



# 民用飞机中国市场 预测年报

CHINA MARKET OUTLOOK  
FOR CIVIL AIRCRAFT

# 2024 2043

 中国航空工业集团有限公司

民机国合部  
中国航空工业发展研究中心





**China Market Outlook  
for Civil Aircraft**

**民用飞机中国市场  
预测年报**

**2024 ~ 2043**

## 前言

中国航空工业集团有限公司每年公布一次对中国民用飞机市场的预测。本期预测报告是 2024 年度完成的，主要内容包括中国民用航空运输业的发展环境分析、发展趋势研究、中国民用客货机机队的规模预测以及民用客机需求量预测。

本报告还对全球民用飞机市场进行了综合分析及客、货机需求量预测。

我们热忱地欢迎各位读者对本预测报告提出宝贵的意见和建议。

中国航空工业集团有限公司

二零二四年





## Foreword

The Aviation Industry Corporation of China , Ltd . issues its forecast report on Chinese civil market every year. This edition of the forecast report is compiled in 2024. And the main contents in this edition consist of the following:the analysis on the development environment, the study on trends of Chinese civil aviation transportation industry and the forecasts on fleet and demand for civil passenge and freighter on Chinese market.

This also conducts a comprehensive analysis on the future demand of global passenger aircrafts and freighters.

We sincerely hope to get responses from the readers of this forecast report.

AVIC 2024





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# 民用飞机中国市场 预测年报

2024 ~ 2043





# 概述

2023 年，中国航空运输市场实现快速增长，全行业共完成运输总周转量 1188.3 亿吨公里，同比增长 98.3%，恢复到 2019 年的 91.9%；完成旅客周转量 10309.0 亿人公里，同比增长 163.4%，恢复到 2019 年的 88.1%；完成货邮周转量 283.6 亿吨公里，同比增长 11.6%，约为 2019 年的 1.1 倍。

随着中国经济的快速复苏，2024 年上半年中国民航业展现出强劲增长势头，国内外航线实现全面增长。未来，商贸和旅游业的发展仍然是中国航空运输市场持续增长的主要动力，为了满足航空运输市场需求，中国航空运输机队规模将继续保持增长。

综合分析各种因素，未来 20 年中国航空运输市场主要预测结果如下：

■ 预计到 2043 年末，客运周转量将接近 3.2 万亿人公里，航空货邮周转量达到 700 亿吨公里。

■ 预计到 2043 年末，中国航空公司客机机队规模将达到 8905 架，其中宽体客机 1577 架，窄体客机 6787 架，支线客机 541 架；货机机队规模将达到 621 架，其中窄体货机 291 架，中型宽体货机 179 架，大型宽体货机 151 架。

■ 预计 2024~2043 年间，中国需要补充客机 8278 架，其中宽体客机 1546 架，窄体客机 6246 架，支线客机 486 架；需要补充货机 556 架，其中客改货 366 架，新货机 190 架。



期末客机机队规模 (架)	
2023 年底	4013
2043 年底	8905
期末货机机队规模 (架)	
2023 年底	257
2043 年底	621
预测期间客机需求量 (架)	
宽体客机	1546
窄体客机	6246
支线客机	486
<b>合计</b>	<b>8278</b>
预测期间货机需求量 (架)	
客改货机	366
新货机	190
<b>合计</b>	<b>556</b>

\* 本次预测不包括香港、澳门特别行政区和台湾的航空公司。







# 中国航空运输市场 现状分析

## (一) 运量

### 1. 运输总周转量

2023年，中国全年完成航空运输总周转量1188.34亿吨公里，同比增长98.3%，内地航线、港澳台航线和国际航线占比分别为72.1%、0.8%和27.1%。其中，内地航线完成857.34亿吨公里，同比增长122.4%；港澳台航线完成9.99亿吨公里，同比增长334.2%；国际航线完成321.01亿吨公里，同比增长51.8%。

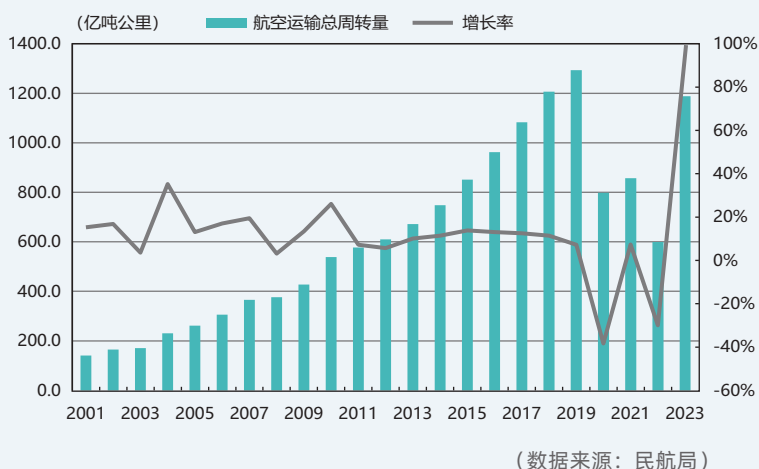


图 2.1 中国航空运输总周转量增长情况

### 2. 客运量

2023年，中国完成航空旅客运输量6.19亿人次，同比增长146.1%。其中内地航线完成5.84亿人次，同比增长136.3%；港澳台航线完成668.4万人次，同比增长1324.7%；国际航线完成2905.9万人次，同比增长1461.7%。从不同航线旅客运输量的占比看，内地航线、国际航线和港澳台航线的占比分别为95.18%、4.8%和0.02%。2023年中国完成旅客周转量1.03万亿人公里，同比增长163.4%。

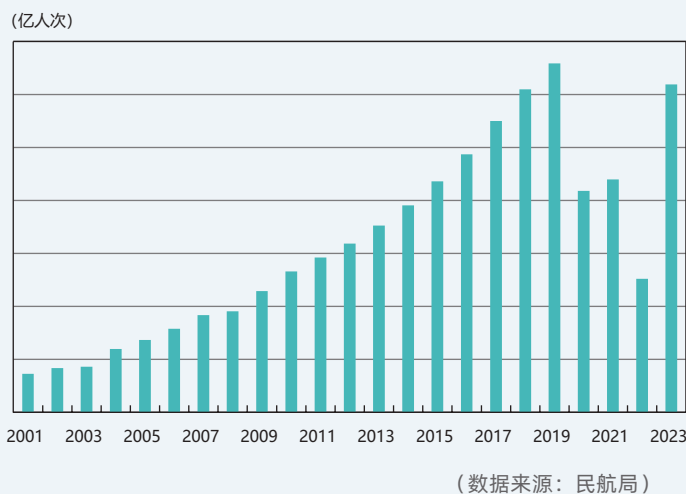


图 2.2 中国航空客运量增长情况

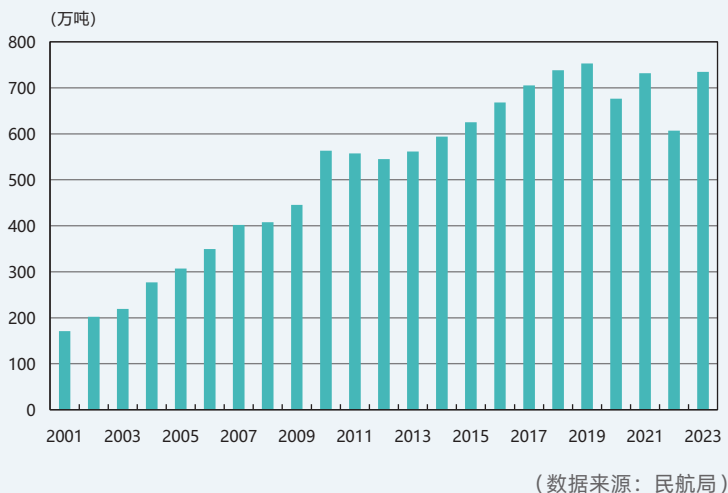


图 2.3 中国航空货运量增长情况

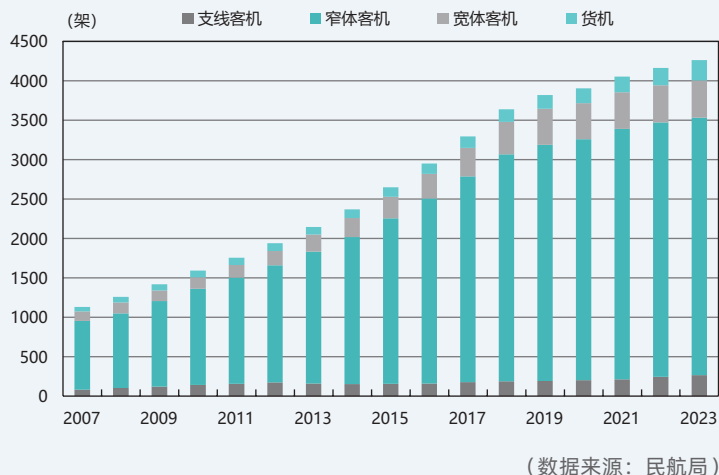


图 2.4 中国航空公司运输飞机机队规模

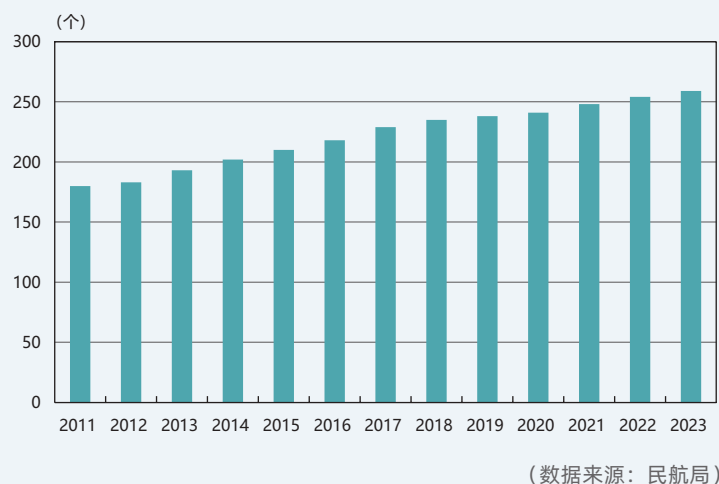


图 2.5 中国民用运输机场数量

### 3. 货运量

2023年,中国完成货邮运输量735.4万吨,同比增长21.0%。其中内地航线完成441.3万吨,同比增长34.1%;港澳台航线完成15.1万吨,同比增长2.5%;国际航线完成279.0万吨,同比增长5.8%。从不同航线货邮运输量的占比看,内地航线为60%,国际航线为37.9%,港澳台航线为2.1%。

### (二) 机队

截至2023年底,中国民航共有运输飞机4270架,比上年净增105架。其中客机4013架,占飞机总量的94.0%;货机257架,占飞机总量的6.0%。在客机机队中,支线客机为264架,窄体客机为3276架,宽体客机为473架,分别占客机总量的6.6%、81.5%和11.9%。

### (三) 机场

截至2023年底,中国共有颁证民航运输机场259个(不含香港、澳门和香港地区),比上年净增5个。其中4F级机场15个,4E级机场39个,4D级机场37个,4C级机场163个,3C级机场4个,3C级以下机场1个。

2023年全国民航运输机场起降

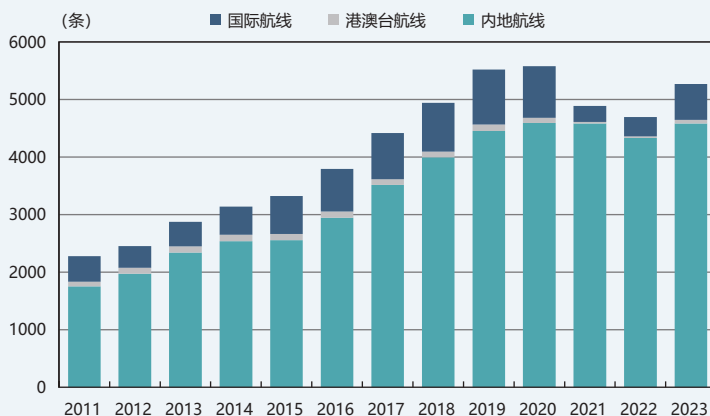
架次为 1170.82 万架次，同比增长 63.7%。其中，运输架次 980.99 万架次，同比增长 89.0%。2023 年全国机场旅客吞吐量为 12.6 亿人次，同比增长 42.2%；货邮吞吐量为 1683.31 万吨，同比增长 15.8%。



## （四）航线

截至 2023 年底，中国共有定期航班航线 5206 条，实现反弹，同比增长 12.2%，但仍低于 2019 年和 2020 年的航线数量。2023 年中国定期航班航线按重复距离计算的航线里程为 1227.81 万公里，按不重复距离计算的航线里程为 875.96 万公里，相比 2022 年均有一定程度扩大。

2023 年，中国定期航班国内通航城市（或地区）为 255 个（不含香港、澳门和台湾地区），较上年增加 6 个；定期航班国际通航国家城市为 127 个，较上年增加 50 个。



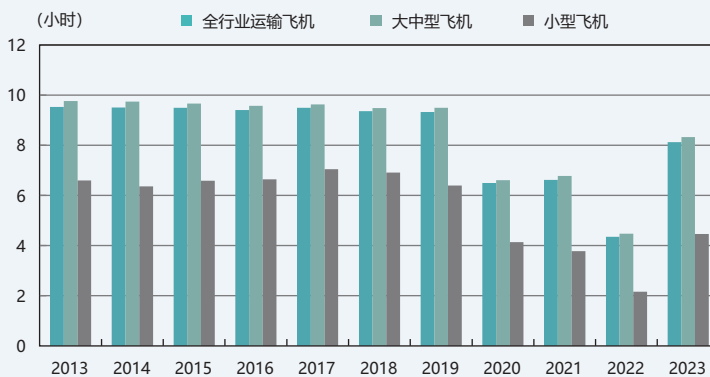
（数据来源：民航局）

图 2.6 中国民航定期航班航线数量

## （五）效率和效益

### 1. 运输效率

2023 年，中国民航在册运输飞机平均日利用率为 8.12 小时，比上年增加 3.77 小时。其中，大中型飞机平均日利用率为 8.33 小时，比上年增加 3.86 小时；小型飞机平均日利用率为 4.46 小时，比上年增加 2.30



（数据来源：民航局）

图 2.7 中国民航在册运输飞机平均日利用率

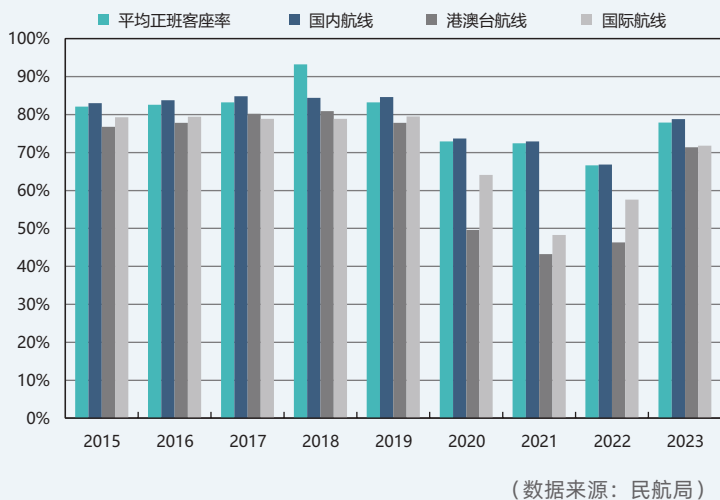


图 2.8 中国民航平均正班客座率

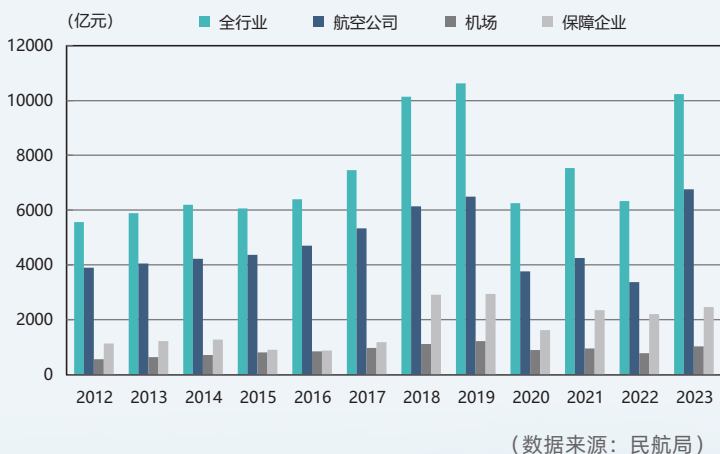


图 2.9 中国民航营业收入情况

小时。

2023 年，中国民航平均正班客座率为 77.9%，比上年提升 11.3 个百分点；平均正班载运率为 67.7%，比上年提升 2.7 个百分点。

## 2. 经济效益

2023 年，中国民航运输业实现营业收入 10237.3 亿元，比上年增长 68.3%，恢复到 2019 年的 96.35%；亏损 210.7 亿元，比去年减亏 1907.4 亿元。其中，航空公司实现营业收入 6761.0 亿元，机场实现营业收入 1019.8 亿元，保障企业实现营业收入 2456.5 亿元。2023 年，全行业运输收入水平为 5.20 元 / 吨公里，比上年提高 0.24 元 / 吨公里。其中，客运收入水平 6.15 元 / 吨公里；货邮运输收入水平 2.20 元 / 吨公里。







# 中国航空运输市场环境分析

## （一）社会经济发展

### 1. 经济形势

2023年中国经济发展呈现出转型升级、结构调整、动力优化三大变化，经济总体回升向好，继续保持稳健发展态势。2023年，中国国内生产总值为126万亿元，同比增长5.2%，增速比2022年加快2.2个百分点。根据国际金融论坛(TF)发布的《2023年全球金融与发展报告》预计，中国经济对全球经济增长的贡献率达到32%，仍然是稳定世界经济增长的重要力量和最大引擎。

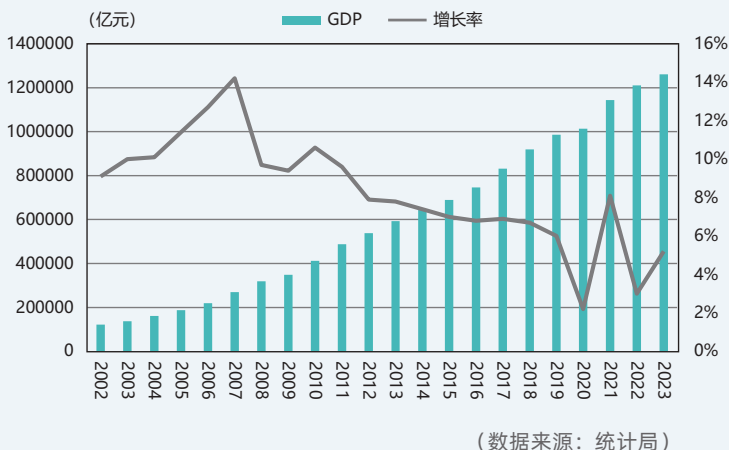


图 3.1 中国 GDP 与增长率

### 2. 旅游业形势

2023年，中国旅游需求全面释放，旅游业迎来强势复苏。据文化和旅游部统计，2023年国内出游人次48.91亿，同比增长93.3%；国内游客出游总花费4.91万亿元，同比增长140.3%；国内出游人次和国内旅游收入分别恢复到2019年的81.38%和85.69%。2023年，受出入境旅游政策的优化、居民出境游意愿的增强、入境旅游供应链的重建与修复等多重积极因素的叠加推动，中国出入境旅游有序恢复，全年入出境旅游人数超过1.9亿人次，同比增长2.8倍，恢

复到2019年的63%。

2023年，文化和旅游部颁布了《国内旅游提升计划（2023-2025年）》，进一步释放旅游消费潜力，推动旅游业实现质的提升和量的合理增长。为提振入境旅游发展，中国已同24个国家实现全面互免签证，对16个国家实行免签入境政策，对54个国家实行72小时或144小时过境免签，外国游客来华流程不断简化。未来，在经济的持续复苏和中国国内旅游业政策的推动下，旅游业有望继续保持强劲的发展势头。

### 3. 城市化进程

航空人均乘机次数与城镇化率密切相关，城镇化率的提高使得人口分布更加集中，使机场辐射范围内人口增加。2023 年末，中国常住人口城镇化率为 66.16%，比 2022 年末提高 0.94 个百分点，中国人均乘机次数约为 0.44 次，仍低于 2019 年的 0.47 次。目前，发达国家的城市化率在 70% 以上，人均乘机

次数在 2 次以上，中国与发达国家还存在较大差距。按照党的二十大部署，2035 年中国基本实现现代化，人均 GDP 将超过 2.5 万美元，年人均乘机次数将超过 1 次，航空人口规模有望超过 4 亿，年旅客运输量将达到 15 亿人次。随着中国城市化进程的加快，中国人均乘机次数将逐步提升，中国航空运输市场的潜力将得到逐步释放。

### (二) 机场建设

截至 2023 年底，中国机场布点不断加密，境内运输机场（不含香港、澳门和台湾地区）共 259 个，地级市覆盖率达到 91.7%，国家综合机场体系日趋完善。北京、上海、广州

机场的国际枢纽地位明显提高，北京首都机场年旅客吞吐量已位居全球第二，上海浦东机场年货邮吞吐量位居全球第三，成都、深圳、昆明、西安等机场的区域枢纽功能显著增强，机场在国家综合交通运输体系中的作用日益突出。



(数据来源: 民航局)

图 3.2 2023 年中国各省（区、市）机场旅客吞吐量分布

2024年，民航局联合国家发展和改革委员会发布《关于推进国际航空枢纽建设的指导意见》，进一步明确了“3+7+N”国际航空枢纽功能体系建设，对国际航空枢纽的功能定位进行了细化和深化，提出到2035年国际航空枢纽功能体系将全面建成，到2050年将建成一批世界一流航空企业和一流航空枢纽。

根据中国民航局2024年发布的《新时代新征程谱写交通强国建设民航新篇章行动纲要》，到2035年，要打造3-4个具有较强国际竞争力的全方位门户复合型国际航空枢纽，运输机场400个左右，具备年保障3000万起降架次能力。

### （三）高速铁路建设

2023年，中国航空旅客运输量仅占全国客运总量的1%，但航空旅客周转量占比却达到34.6%，主要是因为航空运输的优势在中远程运输，2023年航空运输平均运距为1663公里。铁路的优势主要在中等里程的运输，2023年平均运距为382公里。公路和水路是短途旅客运输的主要方式，平均里程在20公里以下。

