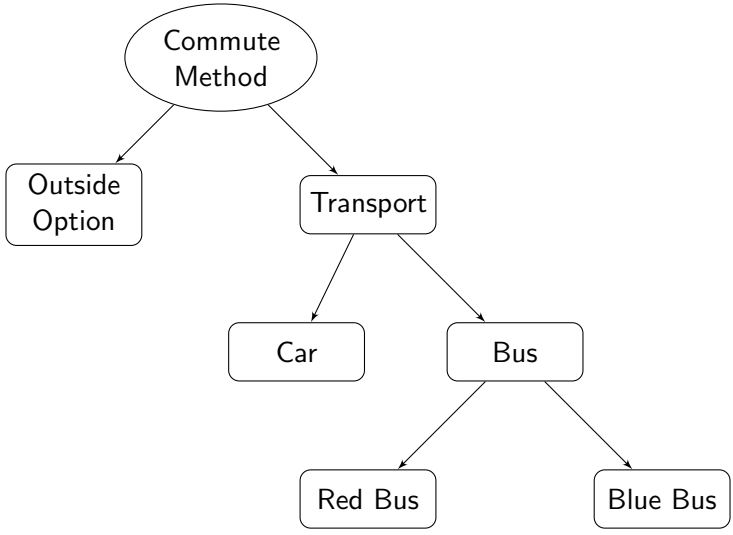
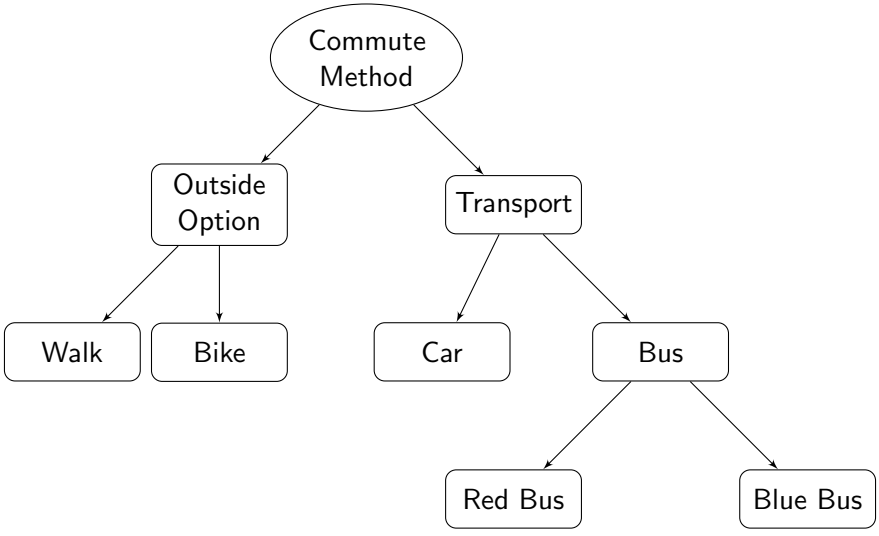

Commute Method
Outside Option
Transport
Car
Bus
Red Bus
Blue Bus


Commute Method
Outside Option
Transport
Walk
Bike
Car
Bus
Red Bus
Blue Bus

# How Essential Is Essential Air Service?
# The Value of Airport Access for Remote Communities

*By* AUSTIN J. DRUKKER*

*Essential Air Service provides subsidies to airlines that provide commercial service between certain eligible communities and larger hubs. Proponents of the program argue that subsidies are justified because driving to larger airports would be prohibitively costly for residents. I estimate the value of Essential Air Service to local communities by estimating a discrete-choice model of domestic air travel purchases incorporating passengers' geographical proximity to alternative airports. A counterfactual policy simulation reveals that community members collectively value subsidized commercial air service from their local airport at less than $20 million per year, compared to an annual cost of over $540 million.* (*JEL* H54, L93, R41)

Policy Question: Is Essential Air Service still essential?

- Created in 1978 as temporary transition program
- Now costs $540M+ annually
- Serves 107 communities
- Original rationale: prevent rural isolation post-deregulation of airlines

