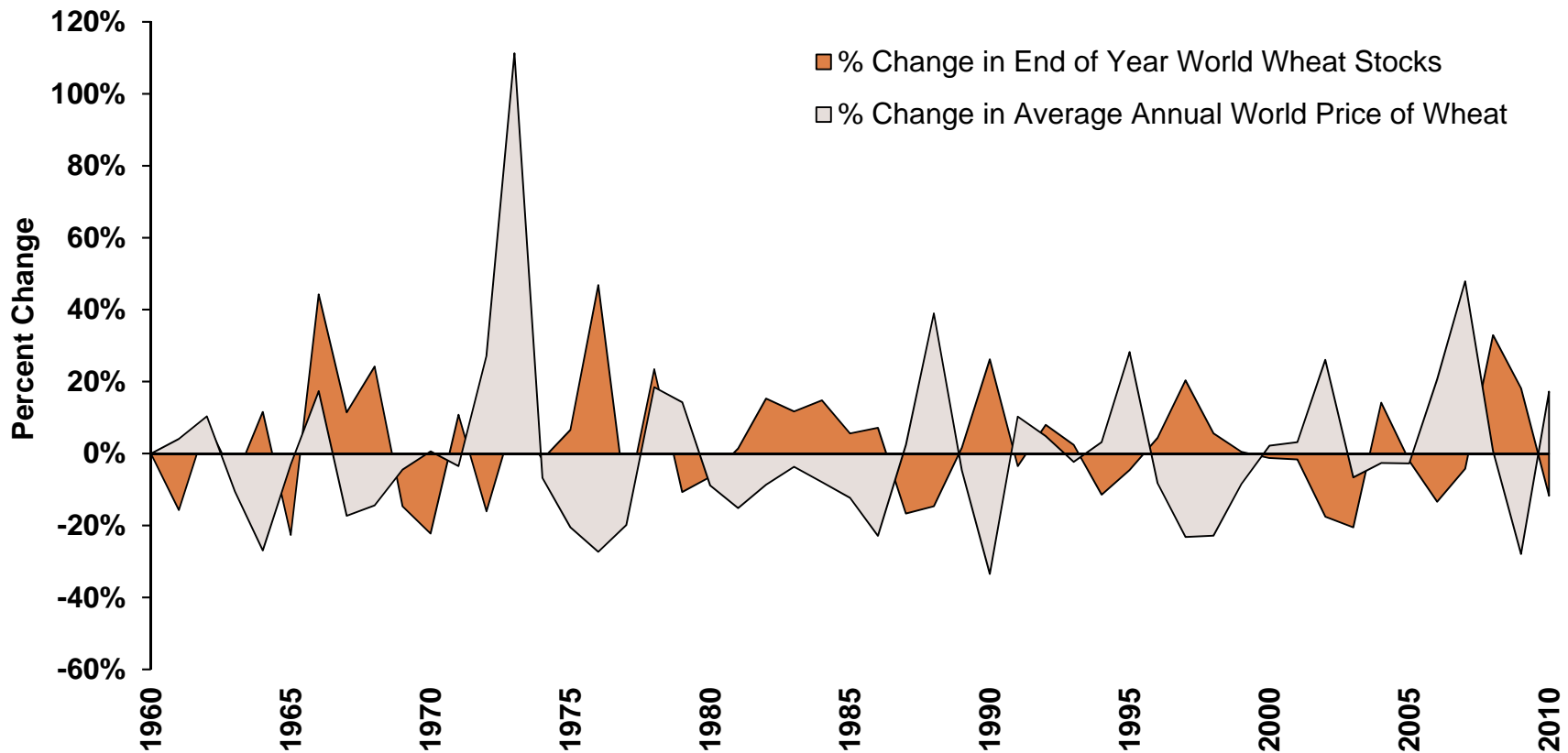
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Objectives