根据《中长期铁路网规划》，中国将建设“八纵八横”高铁网络主通道，到2025

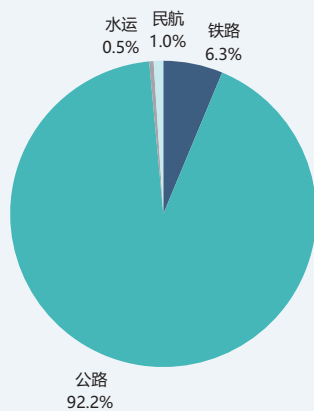


图 3.3 2023 年旅客运输量分布

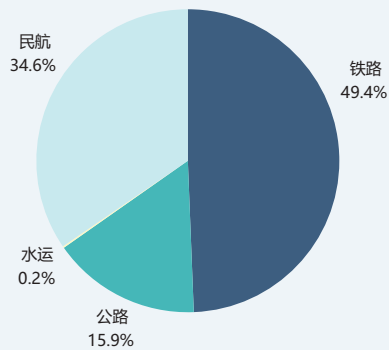


图 3.4 2023 年旅客周转量分布

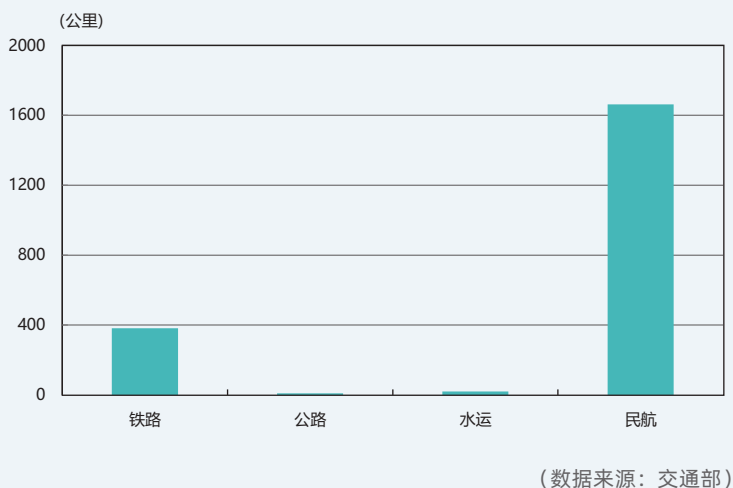


图 3.5 2023 年我国各种运输方式旅客运输平均运距

年规划高速铁路网规模达 3.8 万公里。高铁的开通将分流部分航空旅客，经验数据显示，高铁和航空运行时差在 1 个小时左右，高铁将分流 80% 以上的航空旅客；时间差在 2 个小时左右，高铁将分流约 45% 的旅客；时间差在 3 个小时左右将分流约 25% 的旅客。虽然高铁对运距 1000 公里以下的民航短途客流分流明显，但随着“空铁联运”模式的发展和不断推广，铁路航空合作运营一定程度上增强了民航机场的区域辐射效应。

#### （四）航空运输政策法规

2021 年，国务院印发《国家综合立体交通网规划纲要》，提出到 2035 年，基本建成便捷顺畅、经济高效、绿色集约、智能先进、安全可靠的现代化高质量国家综合立体交通网，实现国际国内互联互通、全国主要城市立体畅达、县级节点有效覆盖，有力支撑“全国 123 出行交通圈”（都市区 1 小时通勤、城市群 2 小时通达、全国主要城市 3 小时覆盖）和“全球 123 快货物流圈”（国内 1 天送达、周边国家 2 天送达、全球主要城市 3 天送达）。

2024 年，民航局发布了《新时代新征程谱写交通强国建设民航新篇章行动纲要》，提出到 2035 年，实现从单一的航空运输强国向多领域的民航强国跨越，人均航空出行次数超过 1 次，民航旅客周转量在综合交通中

的比重超过 1/3。到本世纪中叶，实现由多领域的民航强国向全方位的民航强国跨越，全面建成保障有力、人民满意、竞争力强的民航强国。

2023 年财政部、民航局对《支线航空补贴管理暂行办法》进行了修订，新办法补贴方式进一步优化，补贴导向更加明确，政策效果将会更加明显，将有利于提升偏远及特殊地区航空服务水平，保障这些地区人民群众基本出行。

根据 2024 年民航发展基金相关补贴资金预算方案，2024 年民航局将对中国 161 座中小机场补贴共计 18 亿元，补贴机场数量减少 19 座，补贴额同比增长 1.1%，反映出国家对中小机场补贴的集中度和精准度不断提升，有利于促进行业健康发展。



# 4

## 民用客机 中国市场预测

### (一) 中国经济发展预测

当前，中国经济已经从高速增长进入到高质量发展的阶段。按照党的二十大部署，2035年中国基本实现现代化，人均GDP将超过2.5万美元。虽然中国短期内面临错综复杂的经济环境，但是在稳投资、扩内需、促进民营经济发展等一系列利好政策的推动下，在“双循环”新发展格局下，中国经济仍将长期保持稳定增长。根据对中国经济发展形势的分析和权威机构、行业专家对中国经济增长潜力和前景的分析与预测，预计2024~2043年间，中国GDP年均增速将保持在4.7%。

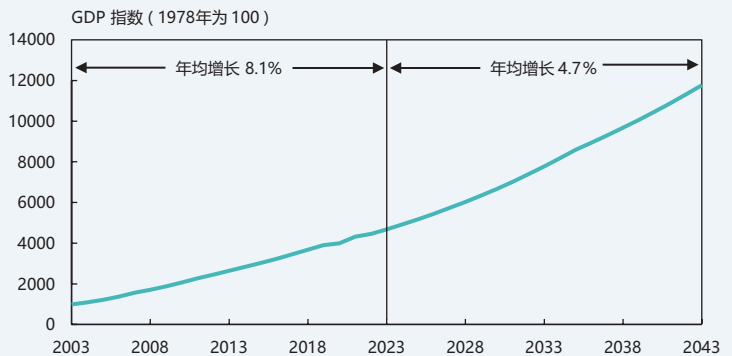


图 4.1 中国 GDP 指数走势

### (二) 航空客运周转量预测

2023年，旅游业和商务出行快速复苏成为中国航空运输市场发展的主要推动力，全年共完成旅客周转量10308.98亿人公里，同比增长163.4%。国内民航客运市场创新高，内地航线完成客运周转量8985.91亿人公里，是上年同期的2.4倍，已经超越2019年的水平。受国际局势动荡的不利因素影响，国际

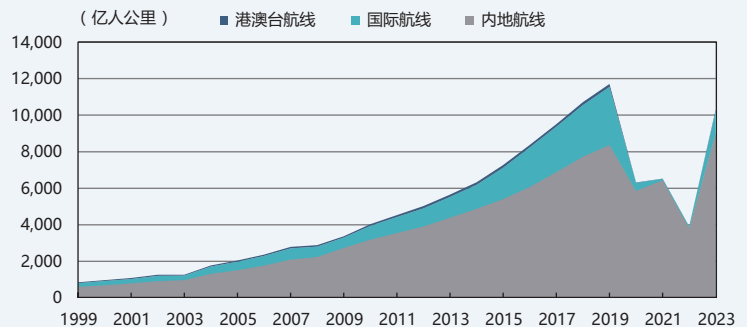


图 4.2 中国航空客运周转量增长情况

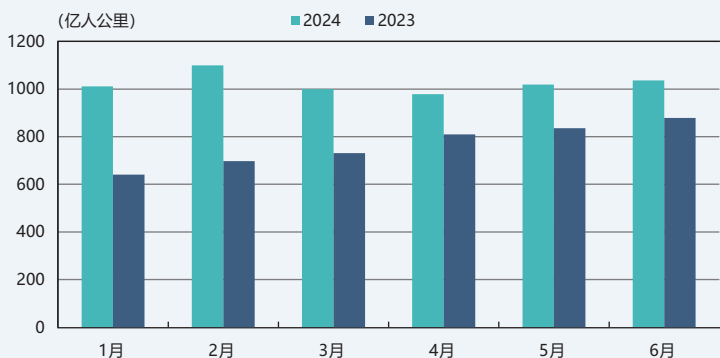


图 4.3 上半年中国航空客运月度周转量 (2024 年和 2023 年对比)

表 4.1 中国航空客运周转量预测

年份	RPK 年均增长速度	期末 RPK 值 (亿人公里)
2024 ~ 2028	6.67%	14236
2029 ~ 2033	6.35%	19366
2034 ~ 2038	5.24%	24995
2039 ~ 2043	5.05%	31971

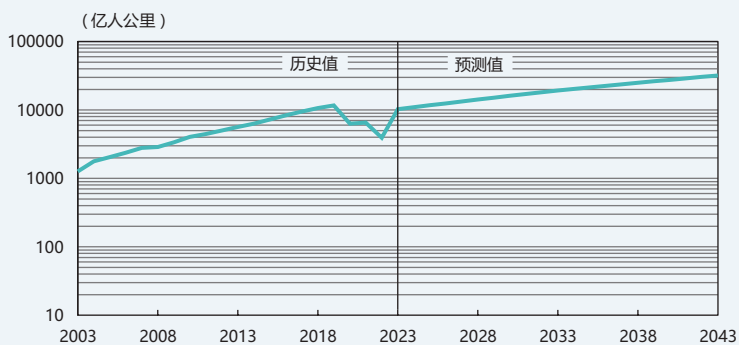


图 4.4 中国航空客运周转量预测

航线恢复不及预期，2023 年共完成旅客周转量 1129.52 亿人公里，仅相当于十年前的水平。2023 年港澳台航线实现触底反弹，年客运周转量为 93.55 亿人公里，仅相当于 2010 年的水平。

2024 年上半年，中国民航业展现出强劲的恢复势头，国内航线完成旅客运输 3.2 亿人次，较 2019 年同期增长 12.4%；国际航线完成旅客运输 2967.3 万人次，恢复至 2019 年同期的 81.7%。2024 年上半年，中国航空客运周转量相比上年同期增长 33.8%；月度客运周转量基本维持在 1000 亿人公里的水平，市场显现出强健的韧性。

预计 2024~2043 年，中国航空客运市场将继续保持增长，但增速呈下降趋势，未来 20 年客运周转量 (RPK) 年均增长率将达到 5.82%，到预测期末客运周转量将接近 3.2 万亿人公里。

### (三) 航线分析

2023 年，中国内地航线旅客周转量占航空总周转量的 87.2%，较上年下降近 10 个百分点，但是仍处于历史高位。2023 年，中国内地航线窄体客机提供的运力占比达到 86.6%，其中 A320 系列客机提供的运力占窄体客机总运力的 55.6%，比 B737 系列客机高 12 个百分点。宽体客机为中国内地航线提供了 12.5% 的运力，其中 47.9% 由空客 A330 机型提供。支线

客机只提供了约 1% 的运力。目前中国内地的航空运输市场发展极不平衡，随着市场需求不断扩大，一线城市大客流航线机场拥堵、容量饱和等问题将愈加严重，未来将迫使航空公司采用更大座级的机型来增加运力。随着国产 ARJ21 飞机的批量交付，预计未来中等流量和低客流量航线支线客机的使用比例将会提高。

2023 年，中国国际航线旅客周转量占航空总周转量的 11.9%，虽然较上年实现了大幅增长，但是与 2019 年的占比水平还存在较大差距。中国与亚太、欧洲和中东之间的运力占国际航线运力的前三位，分别为 52.2%、29.3% 和 9.1%，中国与北美航线运力占比仅为 4.6%，与 2019 年存在巨大差距。2023 年，中国国际航线 73.3% 的运力由宽体客机提供，其中 200 座级宽体客机提供了宽体客机 51.4% 的运力，300 座级飞机提供了宽体客机 43.7% 的运力。未来随着跨太平洋航线运力的回升，航程更长的 300 座级飞

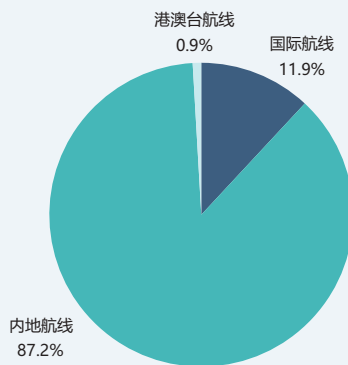


图 4.5 2023 年中国各类航线客运周转量占比

机的使用比例将会提高。

2023 年，中国港澳台航线旅客周转量占航空总周转量的 0.9%，虽然实现了触底反弹，但是与 2019 年的占比水平还存在较大差距。2023 年窄体客机提供了 60.4% 的运力，200 座级宽体客机提供了 31.7% 的运力。未来随着运力需求的不断扩大，港澳台航线将仍然以窄体客机和 200 座级宽体客机为主要运营机型。

## （四）客机需求量预测

### 1. 客机运力需求预测

随着疫情影响逐渐消退，2023 年中国民航运输业开启了全新的发展局面，飞机平均日利用率和正班客座率双双大幅回升，在册运输飞机平均日利用率相比上年增加 3.77 小时，平均正班客座利用率相比上年提升 11.3 个百分点。未来随着客运量的持续提升，飞机日利用率和航班客座率都将逐步恢复至疫情前的合理水

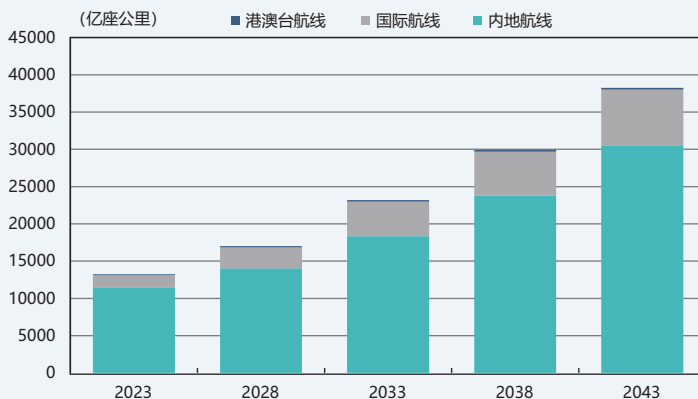


图 4.6 中国航空客运市场运力预测

平。为了满足不断增长的民航运输市场需求，预计到 2043 年中国航空客运市场运力将超过 3.8 万亿座公里，其中内地航线运力需求为 3.1 万亿座公里，国际航线运力需求为 7400 亿座公里，港澳台航线运力需求为 237 亿座公里。

## 2. 机队构成分析

目前中国航空客运市场的航线网络结构决定了运营的机型主要以窄体客机为主，该类飞机适用于中等客流量航线，主要应用于构筑国内干支线网络，国内部分地区门户机场至香港、澳门乃至临近亚洲国家客流量不大的地区和国际航线。得益于国内市场需求的快速增长，未来中国市场将继续维持以中型窄体客机为主的机队结构。

未来随着国际航线的进一步恢复，以及国内大流量市场对宽体客机需求的增长，中国宽体客机机队将明显扩大。

目前全球市场上 A321neo 的延程版本 (LR) 和超远程版本 (XLR) 广受欢迎，相较于航程相近的小型宽体客机拥有更低运营成本 and 更强的航线适应性，但截至 2023 年底，中国航司还没有订购 A321neo 长航程型，其主要原因是中国航线结构是以国内中短程航线、面向东南亚的中程航线和面向欧美的远程航线为主，8000km 左右的中远程航线占比很小，与欧美等国以跨大西洋航线为主的航线结构存在较大差异。

中国拥有大量客流量少、航班频率低的航线，目前这些航线的运营机型主要以窄体客机为主，随着国产 ARJ21 的持续交付和产能提升，未来这些航线有望采用更多的支线客机以提高航班客座率，中国支线客机机队的规模将逐步扩大。预测期内中国将兴建更多中小机场，新开航线和枢纽辐射式航线网络的不断完善也将促进中国支线航空的发展。

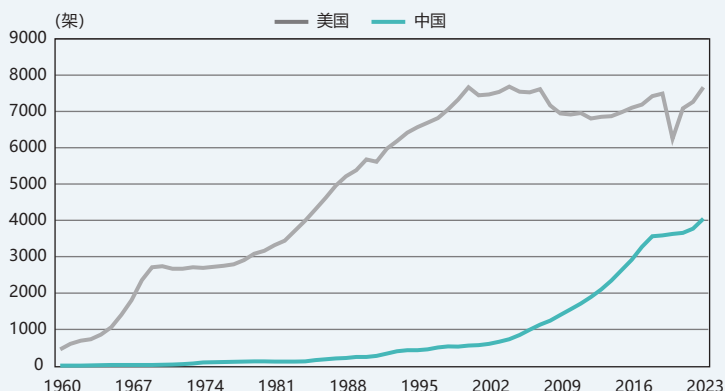


图 4.7 中美干支线客机机队走势对比 (架)

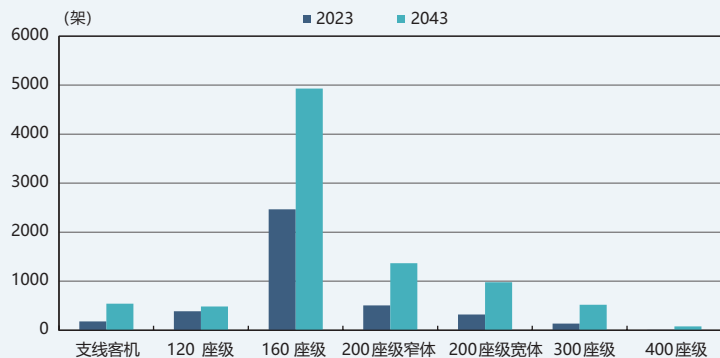


图 4.8 客机机队规模预测

## 3. 客机机队规模预测

近 20 年来，中国民航机队规模年均增速高达 9.5%。纵观美国民航机队的发展，机队规模在经过几十年的快速增长之后，到 2000 年趋于饱和，之后机队规模始终没有突破 8000 架。

当前中国经济已经进入高质量发展阶段，民航市场发展趋于成熟，机队规模增长曲线将与美国等成熟市场类似，增速逐渐趋于平缓，飞机退役的替代需求将逐渐成为市场需求的主要来源。中



国的国土面积与美国相当，人口规模远超美国，中国地面交通更为发达。综合分析，推算中国航空运输机队规模的上限可能会接近 1 万架。

预计到 2043 年，中国客机机队规模将达到 8905 架，其中宽体客机 1577 架，窄体客机 6787 架，支线客机 541 架。

#### 4. 飞机退役预测

航空公司为了提升竞争力需要采购新机型淘汰老旧飞机，目前中国市场客机机队平均机龄为 8.8 年，根据不同级别飞机不同机龄段退役比例测算，预计未来 20 年中国将有 3386 架客机退役，其中宽体客机退役 442 架，窄体客机退役 2820 架，支线客机退役 124 架。

#### 5. 飞机需求量预测

预计 2024~2043 年间，为满足运量增长和替换退役飞机需求，中国市场将需要补充 8278 架客机，其中 59.1% 用于满足运量增长，40.9% 用于替换退役飞机。

预计未来 20 年，宽体客机需求量为 1546 架，窄体客机需求量为 6246 架，支线客机需求量为 486 架。需求量最大的为 160 座级干线飞机，其需求量占飞机总需求量的 56.2%。

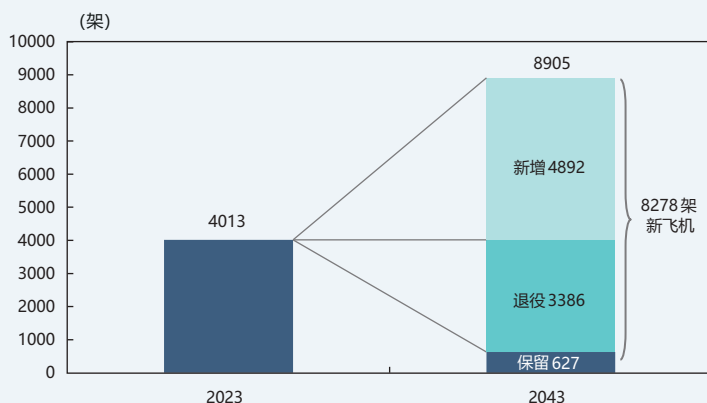


图 4.9 客机需求量预测 (2024~2043 年)

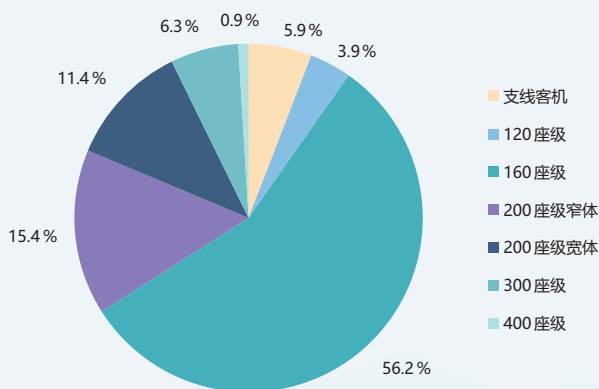


图 4.10 各座级客机需求量预测 (2024~2043 年)



# 民用货机 中国市场预测

## (一) 中国航空货运发展现状

### 1. 2023 年航空货运市场情况

2023 年，中国完成货邮周转量 283.6 亿吨公里，同比增长 11.6%，比 2019 年增长 7.8%。其中，内地航线完成 68.6 亿吨公里，同比增长 31.2%；国际航线完成 213.2 亿吨公里，同比增长 5.6%；港澳台航线 1.84 亿

吨公里，同比增长 6.1%。

2023 年全年中国航空货邮运输量仅比疫情前 2019 年减少 2.4%，但从 2023 年下半年开始，中国航空货邮月度运输量全面超过了 2019 年同期水平，反映出中国航空货运市场已恢复到疫情前水平。

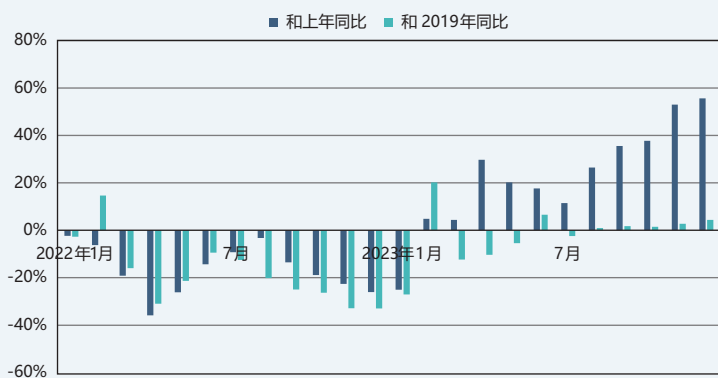


图 5.1 航空货邮运输量月度增长情况

### 2. 航空货运市场分布情况

从机场货邮吞吐量数据来看，各地区均实现了大幅增长。2023 年东部地区完成货邮吞吐量 1206.79 万吨，同比增长 12.8%；中部地区完成货邮吞吐量 151.54 万吨，同比增长 20.3%；西部地区完成货邮吞吐量 266.75 万吨，同比增长 24%；东北地区完成货邮

