

Online Appendix to “Does Transportation Mean Transplantation? Impact of New Airline Routes on Sharing of Cadaveric Kidneys”

In this online appendix, we first provide descriptions of newly introduced airline routes (as discussed in §5.1 of the paper) in §OA.1. Then, in §OA.2, we provide detailed results of our robustness checks (as discussed in §5.3 of the paper). In §OA.3, we present a number of results connected to the discussions and managerial insights in §6 of the paper. Finally, in §OA.4, we discuss several additional considerations.

OA.1. Description of Newly Introduced Airline Routes

We list in Table A1 all the pairs of airports that constitute the treatment group in our main analysis.

OA.2. Results of Robustness Checks

We provide detailed results corresponding to our robustness checks in various subsections of §5.3, including:

- Tables B1–B2, which correspond to §5.3.1;
- Tables B3 and B4, which corresponds to §5.3.2;
- Table B5, which corresponds to §5.3.3;
- Tables B6 to B9, which corresponds to §5.3.4;
- Table B10, which corresponds to §5.3.5;
- Table B11, which corresponds to §5.3.6;
- Table B12, which corresponds to §5.3.7;
- Tables B13–B14, which correspond to §5.3.8;
- Table B15, which corresponds to §5.3.9;
- Tables B16–B17, which correspond to §5.3.10.

Table A1 Description of Newly Introduced Airline Routes

Origin Airport	Origin City	Destination Airport	Destination City	Date of Introduction
BUR	Burbank, CA	DAL	Dallas, TX	Jun 2016
BWI	Baltimore, MD	SAN	San Diego, CA	Jul 2003
CLT	Charlotte, NC	DAL	Dallas, TX	Aug 2015
CLT	Charlotte, NC	HOU	Houston, TX	Apr 2013
CLT	Charlotte, NC	OMA	Omaha, NE	Mar 2012
CLT	Charlotte, NC	PWM	Portland, ME	Jul 2004
CLT	Charlotte, NC	SAT	San Antonio, TX	May 2008
CMH	Columbus, OH	DAL	Dallas, TX	Apr 2015
DAL	Dallas, TX	BUR	Burbank, CA	Jun 2016
DAL	Dallas, TX	BWI	Baltimore, MD	Oct 2014
DAL	Dallas, TX	CMH	Columbus, OH	Apr 2015
DAL	Dallas, TX	LGA	New York, NY	Oct 2014
DAL	Dallas, TX	PDX	Portland, OR	Apr 2015
DAL	Dallas, TX	PHL	Philadelphia, PA	Aug 2015
DAL	Dallas, TX	PHX	Phoenix, AZ	Nov 2014
DAL	Dallas, TX	RDU	Raleigh/Durham, NC	Aug 2015
DAL	Dallas, TX	SLC	Salt Lake City, UT	Aug 2015
DSM	Des Moines, IA	CLT	Charlotte, NC	Apr 2012
DTW	Detroit, MI	DAL	Dallas, TX	Aug 2015
DTW	Detroit, MI	SAT	San Antonio, TX	Jul 2002
EWR	Newark, NJ	OMA	Omaha, NE	Jun 2002
FLL	Fort Lauderdale, FL	HOU	Houston, TX	Sep 2005
FLL	Fort Lauderdale, FL	ORH	Worcester, MA	Nov 2013
HOU	Houston, TX	CLT	Charlotte, NC	Apr 2013
HOU	Houston, TX	IND	Indianapolis, IN	Nov 2012
HOU	Houston, TX	OMA	Omaha, NE	Mar 2017
HOU	Houston, TX	RDU	Raleigh/Durham, NC	May 2012
HOU	Houston, TX	SNA	Santa Ana, CA	Nov 2012
IAD	Washington, DC	SAT	San Antonio, TX	Nov 2005
IAH	Houston, TX	RIC	Richmond, VA	Nov 2002
IND	Indianapolis, IN	HOU	Houston, TX	Nov 2012
JFK	New York, NY	AUS	Austin, TX	Oct 2005
JFK	New York, NY	PDX	Portland, OR	May 2005
LAS	Las Vegas, NV	DAL	Dallas, TX	Oct 2014
LGA	New York, NY	DAL	Dallas, TX	Oct 2014
LGA	New York, NY	MSN	Madison, WI	Jan 2006
MDW	Chicago, IL	PDX	Portland, OR	Apr 2005
MDW	Chicago, IL	SAN	San Diego, CA	Jun 2002
MDW	Chicago, IL	SAT	San Antonio, TX	Oct 2005
MSN	Madison, WI	LGA	New York, NY	Jan 2006
MSN	Madison, WI	SLC	Salt Lake City, UT	Jun 2013
OGG	Kahului, HI	PHX	Phoenix, AZ	Apr 2005
OMA	Omaha, NE	CLT	Charlotte, NC	Apr 2012
OMA	Omaha, NE	HOU	Houston, TX	Mar 2017
OMA	Omaha, NE	SLC	Salt Lake City, UT	Oct 2002
PDX	Portland, OR	DAL	Dallas, TX	Apr 2015
PHL	Philadelphia, PA	DAL	Dallas, TX	Aug 2015
PHX	Phoenix, AZ	DAL	Dallas, TX	Nov 2014
RDU	Raleigh/Durham, NC	DAL	Dallas, TX	Aug 2015
RSW	Fort Myers, FL	BWI	Baltimore, MD	Feb 2002
SAN	San Diego, CA	BWI	Baltimore, MD	Jul 2003
SAN	San Diego, CA	DAL	Dallas, TX	Nov 2014
SAT	San Antonio, TX	CLT	Charlotte, NC	May 2008
SAT	San Antonio, TX	MDW	Chicago, IL	Oct 2005
SEA	Seattle, WA	OMA	Omaha, NE	Nov 2013
SJC	San Jose, CA	DAL	Dallas, TX	Apr 2015
SLC	Salt Lake City, UT	DAL	Dallas, TX	Aug 2015
SLC	Salt Lake City, UT	MSN	Madison, WI	Jun 2013
SLC	Salt Lake City, UT	OMA	Omaha, NE	Nov 2002
SNA	Santa Ana, CA	HOU	Houston, TX	Nov 2012
TUL	Tulsa, OK	CLT	Charlotte, NC	Jul 2014