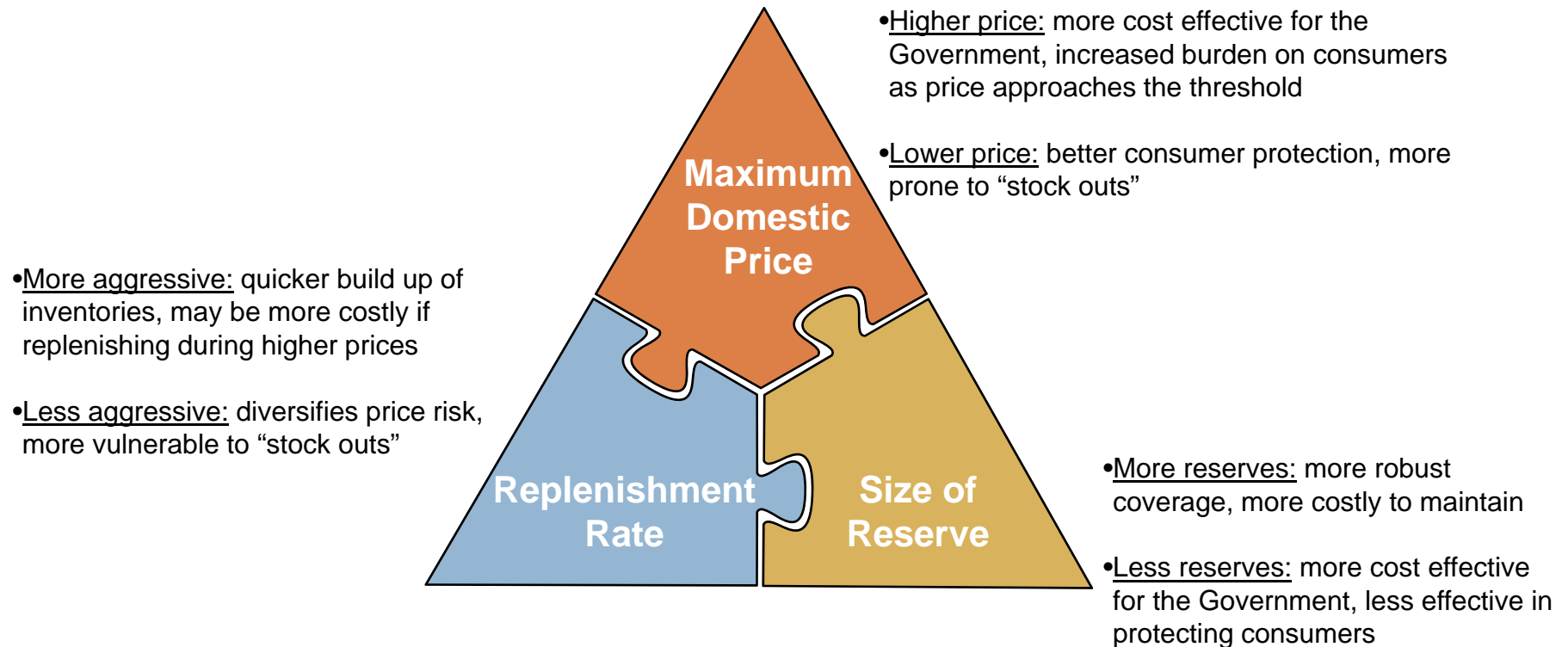
Source: Michelle Battat, 2010. Jan Dekkers, "Grain Storage" presented at WISC Workshop in Rotterdam, The Netherlands, Royal Haskoning, November 8-10, 2010.

Historical data demonstrate the inverse relationship between global wheat stocks and prices



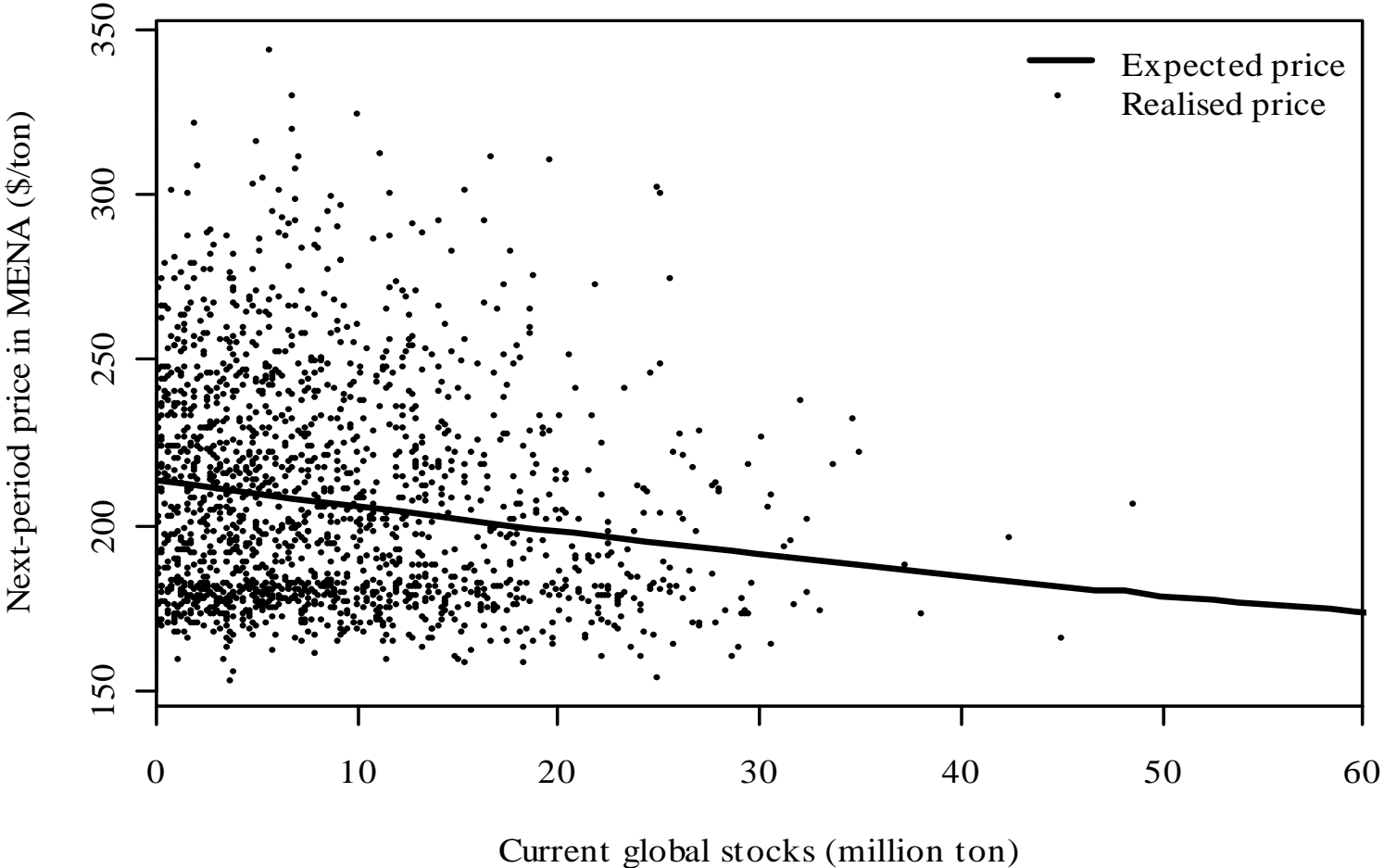
Source: Authors 2011, based on USDA and BLS.
Note: World price of wheat was adjusted using the US CPI.