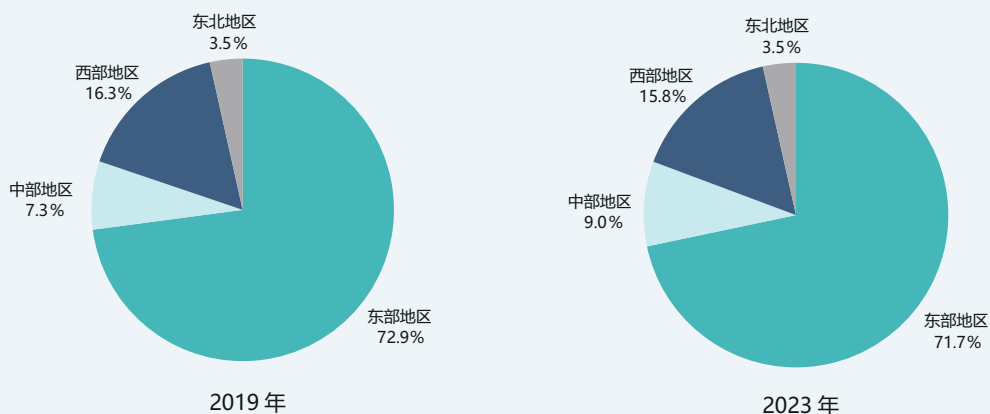


图 5.2 民用机场货邮吞吐量地区分布变化

吞吐量 58.22 万吨，同比增长 37.8%。与 2019 年相比，东部和西部地区比例小幅下降，中部地区比例明显提升，但东部地区仍占有绝对优势。

2023 年，年货邮吞吐量 1 万吨以上的运输机场 63 个，比上年增加 12 个，超过了 2019 年的 59 个，共完成货邮吞吐量占全国机场的 98.7%，比上年增加 0.2 个百分点。其中，北京、上海和广州三大城市机场货邮吞吐量占全部境内机场货邮吞吐量的 42.7%，比上年下降 0.6 个百分点。

### 3. 航空公司货运完成情况

截至 2023 年底，中国共有全货运航空公司 11 家，共完成货邮运输量 265.6 万吨，同

表 5.1 航空货邮吞吐量 1 万吨以上的数量和占比

年份	机场数量 (个)	吞吐量占全国比例
2010	47	98.8%
2019	59	98.4%
2023	63	98.7%

比增长 17%，占中国航空货邮运输量总额的 36.1%。年货运规模在 100 万吨以上的航空公司有 6 家，货运总规模超过 230 万吨，占全货运公司总运输量的 90%。2023 年，顺丰航空有限公司年货邮运输量规模最大，占全货运公司总运输量的 36%。

表 5.2 全货运航空公司及运量情况 (吨)

航空公司	2023 年货邮运输量	2022 年货邮运输量
中国货运航空有限公司	602689.1	491087.0
中国国际货运航空股份有限公司	381962.7	341091.9
顺丰航空有限公司	956462.6	895092.5
中国南方航空货运有限公司	137654.5	70472.6
中州航空有限责任公司	136699.4	67656.8
杭州圆通货运航空有限公司	82449.3	101248.1
中国邮政航空有限责任公司	166636.0	177925.5
中原龙浩航空有限公司	91398.5	67470.0
天津货运航空有限公司	51000.4	43338.7
江苏京东货运航空有限公司	34318.3	2620.4
西北国际货运航空有限公司	14912.0	12021.8

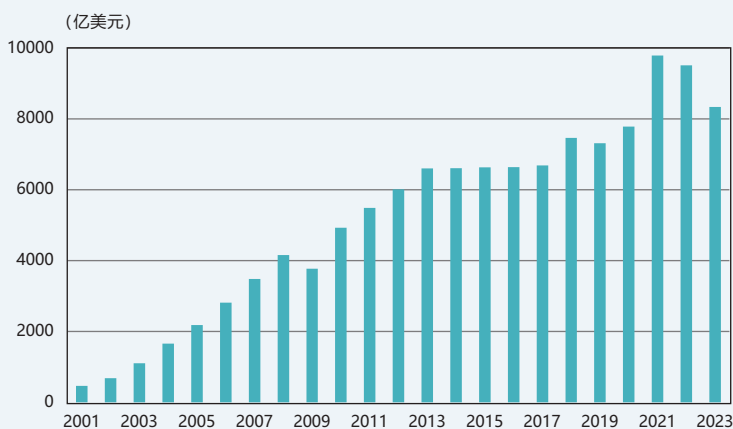


图 5.3 2001~2023 年高新技术产品出口额

表 5.3 2023 年中国快递行业发展情况

名称	单位	完成情况	增速
快递业务收入	亿元	12074.0	14.3%
快递业务总量	亿件	1320.7	19.4%
其中：同城	亿件	136.4	6.6%
异地	亿件	1153.6	20.5%
国际 / 港澳台	亿件	30.7	52%

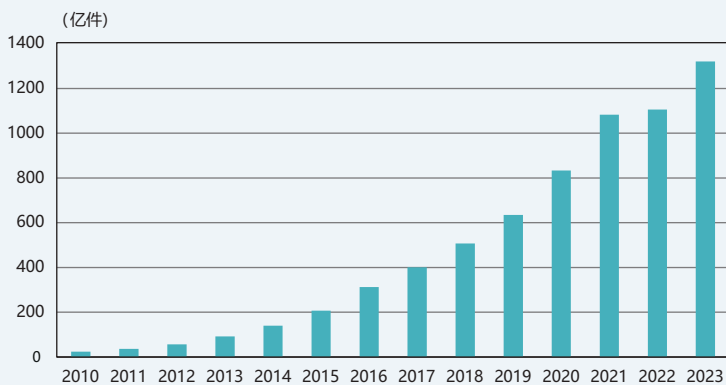


图 5.4 2010~2023 年中国快递业务量

## (二) 航空货运的发展环境

### 1. 我国外贸进出口增速放缓

2023 年，面对复杂严峻的国际环境，中国制造业和外贸进出口增速明显放缓，全年货物进出口 41.76 万亿元，同比增长 0.2%。其中，出口 23.77 万亿元，增长 0.6%；进口 17.98 万亿元，下降 0.3%。2023 年，中国高新技术产品进出口额为 10.7 万亿元，相比上年下降显著，进口额和出口额分别下降 5.2% 和 5.8%。

虽然中国外贸进出口的增长面临较大的压力，但中国经济韧性强、潜力大、活力足，长期向好的基本面依然不变，随着中国经济结构转型，适合空运的高附加值产品所占比例会逐步增加，对新兴市场的出口将会有较快增长，这些新变化都有利于未来中国航空货运的发展。

### 2. 中国快递行业保持稳定增长

2023 年，中国快递服务企业业务量累计完成 1320.7 亿件，同比增长 19.4%；业务收入累计完成 12074.0 亿元，同比增长 14.3%。年快递业务量净增 214.9 亿件，日均业务量超过 3 亿件，快递业务规模再创历史新高。

2023 年同城、异地和国际 / 港澳台三项业务的业务量增速分别为 6.6%、20.5% 和 52%，与上年相比均实现了增长，特别是异地快递业务和国际 / 港澳台快递业务增速很高，反映出中国快递行业仍有较大的增长潜力。



### 3、中国现代物流业持续增长

2023年，中国物流运行环境持续改善，行业整体恢复向好，物流供给质量稳步提升，多式联运、航空货运等协同高效物流服务全面发展。2023年全国社会物流总额为352.4万亿元，同比增长5.2%，增速比2022年全年提高1.8个百分点，物流需求规模再上新台阶，实现稳定增长。

进入新发展阶段，中国协同推进强大国内市场和贸易强国建设，贯通升级生产、分配、流通、消费等环节，着力构建以国内大循环为主体、国内国际双循环相互促进的新发展格局，生物制药、高端电子、精密设备等战略新兴产业加速发展，物流业将通过数字化改造等创新手段，加快形成内外联通、安全高效的物流网络，促进产业升级。航空货运是现代物流业的重要组成部分，随着中国物流业的快速增长，对航空货运的需求也会增加，未来将持续优化航空网络布局，不断推进货运网络拓展和大型货运枢纽建设。

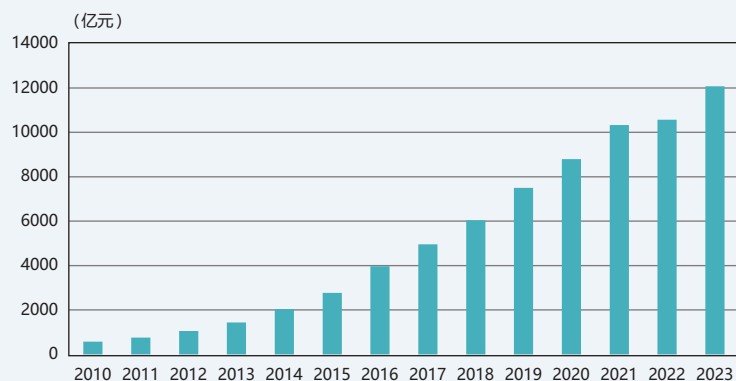


图 5.5 2010~2023 年中国快递业务收入

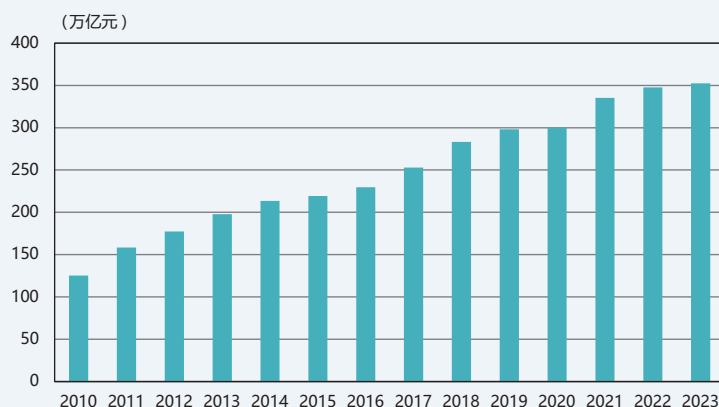


图 5.6 2010~2023 年全国社会物流总额



### (三) 航空货运周转量预测

#### 1. 中国航空货运的发展潜力

1990年以来,随着国内货运航空公司的成立,中国航空货运得到了快速发展。1990~2010年航空货邮运输周转量的平均增长率为19.2%,增长速度略高于客运的增长,航空货邮运输周转量占航空总周转量的比例2010年达到33.2%。由于国内外经济环境的影响,中国外贸进出口增幅放缓,影响了国际航空货运的需求,2011~2012年航空货运连续两年下降。2013年航空货运开始恢复增长,2012~2019年航空货邮运输周转量的平均增长率为7%,增长速度低于客运的增长;

2020~2022年受新冠疫情影响,航空货邮运输周转量出现了大幅震荡,直到2023年,中国航空运输业迎来全面复苏。

2024年以来,中国航空货运量保持快速增长趋势,总体规模达到历史最好水平,国内市场持续增长,国际市场表现亮眼,国际货运航班保持高位运行。全国共计新开通国内货运航线16条,国际货运航线74条,货运航线布局逐步完善。2024年上半年,中国航空货邮周转量累计完成164.2亿吨公里,同比增长29.7%。

虽然中国航空货运业已初具规模,形成了货运舱位、地面设施、专业人员、管理规章和货运代理为一体的航空货运体系,但2023年

航空货运周转量在国家综合交通体系中的占比仅为0.114%,总体上还处于比较低的发展水平,发展潜力很大。

#### 2. 航空货邮周转量预测

长期来看,国家经济的发展是促进航空货运增长的主要因素。通过对历史统计数据的研究表明,中国航空货运周转量和国民生产总值(GDP)密切相关。尽管当前全球局势动荡,中国经济发展面临新的困难和挑战,但中国经济稳中向好的发展趋势没有改变。《国家综合立体交通网规划纲要》提出到2035年要建成“全球123”快物流圈,国内1天送达、周边国家2天送达、全球主要城市3天送达。随着中国航空物流体系逐步完善,具有国际竞争力的航空物流企业成长壮大,国际航空物流网络更加健全,综合保障能力持续提升,中国航空货运市场将进入稳定增长期。

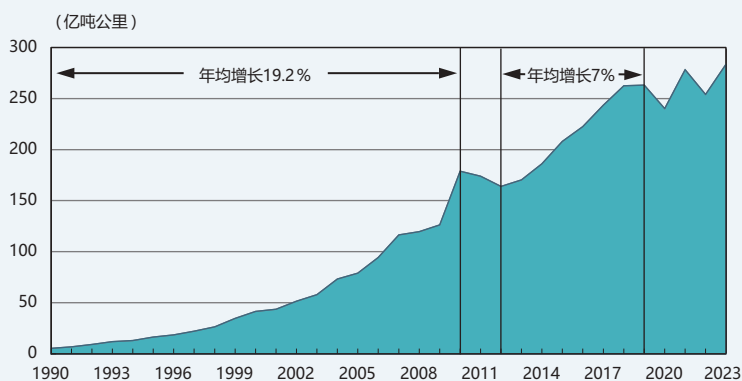


图 5.7 1990~2023 年中国航空货邮周转量增长情况

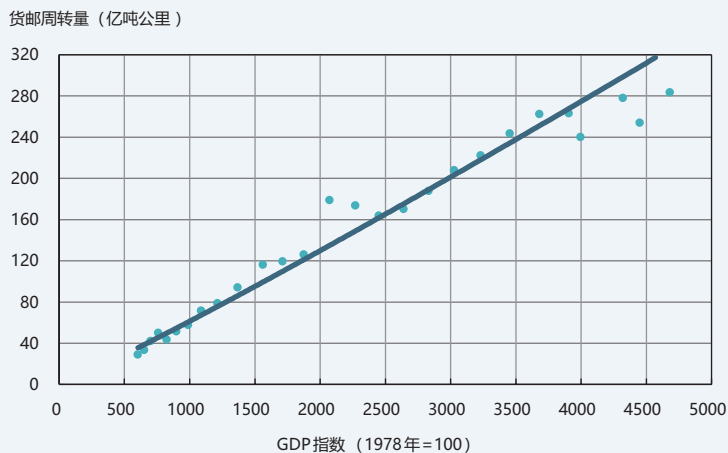


图 5.8 航空货邮周转量与 GDP 的关系

在综合分析各种影响因素的基础上，预计未来 20 年中国货邮周转量年均增长率为 4.6%，其中 2024~2033 年为 5.5%，2034~2043 年为 3.7%。2043 年航空货邮周转量将达到 700 亿吨公里。

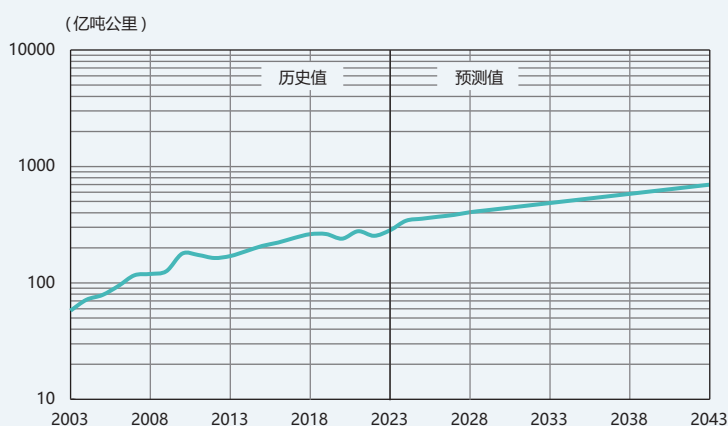


图 5.9 中国航空货邮周转量预测 (2024~2043 年)

## (四) 中国民用货机机队预测

### 1. 民用货机机队现状

2023 年末，国内航空公司共拥有各型货机 257 架，比上年增加了 34 架。其中大

型宽体货机相比上年增加 7 架，中型宽体货机相比上年增加 9 架，窄体货机相比上年增加 18 架。窄体货机在国内货机机队的占比为 63.4%，相比上年下降 1.6 个百分点。

表 5.4 2023 年末中国货机机队情况

货机类型	机型	2023 年末 (架)	2022 年末 (架)
大型宽体货机	B747-400F	13	13
	B777F	44	37
	小计	57	50
中型宽体货机	A330F	6	3
	B767-300F	25	19
	A300-600F	6	6
	小计	37	28
窄体货机	B757-200F	70	67
	B737F	89	77
	A320F	1	-
	ARJ21-700F	2	-
	MA600F	1	1
	小计	163	145
合计		257	223

## 2. 货机机队预测

航空货邮运输主要由客机腹舱和全货机来承担，客机腹舱载货是一种成本低廉的货运方式，但航班的时间安排、空运物品的种类和规格都会受到限制。相较于客机腹舱，全货机虽然成本较高，但单机运量大，时效性强，更有利于灵活规划航班时刻。

2023 年全货机完成货运周转量 176.6 亿吨公里，占全部航空货运的比例为 62.3%，比上年增长 4.2 个百分点。为了满足用户对更快、更及时和更可靠的航空货运服务需求，长远来看全货机完成的货运比例将会保持稳

定并小幅上升，预计 2043 年将保持在 65% 左右。

目前中国货机机队规模不大，结构不合理，制约了中国航空货运的发展。随着未来航空货运的发展，中国货运航空公司需要构建内连外通的航空网络，加快建设干线与支线、长途与中短途航空运输相结合的航空网络，提升航空网络通达性和中转衔接，拓展国际货运航线，逐步打造辐射全球的国际快递航空网。为了满足未来中国货运市场发展对全货机运力的需求，未来 20 年中国货机机队规模将会有很大增长，并将形成大小搭配，比例合理的货机机队结构。预计到 2043 年，中国民航货机机队规模将达到 621 架，其中大型货机 151 架，中型宽体货机 179 架，窄体货机 291 架。

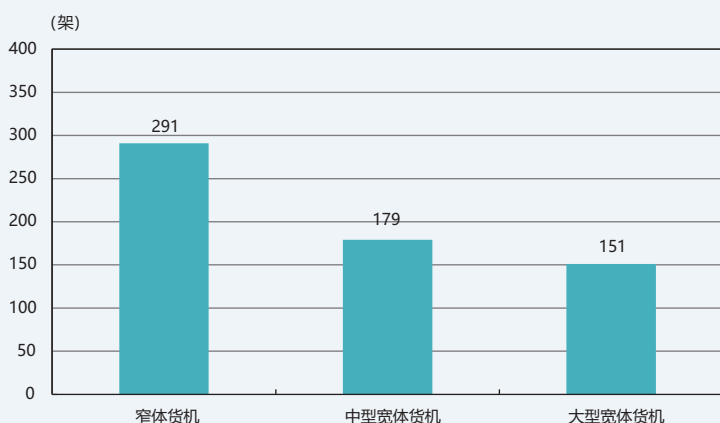


图 5.10 中国民航货机机队预测 (2043 年)

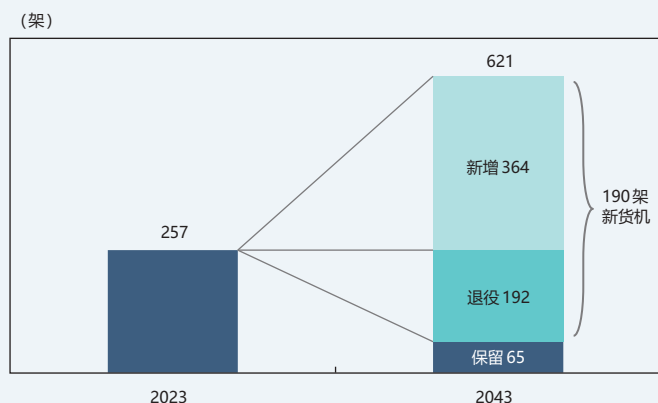


图 5.11 中国市场货机需求量预测 (2024~2043 年)

## 3. 货机退役预测

目前中国货机的平均机龄为 21.2 年，根据不同级别飞机不同机龄段退役比例测算，预计未来 20 年中国将有 192 架货机退役，其中大型宽体货机退役 26 架，中型宽体货机退役 32 架，窄体货机退役 134 架。

## 4. 货机需求量预测

预计 2024~2043 年间，为满足运量增长和替换退役飞机需求，中国市场将需要补充 556 架货机，其中 65.8% 来自于客机改货机，34.2% 为新货机需求。





# 民用飞机 全球市场预测

## （一）全球航空运输市场现状

2023 年，全球航空运输业进一步复苏，主要运营指标显著改善，全行业净利润扭亏为盈。2024 年以来，行业发展继续持续向好，主要运营指标已经恢复至疫情前的水平。

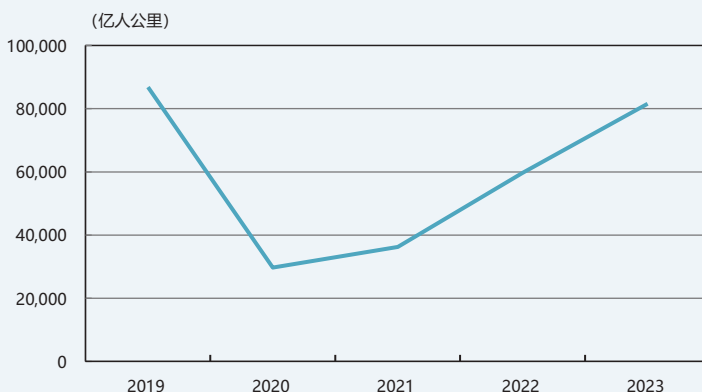


图 6.1 全球航空客运周转量恢复情况

### 1. 航空客运市场

#### （1）旅客运量

2023 年，航空旅行的强劲需求继续推动着全球航空客运市场的复苏，旅客运量进一步增长，较 2022 年增长 29.0%，达到 44.97 亿人次，达到 2019 年 99.0% 的水平。

全球航空客运周转量（RPKs）8.16 亿人公里，较 2022 年增长 38.4%，恢复到 2019 年 95.2% 的水平，较 2022 年 68.8% 的恢复水平有了大幅提升。其中，国内航线客运周转量在 2023 年创下新高，较 2022 年增长 30.4%，较 2019 年增长 3.9%，超过了疫情前的水平；国际航线客运量呈现稳定而强劲的增长，客运周转量较 2022 年增长 41.6%，但仍然只恢复到 2019 年 88.6% 的水平。