Table B1 Summary of the Dependent Variable and Features of Candidates and Donors after Matching

Variable	Never Treated		Ever Treated		T-Test	
	Mean	Std. Dev.	Mean	Std. Dev.	t	$p > t $
Dependent Variable						
SharedVolume	0.13	0.38	0.20	0.37	-0.90	0.37
Candidate Features						
CandiAge	45	2	45	2	-0.57	0.57
CandiHeight	169	2	169	1	0.17	0.86
CandiWeight	76	2	76	2	-0.18	0.86
CandiMale	0.42	0.04	0.42	0.02	0.37	0.71
CandiRaceWhite	0.56	0.22	0.55	0.19	0.24	0.81
CandiRaceBlack	0.21	0.18	0.22	0.14	-0.33	0.74
CandiRaceHispanic	0.17	0.17	0.18	0.17	-0.19	0.85
CandiBloodTypeA	0.33	0.04	0.33	0.03	-0.35	0.73
CandiBloodTypeB	0.13	0.03	0.13	0.02	0.32	0.75
CandiBloodTypeO	0.51	0.06	0.50	0.04	0.31	0.76
CandiDiabetesYes	0.39	0.11	0.40	0.08	-0.22	0.82
CandiDiabetesUnknown	0.01	0.02	0.01	0.02	-0.35	0.73
CandiDialysisYes	0.58	0.10	0.60	0.07	-1.69	0.09
CandiDialysisYear	1.13	0.41	1.17	0.27	-0.60	0.55
Donor Features						
DonorAge	37	6	37	6	-0.06	0.96
DonorHeight	166	5	166	5	-0.18	0.86
DonorWeight	72	6	72	5	-0.64	0.53
DonorCreatine	1.24	0.28	1.26	0.25	-0.47	0.64
DonorGenderMale	0.41	0.11	0.40	0.07	0.85	0.40
DonorRaceWhite	0.65	0.21	0.63	0.22	0.58	0.57
DonorRaceBlack	0.15	0.15	0.16	0.13	-0.30	0.77
DonorRaceHispanic	0.13	0.18	0.16	0.13	-0.90	0.37
DonorBloodTypeA	0.39	0.12	0.37	0.08	1.04	0.30
DonorBloodTypeB	0.12	0.07	0.12	0.03	-0.48	0.63
DonorBloodTypeO	0.47	0.09	0.49	0.07	-1.04	0.30
DonorDiabetesYes	0.05	0.07	0.06	0.04	-0.41	0.68
DonorDiabetesUnknown	0.00	0.01	0.00	0.01	-1.30	0.20
DonorHypertensionYes	0.23	0.15	0.23	0.12	0.01	0.99
DonorHypertensionUnknown	0.01	0.01	0.01	0.01	-0.71	0.48
DonorHeptitisCYes	0.03	0.02	0.03	0.02	-0.73	0.47
DonorHeptitisCUnknown	0.00	0.00	0.00	0.00	-0.63	0.53
DonorCodAnoxia	0.14	0.14	0.11	0.05	1.48	0.14
DonorCodCVS	0.44	0.20	0.42	0.16	0.54	0.59
DonorCodTrauma	0.40	0.16	0.43	0.14	-1.22	0.23
DonorECDYes	0.21	0.13	0.21	0.13	0.25	0.81
Number of Matched Pairs	51		51			

Note: This table summarizes the average outcome and features of the control and treatment groups.

Table B2 Results from the Difference-in-Differences Model (Based on Matched Samples)

	(1)		(2)		(3)		(4)	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Direct Flight	0.055*	0.029	0.055*	0.030	0.062**	0.029	0.063**	0.030
Candidate Features			Included				Included	
Donor Features					Included		Included	
Airport-Pair Fixed Effects	Included		Included		Included		Included	
Year Fixed Effects	Included		Included		Included		Included	
Number of Observations	1,632		1,632		1,632		1,632	
Adjusted R-Squared	0.021		0.019		0.018		0.016	

Note: *** p < 0.01, ** p < 0.05, * p < 0.1. Robust standard errors clustered by airport pair.