Increasing strategic reserves involves key tradeoffs that must be addressed when making policy decisions



For every dollar spent managing strategic reserves, there is one less dollar to invest in other key areas such as education and health

Simulated prices from baseline model are higher and more volatile at low inventory levels



Source: Preliminary results based on "Food security and storage in the Middle East and North Africa" by Donald F. Larson, Julian Lampietti, et al.

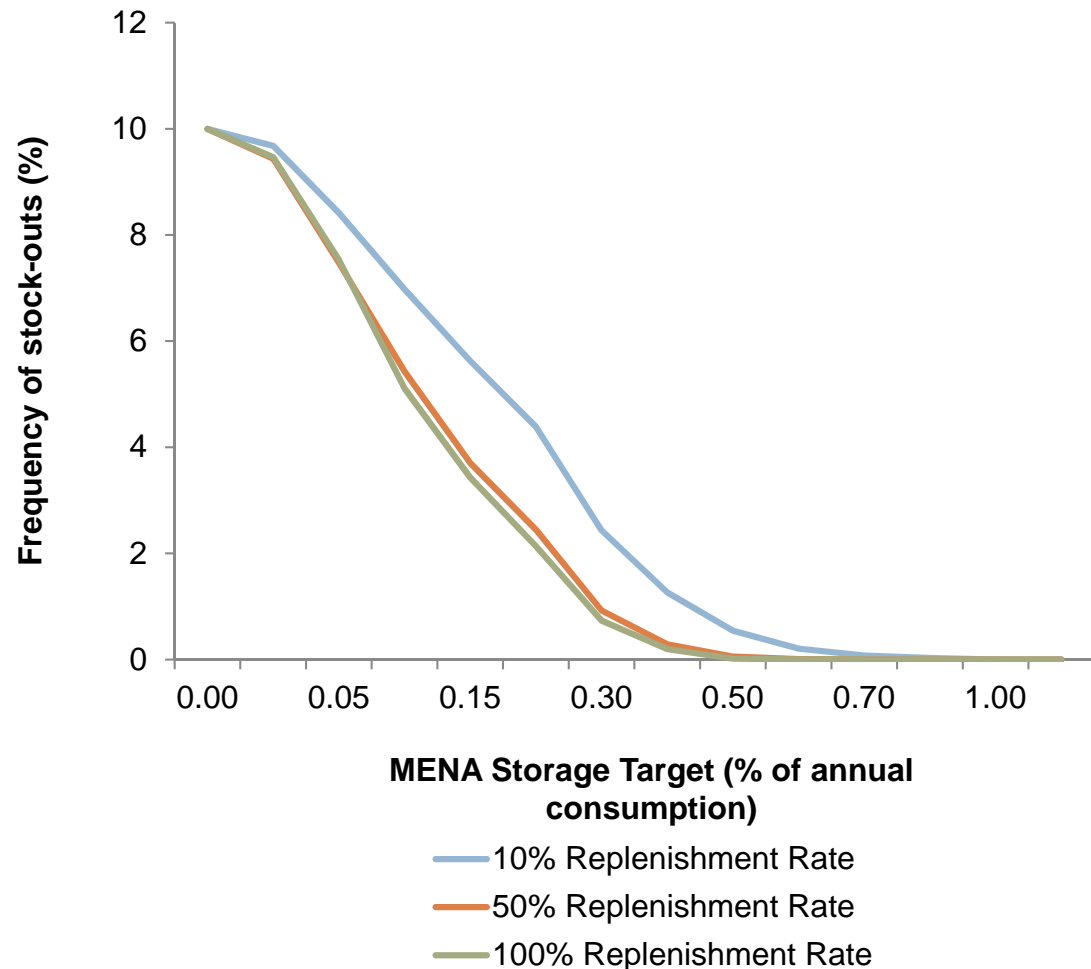
The share of stock-outs decline as target storage levels and restocking rates increase

