Big Data, Customer Relationship and Revenue Management in the Airline Industry: What Future Role for Frequent Flyer Programs?

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ABSTRACT

Airlines were 'big data' pioneers by establishing loyalty programs long before other sectors. Today, frequent-flyer programs (FFP) are among the most successful loyalty schemes in business history. However, their nature has substantially changed over time. On the one hand, instead of rewarding frequent flying in the literal sense, their main focus now is on linking access to advertised FFP benefits to their members' absolute spending. On the other hand, FFP were opened to non-airline businesses. As a result, not only have FFP members' opportunities to earn and spend FFP miles or points[1] multiplied. Also, the airlines' access to data on their FFP members' purchasing behavior beyond air travel is now as broad-based as never before. As a downside to multiplying earning opportunities, the accumulated stock of FFP miles became a massive financial liability on the airlines' balance sheets, however. This development prompted airlines to continuously, and often substantially, reduce both the purchasing power of accumulated FFP miles for so-called awards and simultaneously to restrict, and partly even eliminate, earning opportunities at the same time. This is an ongoing 'disinflationary' process. In our paper, we explore the future role of FFP as a tool to generate and maintain customer loyalty.

Keywords: Frequent flyer programs; customer relationship management; revenue management; data analytics.

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1. INTRODUCTION

Commercial airlines were 'big data' pioneers by establishing loyalty programs long before other sectors, in particular retailing. The airline industry's frequent flyer programs (FFP) have not only been among the most successful loyalty schemes in business history in terms of the amount of members. By trying to achieve profit-maximization by creating a loyal customer base in return for award travel opportunities and 'elite status' amenities, FFPs have become an industry standard worldwide. In the meantime, however, the term <u>frequent flyer</u> program has become somewhat misleading as earning and redemption opportunities have long transcended the airline industry; in fact, these are also offered by plenty of program partners from other branches. These include credit card companies and

[1] Frequent flyer miles are the 'currency' of most FFP. Some FFP, however, are based on a 'point' system. In the following, the term 'miles' is used for both varieties.

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other financial service providers, rental car companies, hotel chains, media outlets and a large network of retailers, all of whom have paid for access to the leading FFP to tap the enormous amount of highly personalized data accumulated there in order to identify and benefit from cross-selling opportunities. But also the airlines profited massively from their cooperation with outside commercial partners. Through the substantially growing amount of commercially valuable personalized data which permit them to greatly improve their passenger profiling capabilities way beyond of what they could achieve using internal data on historical flight search and booking patterns alone (itineraries, booking classes, add-on bookings of ancillary services etc.). In a nutshell, 'big data' availability combined with the airlines' vastly advanced data analytics techniques enabled them to engage in more accurate real-time customer intelligence and, as an immediate result, in one-to-one personalized marketing and (first-degree!) price discrimination (i.e. personalized pricing) on a historically unprecedented scale.

It is therefore obvious, however, that an increasing share of the data which are valuable for airlines is now generated outside the traditional FFP environment as FFP by definition are able to record past travel and consumption behavior only (the exception being existing future bookings, once the FFP membership number has been added to the booking) with limited predictive powers. In particular, (meta) search engines and airline websites (which have grown into comprehensive travel-related portals), are quickly becoming effective real-time tracking devices in respect of passengers' search and booking behavior – including data on aborted searches and bookings which are also crucial to fine-tuning consumer profiles.

The emergence of complementary data sources raises the important question on the future role of FFP in airlines' consumer relationship marketing and revenue management strategies. It will be explored in this paper. The research hypothesis is that the increasing availability of key data outside traditional FFP will reduce their value as a tool to create and maintain customer loyalty. Our main finding is that big data availability has strongly improved the airlines' inventory and revenue management capabilities, effectively allowing airlines to 'inflate away' FFP award availabilities, to the disadvantage of loyal FFP members. In fact, airlines have massively pushed up the amount of miles required for redemption (in addition to the requirement to pay numerous fees, charges and surcharges to obtain a previously free award ticket). In addition, earning opportunities for paid tickets and to obtain or maintain 'elite status' perks have been continuously reduced and became much more aligned with the revenues generated by individual tickets, often complemented with annual minimum spend requirements to (re)qualify.

