February Newsletter 2022

Hello Colleagues and Friends,

Welcome to our monthly newsletter! This month's features are:

- The Market Corner article by C-FARE Board Member **Luis A. Ribera** discussing US Agricultural Exports to China.
- A new feature to our newsletter titled C-FARE's Monthly Facts. This month features "What is the cost structure of US agriculture?" by **Gal Hochman**, C-FARE Board Chair.
- C-FARE will host a webinar entitled "**Socioeconomic Disparities in Pollution Exposure**" on **February 25th at 12 pm ET**. Register here.
- Check out our third episode of C-FARE's podcast Get a Grip with FARE featuring Terry Cosby, Chief of the National Resources Conversation Services (NRCS).
- Call for applicants for **Building Interdisciplinary Collaborations to Transform Food and Agriculture into Circular Systems: A Mid-Career Mentoring Workshop**
- New Direction features articles and papers titled:
    - Environmental Justice: The Economics of Race, Place, and Pollution
    - What Caused Racial Disparities in Particulate Exposure to Fall? New Evidence from the Clean Air Act and Satellite-Based Measures of Air Quality
    - Environmental Justice and Coasian Bargaining: The Role of Race and Income in Lease Negotiations for Shale Gas.
    - Opportunities to address the failure of online food retailers to ensure access to required food labelling information in the USA.

Keep reading to learn more,

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Market Corner

US Agricultural Exports to China: Better than Last Year's, But Still Below Phase I Agreement Levels for 2021

US agricultural exports to China in 2021 reached almost $33 billion, a 24.6 percent increase from last year. As a matter of fact, China has been the largest market for US commodities the last couple of years surpassing Canada and Mexico. Moreover, in 2021 China was the number one destination for soybeans, corn, sorghum, cotton and nuts, accounting for 69 percent of all US commodities exported to China (GATS, FAS/USDA). This shows how highly concentrated US agricultural exports to China are with soybeans alone accounting for 43.5 percent. Although year-over-year exports to China have been higher, they still fell short of the agreed amount for 2021 under the Phase 1 Agreement. The chart above shows monthly cumulative agricultural exports to China for 2012, 2020, 2021 and the Phase I 2020 and 2021 targets. US exports to China in 2012 were the largest amount exported before the Phase 1 agreement, around $26 billion, while the Phase 1 2020 and 2021 agreed amounts were $32 and $39 billion, respectively (USDA & USTR). The red line represents 2020 exports and the yellow line 2021 exports and

both years US exports fell short reaching to 83 and 85 percent of the agreed amount under the Phase 1 agreement (blue and black lines). Although 2020 and 2021 exports fell below the agreed amount, both years marked the largest amount of US exports to China. Hopefully this trend continues for 2022 and beyond.

Luis A. Ribera, C-FARE Board Member, Texas A&M University

C-FARE's Monthly Fact

What is the Cost Structure of US Agriculture?

We used the USDA Economic Research Service (ERS) Farm Income and Wealth Statistics data to answer this question, which supplements USDA's National Agricultural Statistics Service (NASS) with State-level farm income estimates and forecasts for the current calendar year.

Total production expenses, including operator dwelling in 2012, were $353 Billion USD, with expenses hovering around similar estimates during the first year of the pandemic (i.e., $358 Billion USD).

When breaking up total production expenses, intermediate production expenses are responsible for 67% of total production expenses in 2020 ($239 billion USD out of $358 billion USD). The next category by size is labor expenses (11%), capital consumption (8%), interest expenses (5%), rent to landlords (5%), and property taxes (4%). We observe a similar breakdown throughout costs in 2012 and 2020.

Two categories of the intermediate product expenses, Farm-Origin, and Manufactured inputs can explain substantial parts of the observed fluctuation in total production expenses documented in Figure 1.

Intermediate-Product costs in 2014 ($255.5 billion USD) contributed to the increase in total production expenses that culminated in 2014 at $391 billion USD. To this end, Farm-Origin, a sub-category of Intermediate product expenses, increased to $117 billion USD by 2014. Only to drop back in the following years; the drop in total production expenses that followed in 2015 to 2018 is mirroring the reduction in costs for manufacturing inputs, which equaled $67.5 billion USD in 2014 but was only $56 billion USD in 2017 (the expenses are 17% lower than their 2014 levels). Farm-origin also contributed to this decline, and in 2017 equaled only $104.5 billion USD.

While going through the numbers, data suggests an interesting fact: many industrial electricity customers are farmers. Since large portions of farms' electricity demand are from farm irrigation systems, we consider agricultural consumers industrial consumers. This observation translates to many electricity industrial consumers in agriculture states being farmers (www.eia.gov). Then, we looked at the number of pumps reported in NASS's 2018 Irrigation and Water Management Survey. When looking at the survey, we noted that of the 600,522 irrigation pumps used among

the 160,690 farms (Table 10 of the survey), only 4,747 pumps are powered by solar in 3,047 farms (Table 14 of the survey), with more than half of these farms located in California.

Gal Hochman, C-FARE Board Chair, Rutgers University

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- C-FARE will host a webinar entitled "Socioeconomic Disparities in Pollution Exposure — New Evidence and Arising Issues" on **February 25th at 12 pm (ET)**. Register here
- Check out our third episode of C-FARE's podcast Get a Grip with FARE featuring Terry Cosby, Chief of the National Resources Conversation Services (NRCS).
- Our webinar on Carbon Sequestration: The Geological and Biological Potential is on our YouTube!

For more information on our webinar series visit our webpage or youtube!

New Directions

- **Environmental Justice: The Economics of Race, Place, and Pollution.** The grassroots movement that placed environmental justice issues on the national stage around 1980 was soon followed up by research documenting the correlation between pollution and race and poverty. This work has established inequitable exposure to nuisances as a stylized fact of social science. This paper reviews the environmental justice literature, especially where it intersects with work by economists. Learn More Here.

- **What Caused Racial Disparities in Particulate Exposure to Fall? New Evidence from the Clean Air Act and Satellite-Based Measures of Air Quality.** Racial differences in exposure to ambient air pollution have declined significantly in the United States over the past 20 years. This project links administrative Census microdata to newly available, spatially continuous high resolution measures of ambient particulate pollution (PM2.5) to examine the underlying causes and consequences of differences in Black-White pollution exposures. Read More Here.

- **Environmental Justice and Coasian Bargaining: The Role of Race and Income in Lease Negotiations for Shale Gas**. Using a unique combination of datasets and estimation techniques, we test whether private lease negotiations to extract oil and natural gas exhibit features of Coasian efficiency. This paper demonstrates that measures of wealth (including income, house square footage, and land acreage), typically determinants of willingness to pay for environmental quality, do affect bargaining outcomes. Learn more here.

- **Opportunities to address the failure of online food retailers to ensure access to required food labelling information in the USA.** The rapid growth in web-based grocery food purchasing has outpaced federal regulatory attention to the online provision of nutrition and allergen information historically required on food product labels. This sought to characterize the extent and variability that online retailers disclose required and regulated information and identify the legal authorities for the federal government to require online food retailers to disclose such information. Read more here.