The policy fails when the public stores are not sufficient to drive down domestic prices

The chance of a stock-out declines as the target storage level increases

A higher replenishment rate will result in fewer stock-outs

A string of high-price events may occur and the policy could fail



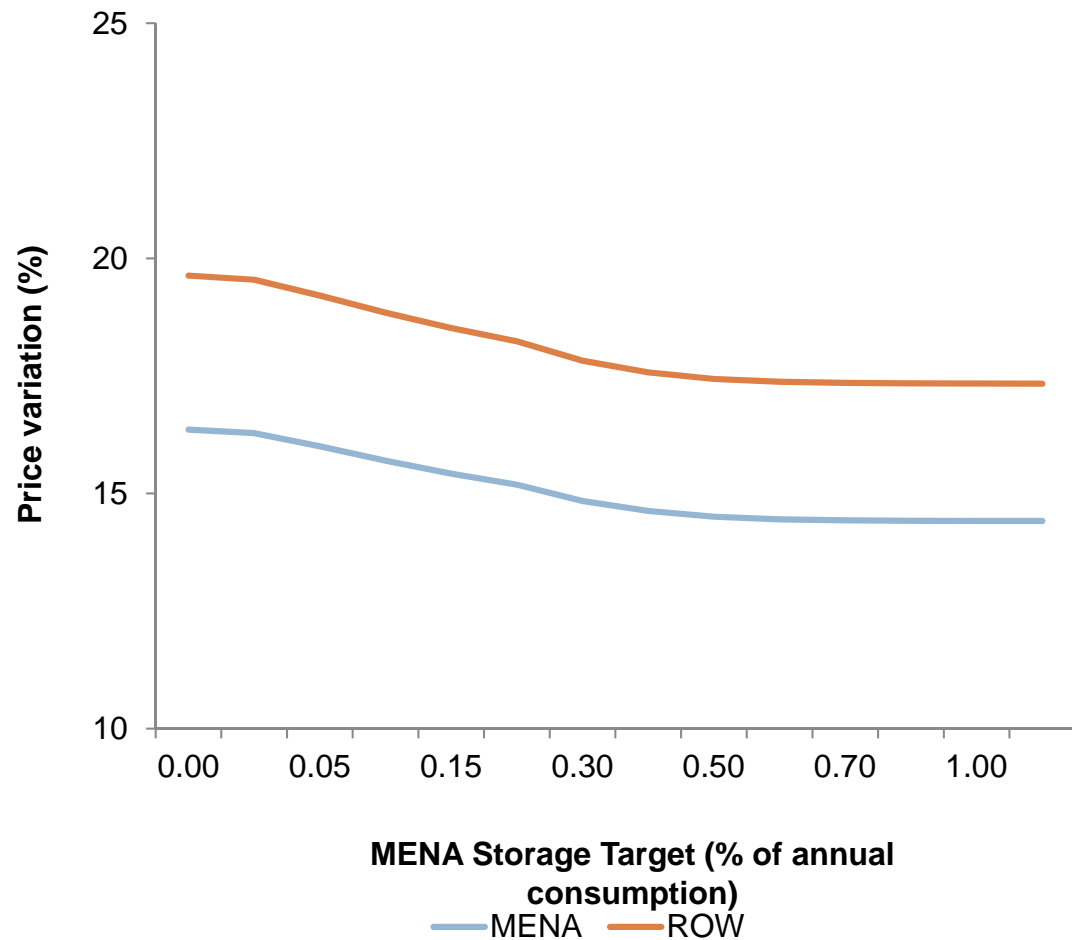
Source: Preliminary results based on "Food security and storage in the Middle East and North Africa" by Donald F. Larson, Julian Lampietti, et al.