2. FFP – AN OVERVIEW

Contrary to the claims made in the vast majority of academic and media publications on the subject, American Airlines was <u>not</u> the first airline to introduce a modern mileage-based FFP. Instead, this distinction goes to Texas International Airlines, a small regional US airline (which merged into Continental Airlines under their CEO Frank Lorenzo in 1982). One year later, Western Airlines (which was taken over by Delta Airlines in 1986)

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followed suit with its Travel Pass program.[2] Nevertheless, American Airline's Advantage program which was rolled out on May 1st, 1981, currently is the world's largest FFP in terms of membership numbers (around 100 million).[3] Europe's largest FFP, Lufthansa's Miles & More program, has currently 30 million enrolled members.[4] While some smaller airlines have joined the FFP of their owners or larger alliance partners – e.g., Romania's Tarom adopted AF/KLM's Flying Blue program, and SWISS, LOT (Poland), Adria Airways (Slovenia), Croatia Airline and Eurowings use Miles & More[5] – almost all commercial airlines offer their customers membership in their own FFP, with the striking exception of most European and Asian low cost carriers (LCC). Apart from the airline industry, similar loyalty schemes were later introduced by hotel chains, rental car companies, some airports (e.g. Frankfurt/Main – FRA) and several credit card companies.

FFP were spectacularly popular among airline customers in terms of the number of miles earned. While more recent figures are not publicly available, an article published in The Economist in January 2005 estimated the total number of miles which had been accumulated during the first 25 years after the introduction of FFP at 14 trillion. More important, The Economist also found that the stock of unredeemed miles had incessantly increased at a much faster rate than those, which were redeemed for award.[6] Due to accounting rules, this had by then translated into liabilities to the tune of US$ 700bn for the world's airlines.[7] Obviously, if all FFP members were to attempt to redeem all their miles at once, airline capacity would be fully utilized for a number of years, resulting in a collapse of almost the entire industry. Therefore, unsurprisingly, airlines began to fundamentally reorganize their FFP – with stunning commercial success. Currently, most major airlines (including all large US carriers) generate slightly more revenue and, most of all, profits, from commercializing their FFP than from their flight operations.[8] The traditional structure of FFP and its evolution will be discussed in the following subchapter.

2.1 Evolution of FFP from their origins to the present

Before the introduction of FFP in the late 1970ies, frequent flyers – most of whom were business travelers – did not receive any meaningful recognitions for their loyalty except some tokens or other forms of non-monetary rewards (e.g. plaques in bronze, silver or gold for having completed a minimum number of flights on a specific city pair or across the airline's network). It was only after the deregulation of the domestic US market that airlines massively stepped up their efforts to secure the loyalty of their most profitable customers and to attract new clients in an increasingly competitive market environment.

2 See Peterson (2001) and Rowell (2010).

3 See Schlangenstein (2013).

4 https://de.wikipedia.org/wiki/Miles_%26_More.

5 Eurowings emerged from Germanwings whose own FFP, the Boomerang Club, continues to exist alongside Miles & More.

6 The Economist (2005), Funny money, December 24th, 2005, p. 108-109.

7 The valuation of unredeemed miles in the airlines' balance sheets are beyond the scope of this paper. For a more detailed discussion of the main methodological challenges see AIMIA (2017) and KPMG (2015), Accounting for revenue is changing. Impact on transport companies.

8 See Bachman (2017).

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Before liberalization, all fares as well as market access - down to individual city pairs – and frequencies were regulated by the Civil Aeronautics Board (CAB), and the vast majority of tickets were sold by independent travel agencies. Accordingly, at the onset of deregulation, airlines lacked in-depth information about the travel behavior of their passengers – which is not only crucial for an airline to optimize its inventory management and route and network planning. Moreover, comprehensive information on price and income elasticities of demand was largely lacking due to the previous inexistence of market prices and of a more differentiated product offering (only two services classes - first and economy -, and very few restricted economy class fares for advance bookings were available then; moreover, LCC were limited on regulatory grounds to intrastate services in just three US states, i.e. Florida, California and Texas).