Table B3 Results Based on Airport Pairs with Existing Direct Flights as a Control Group

	(1)		(2)		(3)		(4)	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Direct Flight	0.056*	0.032	0.057*	0.032	0.056*	0.032	0.058*	0.031
Candidate Features			Included				Included	
Donor Features					Included		Included	
Airport-Pair Fixed Effects	Included		Included		Included		Included	
Year Fixed Effects	Included		Included		Included		Included	
Number of Observations	3,360		3,360		3,360		3,360	
Adjusted R-Squared	0.173		0.175		0.174		0.176	

Note: *** p < 0.01, ** p < 0.05, * p < 0.1. Robust standard errors clustered by airport pair.

Table B4 Results Based on Airport Pairs with Existing or No Direct Flights as a Control Group

	(1)		(2)		(3)		(4)	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Direct Flight	0.073**	0.030	0.074**	0.030	0.071**	0.030	0.073**	0.030
Candidate Features			Included				Included	
Donor Features					Included		Included	
Airport-Pair Fixed Effects	Included		Included		Included		Included	
Year Fixed Effects	Included		Included		Included		Included	
Number of Observations	11,568		11,568		11,568		11,568	
Pseudo R-Squared	0.105		0.107		0.105		0.107	

Note: *** p < 0.01, ** p < 0.05, * p < 0.1. Robust standard errors clustered by airport pair.

Table B5 Results from the Difference-in-Differences Model (Individual-Level Analysis)

	(1)		(2)		(3)		(4)	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Direct Flight	0.182***	0.034	0.181***	0.034	0.302***	0.036	0.309***	0.036
Candidate Features			Included				Included	
Donor Features					Included		Included	
Decline History	Included		Included		Included		Included	
Airport-Pair Fixed Effects	Included		Included		Included		Included	
Year Fixed Effects	Included		Included		Included		Included	
Number of Observations	409,200		409,200		409,200		409,200	
Pseudo R-Squared	0.464		0.464		0.475		0.477	

Note: *** p < 0.01, ** p < 0.05, * p < 0.1. The table summarizes the results from individual-level analyses, where the dependent variable is a dummy indicating whether a candidate accepts an offer from a donor.

Table B6 Results from the Difference-in-Differences Model (Control for Delay)

	(1)		(2)		(3)		(4)	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Direct Flight	0.075 **	0.030	0.076 **	0.030	0.073 **	0.030	0.076 **	0.030
Candidate Features			Included				Included	
Donor Features					Included		Included	
Flight Delay	Included		Included		Included		Included	
Airport-Pair Fixed Effects	Included		Included		Included		Included	
Year Fixed Effects	Included		Included		Included		Included	
Number of Observations	9,014		9,014		9,014		9,014	
Adjusted R-Squared	0.062		0.063		0.062		0.063	

Note: *** p < 0.01, ** p < 0.05, * p < 0.1. Robust standard errors clustered by airport pair.

Table B7 Results from the Difference-in-Differences Model (Control for Weather)

	(1)		(2)		(3)		(4)	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Direct Flight	0.074 **	0.031	0.074 **	0.031	0.073 **	0.031	0.075 **	0.031
Candidate Features			Included				Included	
Donor Features					Included		Included	
Weather	Included		Included		Included		Included	
Airport-Pair Fixed Effects	Included		Included		Included		Included	
Year Fixed Effects	Included		Included		Included		Included	
Number of Observations	9,030		9,030		9,030		9,030	
Adjusted R-Squared	0.049		0.051		0.049		0.050	

Note: *** p < 0.01, ** p < 0.05, * p < 0.1. Robust standard errors clustered by airport pair.

Table B8 Results from the Difference-in-Differences Model (Control for Day and Hour)

	(1)		(2)		(3)		(4)	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Direct Flight	0.056*	0.030	0.058 **	0.030	0.056*	0.030	0.058 **	0.030
Candidate Features			Included				Included	
Donor Features					Included		Included	
Day and Hour	Included		Included		Included		Included	
Airport-Pair Fixed Effects	Included		Included		Included		Included	
Year Fixed Effects	Included		Included		Included		Included	
Number of Observations	9,056		9,056		9,056		9,056	
Adjusted R-Squared	0.070		0.071		0.071		0.070	

Note: *** p < 0.01, ** p < 0.05, * p < 0.1. Robust standard errors clustered by airport pair.

Table B9 Results from the Difference-in-Differences Model (Control for Delay, Weather, Day and Hour)

	(1)		(2)		(3)		(4)	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Direct Flight	0.057*	0.030	0.060 **	0.030	0.057*	0.030	0.059 **	0.030
Candidate Features			Included				Included	
Donor Features					Included		Included	
Weather	Included		Included		Included		Included	
Flight Delay	Included		Included		Included		Included	
Day and Hour	Included		Included		Included		Included	
Airport-Pair Fixed Effects	Included		Included		Included		Included	
Year Fixed Effects	Included		Included		Included		Included	
Number of Observations	8,893		8,893		8,893		8,893	
Adjusted R-Squared	0.055		0.057		0.055		0.056	

Note: *** p < 0.01, ** p < 0.05, * p < 0.1. Robust standard errors clustered by airport pair.