Increasing stocks in MENA not only reduces local price volatility, but also reduces volatility in global markets

Some policy responses to high commodity prices may exacerbate the situation (e.g., export bans in producer countries)

Strategic stock releases displace MENA imports

Because the scale of MENA imports is large, the policy also dampens global prices

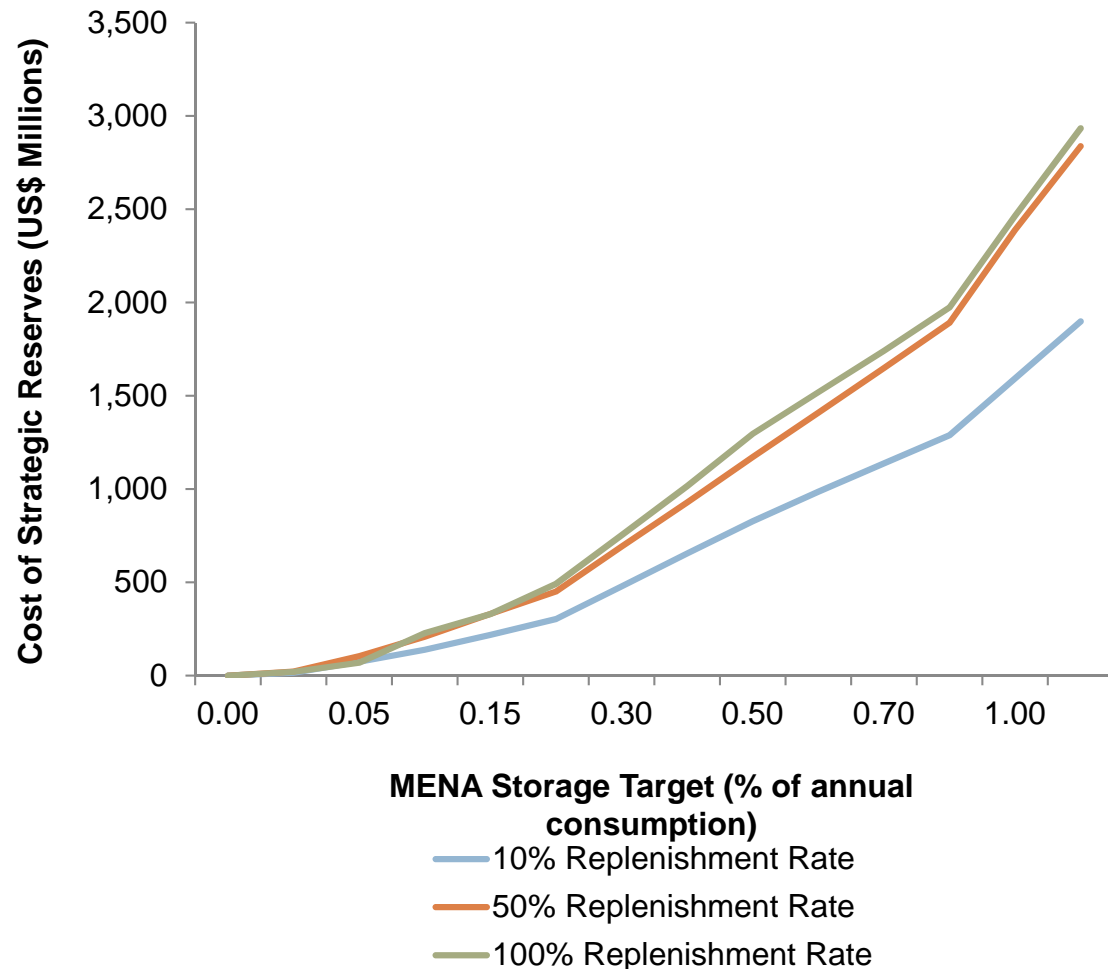


The cost of the program depends on the tradeoff between size of the reserve and the replenishment rate

The buy-low sell high policy reduces the program's costs, but what would an alternative policy cost?

