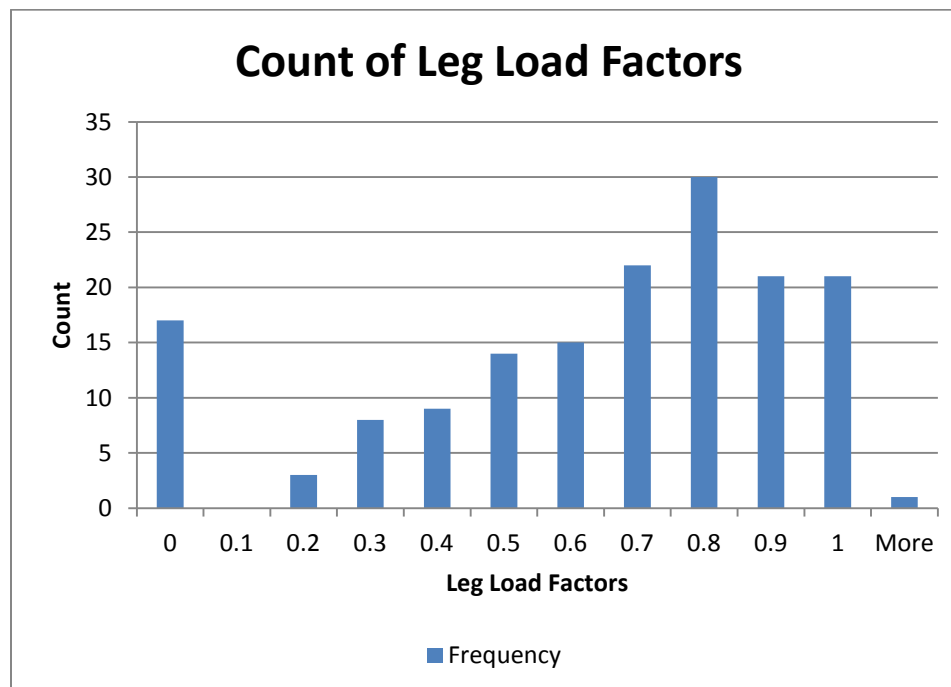


CHAP 4 HOMEWORK AIRLINE REVENUE AND COST ANALYSIS PART 1

- 1) Using T100 Segment Data for Jan 2012 for Rhode Island (PVD) perform the following calculations **Airline Network Analysis**.
- Total Seats = **353,474** (Total column SEATS in T100 data set)
 - Total Passengers = **255,842** (Total column PASSENGERS in T100 data set)
 - System Load Factor = **0.724** (Divide Total Pax by Total Seats)
 - Total Mile = **95,922** (Total column DISTANCE in T100 data set)
 - Available Seat Miles (ASMs) = **236.6M** (T100 data set, multiply SEATS by DISTANCE for each O-D pair, then SUM)
 - Revenue Passenger Miles (RPMs) = **183.3M** (T100 data set, multiply PASSENGERS by DISTANCE for each O-D pair, then SUM)
 - System Load Factor (RPM/ASM) = **0.77** (RPM/ASM)
 - Leg Load Factor for each Airline and Leg (e.g. Piedmont, LGA- PVD) (Divide PASSENGERS by SEATS for each O-D pair, examples LGA-PVD = 0.289, PHL-PVD = 0.79)
 - Using Leg Load Factors, compute Average Leg Load Factor = **0.596** (Take average of LEG LOAD FACTORS computed above)
 - Draw a Histogram of Average Leg Load Factors. What shape is distribution?



Distribution is asymmetric and exhibits a "fat" left tail.