Table B10 Results from the Difference-in-Differences Model (Based on Balanced Panel Data)

	(1)		(2)		(3)		(4)	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Direct Flight	0.086 **	0.038	0.088 **	0.038	0.085 **	0.038	0.088 **	0.038
Candidate Features			Included				Included	
Donor Features					Included		Included	
Airport-Pair Fixed Effects	Included		Included		Included		Included	
Year Fixed Effects	Included		Included		Included		Included	
Number of Observations	8,752		8,752		8,752		8,752	
Adjusted R-Squared	0.060		0.060		0.060		0.061	

Note: *** p < 0.01, ** p < 0.05, * p < 0.1. Robust standard errors clustered by airport pair.

Table B11 Results from the Difference-in-Differences Model (Based on Balanced Airport Pairs)

	(1)		(2)		(3)		(4)	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Direct Flight	0.060 **	0.026	0.061 **	0.026	0.058 **	0.026	0.059 **	0.026
Candidate Features			Included				Included	
Donor Features					Included		Included	
Airport-Pair Fixed Effects	Included		Included		Included		Included	
Year Fixed Effects	Included		Included		Included		Included	
Number of Observations	10,816		10,816		10,816		10,816	
Adjusted R-Squared	0.117		0.117		0.117		0.117	

Note: *** p < 0.01, ** p < 0.05, * p < 0.1. Robust standard errors clustered by airport pair.

Table B12 Results from the Difference-in-Differences Model (Alternative Nearby Airports)

	(1)		(2)		(3)		(4)	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Direct Flight	0.090 **	0.036	0.089 **	0.036	0.092 **	0.036	0.091 **	0.036
Candidate Features			Included				Included	
Donor Features					Included		Included	
Airport-Pair Fixed Effects	Included		Included		Included		Included	
Year Fixed Effects	Included		Included		Included		Included	
Number of Observations	6,800		6,800		6,800		6,800	
Adjusted R-Squared	0.092		0.093		0.093		0.094	

Note: *** p < 0.01, ** p < 0.05, * p < 0.1. Robust standard errors clustered by airport pair.

Table B13 Results from the Difference-in-Differences Model (Leave One Pair Out)

Leave-Out Airport Pair	(1)		(2)		(3)		(4)	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
1	0.075 **	0.031	0.076 **	0.031	0.074 **	0.031	0.077 **	0.030
2	0.074 **	0.031	0.074 **	0.030	0.073 **	0.030	0.075 **	0.030
3	0.078 **	0.031	0.078 **	0.030	0.077 **	0.030	0.079 ***	0.030
4	0.077 **	0.031	0.078 **	0.031	0.076 **	0.031	0.079 **	0.031
5	0.072 **	0.031	0.072 **	0.031	0.071 **	0.031	0.073 **	0.031
6	0.072 **	0.031	0.073 **	0.031	0.072 **	0.031	0.073 **	0.030
7	0.072 **	0.031	0.073 **	0.031	0.071 **	0.031	0.074 **	0.031
8	0.077 **	0.031	0.077 **	0.031	0.076 **	0.031	0.078 **	0.030
9	0.076 **	0.031	0.077 **	0.030	0.075 **	0.031	0.077 **	0.030
10	0.053 **	0.022	0.054 **	0.022	0.052 **	0.022	0.055 **	0.022
11	0.076 **	0.031	0.076 **	0.031	0.075 **	0.031	0.077 **	0.031
12	0.075 **	0.031	0.077 **	0.031	0.074 **	0.031	0.078 **	0.031
13	0.076 **	0.031	0.076 **	0.031	0.075 **	0.031	0.077 **	0.031
14	0.068 **	0.030	0.069 **	0.030	0.067 **	0.030	0.070 **	0.030
