

AIRCRAFT MARKETSHARE

CHEN Yixuan GU Ruiyang Jeyhun MAMMADOV

IATOM13
ENAC

16 January 2014



Outline

- 1 Introduction
 - The Basic Problem That We Studied
- 2 Our Results
 - Main Results
 - Basic Ideas for Proofs



Outline

- 1 Introduction
 - The Basic Problem That We Studied
- 2 Our Results
 - Main Results
 - Basic Ideas for Proofs



Why we have chosen this topic

- We are students of ENAC.
- We focus on aeronautics-related area.
- Aircraft industry is becoming more and more important all over the world.



What we have studied.

Assumptions and Studies

- Assuming the market share related to several factors:
 - GDP, Traffic growth rate, Oil price, Specifications of aircraft. . .
 - using order numbers of different aircrafts to present market share
- Separating the world into 7 parts:
 - Asia-Pacific, North America, Europe, Middle East, Latin America, CIS, Africa.
- Checking and studying of datas:
 - Getting relevant documents.
 - Analysing.



What we have studied.

Assumptions and Studies

- Assuming the market share related to several factors:
 - GDP, Traffic growth rate, Oil price, Specifications of aircraft. . .
 - using order numbers of different aircrafts to present market share
- Separating the world into 7 parts:
 - Asia-Pacific, North America, Europe, Middle East, Latin America, CIS, Africa.
- Checking and studying of datas:
 - Getting relevant documents.
 - Analysing.



What we have studied.

Assumptions and Studies

- Assuming the market share related to several factors:
 - GDP, Traffic growth rate, Oil price, Specifications of aircraft. . .
 - using order numbers of different aircrafts to present market share
- Separating the world into 7 parts:
 - Asia-Pacific, North America, Europe, Middle East, Latin America, CIS, Africa.
- Checking and studying of datas:
 - Getting relevant documents.
 - Analysing.



What we have studied.

Assumptions and Studies

- Assuming the market share related to several factors:
 - GDP, Traffic growth rate, Oil price, Specifications of aircraft. . .
 - using order numbers of different aircrafts to present market share
- Separating the world into 7 parts:
 - Asia-Pacific, North America, Europe, Middle East, Latin America, CIS, Africa.
- Checking and studying of datas:
 - Getting relevant documents.
 - Analysing.



What we have studied.

Assumptions and Studies

- Assuming the market share related to several factors:
 - GDP, Traffic growth rate, Oil price, Specifications of aircraft. . .
 - using order numbers of different aircrafts to present market share
- Separating the world into 7 parts:
 - Asia-Pacific, North America, Europe, Middle East, Latin America, CIS, Africa.
- Checking and studying of datas:
 - Getting relevant documents.
 - Analysing.



What we have studied.

Assumptions and Studies

- Assuming the market share related to several factors:
 - GDP, Traffic growth rate, Oil price, Specifications of aircraft. . .
 - using order numbers of different aircrafts to present market share
- Separating the world into 7 parts:
 - Asia-Pacific, North America, Europe, Middle East, Latin America, CIS, Africa.
- Checking and studying of datas:
 - Getting relevant documents.
 - Analysing.



What we have studied.

Assumptions and Studies

- Assuming the market share related to several factors:
 - GDP, Traffic growth rate, Oil price, Specifications of aircraft. . .
 - using order numbers of different aircrafts to present market share
- Separating the world into 7 parts:
 - Asia-Pacific, North America, Europe, Middle East, Latin America, CIS, Africa.
- Checking and studying of datas:
 - Getting relevant documents.
 - Analysing.



Outline

- 1 Introduction
 - The Basic Problem That We Studied

- 2 Our Results
 - Main Results
 - Basic Ideas for Proofs



Models Estimated

Representing the order ratio of a given plane in a given region with Y , and the factors as X_i , using linear regression model, we have a formula as below:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7$$



Estimated Results

Explanatory Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	89.65556	55.70247	1.609544	0.1191
SPEED	-0.076919	0.060522	-1.270930	0.2146
PRICE	0.045422	0.118936	0.381903	0.7055
LOCALORDER	2.885249	2.271526	1.270181	0.2149
RANGE	-0.002440	0.002508	-0.972956	0.3392
GDP	0.141929	0.120986	1.173101	0.2510
OILPRICE	-5.789391	3.589646	-1.612803	0.1184
TRAFFIC	-1.933205	0.774152	-2.497190	0.0189
R-squared	0.354590	F-statistic (Probability) 2.119121 (0.075864)		
Adjusted R-squared	0.187261	Durbin-Watson stat		1.799351

Dependent Variable: SHARE Included observations: 35

The table shows that the most related variable is the traffic. And the specifications of aircrafts actually have few influences for market share.



Estimated Results for Share-Traffic

We work precisely on the relation between market share and the traffic growth rate and find the results below:

Explanatory Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	12.07249	3.531686	3.418338	0.0017
TRAFFIC	-1.761427	0.657767	-2.677890	0.0115
R-squared	0.178514	F-statistic (Probability)	7.171093 (0.011456)	
Adjusted R-squared	0.153620	Durbin-Watson stat	1.842908	

Dependent Variable: SHARE Included observations: 35

In which we can find a interesting result that market share decreases when traffic growth increases.



Local or not

We also find out that the market share is strongly effected by the location of buyers and manufacturers,if the aircraft is bought locally, we give the value of variable as 1 ,if not, it will be 0.And we can gain this result only when we set North America apart.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LO	30.11538	10.56702	2.849941	0.0081
C	7.884615	3.858531	2.043424	0.0505
R-squared	0.224853	Mean dependent var		11.90000
Adjusted R-squared	0.197169	S.D. dependent var		21.95819
S.E. of regression	19.67472	Akaike info criterion		8.860887
Sum squared resid	10838.65	Schwarz criterion		8.954300
Log likelihood	-130.9133	Hannan-Quinn criter.		8.890771
F-statistic	8.122161	Durbin-Watson stat		1.210968
Prob(F-statistic)	0.008114			



Outline

- 1 Introduction
 - The Basic Problem That We Studied
- 2 Our Results
 - Main Results
 - Basic Ideas for Proofs



Explanations

1. The negative impact to the aircraft order of the traffic growth rate is mainly because that we always have greater growth rate in areas which are relatively less developed. And in fact the greatest needs are still in developed areas, so the aircraft orders will be larger.
2. Aircraft specifications do not show strongly the linear regression relationship, which verifies that they can service different flight missions.
3. Local buyers prefer local aircrafts. As the manufacturing of aircrafts is quite a big industry, we believe that this phenomenon will benefit local aeronautic industry development.



Summary

- Higher traffic growth rate may represent fewer aircraft orders.
- Local buyers prefer local aircrafts.
- Outlook
 - We haven't figured out why the lineare equation for share-local does not work well for North America.



For Further Reading I



Rolls-Royces.

Market Outlook 2012-31.
2012



Airbus.

Globe Market Forecast-Future Journeys 2013-2032.
2013



Boeing.

Current Market Outlook 2013-2032.
2013



EMBRAER.

Market Outlook 2012-2031.
2012



For Further Reading II



BOMBARDIER.

Market Forecast 2012-2031.
2012

