Industry has lost more than 500,000 jobs since 1990

Causes: Defense Collapse (87-93), huge surge in output per worker

Output per worker rises because of productivity growth and outsourcing
MAJOR FUTURE THREATS TO US OUTPUT AND EMPLOYMENT

- Airbus
- Growth in Outsourcing
- Declining Defense Spending
OUTPUT AND EMPLOYMENT IN THE US

- Declining US Sales for the Past Decade

- US Sales and Employment are Closely Related
Figure 1
US Aerospace Sales 1987-2001

- Total, including missiles, space, parts & services
- Civil aircraft
- Military aircraft

Millions of constant, 1987 dollars

1987 1989 1991 1993 1995 1997 1999 2001e
Figure 2

Employment

Total Sales

Thousands of jobs

Billions of constant, 1987 dollars
THE EUROPEAN THREAT

➢ Rising Aerospace Employment and Sales in the EU
Figure 3
EU Aerospace Employment and Sales 1980 - 1999

EU Aerospace Employment and Sales 1980-1999

- Employment (thousands)
- Total Sales (billions of constant 1999 euros)


Employment
Total Sales
Overall trade balance has increased until recently

There are also indicators of rising foreign content of domestic aircraft.
Figure 4
U.S. engines and parts imports as a share of total aircraft sales, 1981-2000

Share of U.S. Aircraft Sales (Percent)

Year


4 6 8 10 12 14 16 18 20
IMPLICATIONS FOR U.S. AEROSPACE EMPLOYMENT

Major threats include:

- International Outsourcing
- Airbus
- Productivity Growth
- Declining Defense Demand
Figure 5
U.S. Aircraft Employment Forecast, 2000-10

- Boeing 2000 Market Outlook base
- Teal, constant share, no international outsourcing
- Teal, falling share, with international outsourcing

U.S. Aircraft Employment Change, 2000-10
+146
-109
-262
FORECAST RESULTS

- Low Growth Scenario: 262,000 jobs lost
- Falling U.S. Share of World Market: 41.5%
- Productivity Growth: 34.6%
- Falling Demand: 12.4%
- Rising Share of Imported Parts and Engines: 11.5%

Key Assumptions and Sources:

- All demand forecasts scaled up to equal total Aircraft, Engines and Parts Sales, as reported in Aerospace Industries Association, 2000 Year-End Review and Forecast.
Skilled production, professional specialty, and technician jobs predominate

Earnings are substantially higher than in most other manufacturing industries
### Table 1

*Employment of wage and salary workers in aerospace manufacturing by occupation, 1998*

(Employment in thousands)

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>All occupations</td>
<td>615</td>
<td>100</td>
</tr>
<tr>
<td>Precision production, craft and repair</td>
<td>174</td>
<td>28.2</td>
</tr>
<tr>
<td>Machinists</td>
<td>29</td>
<td>4.7</td>
</tr>
<tr>
<td>Inspectors, testers, and graders, precision</td>
<td>25</td>
<td>4</td>
</tr>
<tr>
<td>Blue-collar worker supervisors</td>
<td>22</td>
<td>3.6</td>
</tr>
<tr>
<td>Aircraft mechanics and service technicians</td>
<td>19</td>
<td>3.1</td>
</tr>
<tr>
<td>Aircraft assemblers, precision</td>
<td>16</td>
<td>2.7</td>
</tr>
<tr>
<td>Electrical and electronic equipment assemblers</td>
<td>11</td>
<td>1.8</td>
</tr>
<tr>
<td>Professional specialty</td>
<td>137</td>
<td>22.3</td>
</tr>
<tr>
<td>Executive, administrative, and managerial</td>
<td>112</td>
<td>18.1</td>
</tr>
<tr>
<td>Operators, fabricators, and laborers</td>
<td>87</td>
<td>14.2</td>
</tr>
<tr>
<td>Administrative support, including clerical</td>
<td>54</td>
<td>8.9</td>
</tr>
<tr>
<td>Technicians and related</td>
<td>40</td>
<td>6.4</td>
</tr>
<tr>
<td>Service</td>
<td>8</td>
<td>1.3</td>
</tr>
<tr>
<td>All other occupations</td>
<td>4</td>
<td>0.6</td>
</tr>
</tbody>
</table>

Implications for Aerospace employment:

Procurement freeze and shift from aircraft to Strategic Defense Initiative has significant implications for the industry skills mix.
Figure 6

Selected Aerospace Industry Skills, 1998

<table>
<thead>
<tr>
<th>Skill</th>
<th>Share (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precise prod &amp; repair engineers</td>
<td>30.6</td>
</tr>
<tr>
<td>Operators, fabs., &amp; laborers</td>
<td>29.4</td>
</tr>
<tr>
<td>Computer, math. &amp; operats. res.</td>
<td>15.7</td>
</tr>
<tr>
<td>Machine setters, ops. and tenders</td>
<td>13.7</td>
</tr>
<tr>
<td>Metal workers, precision</td>
<td>7.6</td>
</tr>
<tr>
<td>Mechanics, install., &amp; repair</td>
<td>7.2</td>
</tr>
<tr>
<td>Technicians &amp; rel. occupations</td>
<td>6.8</td>
</tr>
<tr>
<td>Hand workers, asse. &amp; fabs.</td>
<td>6.2</td>
</tr>
<tr>
<td>Assemblers, precision</td>
<td>5.9</td>
</tr>
<tr>
<td>Source: EPI and BLS Employment Outlook</td>
<td></td>
</tr>
</tbody>
</table>