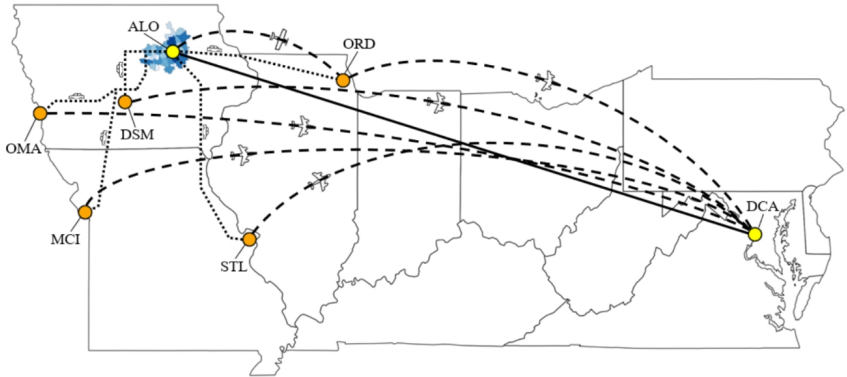
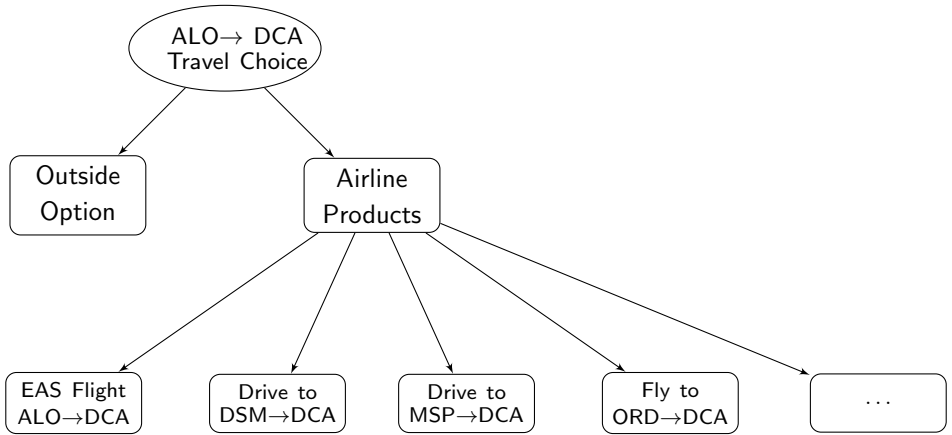



FIGURE 2. MARKET FOR PRODUCTS FROM WATERLOO, IOWA, TO RONALD REAGAN WASHINGTON NATIONAL AIRPORT

*Notes:* The yellow dots are the airports that define the market and the solid line represents the length of the market. The orange dots are alternative airports that residents of the blue-shaded EAS region can drive to. The dotted lines represent driving segments and the dashed lines represent flight segments.


ALO→ DCA
Travel Choice
Outside
Option
Airline
Products
EAS Flight
ALO→DCA
Drive to
DSM→DCA
Drive to
MSP→DCA
Fly to
ORD→DCA
. . .

*B. Demand*

In each time period (quarter) and for each region, I assume all potential travelers decide whether to fly to a particular destination and, conditional on choosing to fly, which product to purchase. The utility for consumer $i$ from choosing product $j$ in market $t$ is assumed to take the following form:

$$u_{ijt} = \alpha p_{jt} + \tau d_{jt} + \mathbf{x}'_{jt}\boldsymbol{\beta} + \xi_{jt} + \eta_{it} + (1-\rho)\varepsilon_{ijt} \tag{1}$$

The first term, $\alpha p_{jt}$, is the mean utility received from the price $p_{jt}$ of product $j$ in market $t$, so $-\alpha$ is the mean utility lost from a marginal increase in price. The second term, $\tau d_{jt}$, is the mean utility received from driving from the consumer's location to the departing airport of product $j$, so $-\tau$ is the mean utility lost from a marginal increase in driving time. The third term, $\mathbf{x}'_{jt}\boldsymbol{\beta}$, is the mean utility received from the vector of other observed characteristics $\mathbf{x}_{jt}$ of product $j$ in market $t$. The fourth term, $\xi_{jt}$, is the utility received from quality unobserved by

TABLE 2— MODEL COEFFICIENT ESTIMATES

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Price ($100) | –0.430** | –0.542** | –0.454** | –0.402** |
| | (0.195) | (0.226) | (0.195) | (0.195) |
| Driving time (hours) | –0.087*** | –0.098*** | –0.089*** | –0.085*** |
| | (0.029) | (0.030) | (0.029) | (0.029) |
| Market distance (1,000 miles) | 0.417*** | 0.487*** | 0.432*** | 0.400*** |
| | (0.125) | (0.144) | (0.125) | (0.124) |
| Origin presence (100 destinations) | 0.193*** | 0.216*** | 0.199*** | 0.186*** |
| | (0.049) | (0.050) | (0.050) | (0.049) |
| EAS product | –0.417* | –0.360 | –0.319 | –0.510** |
| | (0.222) | (0.241) | (0.248) | (0.198) |
| Nesting parameter | 0.172*** | 0.195*** | 0.179*** | 0.165*** |
| | (0.042) | (0.045) | (0.043) | (0.041) |
| Weighted | Yes | No | Yes | Yes |
| EAS price adjustment | +0% | +0% | +20% | –20% |
| Value of travel time savings (per hour) | $20.25 | $18.15 | $19.57 | $21.19 |
| Mean elasticity | –1.39 | –1.80 | –1.51 | –1.26 |
| No. of products | 184,313 | 184,322 | 184,313 | 184,313 |
| No. of markets | 95,147 | 95,147 | 95,147 | 95,147 |

