Paper 1  Title: Including Illegal Activity in the U.S. National Accounts  
Author: Rachel Soloveichik, U.S. Bureau of Economic Analysis

Abstract: The official guidelines for national accounts, System of National Accounts 2008 (SNA 2008), explicitly recommend that illegal market activity should be included in measured output. This recommendation has not yet been implemented by BEA. This paper explores how including illegal activity in the U.S. national accounts might impact nominal GDP, real GDP and other economic statistics. Nominal GDP in 2012 rises by nearly 2 percent when illegal activity is tracked in the NIPA’s. By category, illegal drugs add $103 billion to nominal GDP, illegal prostitution adds $23 billion to nominal GDP, illegal gambling adds $12 billion to nominal GDP and theft from businesses adds $172 billion to nominal GDP. Measured GDP growth also changes. Real black market output grew at 5 percent per year during the 1970’s and 10 percent per year during the 2010’s. As a result, tracking illegal activity ameliorates both the 1970’s economic slowdown and the 2010’s economic slowdown considerably.

Paper 2: Title: Measuring the Economic Value of Data and Data Flows  
Authors: David Nguyen and Marta Paczos, National Institute of Economic and Social Research and Economic Statistics Centre of Excellence, United Kingdom

Abstract: Businesses have been using data in one form or another since a long time. However, the amount and variety of data used by businesses has increased dramatically in recent years. The fact that data can be of central importance to business models poses fresh challenges to researchers and policymakers alike. In this paper we investigate how to measure the economic value from a business perspective. We first discuss the role of data monetisation as a strategy for new as well as traditional business models. Secondly, we review existing data taxonomies and propose a new one with a specific focus on measuring the economic value of data. Here our discussion is centred on four stylised data monetisation strategies that are used by companies to generate new streams of revenue or to improve their current business process, products or services. We distinguish between ‘data-enhanced’ and ‘data-enabled’ businesses and discuss different characteristics and types of data as those can influence economic value. Next, we examine the role of cross-border data flows as a key enabler of our global economy. We discuss how and why businesses transfer data across borders, as well as the broad scale and value of cross-border data flows. To do so we develop the concept of a ‘global data value chain’, based on the idea that digitalisation enables the physical detachment of data collection, analysis, storage and monetisation. Finally, we summarize and discuss the most promising avenues for measuring the economic value of data. We discuss their feasibility in the short and long-term and offer some high-level policy recommendations.
Paper 3: Title: The Depreciation of Apple iPhones: A First Look
Author: Brian K. Sliker, U.S. Bureau of Economic Analysis

Abstract: This paper estimates the depreciation of Apple iPhones from January 2010 through December 2015, covering all models through the iPhone 6-Plus, using data purchased from UsePrice.com as well as an independent collection of mobile-phone release dates. The paper integrates individual-level depreciation within geometric cohorts, and in so doing derives the exact survival function that is needed to adjust age-price regressions for retirements. Further, Apple’s disciplined release schedule and bundled features establish new varieties’ release dates as excellent proxies for hedonic characteristics through time. The favored specification finds a depreciation rate of 45 percent a year, of which 13 percent is obsolescence and 32 percent is retirements, and a quality-adjusted inflation rate of –17.5 percent a year. The average service life is nearly 4 years, though the modal retirement age is 2 years.

Paper 4: Title: Volume Output Measures and Price Indices of the U.S. Tertiary Education Services
Author: Takashi Yamashita, U.S. Bureau of Economic Analysis

Abstract: This paper estimates production of education services in tertiary education by physical quantity (number of students and credit hours earned). I then compare the growth of my output measures to the official statistics on higher education expenditures in the National Income and Product Accounts (NIPAs) and analyze sources of discrepancies. Between 2000 and 2015, the volume measures of education services grew faster than the quantity index of household consumption expenditures or government consumption expenditures on post-secondary education services in the NIPAs. I then construct price indices from tuition payment by students after major grants are taken into consideration. My estimates show that the PCE deflator for higher education, which is derived from CPI for higher education, overstates the inflation rate of cost of attending colleges, thus understating the growth of higher education services in real terms. I also show that price indices by type of institution behave very differently during this period reflecting state government finances and expansion of Federal grants to households. This research points to further areas of improvements in how we measure the education sector.