从各地区情况来看，2023 年只有北美和拉美地区客运周转量超过了 2019 年，增幅分别为 2.4% 和 0.4%；其他地区均较疫情前有

差距，其中亚太地区客运周转量较 2019 年低 14%，非洲、欧洲和中东地区分别较 2019 年低 6.6%、4.8% 和 1.9%。

2024 年，全球航空客运量继续保持增长。2 月份旅客运输人次已恢复到 2019 年的水平。2024 年上半年，全球航空旅客周转量同比增长 11.6%。

#### （2）客机运力

2023 年，全球航空旅客运力（ASK）同比增长 33.0%，达到 2019 年 94.4% 的水平。2024 年上半年，ASK 同比增长 11%。

### 2. 航空货运市场

在全球经济低迷形势的影响下，全球跨境贸易的新增出口订单整体萎缩，对航空货运需求造成了不利影响。2023 年，全球航空货运周转量（CTKs）2460 亿吨公里，较 2022

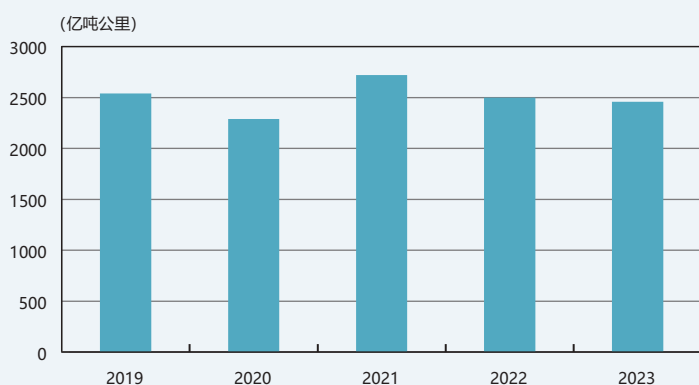


图 6.2 全球航空货运恢复情况

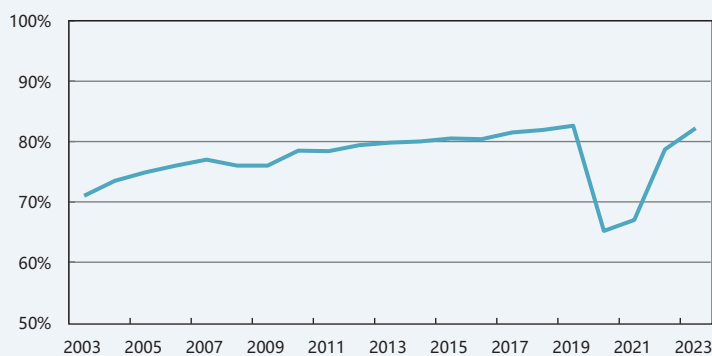


图 6.3 全球定期航班平均客座率变化趋势

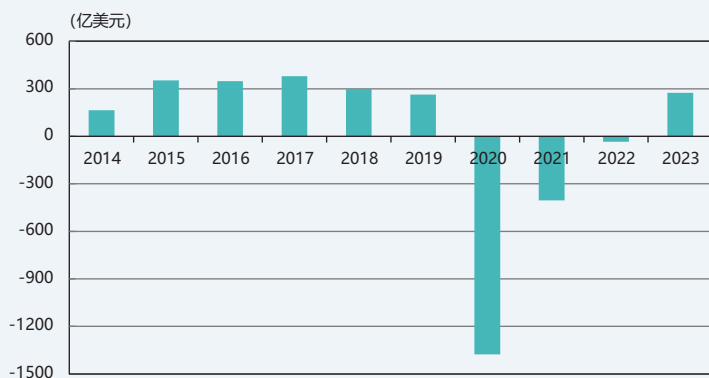


图 6.4 全球民用运输业净利润情况

年减少 1.9%，较疫情前减少 3.6%。

2023 年航空货物运力 (ACTKs) 较 2022 年增长 11.3%，较 2019 年增长 2.5%。

### 3. 客座率与货物载运率

2023 年，行业平均载运率恢复至 66.9%，但较疫情前 70.5% 的载运率水平仍有 3.6 个百分点的差距。

2023 年，行业平均客座率提升到 82.2%，接近疫情前 82.6% 的客座率水平。2024 年 7 月，行业平均客座率达到 86% 的历史最高值，反映了航空旅行需求的强劲态势。

2023 年，行业平均货物载运率 (CLF) 44.2%，较 2022 年下降 5.9%，较 2019 年下降 2.6 个百分点。

### 4. 行业收入与盈利

2023 年，全行业收入达到 9080 亿美元，较上年增长 23.0%，较疫情前增长 8.4%。

2023 年，全球航空运输业终于走出疫情的重创，扭亏为盈，行业净利润 274 亿美元，较 2019 年增长 3.8%。行业经营利润率达到 5.7%。在运量、载运率以及飞机利用率增长的推动下，预计 2024 年行业收入水平将进一步提升，净利润将达到 305 亿美元。

从各地区来看，2022 年北美、欧洲和中东地区率先实现盈利，2023 年，这三个地区的盈利进一步增加，亚太、拉美和非洲等地区均摆脱了亏损看，实现盈利。

## 5. 燃油价格

2023 年全球航空运输业燃油成本为 1330 亿美元，同比下降 24%，燃油成本占运营成本的比重降为 20.6%，同比降低 3.5 个百分点。较低的油价和飞机燃油效率的提高为航空运输业创造了更高的利润，也为民航票价的降低提供了空间，从而刺激产生更多的航空出行需求。

地区冲突再度导致世界油价高企，且航空煤油价格与原油价格间的差距显著拉大，2022 年以来航油价格一直在 110 美元 / 桶以上的高位运行，航空公司引进燃油效率更高的新机型紧迫性再度呈现，2023 年全球客机退役量显著增加。从长期看，地缘政治因素的影响会继续存在，经济复苏也将推动原油需求增加，未来世界原油价格重回高位是必然趋势。航空公司依旧需要采取使用运力适当的飞机、引进燃油经济性更好的新机型以降低运营成本。

## 6. 环保要求

减少排放和降低噪音水平是航空公司必须

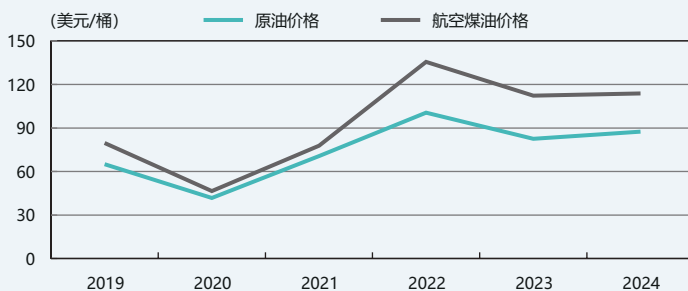


图 6.5 全球原油价格及航油价格变化

面对的越来越严苛的环保要求，根据国际民航组织（ICAO）的目标，在 2050 年前将碳排放量削减至 2005 年排放水平的一半。包括中国在内的主要国家已经将航空减排列入了重点日程，欧盟已在推行碳交易机制。对于航空公司，购买排放和噪音更低的新型飞机、换装更加节能环保的发动机、使用经济环保的航空生物燃料成为了主要的应对策略，老旧飞机由于难以满足新的环保要求和运营效率较低而不得不提前退役，涡桨支线客机在排放和噪音水平方面较涡扇支线客机占据一定的优势。



## (二) 全球客机需求量预测

### 1. 客运周转量预测

2024年，全球航空旅客运输业已经回归原有的发展轨道，预计全球航空客运周转量将达到9.1万亿吨公里，超过疫情前的水平。2024~2043年，预计全球航空客运周转量年均增速为4.8%，2043年将达到21.3万亿人公里。

供应链短缺等因素限制了全球客机产量，短期内全球旅客运力增长需求将继续推动行业客座率保持在高位。未来随着客机产量提升，运力短缺形势缓解，客座率将回落到正常水平。

随着飞机技术的发展，飞机在飞行速度、过站时间、维修间隔、出勤率等各方面的性能更加优越，从而具备更高的利用率和更强的运输能力。

### 2. 客座率和飞机利用率预测

2024年7月，全行业平均客座率已经超过2019年的水平，创历史新高。当前，全球

### 3. 飞机退役预测

油价、飞机排放、噪音水平、现有机队的运营成本以及航空公司运营策略调整都是影响飞机退役的重要因素，新型飞机的

问世也会加快老旧飞机的退役。但是疫情后全球供应链短缺情况的持续，对全球客机（特别是干线客机）的供应带来了显著的不利影响，导致近年来飞机退役延迟，退役数量减少。

综合分析各方面因素，预计2024~2043年全球将有1.9万架客机退役。

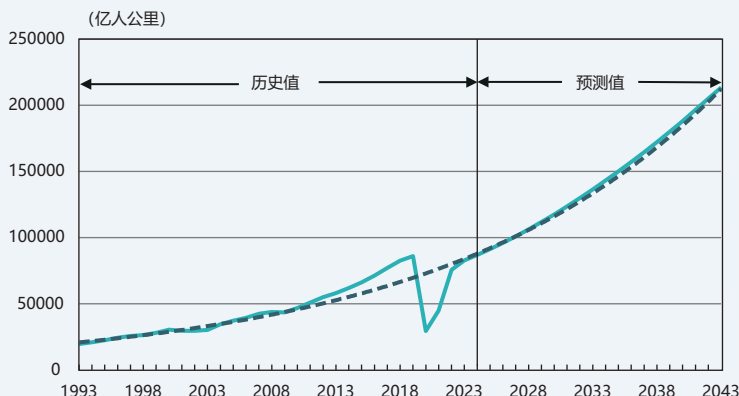


图 6.6 全球航空客运周转量预测 (2024~2043年)

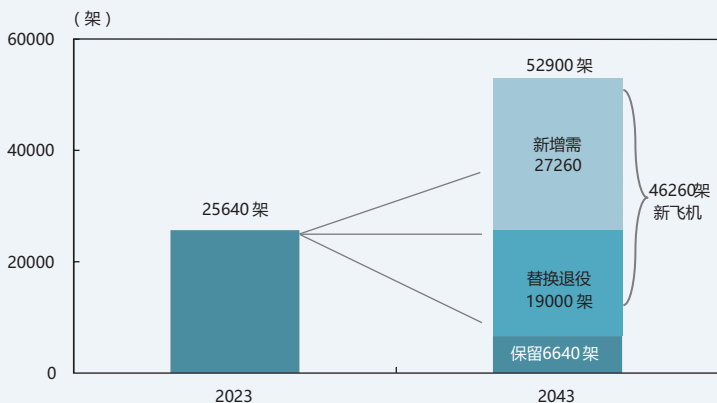


图 6.7 全球客机机队规模预测 (2043年)

### 4. 客机机队规模预测

到2043年，全球客机（≥30座级）在役机队规模将从2023年底的2.56万架增长到5.29万架，其中包括约4.56万架干线客机和7200架支线客机。

### 5. 客机需求量预测

2024~2043年，全球民用客机需求量约4.63万架，其中1.9万架用于替换退役飞机，2.73万架用



于满足运量增长的需求。未来 20 年，全球将需要干线飞机近 4.15 万架，其中，窄体客机 3.35 万架，宽体客机 7980 架；需要支线客机 3800 架，其中喷气支线客机 3500 架，涡桨支线客机 1300 架。

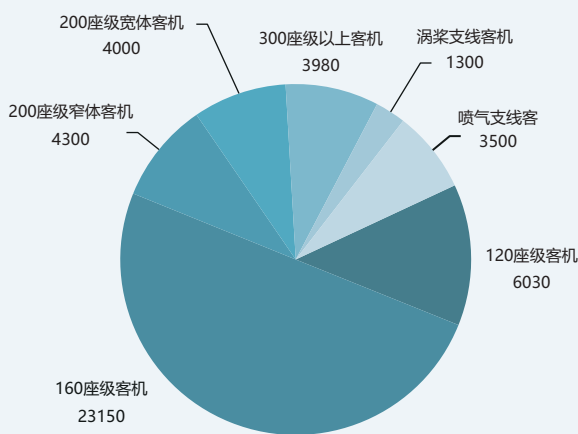


图 6.8 全球客机需求量预测 (2024~2043 年)

### (三) 全球货机需求量预测

尽管短期内受全球经济低迷的影响，全球航空货运量连续两年低于疫情前的水平，且 2024 年很可能仍然难以完全恢复，但从长期来看，国际贸易以及跨境电商物流将推动着航空货运市场实现增长。

#### 1. 货运周转量预测

航空货运与全球经济形势及国际贸易的发展密切相关。长期来看，全球经济将以年均 2.5% 的速度增长，国际贸易年均增速将达 2.9%。未来，随着全球经济形势好转，国际贸易恢复增长，在全球电子商务的快速发展，以及海鲜和鲜花等鲜活产品、医药和电子产品等高价值轻重量物品对快速和及时运输需求持续增长的推动下，预计 2024~2043 年全球航空货运市场将以年均 4.0% 的速度增长，到 2043 年全球航空货运周转量

将达到 5300 亿吨公里。

#### 2. 货机机队预测

客机腹舱载货是航空货运的重要方式，尤其是中型宽体客机，腹舱载货能力较强，为市场提供了重要的航空货运能力。但全货机可以在时间、线路上提供更好保障，而且装载能力更强，所以依然是航空货运市场的主角。未来 20 年，全货机完成的货运周转量将占航

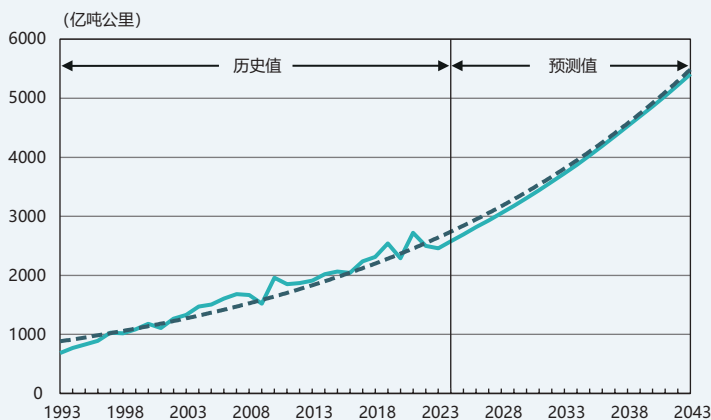


图 6.9 全球航空货运周转量预测 (2024~2043 年)

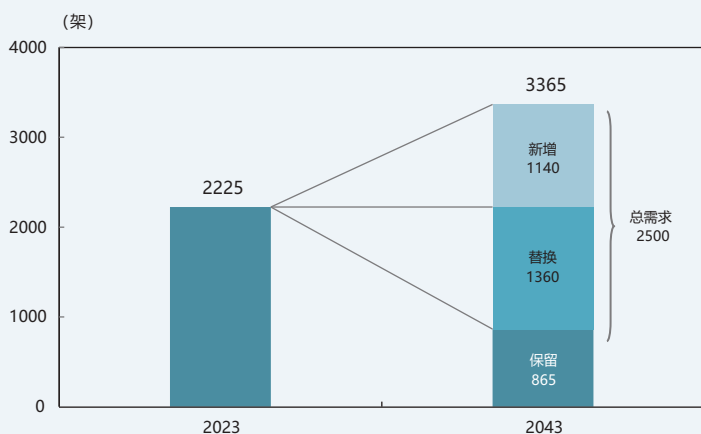


图 6.10 全球民用货机机队规模预测 (2043年)

空货运总周转量的 60% 以上。

预计到 2043 年，全球货机机队规模将达到 3365 架。

### 3. 货机退役预测

通常情况下货机服役年限较长。从中长期看，由于新型货机的运输能力和经济性都优于老旧机型，能够给航空公司带来更多的收益，航空公司往往会在飞机运营经济性和飞机更换成本之间寻求最优方案，以决定货机退役时机。综合分析，预计 2024 ~ 2043 年全球将有 1360 架货机退役。

### 4. 货机需求量预测

预计 2024~2043 年全球民用货机需求量将达到 2500 架，其中 1360 架用于替换退役飞机，1140 架用于满足运量增长的需求。

未来 20 年，窄体货机 (10~40 吨) 的需求量最大，为 1120 架，全部由客改货机来满足；中型宽体货机 (40~80 吨) 的需求量为 850 架，其中 500 架为新货机，350 架为客改货机；大型宽体货机 (>80 吨) 的需求量为 500 架，其中 420 架为新货机，80 架为客改货机。

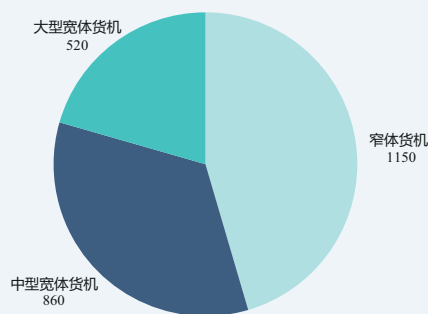


图 6.11 全球民用货机需求预测 (2024~2043年)



## 附表 1：中国民用客机机队规模和需求预测

座级	2023 年底机队	2043 年底机队	2024-2043 年 需求量
400 座级 ( ≥ 400 座 )	10	78	79
300 座级 ( 250-399 )	139	521	523
200 座级 ( ≤ 249 座 )	324	978	944
<b>宽体客机小计</b>	<b>473</b>	<b>1577</b>	<b>1546</b>
200 座级 ( ≥ 181 座 )	493	1370	1271
160 座级 ( 131-180 座 )	2405	4933	4655
120 座级 ( 101-130 座 )	378	484	320
<b>窄体客机小计</b>	<b>3276</b>	<b>6787</b>	<b>6246</b>
<b>支线客机小计</b>	<b>264</b>	<b>541</b>	<b>486</b>
<b>总计</b>	<b>4013</b>	<b>8905</b>	<b>8278</b>



# China Market Outlook for Civil Aircraft

2024 ~ 2043





# Overview

In 2023, China's air transport market achieved rapid growth, with the total transportation turnover of the whole industry reaching 118.83 billion ton-kilometers, rising by 98.3% on a year-on-year basis and returning to 91.9% in 2019. The passenger turnover was 1,030.90 billion person-kilometers, rising by 163.4% on a year-on-year basis and returning to 88.1% in 2019. The cargo and mail turnover was 28.36 billion ton-kilometers, rising by 11.6% on a year-on-year basis and it was about 1.1 times

that of 2019. With the rapid recovery of China's economy, Chinese civil aviation industry showed a strong growth momentum in the first half of 2024, and domestic and international routes achieved all-round growth. The development of commerce and tourism will remain the main driving force for the sustained growth of China's air transport market in the future. To meet the demand of the air transport market, the scale of China's air transport fleet will continue to grow.

After a comprehensive analysis of various factors, the main forecast results of China's air transport market in the next 20 years are as follows:

- It is estimated that the passenger turnover will be close to 3.2 trillion person-kilometers and the air cargo and mail turnover will reach 70 billion ton-kilometers by the end of 2043.
- The fleet scale of passenger plane of Airlines in China is estimated to reach 8,905 by the end of 2043, including 1,577 wide-body passenger planes, 6,787 narrow-body passenger planes and 541 regional passenger planes. The fleet scale of cargo plane fleet will reach 621, including 291 narrow-body cargo planes, 179 medium-sized wide-body cargo planes and 151 large wide-body cargo planes.
- 8,278 additional passenger planes are expected to be supplemented between 2024 and 2043 in China, including 1,546 wide-body passenger planes, 6,246 narrow-body passenger planes and 486 regional aircraft. What's more, 556 cargo planes require to be added, including 366 cargo planes converted from passenger planes and 190 new cargo planes.



Passenger at the end of the period (unit)	
By the end of 2023	4013
At the end of 2043	8905
Freighter fleet scale at the end of the period (unit)	
By the end of 2023	257
At the end of 2043	621
Passenger aircraft demand during the forecast period (frame)	
Wide-body airliner	1546
Narrow-body airliner	6246
Regional airliner	486
<b>Total</b>	<b>8278</b>
Cargo aircraft demand during the forecast period (unit)	
Converted passenger aircraft	366
New freighter	190
<b>Total</b>	<b>556</b>

\*Airlines from Hong Kong and Macao Special Administrative Regions and Taiwan province are not included in this forecast.





# Current Situation Analysis of China's Air Transport Market

## 1. Traffic Volume

### (1) Total Transportation Volume

The total turnover of air transport in China was 118.834 billion ton-kilometers in 2023, rising by 98.3% on a year-on-year basis, and the proportions of mainland China routes; Hong Kong, Macao and Taiwan routes and international routes were 72.1%, 0.8% and 27.1% respectively. Among them, the mainland China routes were 85.734 billion ton-kilometers, rising by 122.4% on a year-on-year basis; Hong Kong, Macao and Taiwan routes completed 999 million ton-kilometers, with a year-on-year growth rate of 334.2%; 32.101 billion ton-kilometers of international routes were completed, rising by 51.8% on a year-on-year basis.

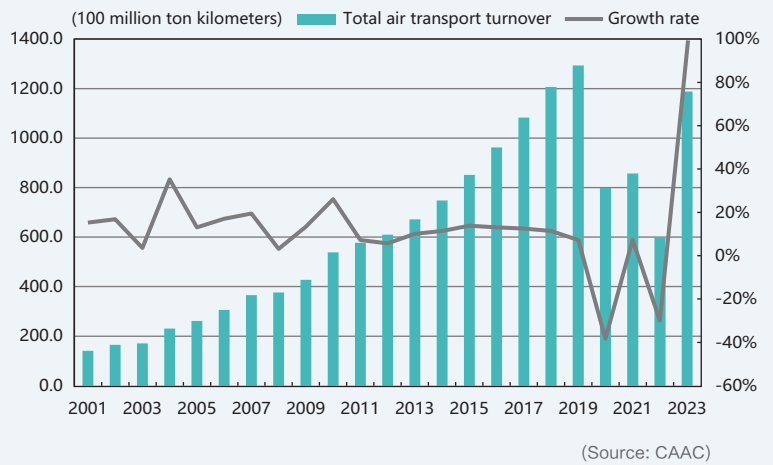


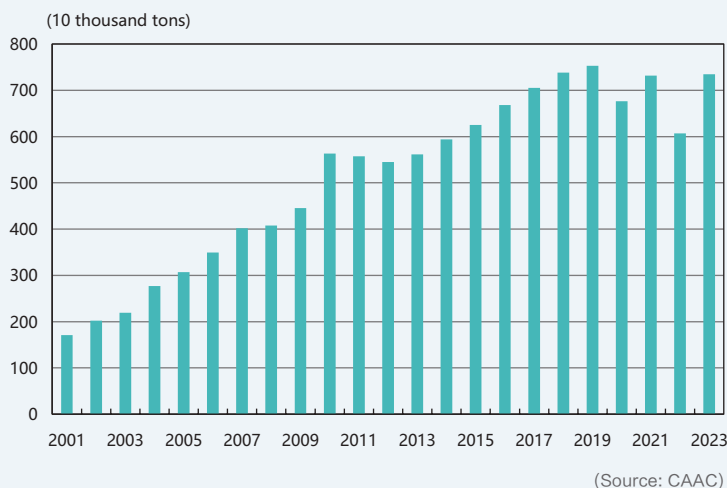
Figure 2.1 Growth of Total Air Transport Turnover in China

### (2) Passenger Volume

China completed 619 million air passenger trips, with a year-on-year growth rate of 146.1% in 2023. Among them, mainland China routes completed 584 million air passenger trips, with a year-on-year growth rate of 136.3%; Hong Kong, Macao and Taiwan routes completed 6.684 million air passenger trips, with a year-on-year growth rate of 13.24.7% and international routes completed 29.059 million air passenger trips, with a year-on-year growth rate of 1461.7%. According to the proportion of passenger volume on different routes, the proportions



Figure 2.2 Growth of Air Cargo Volume in China



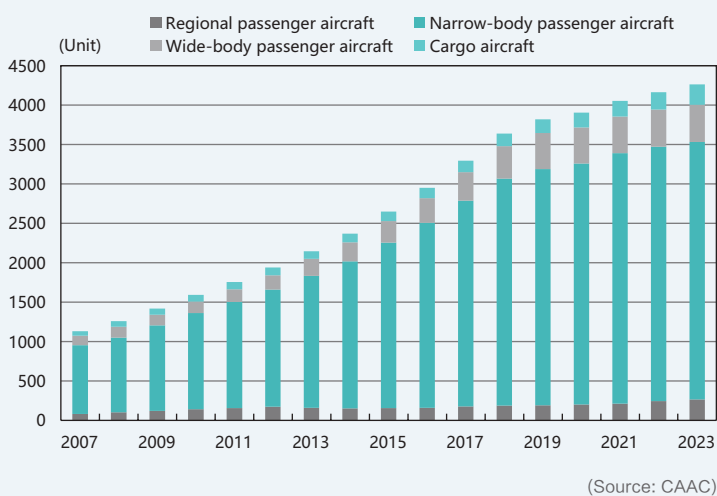
**Figure 2.3 Growth of Air Cargo Volume in China**



of mainland China routes, international routes and Hong Kong, Macao and Taiwan routes are 95.18%, 4.8% and 0.02% respectively. The passenger turnover in China reached 1.03 trillion person-kilometers, increasing by 163.4% on a year-on-year basis in 2023.