- k. Is Average Leg Load Factor = System Load Factor? Explain.
System Load Factor is not the same as Average Leg Load Factor. System Load Factor is based on total seats and total passengers and does not account for the distribution of Load Factors on individual flights. As shown in Figure above, the left tail of the distribution results in lower Average Leg Load Factor
- l. Rank the airlines by Average Leg Load Factor
Take the Average of the Average Leg Load Factors for each individual airline. Charter Air Transport Inc. has highest Average Leg Load Factors = 0.933, followed by GoJet = 0.8966. Lowest Average Leg Load Factors (not including cargo airlines) USA JET Airlines = 0, Comair Inc. = 0.26.
LCCs: AirTran = 0.901, SWA = 0.768, US Airways = 0.652
NLC: United = 0.679, Delta = 0.638
- m. Rank the airlines by Airline System Load Factor
Divide Total Passengers by Total Seats for each individual Airline. Charter Air Transport Inc. has highest = 0.933. Lowest (not including cargo airlines): Vision Air = 0.185, Tradewinds = 0.186.
LCCs: Air Tran = 0.9, SWA = 0.777, USAirways = 0.73
NLCs: United = 0.666, Delta = 0.63,

2) Using both T100 Segment Data (Jan 2012 for Rhode Island (PVD)) AND P.12 Data (Q1 2012), perform the following calculations for each Airline:

- a. Cost per Flight **Divide TOTAL EXPENSES * 1000 by FLYING OPS**
NLCs: Delta = \$5343, United = \$5663
LCCs: AirTran = \$2353, SWA = \$2967, USAirways = \$4542
Regional Airlines: Republic = \$3226, Mesa Airlines = \$1973, Pinnacle = \$4090
- b. Revenue per Flight **Divide OPS REVENUE * 1000 by FLYING OPS**
NLCs: Delta = \$3536, United = \$3000
LCCs: AirTran = \$1660, SWA = \$2000, USAirways = \$2848
Regional Airlines: Republic = \$2399, Mesa Airlines = \$1578, Pinnacle = \$2517
- c. Profit per Flight **Subtract COST PER FLIGHT (above) from REVENUE PER FLIGHT (above)**
NLCs: Delta = -\$1807, United = -\$2663
LCCs: AirTran = -\$693, SWA = -\$966, USAirways = -\$1693
Regional Airlines: Republic = -\$826, Mesa Airlines = -\$395, Pinnacle = -\$1573
- d. Rank the Airlines by Cost per Flight, Revenue per Flight, and Profit per Flight.
- e. Which airlines appear to operate as Low Cost Carriers (LCCs) ?

AirTran and SWA (LCCs) have lower costs than Delta and United (NLC). USAirways costs are closer to NLC (even though they bill themselves as a LCC).

- f. Which airline(s) have the lowest cost-per-flight? Which factor(s) contribute to the lowest cost per flight: maintenance, pax service, aircraft service, promotional, general admin, general services, depreciation amortization, transportation services.

Find Percentage of TOTAL EXPENSES for

% MAINTENANCE	% PAX_SERVICE	% AIRCFT_SERVICES	% PROMOTION_SALES	% GENERAL_ADMIN	%GENERAL_SERVICES	%DEPREC_AMORT	% TRANS_EXPENSES	% OP EXPENSES
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Lowest Cost LCC = AirTran

Airline	% MAINTENANCE	% PAX_SERVICE	% AIRCFT_SERVICES	% PROMOTION_SALES	% GENERAL_ADMIN	%GENERAL_SERVICES	%DEPREC_AMORT	% TRANS_EXPENSES	% OP EXPENSES
AirTran	0.012509	0.004626	0.012354	0.006009	0.000981	0	0.0021	6.93E-05	0.09749
SWA	0.046856	0.031358	0.075337	0.02841	0.031463	0	0.027515	0.00029	0.48644

- g. Which airline(s) have the highest cost-per-flight? Which factor(s) contribute to the highest cost per flight: maintenance, pax service, aircraft service, promotional, general admin, general services, depreciation amortization, transportation services.

Airline	% MAINTENANCE	% PAX_SERVICE	% AIRCFT_SERVICES	% PROMOTION_SALES	% GENERAL_ADMIN	%GENERAL_SERVICES	%DEPREC_AMORT	% TRANS_EXPENSES	% OP EXPENSES
Delta	0.072219	0.056251	0.115958	0.053691	0.012276	0	0.036101	0.158616	0.73769
United	0.0676	0.048239	0.132534	0.042408	0.045277	0	0.030911	0.210444	0.825037