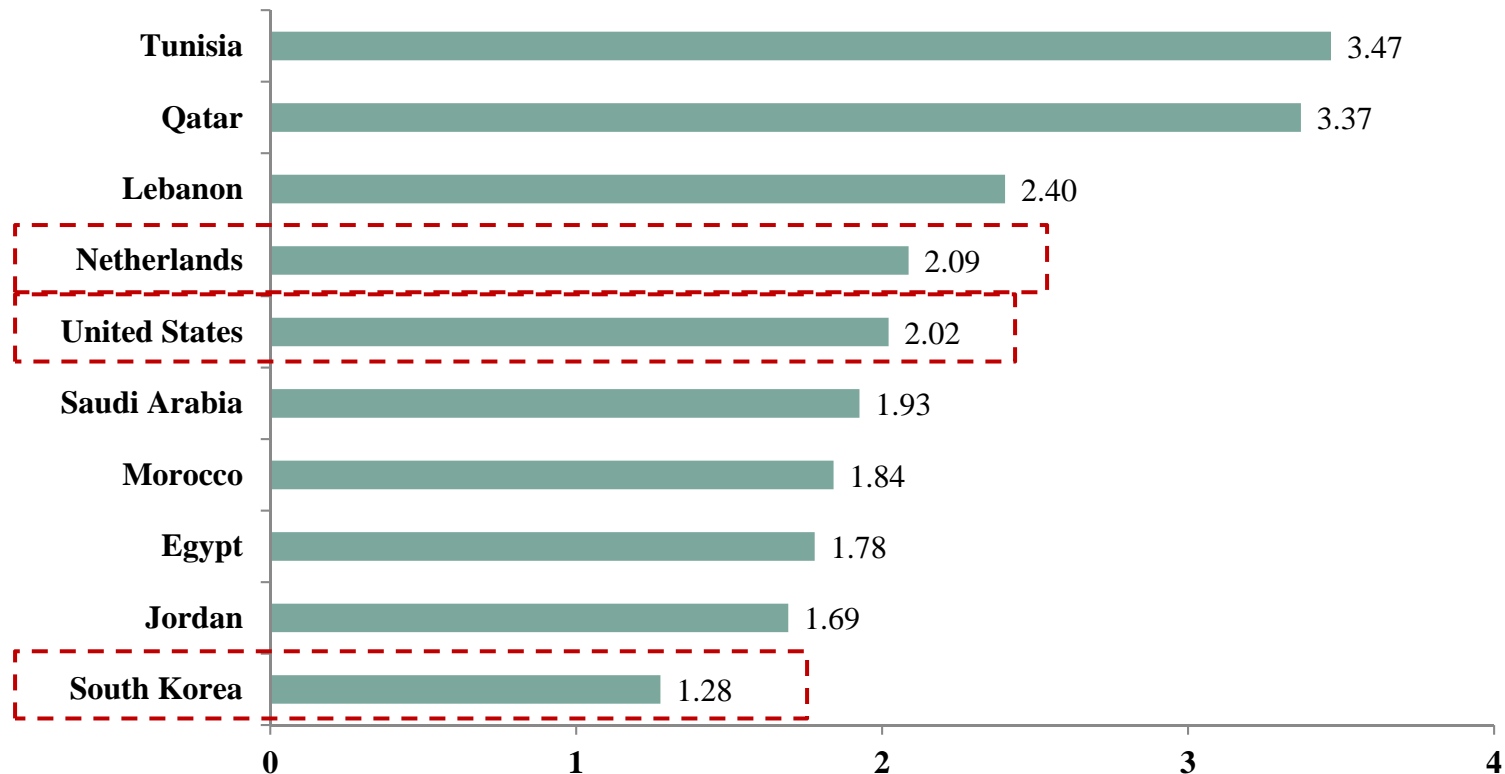
Targeting 40% of the population with cash transfers (Market price minus target price) would cost around \$53 million annually.

But the policy would provide no global price-stabilization benefit.



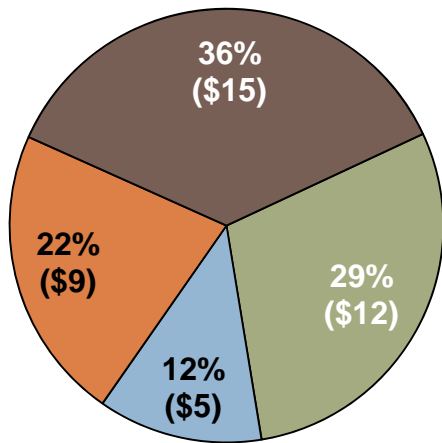
Storage cost estimates can be used to calculate the cost of increasing strategic wheat reserves

Storage costs vary from one to four dollars (US\$/mt/month in 2009)



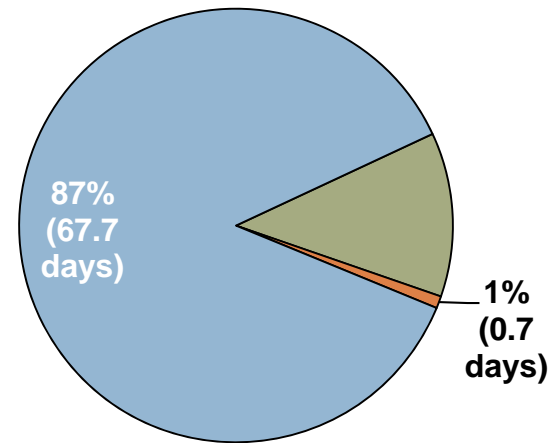
Logistics efficiency was measured using two metrics: cost and time

Average 2009 WISC Costs (Total: \$40/mt)



- Port Logistics
- Storage
- Transport to Inland Silos & Mills
- WISC Management

Average 2009 WISC Transit Time (Total: 78 days/mt)