### (3) Cargo Volume

China completed 7.354 million tons of cargo and mail transportation, rising by 21.0% on a year-on-year basis in 2023. Among them, the mainland China routes completed 4.413 million tons, with a year-on-year growth rate of 34.1%; Hong Kong, Macao and Taiwan routes completed 151,000 tons, with a year-on-year growth rate of 2.5% and international routes completed 2.79 million tons, rising by 5.8% on a year-on-year basis. The proportions of mainland China routes, international routes and Hong Kong, Macao and Taiwan routes are 60%, 37.9% and 2.1%, respectively according to the proportion of cargo and mail volume on different routes.



**Figure 2.4 China Airlines' Fleet Scale of Transport Aircraft**

## 2. Fleet

China's civil aviation industry had 4,270 transport aircraft, indicating a net increase of 105 aircraft over the previous year by the end of 2023. Among them, there are 4013 airliners and 257 cargo aircraft, accounting for 94.0% and 6.0% respectively of the total number of aircraft. In the passenger aircraft fleet, there are 264 regional passenger aircraft, 3,276 narrow-body aircraft and 473 wide-body trunk passenger aircraft, accounting for 6.6%, 81.5% and 11.9% of the total passenger aircraft respectively.

### 3. Airport

By the end of 2023, China had a total of certified 259 civil aviation transport airports (excluding Hong Kong, Macao and Hong Kong), a net increase of 5 over the end of last year. There are 15 4F-class airports, 39 4E-class airports, 37 4D-class airports, 163 4C-class airports, 4 3C-class airports and 1 airport below 3C-class airports.

The number of take-off and landing flights at the civil aviation transport airport nationwide was 11.7082 million, rising by a year-on-year growth rate of 63.7% in 2023. Among them, transport flights totaled 9.8099 million, rising by 89.0% on a year-on-year basis. In 2023, the total passenger throughput at airports nationwide was 1.26 billion passengers,

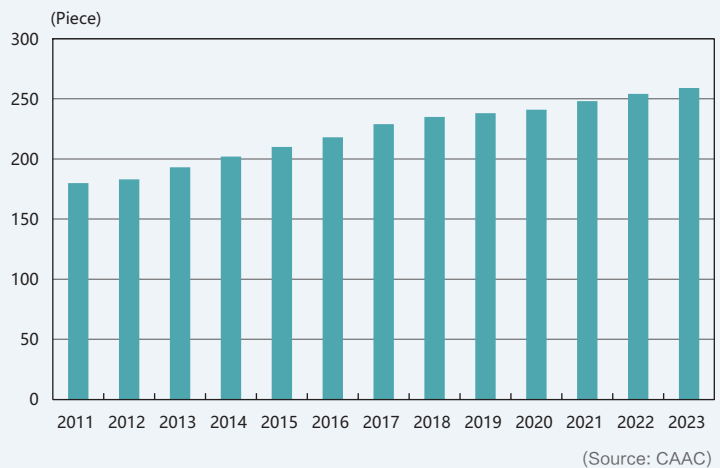


Figure 2.5 Number of Civil Airports in China

with a year-on-year growth rate of 42.2%; the cargo and mail throughput was 16.8331 million tons, rising by 15.8% on a year-on-year basis.

### 4. Air Routes

There were 5,206 scheduled flight routes in China, which rebounded with a year-on-year growth rate of 12.2% by the end of 2023. Nevertheless, it was still lower than the number of flight routes in 2019 and 2020. In 2023, the mileage of scheduled flight routes in China was 12.2781 million kilometers according to the repeated distance, and 8.7596 million kilometers according to the non-repeated distance. It was expanded to some extent compared with 2022.

In 2023, there were 255 domestic scheduled flight accessible cities (or regions) in China (excluding Hong Kong, Macao and Taiwan Province), increasing by 6 compared with the previous year. And there were 127 international scheduled flight accessible cities, increasing by 50 compared with the previous year.

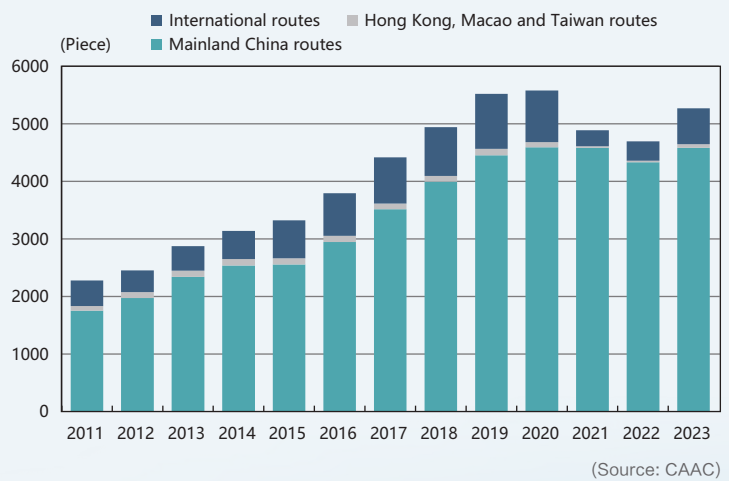


Figure 2.6 Number of Scheduled Flights of Civil Aviation in China



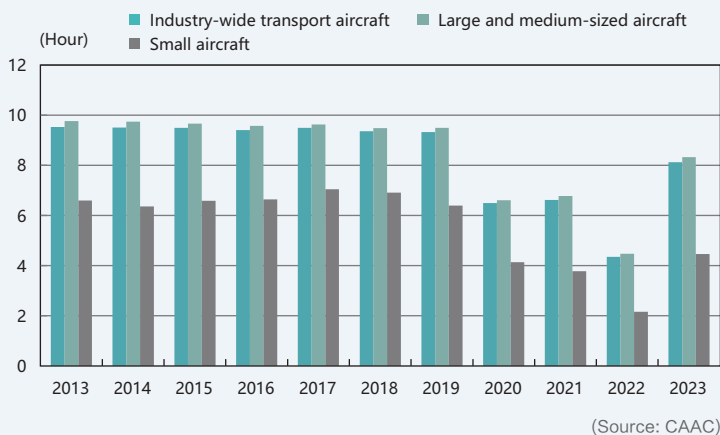


Figure 2.7 Average Daily Utilization Rate of Civil Aviation Registered Transport Aircraft in China

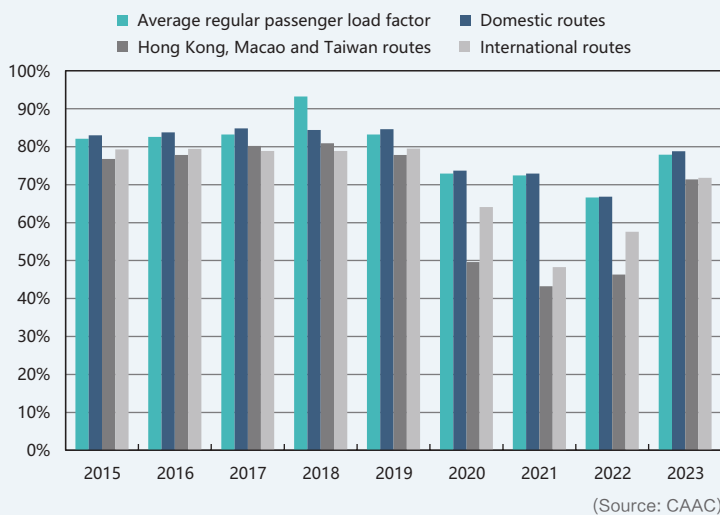


Figure 2.8 Average Regular Passenger Load Factor of Civil Aviation in China

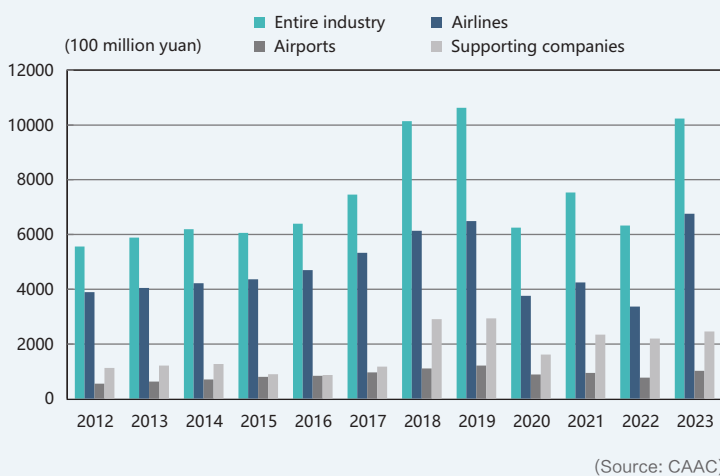


Figure 2.9 Operating Income of the Civil Aviation Industry in China

## 5. Efficiency and Effectiveness

### (1) Transport Efficiency

The average daily utilization rate of civil aviation registered transport aircraft in China was 8.12 hours, rising by 3.77 hours over the previous year in 2023. Among them, the average daily utilization rate of large and medium-sized aircraft was 8.33 hours, rising by 3.86 hours over the previous year; the average daily utilization rate of small aircraft was 4.46 hours, rising by 2.30 hours over the previous year.

In 2023, the average regular passenger load factor of civil aviation in China was 77.9%, rising by 11.3 percentage points over the previous year; the average regular class carrying rate was 67.7%, rising by 2.7 percentage points over the previous year.

### (2) Economic Benefit

In 2023, China's civil aviation transportation industry achieved an operating income of 1,023.73 billion yuan, rising by 68.3% over the previous year, and recovered to 96.35% in 2019; the loss was 21.07 billion yuan, a decrease of 190.74 billion yuan from the previous year. Among them, airlines realized an operating income of 676.10 billion yuan; airports realized an operating income of 101.98 billion yuan; supporting companies realized an operating income of 245.65 billion yuan. In 2023, the transportation revenue level of the whole industry was 5.20 yuan/ton-km, 0.24 yuan/ton-km higher than the previous year. Among them, the passenger revenue level is 6.15 yuan/ton-km; the revenue level of freight and mail transportation is 2.20 yuan/ton-km.





# Analysis of China's Air Transport Market Environment

## 1. Social and Economic Development

### (1) Economic Situation

China's economic development showed three major changes: transformation and upgrading, structural adjustment and power optimization in 2023. Driven by a series of favorable policies such as stabilizing investment, expanding domestic demand and promoting the development of the private economy, the overall economy rebounded and continued to maintain a steady development trend. In 2023, China's GDP was 126 trillion yuan, rising by 5.2% on a year-on-year basis, ranking second among the major economies in the world, and the consumer price index increased by 0.2% compared to the previous year. China's economy will contribute 32% to the global economic growth in 2023 according to the report of the International Finance Forum. It is the biggest engine of the world's economic growth.

### (2) Tourism Situation

In 2023, the tourism demand in China was fully released, and the tourism industry led to a strong recovery. According to the statistics of the Ministry of Culture and Tourism, the number of domestic tourists in 2023 was 4.891 billion person-times, showing a year-on-year growth rate of 93.3%; the domestic tourism revenue totaled 4.91 trillion yuan, showing a year-on-year growth rate of 140.3%; the number of domestic tourists and domestic tourism revenue

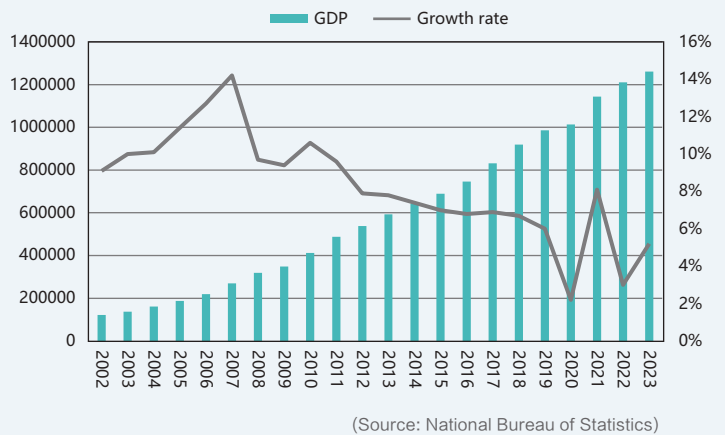


Figure 3.1 GDP and Growth Rate in China

recovered to 81.38% and 85.69% in 2019 respectively. In 2023, driven by multiple positive factors, such as the optimization of inbound and outbound tourism policies, the enhancement of residents' willingness to travel abroad, and the reconstruction and restoration of the inbound tourism supply chain, China's inbound and outbound tourism resumed in an orderly manner, with the number of inbound and outbound tourists exceeding 190 million person-times, rising by 2.8 times compared with the previous year, and returning to 63% in 2019.

In 2023, the Ministry of Culture and Tourism promulgated the Domestic Tourism Promotion Plan (2023-2025) to further release the potential of tourism consumption and promote the

qualitative improvement and reasonable growth of tourism. To boost the development of inbound tourism, full visa exemption with 24 countries has been achieved in China to implement a visa-free entry policy for 16 countries and visa-free transit for 72 hours or 144 hours for 54 countries. The process of foreign tourists coming to China has been continuously simplified. After the sustained economic recovery and the promotion of China's domestic tourism policy, the tourism industry is expected to maintain a strong development momentum in the future.

### (3) Urbanization

The per capita flight frequency is closely related to the urbanization rate. The increase in urbanization rate makes the population distribution more concentrated, leading to an increase in the population within the airport's radiation range. By the end of 2023, the

urbanization rate of permanent residents in China was 66.16%, 0.94 percentage points higher than that at the end of 2022. The average number of flights per capita in China was about 0.44, still lower than 0.47 in 2019. At present, the urbanization rate in developed countries is over 70%, and the average number of flights per capita is more than 2. There is still a big gap between China and developed countries. According to the Party's deployment at the 20th CPC National Congress, China will basically realize modernization in 2035. The per capita GDP will exceed 25,000 US dollars; the number of flights per capita will exceed 1 a year; the aviation population is expected to exceed 400 million; the annual passenger volume will reach 1.5 billion passengers. With the acceleration of urbanization in China, the number of flights per capita in China will gradually increase. The potential of the air transport market in China will be gradually released.

## 2. Airport Construction

By the end of 2023, the distribution of airports in China had been continuously encrypted, and there were 259 domestic transportation airports (excluding Hong Kong, Macao and Taiwan Province), with the coverage rate of prefecture-level cities reaching 91.7%. The national comprehensive airport system is becoming more and more perfect. Beijing, Shanghai and Guangzhou airports have significantly improved their status as international hubs. The annual passenger throughput of Beijing Capital Airport ranked second in the world, and the annual cargo and mail throughput of Shanghai Pudong

Airport ranked third in the world. The regional hub functions of airports such as Chengdu, Shenzhen, Kunming and Xi'an Airports have been significantly enhanced, and the role of airports in the national comprehensive transportation system has become increasingly prominent.

In 2024, the Civil Aviation Administration of China and the National Development and Reform Commission issued the Guiding Opinions on Promoting the Construction of International Aviation Hub, which further





Figure 3.2 Airports' Passenger Turnover by Province

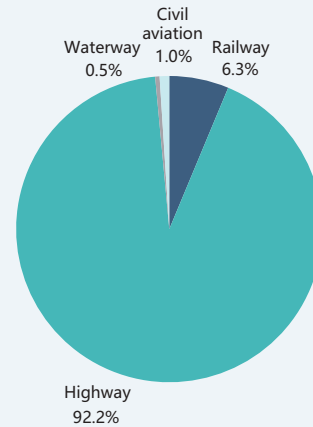
clarified the construction of the “3+7+N” international aviation hub function system, refined and deepened the functional positioning of international aviation hubs. What’s more, the Guiding Opinions proposed that the international aviation hub function system would have been fully completed by 2035, and a number of world-class airlines and first-class aviation hubs would have been built by 2050.

According to the Plan of Action for a New Era and a New Journey to Write a New Chapter in Building A Powerful Transportation Country in Civil Aviation released by the Civil Aviation Administration of China in 2024, the infrastructure system in China will be basically improved by 2035. The number of transportation airports will reach about 450, covering all county-level administrative units within 100 kilometers of the ground.

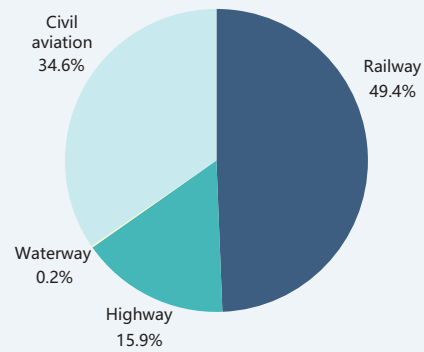
### 3. High-Speed Railway Construction

In 2023, China's air passenger volume accounted for only 1% of the total national passenger volume. Nonetheless, the turnover of air passengers accounted for 34.6%, mainly because of advantages for air transport lies in medium and long-distance transportation. The average distance of air transport was 1663 kilometers in 2023. The advantage of railway was mainly in the transportation of medium mileage, with an average distance of 382 kilometers in 2023. Highway and waterway are the main modes of short-distance passenger transportation, with an average mileage of below 20 kilometers.

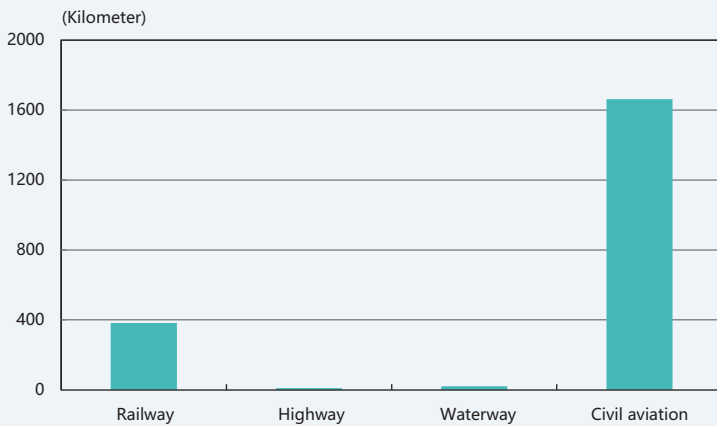
According to the Medium-and Long-Term Railway Network Plan, China will construct the main arteries of “Eight Vertical and Eight Horizontal” high-speed railway network, and the planned high-speed railway network will reach 38,000 kilometers by 2025. The opening of the high-speed rail will divert some air passengers. It is shown that via the empirical data, when the time difference between high-speed railway transportation and air transportation is about 1 hour, the high-speed railway will divert more than 80% of air passengers. While the time difference is about 2 hours, the high-speed railway will divert about 45% of air passengers and when



**Figure 3.3 Distribution of Passenger Volume in 2023**



**Figure 3.4 Distribution of Passenger Turnover in 2023**



(Source: Ministry of Communications)

**Figure 3.5 Average Distance of Passenger Transportation by Various Transportation Modes in China in 2023**

the time difference is about 3 hours, the high-speed railway will divert about 25% of air passengers. Although the high-speed railway has a relatively obvious effect on the short-distance passenger flow of civil aviation with a distance of less than 1000 kilometers, with the development and continuous promotion of the “Air-Rail Combined Transport” mode, the cooperative operation of railway and aviation has enhanced the regional radiation effect of civil aviation airports to some extent.



## 4. Air Transport Policies and Regulations

In 2021, the State Council issued the National Comprehensive Three-dimensional Transportation Network Planning Outline to propose that by 2035, a modern high-quality national comprehensive three-dimensional transportation network featuring convenience, smoothness, economy, efficiency, green and intensiveness, advanced intelligence, safety and reliability will be basically created to realize international and domestic interconnection, three-dimensional accessibility of major cities in China and effective coverage of county-level nodes. This is to strongly support the “National 123 Travel Traffic Circle” (1-hour commuting in metropolitan areas, 2-hour access in urban agglomerations and 3-hour coverage in major cities in China) and “Global 123 Express Freight Flow Circle” (1-day delivery in China, 2-day delivery in neighboring countries and 3-day delivery in major cities around the world).

In 2024, the Civil Aviation Administration of China issued the Plan of Action for a New Era and a New Journey to Write a New Chapter in Building A Powerful Transportation Country in Civil Aviation, proposing that by 2035, China will realize the leap from a single powerful air transport country to a multi-field powerful civil aviation country, with more than one air trip per capita. The proportion of civil aviation passenger turnover in comprehensive transportation will

exceed 1/3. By the middle of this century, China will realize the leap from a multi-field powerful civil aviation country to an all-round powerful civil aviation country, and build a comprehensive civil aviation power with strong support, people's satisfaction and strong competitiveness.