The two first FFPs – Texas International Airlines' and Western Airlines' programs – were simple rebate schemes and offered frequent flyers discount certificates which could be redeemed for future trips after they had logged in a certain minimum number of paid-for flights. Soon however, FFP became more sophisticated. Originally, some minor differences notwithstanding, most FFPs shared a very similar basic structure:

- <u>Membership</u> is open to all actual and potential passengers at no charge.
- <u>Mileage accrual</u>: Members were able to earn a certain amount of miles for (most) paid-for tickets. First class and (later) business class fares would earn a multiple of economy class fares. There was no further differentiation according to booking classes within the respective services classes, i.e. a full fare economy class ticket would earn exactly as many miles as a restricted economy class fare.
- <u>Mileage redemption</u>: Accumulated award miles could be spent on (allegedly) 'free' airline tickets and 'free' upgrades to a higher service class.
- <u>Distinction between award miles and status miles</u>: While the amount of award miles which had been accumulated by a member during a certain amount of time determined his/her access to award tickets and upgrades, the accumulated number of status miles determined the eligibility for additional perks (so-called status benefits, e.g. priority check-in, lounge access, extra baggage allowance, waiting list priority etc. As an additional incentive to customers, status stratification was practiced, i.e. several status levels – basic, silver, gold – with differentiated benefits were defined). Typically, status miles expired after only one year, while award miles would be valid for a longer period, e.g. three years.

To the present, this basic FFP structure has remained largely intact, although substantial changes to FFP rules and benefits have been implemented over time. They will be discussed in more detail below. In this context, we distinguish two evolutionary stages: The 'inflationary' early years which lasted from the creation of FFP until the late 1990ies and the 'disinflationary' period afterwards.

2.1.1 The 'inflationary' years

Until around 2000, the spectacular growth in mileage earnings and the ensuing steep rise of FFP popularity among customers resulted essentially from five major developments, which often were overlapping and hence mutually reinforcing:

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- Airlines offered increasingly generous earning opportunities to create high levels of passenger loyalty in the immediate post-deregulation period. E.g., often one could earn a multiple of miles on more competitive city-pairs than on monopoly routes. Moreover, mileage accrual was essentially based on service class – not booking class - and distance, with minimum mileage thresholds for very short flight.
- The emergence of bilateral codeshare agreements among airlines and, even more importantly, of global alliances among the major carriers (Star Alliance, Skyteam and oneworld) multiplied earning opportunities for members of all participating FFP even further (while at the same time also redemption opportunities became more ample and geographically diversified, thus benefiting the attractiveness of individual FFP).
- Most FFP offer members award miles for purchase (some programs also sell status miles, although to a very limited extent and to select customers, e.g those who fell very short of securing status requalification by year's end).
- Cooperation with non-airline partners, in particular although not limited to hotel groups, credit card companies, rental car companies, publishers and a variety of retailers opened up even more earning and redemption options for FFP members. While mostly, only award miles may be earned, some cooperation partners – essentially in the guise of co-branded airline credit cards - in some countries also allow eligible FFP members (i.e. those who are also cardholders) to earn award <u>and</u> status miles.
- As some of the FFP's cooperation partners established their own loyalty programs, most of all rental car companies, hotel groups and some credit card companies, but also multi-company loyalty schemes such as Germany's popular Payback program, conversion of miles or points earned in these programs into FFP miles is another option to increase FFP award miles stocks.

However, from the airlines' perspective, the early success of their FFP was commercially ambivalent. While the programs became very effective in producing customer loyalty, the ease with which customers were able to accumulate award miles and progress towards so-called 'elite' status (and become eligible for the aforementioned status benefits) not only became a balance sheet liability. Moreover, the fast increase in the number of 'elite' status holders effectively reduced the likelihood that the associated benefits – such as 'free' upgrades and 'free' award tickets - were actually available for them on trips, especially to and from hub cities where the large majority of status holder is based.[9]

This trade-off between securing high levels of loyalty while incurring massive balance sheet liabilities on the one hand and exploiting the full revenue and profit generating effect of commercializing FFP on the other became increasingly difficult for airlines to manage.

2.1.2 The 'disinflationary' years

9 See for example McCartney (2005), Hewitt (2017) and WebFlyer (2017.

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Both in the USA and in Europe, airline deregulation created new business models, which, in particular, became manifest with the rise of regional airlines and LCC. The former over time entered into close commercial relationships with the traditional airlines which contracted out a substantial amount of flying from their mainline operations, both to reduce crew costs and to serve thin routes with smaller and hence more efficient aircraft. The latter enjoyed substantial cost advantages, which turned them into cost and price leaders in the markets they entered. Because of the lower fares LCC offered, demand for air travel in those markets rose considerably due to the highly elastic demand and the high income elasticity of air travel in general.[10] The increasing market penetration of LCC – in terms of passengers enplaned, Southwest Airlines has grown into the third largest US airlines. JetBlue and Spirit are currently ranked fifth and sixth; in Europe, Ryanair, easyJet and Norwegian Air Shuttle are ranked second, fifth and eighth, respectively – this also forced traditional carriers to streamline their operations in order to reduce their cost base and to offer competitive lower fares. In the process, many airlines – traditional and LCC alike - were forced to exit the market, or to seek reorganization under the Chapter 11 bankruptcy provisions (US only). Some traditional carriers also responded to the LCC threat by establishing their own in-house LCC subsidiaries (especially in the USA, e.g. Delta's Song and Delta Lite, USAirways' Metrojet, United's Ted, but also British Airways' Go!) – all of whom were later wound up (Go! Was sold to EasyJet), or by taking over small LCC (e.g. Vueling and, recently Niki, by IAG), or transforming regional airlines into LCC platforms (e.g. Lufthansa's Eurowings brand).