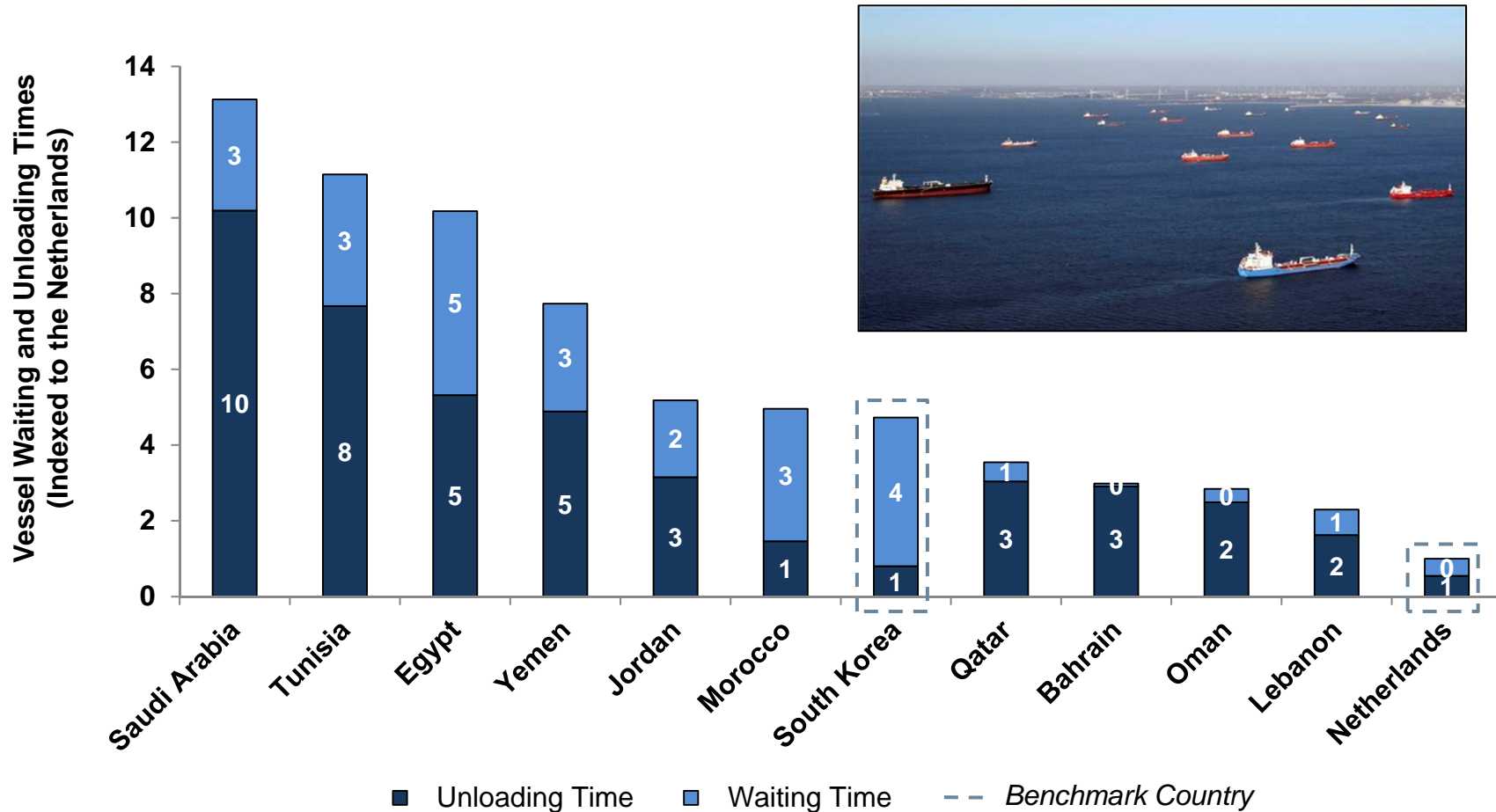


- Vessel turnaround time
- Inland transit time
- Dwell time

Source: Authors 2011.