The Ministry of Finance and the Civil Aviation Administration of China revised the Interim Measures for the Administration of Regional Aviation Routes in 2023. These new measures further optimize the subsidy mode, make the subsidy orientation clearer, and the policy effect will be more obvious. They will help improve the aviation service level in remote and special areas and ensure the basic travel of people in these areas.

According to the budget plan of subsidy funds related to the Civil Aviation Development Fund in 2024, the Civil Aviation Administration of China will subsidize 161 small and medium-sized airports in China for a total of 1.8 billion yuan. The number of subsidized airports will be reduced by 19, and the amount of subsidies will increase by 1.1% on a year-on-year basis, reflecting the increasing concentration and accuracy of state subsidies to small and medium-sized airports. It is conducive to promoting the healthy development of the industry.





# Market Forecast of Civil Passenger Aircraft in China

## 1. Forecast of China's Economic Development

Currently, China's economy has entered the stage of high-quality development from high-speed growth. According to the Party's deployment at the 20th CPC National Congress, China will basically realize modernization in 2035, with per capita GDP exceeding 25,000 US dollars and China's average annual economic growth rate reaching 5.2%. Until now, China is facing a complicated economic environment in the short term. However, its economy will maintain steady growth for a long time under the new development pattern

of "Dual Circulation" under the impetus of a series of favorable policies, such as stabilizing investment, expanding domestic demand and promoting the development of private economy. It is predicted that the average annual growth rate of China's GDP will reach 4.7% from 2024 to 2043, according to the analysis of China's economic development situation, the analysis and prediction of authoritative organizations and industry experts on China's economic growth potential and prospects.

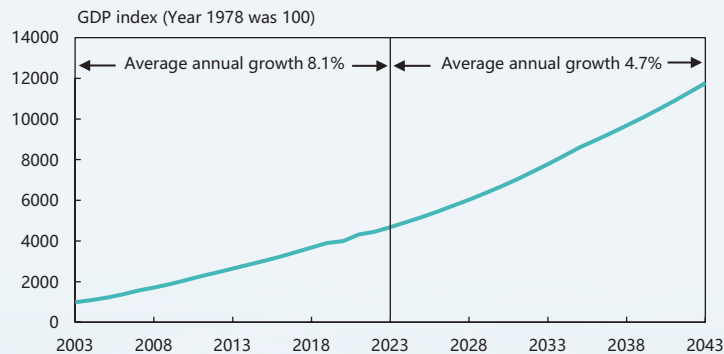


Figure 4.1 Trend of China's GDP Index

## 2. Air Passenger Turnover Forecast

In 2023, the rapid recovery of tourism and business travel became the main driving force for the development of China's air transport market, with a total passenger turnover of 1,030.898 billion person-kilometers, rising by 163.4% on a year-on-year basis. The domestic civil aviation passenger transport market has reached a new high peak. The passenger transport turnover of mainland China routes has reached 898.591 billion person-kilometers, 2.4 times that of the same period of the previous year, which has surpassed the level in 2019. Affected by the unfavorable factors of the turbulent international situation, the recovery of international routes fell short of expectations. In 2023, the total passenger turnover was 112.952 billion person-kilometers, only equivalent to the level of ten years ago. In 2023, Hong Kong, Macao and Taiwan routes bottomed out, with an annual passenger turnover of 9.355 billion person-kilometers, only equivalent to the level in 2010.

In the first half of 2024, Chinese civil aviation industry showed a strong recovery momentum, with 320 million passengers transported on domestic routes, increasing by 12.4% over the same period in 2019; international routes completed 29.673 million person-times of passenger transportation, and returning to 81.7% in the same period of 2019. In the first half of 2024, the turnover of air passenger transport in China increased by 33.8% compared with the same period of the previous year; the monthly passenger turnover was basically maintained at the level of 100 billion person-kilometers, and the market showed strong stability.

It is predicted that the air passenger transport market in China will continue to

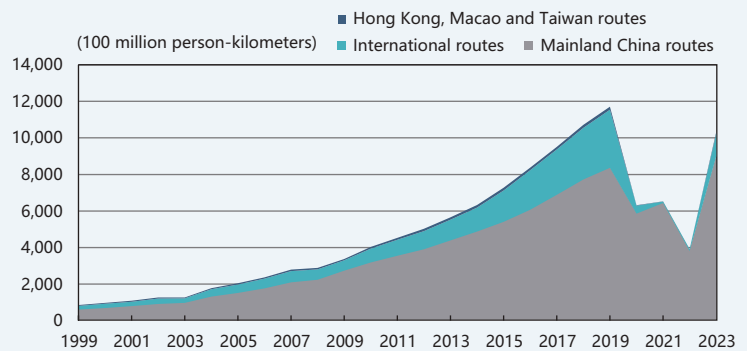


Figure 4.2 Growth of Air Passenger Transport Turnover in China

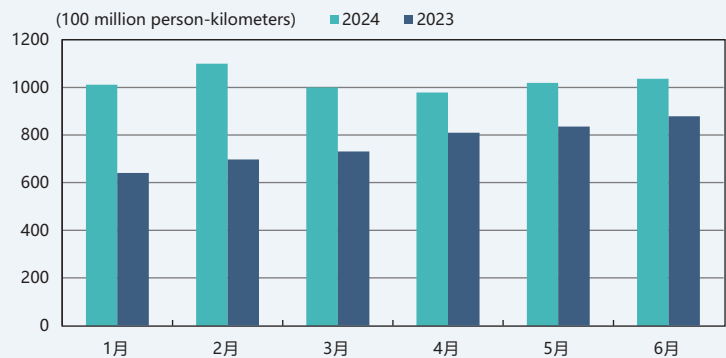
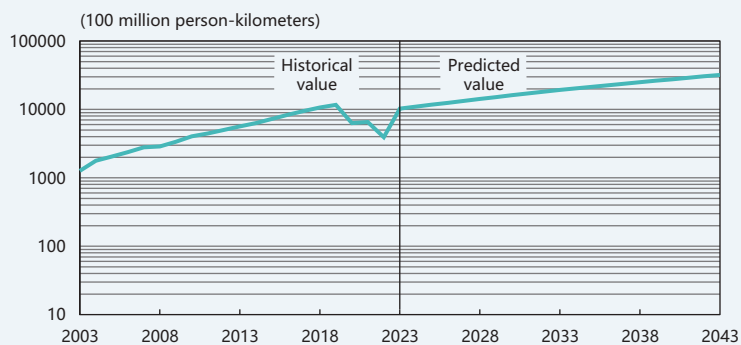


Figure 4.3 Monthly Turnover of Air Passenger Transport in China in the First Half of the Year (Comparison between 2024 and 2023)

Table 4.1 Forecast of Air Passenger Transport Turnover in China

YEAR	AVERAGE ANNUAL GROWTH RATE OF RPK	RPK VALUE AT THE END OF THE PERIOD
2024–2028	6.67%	14,236
2029–2033	6.35%	19,366
2034–2038	5.24%	24,995
2039–2043	5.05%	31,971

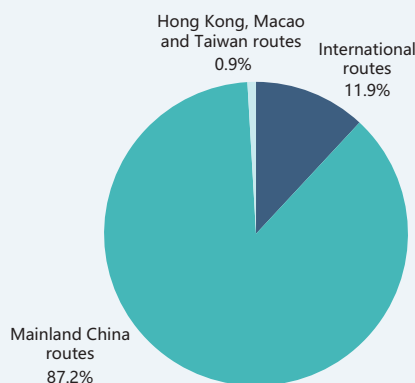


**Figure 4.4 Forecast of Air Passenger Turnover in China**

maintain steady growth from 2024 to 2043, but the growth rate is declining. The average annual growth rate of passenger transport turnover (RPK) will reach 5.82% in the next 20 years. The passenger transport turnover will be close to 3.2 trillion person-kilometers by the end of the forecast period.

### 3. Route Analysis

In 2023, the passenger turnover of mainland China routes accounted for 87.2% of the total aviation turnover, down nearly 10 percentage points from the previous year, but still at a historical high. In 2023, the capacity provided by narrow-body aircraft on mainland China routes reached 86.6%, among which the capacity provided by A320 series passenger aircraft accounted for 55.6% of the total capacity of narrow-body aircraft. It was 12 percentage points higher than that of B737 series passenger aircraft. Wide-body trunk passenger aircraft provided 12.5% of the capacity for mainland China routes, of which 47.9% was provided by Airbus A330. Regional aircraft only provided about 1% of the capacity. Currently, the development of air transport market in mainland China is extremely unbalanced. With the continuous expansion of the market demand, the problems of airport congestion and capacity saturation on large passenger routes in first-tier cities will become more and more serious. They will force airlines to adopt larger-class aircraft to increase their capacity in the future. With the batch delivery of domestic ARJ21 aircraft, it is expected that the proportion of regional aircraft with medium and low passenger flow routes will increase in the future.



**Figure 4.5 Proportion of Air Passenger Turnover of Various Routes in China in 2023**

routes accounted for 11.9% of the total aviation turnover in 2023. Although it had achieved a substantial increase compared with the previous year, there was still a big gap in the proportion in 2019. The transportation capacity between China and Asia-Pacific, Europe and the Middle East accounted for the top three international routes, accounting for 52.2%, 29.3% and 9.1% respectively. The transportation capacity between China and North America accounted for only 4.6%, which indicated a huge gap from 2019. In 2023, 73.3% of the capacity of China's international routes was provided by wide-body aircraft. Among them, 200-seat wide-

The passenger turnover of China's international

body passenger aircraft provided 51.4% of the capacity of wide-body passenger aircraft, and 300-seat aircraft provided 43.7% of the capacity of wide-body passenger aircraft. With the recovery of trans-Pacific route capacity, the proportion of 300-seat aircraft with longer ranges will increase in the future.

The passenger turnover of China, Hong Kong, Macao and Taiwan routes accounted for 0.9%

of the total aviation turnover in 2023. Although it had bottomed out, there was still a big gap in the proportion in 2019. In 2023, narrow-body aircraft provided 60.4% of the capacity, and 200-seat wide-body passenger aircraft provided 31.7% of the capacity. Due to the continuous expansion of capacity demand, narrow-body aircraft and 200-seat wide-body passenger aircraft will remain the main models operated on Hong Kong, Macao and Taiwan routes in the future.

## 4. Forecast of Passenger Aircraft Demand

### (1) Passenger Aircraft Capacity Demand Forecast

With the gradual decline of the epidemic situation, the civil aviation transportation industry in China opened up a brand-new development situation in 2023. The average daily utilization rate of aircraft and the passenger load factor of regular flights both rose sharply. The average daily utilization rate of registered transport aircraft increased by 3.77 hours compared with the previous year, and the average passenger load factor of regular flights increased by 11.3 percentage points compared with the previous year. With the continuous improvement of passenger volume, the daily utilization rate of aircraft and the passenger load factor of flights will gradually return to a reasonable level before the epidemic in the future. To meet the growing demand of the civil aviation transportation market, it is estimated that the capacity of China's air passenger transport market will exceed 3.8 trillion seat km by 2043, including 3.1 trillion seat km for mainland China routes, 740 billion seat km for international routes and 23.7 billion seat km for Hong Kong, Macao and Taiwan routes.

### (2) Fleet Composition Analysis

At present, the route network structure of China's air passenger transport market determines that the main operating models are narrow-body aircraft. It is suitable for moderate passenger traffic routes and are primarily used to build domestic trunk networks and regions such as domestic gateway airports to Hong Kong, Macao, and nearby Asian countries with low passenger traffic, as well as on international routes. Thanks to the rapid growth of the domestic market

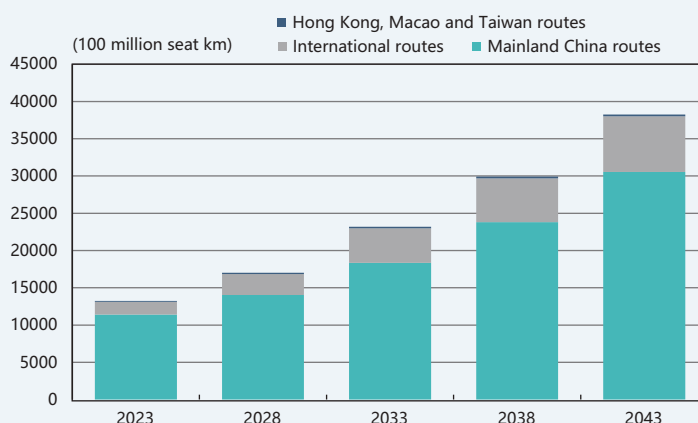


Figure 4.6 Forecast of China's Air Passenger Transport Market Capacity

demand, the Chinese market will continue to maintain a fleet structure dominated by medium-sized narrow-body passenger aircraft in the future.

In the future, with the further recovery of international routes and the increasing demand for wide-body passenger aircraft in the domestic large-volume market, China's wide-body aircraft fleet will be significantly expanded.

At present, the extended-range version (LR) and ultra-long-range version (XLR) of A321neo are very popular in the global market. Its lower operating costs and stronger route adaptability compared with small wide-body aircraft with a similar range. However, by the end of 2023, China's airlines have not ordered the long-range

version of A321neo, and the main reason is that China's route structure is dominated by domestic short-distance routes, medium-distance routes to Southeast Asia and long-distance routes to Europe and the United States, with a length of about 8000km.

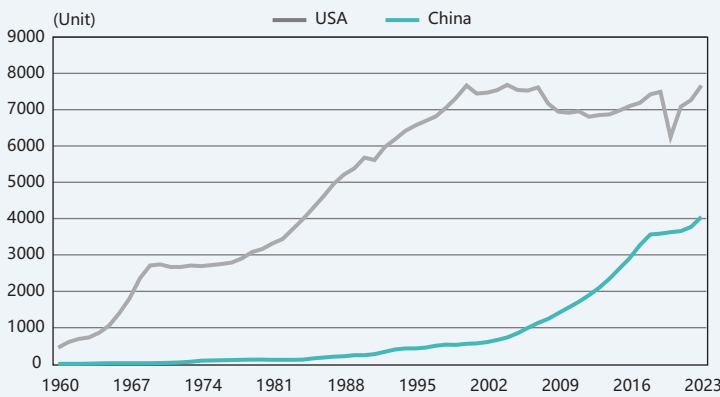
China has a large number of routes with low passenger flow and low flight frequency. At present, the main operating models of these routes are narrow-body aircraft. With the continuous delivery and capacity improvement of domestic ARJ21, more regional aircraft are expected to be used in these routes in the future to improve the passenger load factor. The fleet scale of China's regional aircraft will gradually expand. During the forecast period, China will build more small and medium-sized airports, and the development of these newly opened

routes and hub radial route networks will also promote the development of China's regional aviation.

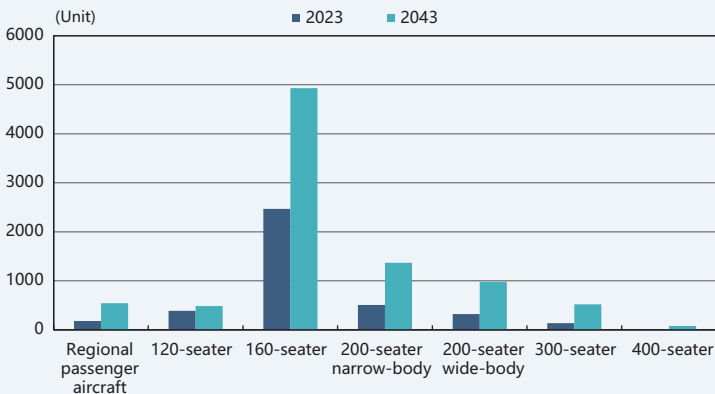
### (3) Passenger Aircraft Fleet Scale Forecast

In the last 20 years, the average annual growth rate of China's civil aviation fleet has been as high as 9.5%. When we look at the development of the American civil aviation fleet, after decades of rapid growth, the fleet scale became saturated in 2000, and the fleet scale never exceeded 8,000 aircraft.

Currently, China's economy has entered a stage of high-quality development. The development of the civil aviation market tends to be mature, and the growth curve of the fleet scale will be similar to that of mature markets such as the United States. The growth rate will gradually become flat, and the replacement demand upon aircraft retirement will gradually become the main source of market demand. China's land area is equivalent to that of the United States, and its population is far larger than that of the United States. The ground



**Figure 4.7 Comparison of Aircraft Fleet Trend between China and the United States**



**Figure 4.8 Market Forecast of Passenger Aircraft Fleet Scale in China**



transportation in China is more developed. Based on the comprehensive analysis, it is estimated that the upper limit of China's air transport fleet scale may be close to 10,000 aircraft.

It is estimated that by 2043, China's passenger aircraft fleet scale will reach 8,905 aircraft, including 1,577 wide-body aircraft, 6,787 narrow-body aircraft and 541 regional aircraft.

#### (4) Retirement Forecast of Existing Aircraft

To enhance competitiveness, airlines need to purchase new aircraft to eliminate old aircraft. At present, the average age of passenger aircraft fleet in China market is 8.8 years. It is estimated that 3,386 passenger aircraft will be retired in China in the next 20 years, including 442 wide-body aircraft, 2,820 narrow-body aircraft and 124 regional aircraft on the basis of the retirement ratio of different classes of aircraft in different age segments.

#### (5) Forecast of Aircraft Demand

It is estimated that between 2024 and 2043, to meet the demand for traffic growth and replacement of retired aircraft, the Chinese market will need to supplement 8,278 passenger aircraft. 59.1% of them will be used to meet the traffic growth and 40.9% will be used to replace retired aircraft.

It is estimated that in the next 20 years, the demand for wide-body aircraft will be 1,546, that for narrow-body aircraft will be 6,246 and that for regional aircraft will be 486. The largest demand is the 160-seat trunk aircraft, which accounts for 56.2% of the total demand.

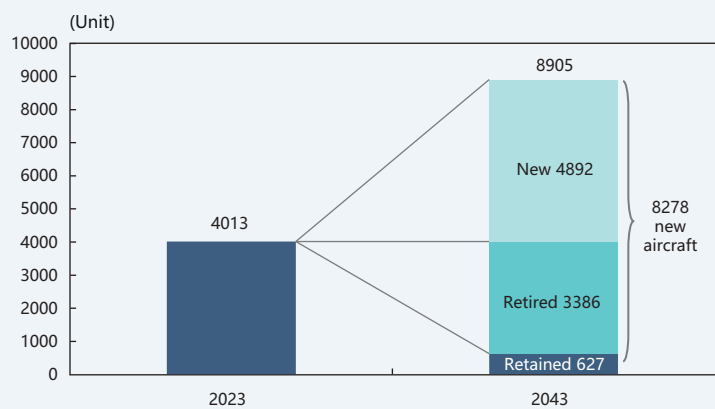


Figure 4.9 Demand Forecast of Passenger Aircraft in the Chinese Market (2024–2043)

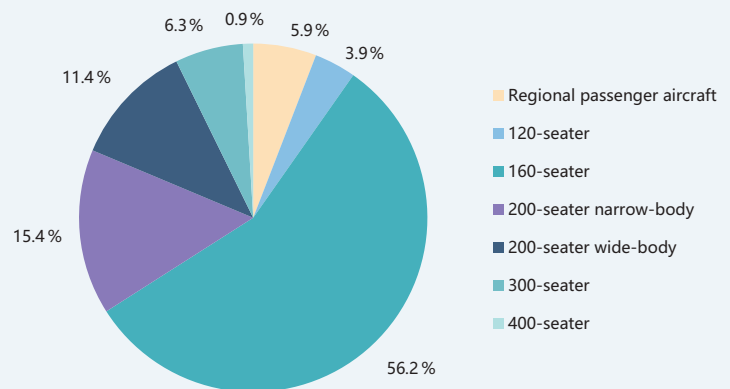


Figure 4.10 Forecast of Passenger Aircraft of Each Seater in the Chinese Market (2024–2043)



# Market Forecast of Civil Freighter in China

## 1. Current Situation of China's Air Cargo Development

### (1) Air Cargo Market in 2023

In 2023, China's cargo and mail turnover reached 28.36 billion ton-kilometers, rising by 11.6% on a year-on-year basis and 7.8% over 2019. Among them, the mainland China routes realized 6.86 billion ton-kilometers, rising by 31.2% on a year-on-year basis; international routes completed 21.32 billion ton-kilometers, rising by 5.6% on a year-on-year basis; Hong Kong, Macao and Taiwan routes reached 184 million ton-kilometers, rising by 6.1% on a year-on-year basis.

In the whole year of 2023, the air cargo and mail volume in China was only 2.4% lower than that before the epidemic in 2019. However, from the second half of 2023, the monthly air cargo and mail volume in China exceeded the level of the same period in 2019. It is reflected that the air

cargo market in China has returned to the pre-epidemic level.

### (2) Distribution of Air Cargo Market

Judging from the data on airport cargo and mail throughput, all regions have witnessed substantial growth. In 2023, the cargo and mail throughput in the eastern region was 12.0679 million tons, with a year-on-year growth rate of 12.8%; the cargo and mail throughput in the central region was 1,515,400 tons, with a year-on-year growth rate of 20.3%; the cargo and mail throughput in the western region was 2,667,500 tons, with a year-on-year growth rate of 24%; the cargo and mail throughput in the northeast region was 582,200 tons, with a year-on-year growth rate of 37.8%. Compared with 2019, the proportion of the eastern and western regions decreased slightly, and the proportion of the central region increased significantly, but the eastern region still has an absolute advantage.

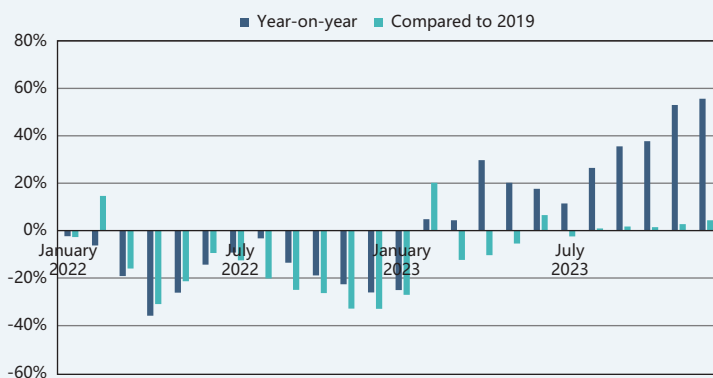


Figure 5.1 Monthly Growth Rate of Air Cargo and Mail Transport Volume

In 2023, there were 63 transport airports with annual cargo and mail throughput of more than 10,000 tons, 12 over the previous year and 59 over that in 2019. The total cargo and mail throughput accounted for 98.7% of the national airports, increasing by 0.2 percentage points over the previous year. Among them, the cargo and mail throughput of airports in Beijing, Shanghai and Guangzhou accounted for 42.7% of that of all domestic airports, decreasing by 0.6 percentage points from the previous year.