15	0.076 **	0.031	0.076 **	0.031	0.075 **	0.031	0.077 **	0.031
16	0.071 **	0.031	0.072 **	0.031	0.070 **	0.031	0.072 **	0.030
17	0.075 **	0.031	0.076 **	0.031	0.074 **	0.031	0.077 **	0.031
18	0.077 **	0.031	0.077 **	0.031	0.076 **	0.031	0.078 **	0.031
19	0.071 **	0.031	0.072 **	0.031	0.070 **	0.031	0.073 **	0.030
20	0.074 **	0.030	0.074 **	0.030	0.073 **	0.030	0.075 **	0.030
21	0.074 **	0.030	0.074 **	0.030	0.073 **	0.030	0.075 **	0.030
22	0.074 **	0.031	0.075 **	0.031	0.073 **	0.031	0.076 **	0.031
23	0.072 **	0.031	0.073 **	0.031	0.071 **	0.031	0.073 **	0.031
24	0.075 **	0.031	0.075 **	0.031	0.074 **	0.031	0.076 **	0.031
25	0.077 **	0.031	0.078 **	0.031	0.076 **	0.031	0.078 **	0.031
26	0.077 **	0.030	0.077 **	0.030	0.076 **	0.030	0.078 ***	0.030
27	0.070 **	0.031	0.070 **	0.031	0.069 **	0.031	0.071 **	0.031
28	0.067 **	0.030	0.068 **	0.030	0.066 **	0.030	0.068 **	0.030
29	0.073 **	0.031	0.074 **	0.031	0.072 **	0.031	0.075 **	0.031
30	0.074 **	0.030	0.075 **	0.030	0.073 **	0.030	0.076 **	0.030
31	0.074 **	0.031	0.075 **	0.031	0.074 **	0.031	0.076 **	0.031
32	0.074 **	0.031	0.074 **	0.031	0.073 **	0.031	0.075 **	0.031
33	0.074 **	0.031	0.074 **	0.031	0.073 **	0.031	0.075 **	0.031
34	0.073 **	0.031	0.073 **	0.031	0.072 **	0.031	0.074 **	0.031
35	0.078 **	0.031	0.078 **	0.031	0.077 **	0.031	0.079 ***	0.030
36	0.071 **	0.031	0.071 **	0.031	0.070 **	0.031	0.072 **	0.031
37	0.079 ***	0.030	0.079 ***	0.030	0.078 **	0.030	0.080 ***	0.030
38	0.074 **	0.030	0.074 **	0.030	0.073 **	0.030	0.075 **	0.030
39	0.074 **	0.031	0.074 **	0.031	0.073 **	0.031	0.075 **	0.031
40	0.074 **	0.031	0.075 **	0.031	0.073 **	0.031	0.075 **	0.031
41	0.077 **	0.031	0.078 **	0.031	0.076 **	0.031	0.078 **	0.031
42	0.074 **	0.031	0.074 **	0.031	0.073 **	0.031	0.075 **	0.031
43	0.072 **	0.031	0.073 **	0.031	0.071 **	0.031	0.073 **	0.031
44	0.076 **	0.030	0.076 **	0.030	0.075 **	0.030	0.077 **	0.030
45	0.073 **	0.030	0.074 **	0.030	0.072 **	0.030	0.075 **	0.030
46	0.074 **	0.031	0.074 **	0.031	0.073 **	0.031	0.075 **	0.031
47	0.070 **	0.031	0.071 **	0.031	0.069 **	0.031	0.072 **	0.030
48	0.074 **	0.031	0.075 **	0.031	0.073 **	0.031	0.076 **	0.031
49	0.072 **	0.031	0.073 **	0.031	0.071 **	0.031	0.074 **	0.031
50	0.074 **	0.030	0.075 **	0.030	0.073 **	0.030	0.075 **	0.030
51	0.073 **	0.031	0.073 **	0.030	0.072 **	0.030	0.074 **	0.030
52	0.072 **	0.031	0.072 **	0.031	0.071 **	0.031	0.073 **	0.031
53	0.081 ***	0.030	0.082 ***	0.030	0.080 ***	0.030	0.082 ***	0.030
54	0.073 **	0.031	0.073 **	0.031	0.072 **	0.031	0.074 **	0.031
55	0.077 **	0.031	0.077 **	0.031	0.076 **	0.031	0.078 **	0.031
56	0.077 **	0.031	0.077 **	0.031	0.076 **	0.031	0.078 **	0.030
57	0.076 **	0.031	0.077 **	0.031	0.075 **	0.031	0.077 **	0.030
58	0.067 **	0.030	0.068 **	0.030	0.066 **	0.030	0.068 **	0.030
59	0.074 **	0.030	0.075 **	0.030	0.073 **	0.030	0.075 **	0.030
60	0.076 **	0.031	0.077 **	0.031	0.075 **	0.031	0.078 **	0.031
61	0.078 **	0.031	0.078 **	0.031	0.077 **	0.031	0.078 **	0.031