*Notes:* The coefficients are estimated using data from 2013–19 described in the text. Weights are the ratio of a product's population share to its sample share. EAS price adjustment indicates the amount by which the EAS portion of a fare is adjusted relative to the baseline. Value of travel time savings is equal to 100 times the driving time coefficient divided by the price coefficient. Mean elasticity is the mean of own-price elasticity across all products. Standard errors clustered by region are shown in parentheses. Statistical significance is indicated at the ***1 percent, **5 percent, and *10 percent levels.

*A. Methodology*

The basic idea of the counterfactual policy analysis is to compare the consumer surplus that EAS community members derive from two alternative choice sets, one that includes the option to fly on an EAS-subsidized flight and one that does not. I calculate the change in consumer surplus from the removal of EAS-originating products using the log-sum approach (de Jong et al., 2007; Small and Rosen, 1981):

$$E(CS_{itc}) = -\frac{1}{\alpha}\ln\left\{1 + \left[\sum_{j} \exp\left(\frac{\delta_{jt}}{1-\rho}\right)\right]^{1-\rho}\right\} + C \tag{4}$$

where $E(CS_{itc})$ is the expected consumer surplus for individual $i$ in market $t$ from choice set $c$; the summation is taken over all products $j$ in market $t$ (excluding the outside option); and $C$ is an unrecoverable constant.

The Market Locator data do not contain products flown by Southwest, Spirit, or Allegiant, and their absence from choice sets would lead the counterfactual policy simulation to overstate the consumer surplus from EAS. I therefore impute the

TABLE 3—AGGREGATE CONSUMER SURPLUS AND COSTS OF ESSENTIAL AIR SERVICE, 2013–19

| Year | Eligible airports | Consumer surplus | Costs |
|---|---|---|---|
| 2013 | 114 | $19.25 | $294.05 |
| 2014 | 113 | $11.52 | $314.48 |
| 2015 | 112 | $8.24 | $328.53 |
| 2016 | 111 | $8.73 | $347.44 |
| 2017 | 110 | $11.68 | $358.10 |
| 2018 | 109 | $11.43 | $373.46 |
| 2019 | 107 | $11.52 | $360.36 |
| 2020 | 107 | - | $362.46 |
| 2021 | 107 | - | $363.63 |
| 2022 | 107 | - | $386.78 |
| 2023 | 107 | - | $471.97 |
| 2024 | 107 | - | $540.80 |

*Notes:* All dollar values are in millions of 2024 dollars. The consumer surplus estimates assume that the unobserved quality of Allegiant and Spirit are equal to the average of the unobserved quality of Frontier and Sun Country and that the unobserved quality of Southwest is equal to the average of the unobserved quality of JetBlue, Alaska, and AirTran. Costs and consumer surplus exclude EAS service in Alaska, Hawaii, and Puerto Rico.

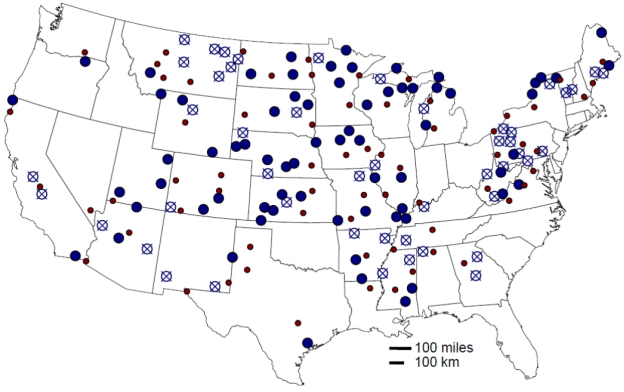



FIGURE 6. SURVIVING EAS AIRPORTS UNDER COUNTERFACTUAL SCENARIO

*Notes:* Large dots are airports eligible for EAS from 2013–19. Crossed-out dots are EAS airports that are predicted to lose service and not experience entry by another carrier under the counterfactual scenario. Small dots are the nearest primary commercial service airports to EAS communities.

Counterfactual: remove EAS subsidies and see which airlines would retain service