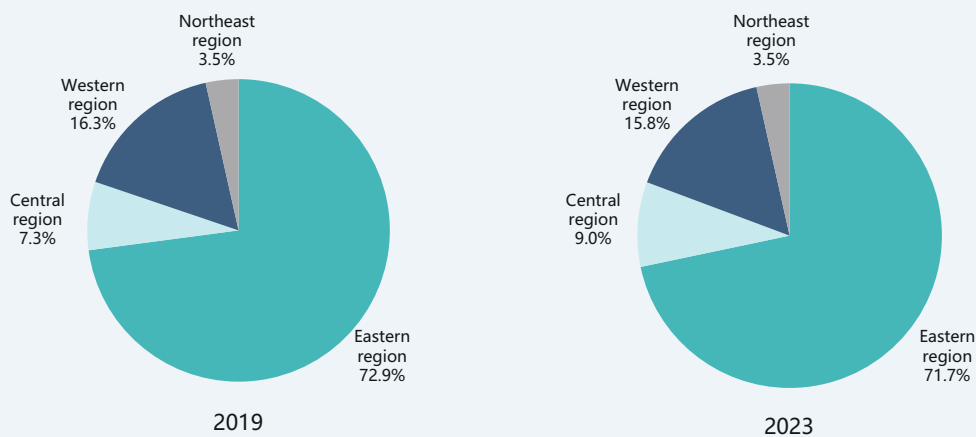


Figure 5.2 Regional Distribution of Cargo and Mail Throughput at Civil Airports

### (3) Completion of Airline Freight

By the end of 2023, there were 11 all-cargo airlines in China, with a total cargo and mail transportation volume of 2.656 million tons, rising by 17% on a year-on-year basis, accounting for 36.1% of the total air cargo and mail transportation volume in China. There are 6 airlines with an annual cargo transportation volume of over 1 million tons, with a total cargo transportation volume of over 2.3 million tons, accounting for 90% of the total cargo transportation volume of all cargo transportation companies. In 2023, SF Airlines Co., Ltd. had the largest annual cargo and mail transportation volume, accounting for 36% of the total transportation volume of all cargo transportation companies.

Table 5.1 Number and Proportion of Airports with Annual Cargo and Mail Throughput of More than 10,000 Tons

Year	Number of airports (unit)	Proportion of turnover in China
2010	47	98.8%
2019	59	98.4%
2023	63	98.7%

Table 5.1 All-Cargo Airlines in 2023 (Ton)

Airline	Cargo and mail transportation volume in 2023	Cargo and mail transportation volume in 2022
China Cargo Airlines Ltd.	602,689.1	491,087.0
Air China Cargo Co., Ltd.	381,962.7	341,091.9
SF Airlines Co., Ltd.	956,462.6	895,092.5
China Southern Airlines Cargo Co., Ltd.	137,654.5	70,472.6
Central Airlines Co., Ltd.	136,699.4	67,656.8
Hangzhou YT Freight Aviation Co., Ltd.	82,449.3	101,248.1
China Postal Airlines Co., Ltd.	166,636.0	177,925.5
Air Central Co., Ltd.	91,398.5	67,470.0
Tianjin Air Cargo Co., Ltd.	51,000.4	43,338.7
Jiangsu JD Cargo Airlines Co., Ltd.	34,318.3	2,620.4
Northwest International Freight Aviation Co., Ltd.	14,912.0	12,021.8

## 2. Development Environment of Air Cargo

### (1) China's Foreign Trade Imports and Exports Growth Slowed Down.

In 2023, faced with the complicated and severe international environment, the growth rate of

China's manufacturing and foreign trade imports and exports slowed down obviously and the annual import and export of goods reached 41.76 trillion yuan, rising by 0.2% on a year-on-year basis. Among them, exports reached

23.77 trillion yuan, rising by 0.6%; imports reached 17.98 trillion yuan, declining by 0.3%. In 2023, the import and export value of high-tech products in China was 10.7 trillion yuan, a significant decrease compared with the previous year, with the import value and export value dropping by 5.2% and 5.8% respectively.

Although the growth of China's foreign trade imports and exports is under great pressure, China's economy has strong resilience, great potential and full vitality, and its long-term positive fundamentals remain unchanged. With

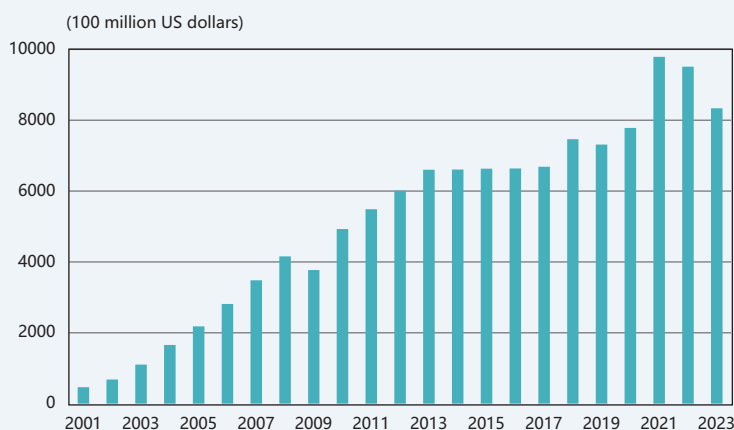


Figure 5.3 Export Value of High-tech Products from 2001 to 2023

the transformation of China's economic structure, the proportion of high-value-added products suitable for air transport will gradually increase, and its exports to emerging markets will grow rapidly. These new changes are conducive to the future development of China's air cargo.

## (2) China's Express Industry Maintains Steady Growth

In 2023, the business volume of China's express service enterprises totaled 132.07 billion pieces, rising by 19.4% on a year-on-year basis; the business income totaled 1,207.40 billion yuan, with a year-on-year growth rate of 14.3%. The annual express delivery business increased by 21.49 billion pieces, and the daily average business volume exceeded 300 million pieces. The express delivery business scale reached a new record high.

In 2023, the growth rates of business volumes of the same city, different places and across the world/in Hong Kong, Macao and Taiwan businesses were 6.6%, 20.5% and 52%, respectively, which all achieved growth compared with the previous year. In particular, the express delivery business in different places and across the world/in Hong Kong, Macao and Taiwan grew very fast, reflecting that China's express delivery industry still has great growth potential.

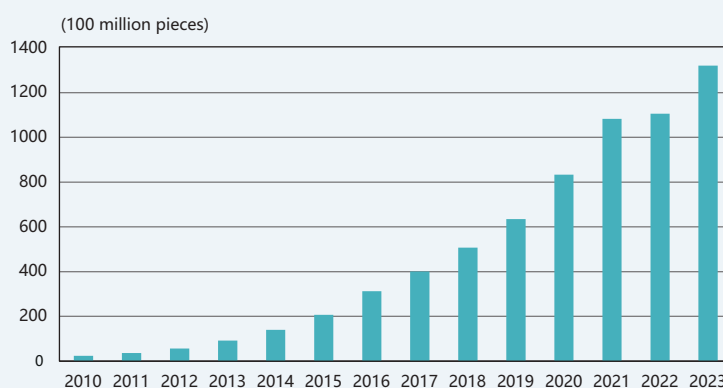


Figure 5.4 China Express Business Volume from 2010 to 2023

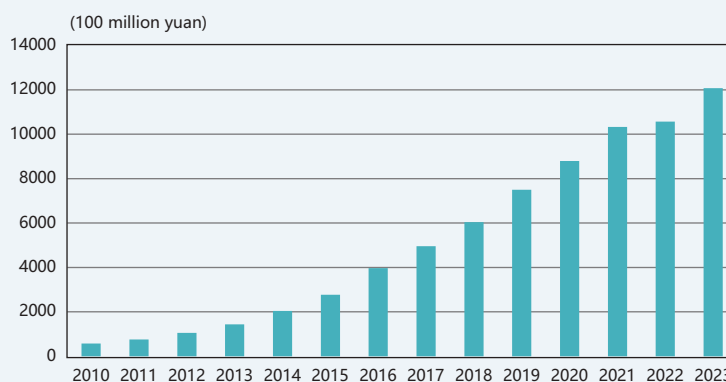


Figure 5.5 China Express Business Revenue from 2010 to 2023

Table 5.2 Development of National Express Delivery Industry in 2023

Item	Unit	Completion	Growth rate
Express delivery revenue	100 million yuan	12,074.0	14.3%
Total express business volume	100 million pieces	1,320.7	19.4%
Including: Intra-city	100 million pieces	136.4	6.6%
Remote	100 million pieces	1,153.6	20.5%
International/Hong Kong, Macao and Taiwan	100 million pieces	30.7	52%



### (3) China's Modern Logistics Industry Continues to Grow

In 2023, China's logistics operation environment continued to improve and the industry as a whole recovered. The quality of logistics supply improved steadily, and coordinated and efficient logistics services such as multimodal transport and air freight developed in an all-round way. In 2023, the total amount of social logistics in China was 352.4 trillion yuan, with a year-on-year growth rate of 5.2%, and the growth rate was 1.8 percentage points higher than that in 2022. The scale of logistics demand reached a new level

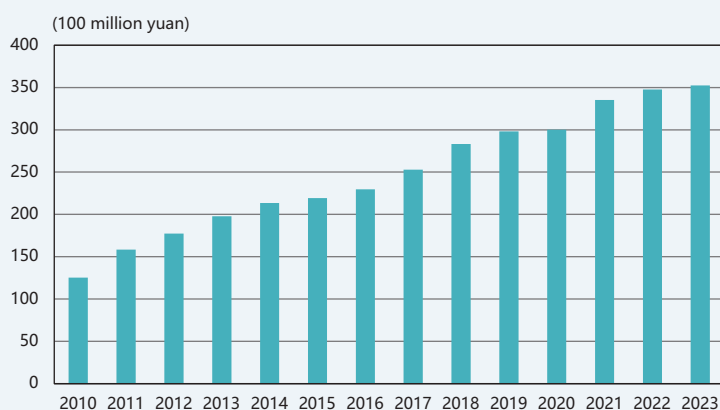


Figure 5.6 Total Amount of Social Logistics in China from 2010 to 2023

and achieved steady growth.

In the new stage of development, China has promoted the construction of a strong domestic market and a powerful trading country, through upgrading production, distribution, circulation, consumption and other links, and made great efforts to build a new development pattern. Its domestic economic cycle plays a leading role while international economic cycle remains its extension and supplement. Strategic emerging industries such as biopharmaceuticals, high-end electronics and precision equipment have accelerated their development. Logistics

industry will accelerate the formation of a safe and efficient logistics network with internal and external connectivity and promote industrial upgrading through innovative means such as digital transformation. Air freight is an important part of the modern logistics industry, with the rapid growth of the logistics industry in China, the demand for air freight will also increase. In the future, the layout of the air freight network will be continuously optimized, and the expansion of the freight network and the construction of large-scale freight hubs will be continuously promoted.

## 3. Forecast of Air Cargo Turnover

### (1) Development Potential of Air Freight in China

Since 1990, air freight in China has developed rapidly after the establishment of domestic freight airlines. From 1990 to 2010, the average growth rate of air cargo and mail transport turnover was 19.2%. It was slightly higher than the growth rate of passenger transport. The proportion of air cargo and mail transport turnover to the total aviation turnover reached 33.2% in 2010. The growth rate of China's foreign trade imports and exports slowed down due to the influence

of the domestic and international economic environment. The demand for international air freight was highly affected. From 2011 to 2012, air freight declined for two consecutive years. In 2013, air freight began to grow again. The average growth rate of air cargo and mail transport turnover from 2012 to 2019 was 7%, which was lower than that of passenger transport. From 2020 to 2022, due to the COVID-19 epidemic, the turnover of air cargo and mail transportation fluctuated greatly. Until 2023, the air transport industry in China ushered in a comprehensive recovery.

Since 2024, China's air cargo volume has maintained a rapid growth trend and the overall scale has reached the best level in history. The domestic market has continued to grow and the international market has performed brilliantly. International cargo flights have maintained a high level of operation. A total of 16 domestic freight routes and 74 international freight routes were newly opened nationwide, and the layout of freight routes was gradually improved. In the first half of 2024, China's air cargo and mail turnover totaled 16.42 billion ton-kilometers, rising by 29.7% on a year-on-year basis.

China's air freight industry has begun to take shape, forming an air freight system with freight space, ground facilities, professionals, management regulations and freight forwarders. However, in 2023, the air freight turnover accounted for only 0.114% of the national comprehensive transportation system, which is still at a relatively low development level and has great development potential.

## (2) Forecast of Air Cargo and Mail Turnover

In the long run, the development of the national economy is the main factor to promote the growth of air freight. The study of historical statistics showed that the air cargo turnover in China was closely related to the gross national product (GDP). Although the current global situation is turbulent and China's economic development is facing new difficulties and challenges, the trend of China's economic development has not changed. The National Comprehensive Three-dimensional Transportation Network Planning Outline proposed to build a "Global 123" express cargo flow circle by 2035, which features one-day delivery in China, two-day delivery in neighboring countries and three-day delivery in major cities around

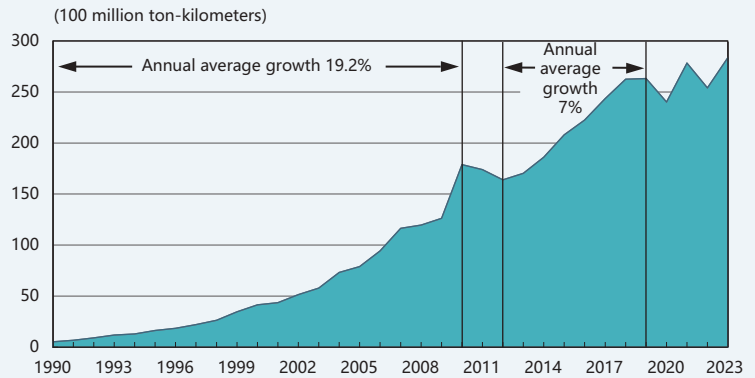


Figure 5.7 Growth of Air Cargo and Mail Turnover in China from 1990 to 2023

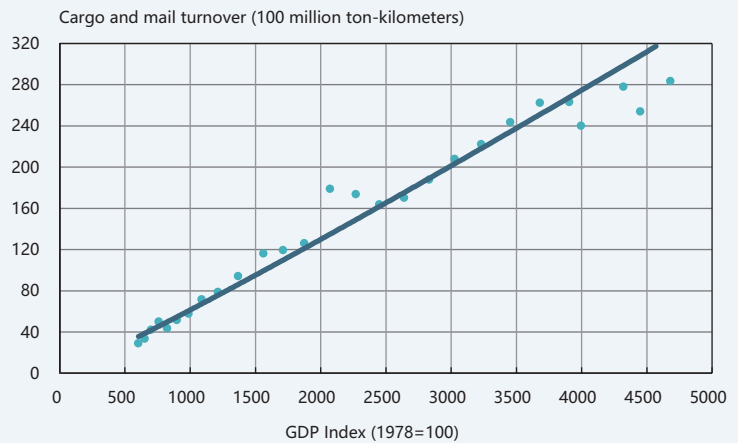


Figure 5.8 Relationship between Air Cargo and Mail Turnover and GDP

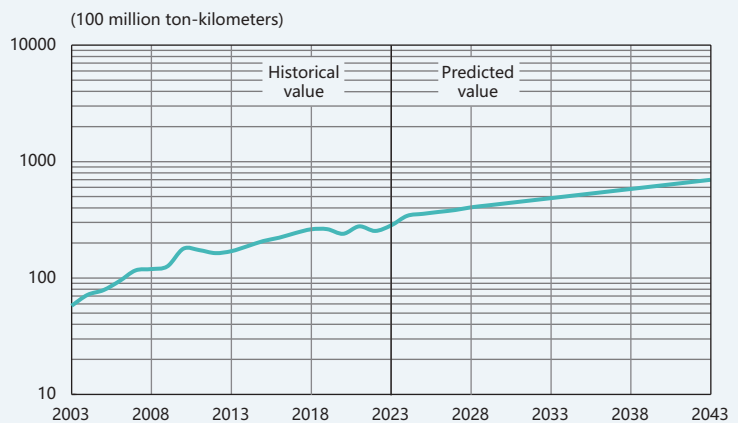


Figure 5.9 Forecast of Air Cargo and Mail Turnover in China (2024-2043)

the world. Since the gradual improvement of China's aviation logistics system, the growth of internationally competitive aviation logistics enterprises, the improvement of the international aviation logistics network and the continuous improvement of comprehensive support capacity, China's air cargo market will enter a period of steady growth.

On the basis of a comprehensive analysis of various influencing factors, it is predicted that the average annual growth rate of China's cargo and mail turnover will be 4.6% in the next 20 years, including 5.5% in 2024–2033 and 3.7% in 2034–2043. The air cargo and mail turnover will reach 70 billion ton-kilometers in 2043.

## 4. Forecast of China's Civil Cargo Aircraft Fleet

### (1) Current Situation of Civil Cargo Aircraft Fleet

By the end of 2023, domestic airlines had 257 cargo aircraft of various types, increasing by 34 over the previous year. Among them, large wide-body cargo aircraft increased by 7 compared with last year; medium wide-body cargo aircraft increased by 9 compared with last year; and narrow-body cargo aircraft increased by 18 compared with last year. Narrow-body cargo aircraft accounted for 63.4% of the domestic

cargo aircraft fleet, declining by 1.6 percentage points from the previous year.

### (2) Forecast of Cargo Aircraft Fleet

Air cargo and mail transportation is mainly undertaken by passenger aircraft belly cabin and all-cargo aircraft. Carrying cargo in the passenger aircraft belly cabin is a low-cost freight mode, but the flight schedule and the types and specifications of air cargo will be limited. Compared with the belly cabin of a

Table 5.3 Cargo Aircraft Fleet in China at the end of 2023

Cargo aircraft type	Type	At the end of 2023 (Unit)	At the end of 2022 (Unit)
Large wide-body cargo aircraft	B747-400F	13	13
	B777F	44	37
	subtotal	57	50
Medium-sized wide-body cargo aircraft	A330F	6	3
	B767-300F	25	19
	A300-600F	6	6
	subtotal	37	28
Narrow-body cargo aircraft	B757-200F	70	67
	B737F	89	77
	A320F	1	–
	ARJ21-700F	2	–
	MA600F	1	1
	subtotal	163	145
<b>Total</b>		<b>257</b>	<b>223</b>

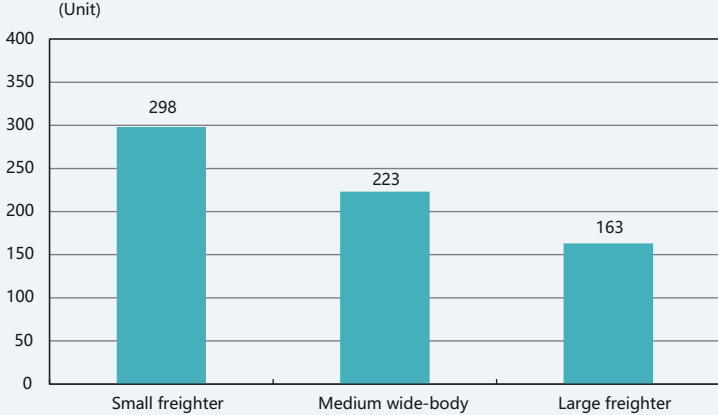
passenger aircraft, the all-cargo aircraft is more expensive, but it has a large capacity and strong timeliness, which is more conducive to flexible flight planning.

In 2023, the cargo turnover of all-cargo aircraft was 17.66 billion ton-kilometers, accounting for 62.3% of all air cargo, showing an increase of 4.2 percentage points over the previous year. In order to meet users' demand for faster, higher timely and reliable air cargo services, the proportion of cargo completed by all-cargo aircraft will remain stable and increase slightly in the long run. It is expected to remain at around 65% in 2043.

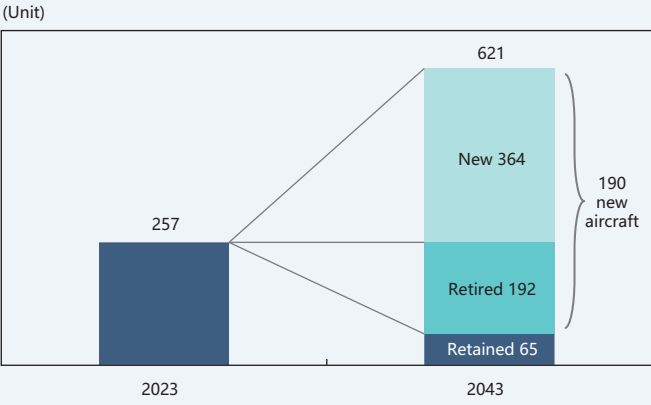
At present, the cargo fleet in China is small in scale and unreasonable in structure, which restricts the development of air freight in China. Due to evolvement of air freight in the future, China's cargo airlines need to create an aviation network with internal connections and external connections, and speed up the construction of an aviation network combining trunk routes and regional routes, long-distance and short-distance air transportation to improve the accessibility and transit connection of aviation networks. Moreover, it also need to expand international freight routes, and gradually build an international express aviation network that radiates around the world. To meet the demand of China's freight market development for all-cargo capacity in the future, the size of China's cargo fleet will increase greatly in the next 20 years, A cargo fleet structure with reasonable size and proportion will be formed. By 2043, it is estimated that the fleet scale of China's civil aviation cargo aircraft will reach 621, including 151 large cargo aircraft, 179 medium-sized wide-body cargo aircraft and 291 narrow-body cargo aircraft.

**( 3 ) Prediction of Cargo Aircraft Retirement**

At present, the average age of cargo aircraft in China is 21.2 years. According to the retirement ratio of different classes and different age



**Figure 5.10 Forecast of China's Civil Aviation Cargo Aircraft Fleet (2043)**



**Figure 5.11 Forecast of China's Cargo Aircraft Market Demand (2024-2043)**

segments, it is estimated that 192 cargo aircraft will be retired in China in the next 20 years, including 26 large wide-body cargo aircraft, 32 medium wide-body cargo aircraft and 134 narrow-body cargo aircraft.

**( 4 ) Forecast of Cargo Aircraft Demand**

It is estimated that during 2024-2043, in order to meet the demand of increasing traffic volume and to replace the retired aircraft, the Chinese market will need to supplement 556 cargo aircraft, of which 65.8% will come from converted passenger aircraft and 34.2% will be new cargo aircraft.



# Global Market Forecast of Civil Aircraft

## 1. Current Situation of the Global Air Transport Market

In 2023, the global air transport industry recovered further, and the main operating indicators improved significantly. The net profit of the whole industry turned losses into profits. Since 2024, the development of the industry has continued to improve, and the main operating indicators have been restored to the pre-epidemic level.