Note: *** p < 0.01, ** p < 0.05, * p < 0.1. Robust standard errors clustered by airport pair.

Table B14 Results from the Difference-in-Differences Model (Leave One Airport Out)

Leave-Out Airport	(1)		(2)		(3)		(4)	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Origin Airport								
1	0.075 **	0.031	0.076 **	0.031	0.074 **	0.031	0.077 **	0.030
2	0.074 **	0.031	0.074 **	0.030	0.073 **	0.030	0.075 **	0.030
3	0.076 **	0.033	0.076 **	0.033	0.076 **	0.033	0.078 **	0.033
4	0.077 **	0.031	0.077 **	0.031	0.076 **	0.031	0.078 **	0.030
5	0.053 **	0.024	0.055 **	0.024	0.053 **	0.024	0.057 **	0.024
6	0.077 **	0.031	0.077 **	0.031	0.076 **	0.031	0.078 **	0.031
7	0.071 **	0.031	0.072 **	0.031	0.070 **	0.031	0.073 **	0.030
8	0.074 **	0.030	0.074 **	0.030	0.073 **	0.030	0.075 **	0.030
9	0.072 **	0.032	0.073 **	0.031	0.071 **	0.031	0.074 **	0.031
10	0.070 **	0.032	0.071 **	0.032	0.069 **	0.032	0.071 **	0.032
11	0.073 **	0.031	0.074 **	0.031	0.072 **	0.031	0.075 **	0.031
12	0.074 **	0.030	0.075 **	0.030	0.073 **	0.030	0.076 **	0.030
13	0.074 **	0.031	0.075 **	0.031	0.074 **	0.031	0.076 **	0.031
14	0.074 **	0.031	0.074 **	0.031	0.073 **	0.031	0.075 **	0.031
15	0.073 **	0.031	0.073 **	0.031	0.072 **	0.031	0.074 **	0.031
16	0.075 **	0.031	0.075 **	0.031	0.074 **	0.031	0.076 **	0.031
17	0.079 **	0.031	0.080 ***	0.031	0.078 **	0.031	0.080 ***	0.031
18	0.077 **	0.031	0.078 **	0.031	0.076 **	0.031	0.079 **	0.031
19	0.074 **	0.031	0.074 **	0.031	0.073 **	0.031	0.075 **	0.031
20	0.074 **	0.031	0.074 **	0.031	0.073 **	0.031	0.075 **	0.031
21	0.074 **	0.031	0.074 **	0.031	0.073 **	0.031	0.075 **	0.031
22	0.070 **	0.031	0.071 **	0.031	0.069 **	0.031	0.072 **	0.030
23	0.074 **	0.031	0.075 **	0.031	0.073 **	0.031	0.076 **	0.031
24	0.072 **	0.031	0.073 **	0.031	0.071 **	0.031	0.074 **	0.031
25	0.074 **	0.030	0.075 **	0.030	0.073 **	0.030	0.075 **	0.030
26	0.071 **	0.031	0.071 **	0.031	0.069 **	0.031	0.072 **	0.031
27	0.080 ***	0.031	0.081 ***	0.030	0.080 ***	0.031	0.081 ***	0.030
28	0.077 **	0.031	0.077 **	0.031	0.076 **	0.031	0.078 **	0.031
29	0.077 **	0.031	0.077 **	0.031	0.076 **	0.031	0.078 **	0.030
30	0.070 **	0.031	0.070 **	0.031	0.069 **	0.031	0.071 **	0.030
31	0.076 **	0.031	0.077 **	0.031	0.075 **	0.031	0.078 **	0.031
32	0.078 **	0.031	0.078 **	0.031	0.077 **	0.031	0.078 **	0.031
Destination Airport								
1	0.074 **	0.031	0.074 **	0.031	0.073 **	0.031	0.075 **	0.031
2	0.076 **	0.031	0.077 **	0.030	0.075 **	0.031	0.077 **	0.030
3	0.052 **	0.022	0.053 **	0.022	0.051 **	0.022	0.053 **	0.022
4	0.090 ***	0.033	0.089 ***	0.033	0.089 ***	0.032	0.089 ***	0.032
5	0.076 **	0.031	0.076 **	0.031	0.075 **	0.031	0.077 **	0.031
6	0.084 **	0.037	0.086 **	0.037	0.082 **	0.037	0.087 **	0.037
7	0.083 **	0.033	0.084 **	0.033	0.082 **	0.033	0.085 ***	0.033
8	0.077 **	0.031	0.078 **	0.031	0.076 **	0.031	0.078 **	0.031
9	0.075 **	0.032	0.077 **	0.031	0.074 **	0.031	0.078 **	0.031
10	0.073 **	0.031	0.073 **	0.031	0.072 **	0.031	0.074 **	0.031
11	0.064 **	0.031	0.065 **	0.031	0.063 **	0.031	0.065 **	0.030
12	0.079 **	0.032	0.078 **	0.032	0.078 **	0.032	0.079 **	0.031
13	0.072 **	0.031	0.073 **	0.031	0.071 **	0.031	0.073 **	0.031
14	0.081 ***	0.031	0.082 ***	0.031	0.081 **	0.031	0.083 ***	0.031
15	0.068 **	0.030	0.069 **	0.030	0.067 **	0.030	0.070 **	0.030
16	0.076 **	0.031	0.076 **	0.031	0.075 **	0.031	0.077 **	0.031
17	0.072 **	0.031	0.073 **	0.031	0.072 **	0.031	0.073 **	0.030
18	0.067 **	0.031	0.067 **	0.031	0.066 **	0.031	0.068 **	0.031
19	0.074 **	0.030	0.075 **	0.030	0.073 **	0.030	0.076 **	0.030
20	0.074 **	0.031	0.075 **	0.030	0.073 **	0.030	0.075 **	0.030
21	0.072 **	0.032	0.073 **	0.032	0.071 **	0.032	0.073 **	0.032
22	0.078 **	0.031	0.079 **	0.031	0.077 **	0.031	0.080 **	0.031
23	0.067 **	0.030	0.068 **	0.030	0.066 **	0.030	0.068 **	0.030

Note: *** p < 0.01, ** p < 0.05, * p < 0.1. Robust standard errors clustered by airport pair.

Table B15 Results from the Difference-in-Differences Probit Model

	(1)		(2)		(3)		(4)	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Direct Flight	0.368 ***	0.121	0.382 ***	0.120	0.363 ***	0.123	0.379 ***	0.123
Candidate Features			Included				Included	
Donor Features					Included		Included	
Airport-Pair Fixed Effects	Included		Included		Included		Included	
Year Fixed Effects	Included		Included		Included		Included	
Number of Observations	9,184		9,184		9,184		9,184	
Pseudo R-Squared	0.097		0.098		0.101		0.105	

Note: *** p < 0.01, ** p < 0.05, * p < 0.1. Robust standard errors clustered by airport pair.

Table B16 Estimation Results Based on a Cut-Off Distance of 900 Miles

	(1)		(2)		(3)		(4)	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Direct Flight	0.119 **	0.047	0.117 **	0.047	0.118 **	0.047	0.117 **	0.46
Candidate Features			Included				Included	
Donor Features					Included		Included	
Airport-Pair Fixed Effects	Included		Included		Included		Included	
Year Fixed Effects	Included		Included		Included		Included	
Number of Observations	6,048		6,048		6,048		6,048	
Adjusted R-Squared	0.088		0.090		0.087		0.087	

Note: *** p < 0.01, ** p < 0.05, * p < 0.1. Robust standard errors clustered by airport pair.