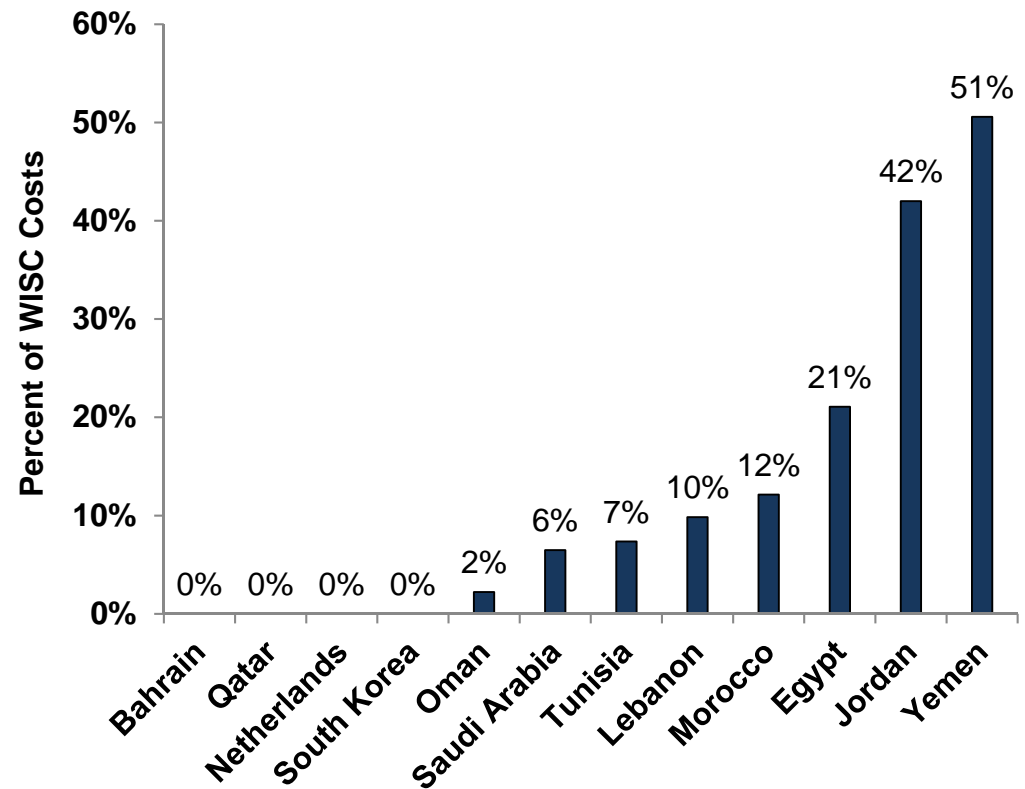
Note: Costs and transit times are weighted averages for the ten participating Arab countries. Percentages may not add to 100 and values may not add to totals due to rounding. Inland transit time may be zero for countries whose WISC is consolidated at the port (i.e., flour mill is at the port) and all transport of wheat is by conveyors.

Bottlenecks at the port can significantly increase WISC costs and transit times



Source: Authors 2011. TMCnet World News, "French protests weaken but still disrupt flights," Associated Press, October 31, 2010. <http://topnews360.tmcnet.com/topics/associated-press/articles/2010/10/31/112861-french-protests-weaken-but-still-disrupt-flights.htm>, accessed October 4, 2011.

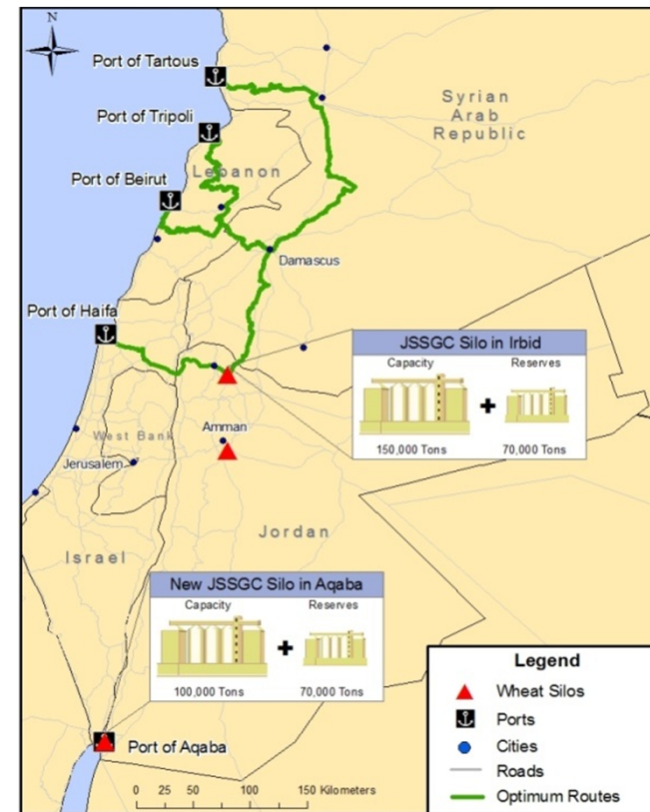
Efficient and reliable inland transportation is critical to ensuring delivery of wheat



Regional cooperation may offer additional opportunities to mitigate wheat-import risks

- Regional hub-and-spoke model
- Parcel service
- Utilizing optimal routes

Jordan could also import wheat via nearby Mediterranean ports



Physical hedging instruments may help manage price risk exposure

Two instruments may be used for a physical hedge

Forward Contract (Fixed Price or Average Price)

- Agreement to purchase a commodity on specified forward date
- Price is pre-determined or based on formula
- Purchaser can more accurately predict future prices and therefore fiscal exposure

Physical Call Option (Price Cap)

- Forward contract specifying a maximum price
- Purchaser pays a premium for the “insurance”
- The price cap still allows purchaser to benefit from lower prices

The team plans to use this new expertise to support the development of a MENA food security financing facility



- Dissemination road-show
- Arab World Initiative for Financing Food Security (AWIFFS)
- March 2012 conference in Istanbul, Turkey