### (1) Air Passenger Transport Market

#### (1) Passenger transport volume

In 2023, the strong demand for air travel continued to promote the recovery of the global air passenger transport market, and the passenger transport volume further increased, increasing by 29.0% compared with 2022, reaching 4.497 billion person-times, reaching the level of 99.0% in 2019.

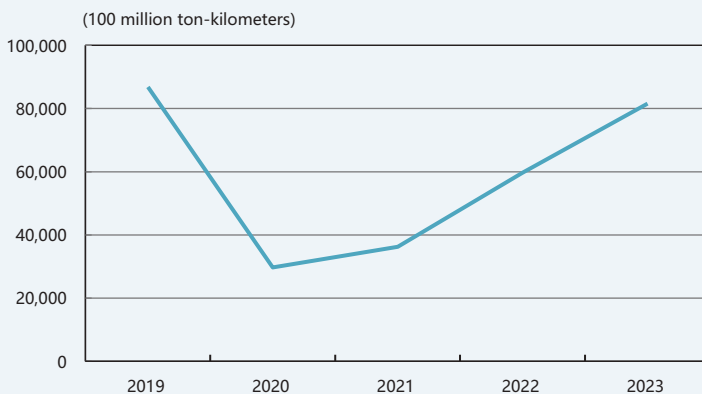


Figure 6.1 Recovery of Global Air Passenger Transport Turnover

Global air passenger transport turnover (RPKs) increasing by 38.4% compared with 2022, and returned to the level of 95.2% in 2019, which was significantly higher than the recovery level of 68.8% in 2022. Among them, the passenger transport turnover of domestic routes reached a new high in 2023, rising by 30.4% compared with 2022 and 3.9% compared with 2019, exceeding the pre-epidemic level; passenger transport volume on international routes showed steady and strong growth. The RPK increasing by 41.6% compared with 2022, but it still recovered to the level of 88.6% in 2019 only.

Judging from the situation in various regions, in 2023, only the RPK in North America and Latin America exceeded that in 2019, with an increase of 2.4% and 0.4% respectively, while other regions were worse than before the epidemic. The RPK in Asia-Pacific region was 14% lower than that in 2019, and that in Africa, Europe and the Middle East was 6.6%, 4.8% and 1.9% lower than that in 2019 respectively.

In 2024, global air passenger transport volume continued to grow. In February, the number of passengers transported has returned to the level of 2019. In the first half of 2024, global air RPK increasing by 11.6% on a year-on-year basis.

#### (2) Passenger transport capacity

In 2023, the global air passenger transport capacity (ASK) increased by 33.0% on a year-on-year basis, reaching the level of



94.4% in 2019. In the first half of 2024, ASK increased by 11% on a year-on-year basis.

### ( 2 ) Air Freight Market

Under the influence of the global economic downturn, the new export orders of global cross-border trade have shrunk as a whole, which has adversely affected the demand for air freight. In 2023, the global air cargo turnover (CTKS) was 2,460 ton-kilometers, decreasing by 1.9% compared with 2022 and decreasing by 3.6% compared with that before the epidemic.

In 2023, the air cargo transport capacity (ACTKs) increased by 11.3% compared with 2022 and 2.5% compared with 2019.

### ( 3 ) Passenger Load Factor and Cargo Load Factor

In 2023, the industry average carrying rate recovered to 66.9%, but there was still a gap of 3.6 percentage points compared with the 70.5% before the epidemic.

In 2023, the average passenger load factor of the industry increased to 82.2%, which was close to the 82.6% passenger load factor before the epidemic. In July 2024, the industry average passenger load factor reached an all-time high of 86%, reflecting the strong demand for air travel.

In 2023, the industry average cargo carrying rate (CLF) was 44.2%, which was 5.9% lower than that in 2022 and 2.6 percentage points lower than that in 2019.

### ( 4 ) Industry Income and Profit

In 2023, the income of the whole industry

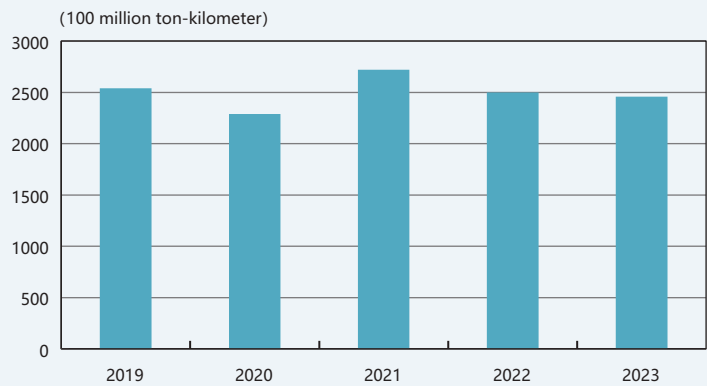


Figure 6.2 Global Air Freight Recovery Trend

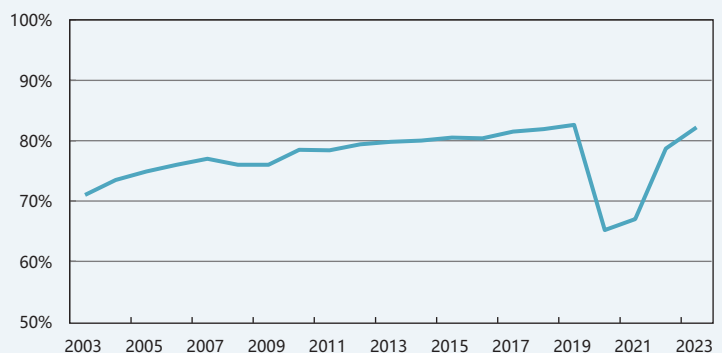
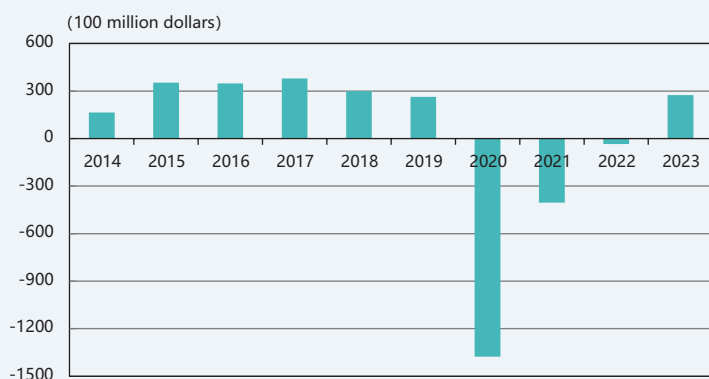


Figure 6.3 Trend of Average Passenger Load Factor of Global Scheduled Flights



**Figure 6.4 Net Profit of Global Civil Transportation Industries (2019-2023)**

reached 908 billion US dollars, increasing by 23.0% over the previous year and 8.4% over the pre-epidemic period.

In 2023, the global air transport industry finally got out of the heavy blow of the epidemic and turned losses into profits. The industry's net profit was 27.4 billion US dollars, increasing by 3.8% over 2019. The operating profitability of the industry reached 5.7%. Driven by the growth of the traffic volume, carrying rate and aircraft utilization rate, it is estimated that the income level of the industry will further increase in 2024, and the net profit will reach 30.5 billion US dollars.

From the perspective of various regions, North America, Europe and the Middle East took the

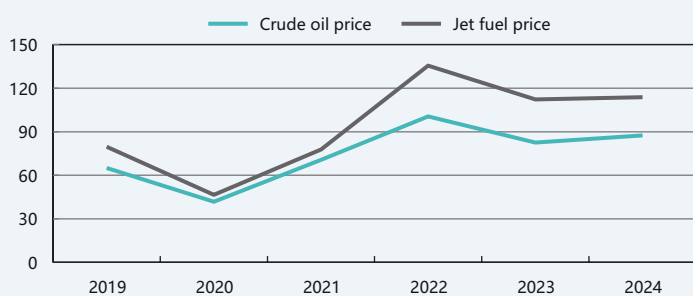
lead in achieving profitability in 2022. In 2023, the profitability of these three regions further increased, and Asia-Pacific, Latin America and Africa all got rid of losses and achieved profitability.

In terms of various regions, North America, Europe and the Middle East took the lead in achieving profitability in 2022. In 2023, the profitability of these three regions further increased, and Asia-Pacific, Latin America and Africa all got rid of losses and achieved profitability.

### (5) Fuel Price

In 2023, the fuel cost of the global air transport industry was 133 billion US dollars, declining by 24% on a year-on-year basis, and the proportion of fuel costs to operating costs dropped to 20.6%, down by 3.5 percentage points on a year-on-year basis. The lower oil price and the improvement of aircraft fuel efficiency have created higher profits for the air transport industry, and also provided space for the reduction of civil aviation fares, thus stimulating more air travel demand.

Regional conflicts have once again led to high world fuel prices, and the gap between jet fuel prices and crude oil prices has widened significantly. Since 2022, jet fuel prices have been running at a high level of more than 110 US dollars/barrel, and the urgency for airlines to introduce new models with higher fuel efficiency has reappeared. In 2023, the number of retired passenger aircraft worldwide has increased significantly. In the long run, the influence of geopolitical factors will continue to exist, and economic recovery will also promote the increase in crude oil demand. It is an inevitable trend for the world crude oil price to return to a high level in the future. Airlines still need to use aircraft with appropriate capacity and introduce new models with better fuel economy to reduce operating costs.



**Figure 6.5 Global Crude Oil Price and Jet Fuel Price Changes (USD dollars/barrel)**

## (6) Environmental Protection Requirements

Reducing emissions and noise levels are increasingly stringent environmental requirements that airlines must face. Carbon emissions will be reduced to half of the 2005 emission level by 2050 based on the goal of the International Civil Aviation Organization (ICAO). Major countries, including China, have put aviation emission reduction on the key agenda, and the European Union has been implementing

a carbon trading mechanism. For airlines, buying new aircraft with lower emissions and noise, replacing engines with more energy-saving and environmental protection, and using economic and environmental-friendly aviation biofuels have become the main coping strategies. Old aircraft have to retire early because it is difficult to meet the new environmental protection requirements and the operating efficiency is low. Turboprop regional aircraft has certain advantages over turbofan regional aircraft in terms of emissions and noise levels.

## 2. Forecast of Global Passenger Aircraft Demand

### (1) RPK Forecast

In 2024, the global air passenger transport industry has returned to the original development path, and it is estimated that the global air RPK will reach 9.1 trillion ton-kilometers, exceeding the pre-epidemic level. From 2024 to 2043, it is estimated that the average annual growth rate of global air RPK will be 4.8%, and it will reach 21.3 trillion person-kilometers in 2043.

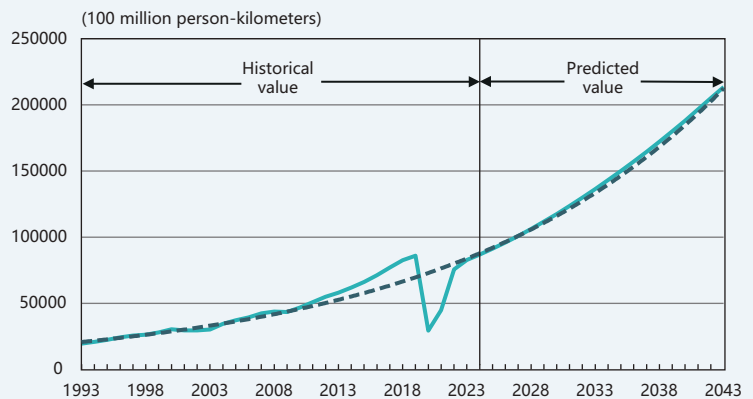


Figure 6.6 Global Air RPK Forecast (2024–2043)

### (2) Forecast of Passenger Load Factor and Aircraft Utilization

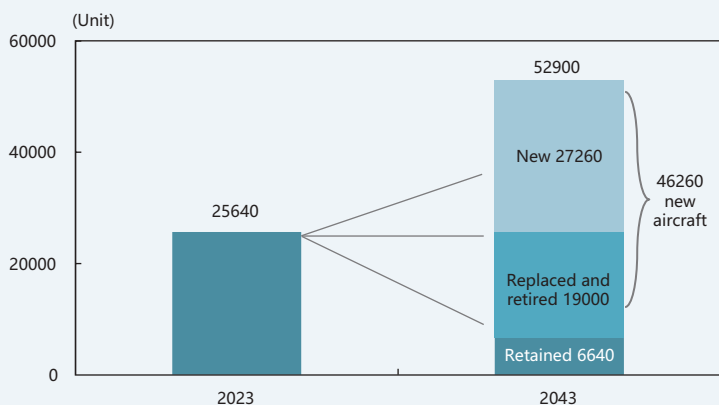
In July 2024, the average load factor of the whole industry exceeded the level of 2019, reaching a record high. At present, the shortage of global supply chain and other factors limit the global passenger aircraft output. The demand for global passenger capacity growth will continue to push the industry passenger load factor to remain at a high level in the short term. In the future, with the increase in passenger aircraft output and the mitigation of capacity shortage, the passenger load factor will fall back to a normal level.

With the development of aircraft technology, future aircraft will have higher flight speed,

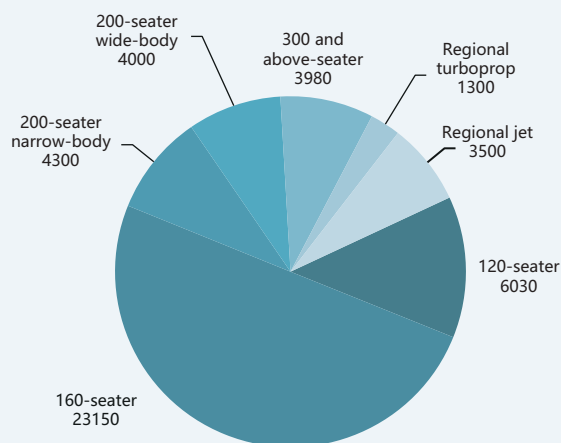
shorter turnaround time, less maintenance time and higher attendance rate, etc., thus having stronger transportation capacity and higher utilization rate.

### (3) Forecast of Aircraft Retirement

Oil price, aircraft emission, noise level, operating cost of existing fleet and adjustment of airline operating strategy are all important factors that affect aircraft retirement. The advent of new aircraft will also accelerate the retirement of old aircraft. However, the continuous shortage of global supply chain after the epidemic has



**Figure 6.7 Forecast of Global Passenger Aircraft Fleet Scale (2043)**



**Figure 6.8 Forecast of Global Passenger Aircraft Demand (2024-2043)**

brought a significant adverse impact on the supply of global passenger aircraft (especially trunk passenger aircraft), resulting in the delay of aircraft retirement and the reduction of the number of retired aircraft in recent years.

Based on a comprehensive analysis of various factors, it is estimated that 19,000 passenger aircraft will be retired worldwide from 2024 to 2043.

#### (4) Forecast of Passenger Aircraft Fleet Scale

By 2043, the global fleet of passenger aircraft (with 30 seats or more) will increase from 25,600 at the end of 2023 to 52,900, including about 45,600 trunk passenger aircraft and 7,200 regional aircraft.

#### (5) Forecast of Passenger Aircraft Demand

From 2024 to 2043, the global demand for civil airliners is about 46,300, of which 19,000 are used to replace retired aircraft and 27,300 are used to meet the demand of traffic growth. In the next 20 years, the world will need nearly 41,500 trunk aircraft, including 33,500 narrow-body passenger aircraft and 7,980 wide-body passenger aircraft; 3,800 regional aircraft are needed, including 3,500 jet regional aircraft and 1,300 turboprop regional aircraft.

### 3. Forecast of Global Cargo Aircraft Demand

Although the global air cargo volume has been lower than the pre-epidemic level for two consecutive years due to the global economic downturn in the short term, and it is likely that it will still be difficult to fully recover in 2024. In the long run, international trade and cross-border e-commerce logistics will promote the growth of the air cargo market.

#### (1) FTK Forecast

Air freight is closely related to the global economic situation and the development of international trade. In the long run, the global economy will grow at an average annual rate of 2.5%, and the average annual growth rate of international trade will reach 2.9%. In the future, with the improvement of the global economic situation and the resumption of international trade growth, and driven by the rapid development of global e-commerce, and the continuous growth of demand for fast and timely transportation for fresh products such as seafood and flowers, and high-value and light-weight goods such as medicines and electronic products, it is estimated that the global FTK will grow at an average annual rate of 4.0% from 2024 to 2043, and the global air cargo turnover will reach 530 billion ton-kilometers by 2043.

#### (2) Forecast of Cargo Aircraft Fleet

Carrying cargo in the belly cabin of passenger aircraft is an important way of air freight, especially for medium-sized wide-body passenger aircraft, which has strong cargo capacity and provides important air freight capacity for the market. However, the all-cargo plane can provide a better guarantee in time and route, and has stronger loading capacity, so it is still the protagonist of the air cargo market. In the

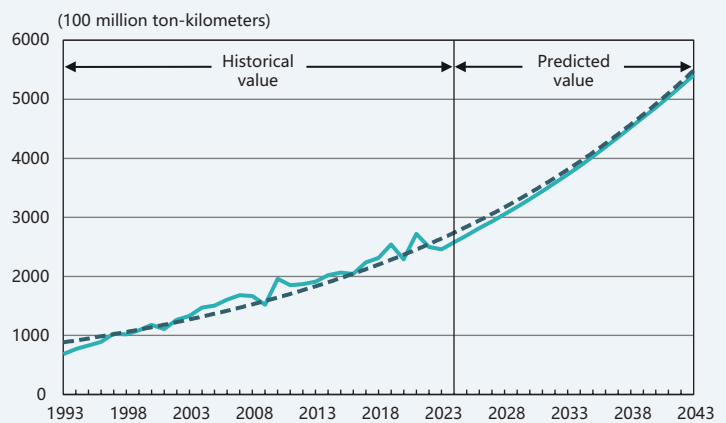


Figure 6.9 Forecast of Global Air FTK (2024–2043)

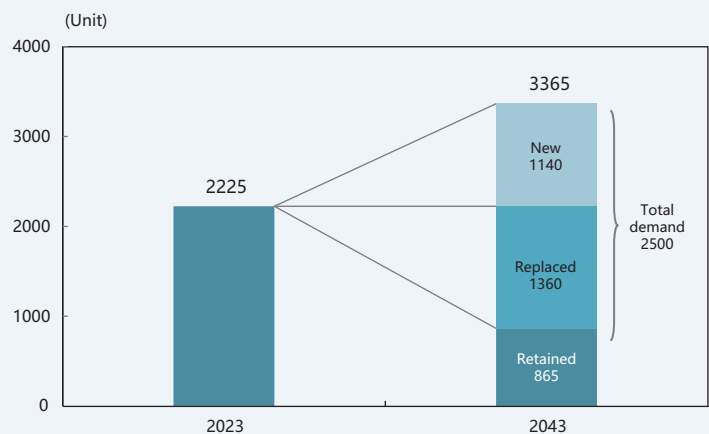


Figure 6.10 Forecast of Global Civil Cargo Aircraft Fleet Scale (2043)



next 20 years, the freight turnover of all-cargo planes will account for more than 60% of the total air freight turnover.

It is estimated that by 2043, the global cargo fleet will reach 3365.

### (3) Forecast of Cargo Aircraft Retirement

Usually, cargo planes have a long service life. In the medium and long term, because the transportation capacity and economy of the new cargo plane are better than those of the old model, it can bring more benefits to airlines. Airlines often seek the best solution between the economy of aircraft operation and the cost of aircraft replacement, so as to decide the time for cargo plane retirement. Based on comprehensive analysis, it is estimated that 1,360 cargo planes will be retired in the world from 2024 to 2043.

### (4) Forecast of Cargo Aircraft Demand

It is estimated that the global demand for civil cargo aircraft will reach 2,500 from 2024 to 2043, of which 1,360 will be used to replace

retired aircraft and 1,140 will be used to meet the demand of traffic growth.

In the next 20 years, the demand for narrow-body freighters (10–40 tons) will be the largest, at 1,120 aircraft, all of which will be met by converted passenger aircraft; the demand for medium-sized wide-body freighters (40–80 tons) is 850, of which 500 are new cargo aircraft and 350 are converted passenger aircraft; the demand for large cargo aircraft (> 80 tons) is 500, of which 420 are new cargo planes and 80 are converted passenger aircraft.

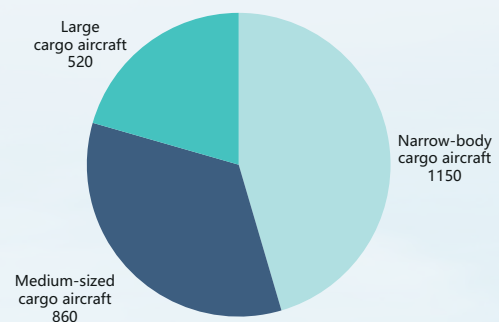


Figure 6.11 Forecast of Global Civil Cargo Aircraft Demand (2024–2043)



**Attached Table 1: Forecast of Civil Aviation Passenger Aircraft Fleet Scale and Demand in China**

<b>Aircraft seat</b>	<b>Fleet at the end of 2023</b>	<b>Fleet at the end of 2043</b>	<b>Demand in 2024-2043</b>
400-seater ( ≥ 400 seats)	10	78	79
300-seater ( 250-399 )	139	521	523
200-seater ( ≤ 249 seats)	324	978	944
<b>Subtotal of wide-body aircraft</b>	<b>473</b>	<b>1577</b>	<b>1546</b>
200-seater ( ≥ 181 seats)	493	1370	1271
160-seater (131-180 seats)	2405	4933	4655
120-seater (101-130 seats)	378	484	320
<b>Subtotal of narrow-body aircraft</b>	<b>3276</b>	<b>6787</b>	<b>6246</b>
<b>Subtotal of regional aircraft</b>	<b>264</b>	<b>541</b>	<b>486</b>
<b>Total</b>	<b>4013</b>	<b>8905</b>	<b>8278</b>

## 中国航空工业发展研究中心

### Aviation Industry Development Research Center of China

中国航空工业发展研究中心成立于 2001 年，由航空工业信息中心（628 所，1956 年建所）、中国航空系统工程研究所（620 所，1982 年建所）合并组建。它是我国唯一一家从事航空产业、航空产品、航空技术发展综合研究的事业单位，是工信部首批、航空唯一的软科学服务机构。现有科研人员 400 余人，80% 具有硕士以上学历，50% 具有高级职称。

China Aviation Industry Development Research Center was established in 2001, which was formed by the merger of Aviation Industry Information Center (628, established in 1956) and China Aviation System Engineering Research Institute (620, established in 1982). It is the only institution engaged in comprehensive research on the development of aviation industry, aviation products and aviation technology in China, and the first science advisory science institutions of the Ministry of Industry and Information Technology. There are more than 400 scientific researchers, 80% of whom have master's degree or above, and 50% have senior titles.

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