Table B17 Results Based on a Cut-Off Frequency of 10 Flights/Month

	(1)		(2)		(3)		(4)	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Direct Flight	0.071 **	0.029	0.071 **	0.029	0.070 **	0.029	0.071 **	0.029
Candidate Features			Included				Included	
Donor Features					Included		Included	
Airport-Pair Fixed Effects	Included		Included		Included		Included	
Year Fixed Effects	Included		Included		Included		Included	
Number of Observations	9,088		9,088		9,088		9,088	
Adjusted R-Squared	0.062		0.064		0.062		0.063	

Note: *** p < 0.01, ** p < 0.05, * p < 0.1. Robust standard errors clustered by airport pair.

OA.3. Additional Results for Discussions and Managerial Insights

We present several results as mentioned in §6 (“Discussions and Managerial Insights”). First, in relation to §6.1, we present the impact of new airline routes on local transplant volume in Table C1. Next, in relation to §6.2, we provide our results in Tables C2 and C3 about the effect of new airline routes on airport pairs with existing direct-flight routes. Then, in relation to §6.3, we provide an alternative measure of post-transplant survival and present our results in Table C4. Finally, in relation to §6.4, we present the effect of the timing of the new airline routes in Tables C5 and C6.

Table C1 Results from the Difference-in-Differences Model (Local Volume)

	(1)		(2)		(3)		(4)	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Direct Flight	0.031	0.023	0.031	0.023	0.027	0.023	0.028	0.0232
Candidate Features			Included				Included	
Donor Features					Included		Included	
Airport-Pair Fixed Effects	Included		Included		Included		Included	
Year Fixed Effects	Included		Included		Included		Included	
Number of Observations	9,184		9,184		9,184		9,184	
Adjusted R-Squared	0.926		0.927		0.927		0.929	

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Robust standard errors clustered by airport pair.

Table C2 Effect of New Airline Routes on Existing Direct Flights (with the Same Origin)

	(1)		(2)		(3)		(4)	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Direct Flight	-0.032	0.028	-0.038	0.027	-0.034	0.028	-0.039	0.027
Candidate Features			Included				Included	
Donor Features					Included		Included	
Airport-Pair Fixed Effects	Included		Included		Included		Included	
Year Fixed Effects	Included		Included		Included		Included	
Number of Observations	2,064		2,064		2,064		2,064	
Adjusted R-Squared	0.197		0.203		0.196		0.202	

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Robust standard errors clustered by airport pair.

Table C3 Effect of New Airline Routes on Existing Direct Flights (with the Same Destination)

	(1)		(2)		(3)		(4)	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Direct Flight	-0.043	0.028	-0.042	0.029	-0.045	0.028	-0.044	0.029
Candidate Features			Included				Included	
Donor Features					Included		Included	
Airport-Pair Fixed Effects	Included		Included		Included		Included	
Year Fixed Effects	Included		Included		Included		Included	
Number of Observations	2,144		2,144		2,144		2,144	
Adjusted R-Squared	0.186		0.194		0.187		0.194	

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Robust standard errors clustered by airport pair.

Table C4 Effect of New Airline Routes on 5-Year Post-Transplant Survival

	(1)		(2)		(3)		(4)	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Direct Flight	0.002	0.007	0.003	0.007	0.005	0.008	0.005	0.007
Candidate Features			Included				Included	
Donor Features					Included		Included	
Airport-Pair Fixed Effects	Included		Included		Included		Included	
Year Fixed Effects	Included		Included		Included		Included	
Number of Observations	4,114		4,114		4,114		4,114	
Adjusted R-Squared	0.388		0.397		0.402		0.411	

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Robust standard errors clustered by airport pair.

Table C5 Results from the Difference-in-Differences Model (Day vs. Evening)

	(1)		(2)		(3)		(4)	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Direct Flight (Day)	0.086 **	0.039	0.086 **	0.039	0.085 **	0.039	0.086 **	0.039
Direct Flight (Evening)	0.056*	0.034	0.057*	0.034	0.055*	0.034	0.059*	0.034
Candidate Features			Included				Included	
Donor Features					Included		Included	
Airport-Pair Fixed Effects	Included		Included		Included		Included	
Year Fixed Effects	Included		Included		Included		Included	
Number of Observations	9,184		9,184		9,184		9,184	
Adjusted R-Squared	0.062		0.063		0.061		0.063	

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The treatment pairs are divided into two groups based the median value of the percentage of evening flights. Robust standard errors clustered by airport pair.

Table C6 Results from the Difference-in-Differences Model (Weekday vs. Weekend)

	(1)		(2)		(3)		(4)	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Direct Flight (Weekday)	0.084 **	0.043	0.085 **	0.043	0.083 **	0.043	0.086 **	0.042
Direct Flight (Weekend)	0.065 **	0.029	0.065 **	0.029	0.064 **	0.029	0.065*	0.029
Candidate Features			Included				Included	
Donor Features					Included		Included	
Airport-Pair Fixed Effects	Included		Included		Included		Included	
Year Fixed Effects	Included		Included		Included		Included	
Number of Observations	9,184		9,184		9,184		9,184	
Adjusted R-Squared	0.062		0.063		0.061		0.063	

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The treatment pairs are divided into two groups based the median value of the percentage of weekend flights. Robust standard errors clustered by airport pair.

OA.4. Additional Considerations

We present results related to two additional considerations.

OA.4.1. Interaction with Kidneys from Expanded Criteria Donors

One may wonder whether the introduction of new airline routes has a heterogeneous effect on cross-regional sharing of kidneys from expanded criteria donors (ECDs). To address this question, we include an interaction term $DirectFlight_{ijt} * ECDYes_{ijt}$ in our econometric model, where $ECDYes_{ijt}$ is a dummy variable that is equal to 1 if there exist ECDs who are served by airport i in year t , and 0 otherwise. Specifically, we estimate the following regression model:

$$\ln(SharedVolume_{ijt}) = \alpha_0 + \alpha_1 DirectFlight_{ijt} + \alpha_2 DirectFlight_{ijt} * ECDYes_{ijt} + \alpha_3 Feature_{ijt} + \alpha_4 Airports_{ij} + \alpha_5 Year_t + \varepsilon_{ijt}.$$

Our results in [Table D1](#) show the coefficient α_1 is positive and statistically significant, confirming that introducing direct flights facilitates kidney sharing. In addition, the coefficient α_2 is not statistically significant, suggesting no significant heterogeneous effect exists on cross-regional sharing of kidneys from ECDs.

Table D1 Results from the Difference-in-Differences Model (Interaction with ECD)

	(1)		(2)		(3)		(4)	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	std. err.
Direct Flight × ECDYes	0.067*	0.037	0.069*	0.036	0.062*	0.037	0.064*	0.036
	0.018	0.032	0.019	0.032	0.028	0.031	0.029	0.031
Candidate Features			Included				Included	
Donor Features					Included		Included	
Airport-Pair Fixed Effects	Included		Included		Included		Included	
Year Fixed Effects	Included		Included		Included		Included	
Number of Observations	9,184		9,184		9,184		9,184	
Adjusted R-Squared	0.062		0.063		0.061		0.063	

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Robust standard errors clustered by airport pair.

OA.4.2. Interaction with the 2014 Policy

Since December 4, 2014, a new policy, known as the Kidney Allocation System (KAS), has been implemented. Although KAS seeks to improve post-transplant survival outcomes (among other objectives), it does not address the effect of airline-transportation networks. Thus, its interaction with the effect of new airline routes remains unclear. Following your suggestion, we have performed a new analysis by adding an interaction term $DirectFlight_{ijt} * After2014_{ijt}$, where $After2014_{ijt}$ is a dummy variable, which is equal to 1 if direct flights between airport i and j are introduced

in year t that is either in or after 2014, and 0 otherwise. Specifically, we estimate the following regression model:

$$\ln(\text{SharedVolume}_{ijt}) = \alpha_0 + \alpha_1 \text{DirectFlight}_{ijt} + \alpha_2 \text{DirectFlight}_{ijt} * \text{After2014} + \alpha_3 \text{Feature}_{ijt} + \alpha_4 \text{Airports}_{ij} + \alpha_5 \text{Year}_t + \varepsilon_{ijt}.$$

Our results in [Table D2](#) show the coefficient α_1 is positive and statistically significant, confirming that introducing direct flights facilitates kidney sharing. In addition, the coefficient α_2 is not statistically significant, suggesting the new policy has not significantly changed the effect of introducing new airline routes. This insignificant result may be partly due to the fact that the years after 2014 include three years — namely, 2015, 2016, and 2017 — which may not be long enough for the effect of this new policy to show up in the data. We leave continued investigations of the interaction between the policy-specific effect and the direct-flight effect characterized in our paper to future research. In sum, we did not find a significant policy-specific effect, in part because the policy was introduced in December 2014, whereas our study period lasts until 2017. The interaction of the 2014 policy with the effect of new airline routes warrants further investigation.

Table D2 Results from the Difference-in-Differences Model (Interaction with the 2014 Policy)

	(1)		(2)		(3)		(4)	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Direct Flight	0.073 **	0.029	0.078 ***	0.029	0.071 **	0.029	0.077 ***	0.029
× After 2014	0.003	0.066	−0.005	0.067	−0.004	0.066	−0.004	0.067
Candidate Features			Included				Included	
Donor Features					Included		Included	
Airport-Pair Fixed Effects	Included		Included		Included		Included	
Year Fixed Effects	Included		Included		Included		Included	
Number of Observations	9,184		9,184		9,184		9,184	
Adjusted R-Squared	0.062		0.063		0.061		0.062	

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Robust standard errors clustered by airport pair.

OA.4.3. Connection to the Kidney Payback Policy

Prior to the implementation of the Kidney Allocation System (KAS) in 2014, a kidney payback policy existed such that the kidney sharing along the two opposite directions should be positively correlated. For each airport pair, we analyze the correlation of the number of shared kidneys across both directions and find a positive correlation (0.1776). Yet, the magnitude of the positive correlation is relatively small. A possible reason is that despite the kidney payback policy, the supply and the demand in the two opposite directions largely depend on the features of local donors and patients, and thus can be quite different.