Not only did the emergence of LCC open up the air travel market for more price-sensitive, and hence, less loyal customers. They proved also innovative in the area of pricing by pioneering unbundled fares – an approach which was quickly imitated to varying degrees by the traditional carriers. Unbundling means that the lowest available ('basic') airfare only includes transportation from A to B, while all amenities – e.g. advance seat selection, checked and/or carry-on baggage, meals etc. – need to be purchased extra. These so-called ancillary revenues have turned into a major source of revenue for airlines.[11] While for LCC the main sources of ancillary revenues are sales of the aforementioned flight-related services, for traditional airlines, FFP-related revenues are predominant. As was mentioned before, airlines opened their FFP to a variety of non-airline businesses which reward their customers with the opportunity to earn (and, in part, also redeem) miles of one or more associated FFP. In turn, these miles need to be purchased form the FFP. According to most estimates, the issuers of co-branded credit cards are, by a wide margin, the most important outside purchasers of frequent flyer miles. IdeaWorks, a consulting company, claims that Citibank, in 2011, spent roughly US$ one billion to purchase miles for their cardholders from American Airline's AAdvantage program alone.[12]

To summarize, during the last decade of the post-deregulation era, LCC firmly established themselves in the market, while market concentration overall increased massively in the wake of the last round of mergers among the remaining traditional carriers (Delta - Northwest, American Airlines - US Airways, United Airlines - Continental). Only three

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10 Named after the most successful US LCC, Southwest Airlines, the resulting market expansion is referred to as ‚Southwest effect' in the topical academic and consulting literature.

11 For a detailed overview see IdeaWorks (2017).

12 See IdeaWorks (2011).

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majors survived in the USA, while Southwest Airlines firmly established themselves as a similar-sized LCC competitor in all major market. A strong consolidation trend is currently under way in Europe as well. Following the recent bankruptcies of Air Berlin and, most of all, Alitalia, with the Lufthansa Group (Lufthansa, SWISS, Austrian Airlines, Brussels Airlines, Eurowings), Air France/KLM and IAG (British Airways, Iberia, Aer Lingus, Vueling) being the dominant legacies, while Ryanair and easyJet – which do not offer FFP - provide meaningful LCC competition in an increasing number of key markets.

Against this backdrop – a mix of consolidation, increasingly price-sensitive customers, including an increasing number of corporate travelers, and the substantial balance sheet liabilities airlines incurred from unredeemed frequent flyer miles – traditional airlines began to systematically devalue the benefits members could obtain from the FFP membership in all three relevant dimensions - accrual, redemption, status benefits. This disinflationary process, which began in the late 1990ies, is still underway:

- Over time, the previous distance-based approach to mileage accrual for both award and status miles was replaced by a revenue-based approach. Instead of the service class, the booking class – or 'fare bucket' became the new metric. Accordingly, lower priced fare would earn less miles and higher priced one. More recently, this new approach was further refined by the leading US carriers – with Lufthansa and Air France/KLM following from this spring. The number of accruable miles is now strictly based on the ticket price excluding government-imposed taxes and charges (in the case of Lufthansa, only award miles accrual will initially be subject to this rule change). Moreover, some airline substantially reducing earning opportunities on select codeshare and alliance partners which posed a strong competitive challenge (e.g. Lufthansa unilaterally devalued award and status mileage accrual on Turkish Airlines, Delta on Korean Air).
- Redemption opportunities were gradually limited by increasing required amount of award miles and by reducing award inventories. This is not only the result of average load factors edging up to levels of close to 80 per cent. Moreover, the number of available seats in the business class cabin ever higher load was continuously reduced due to lower demand from business travelers, effectively limiting upgrade opportunities. An increasing number of airlines have also phased out first call cabins while starting to offer a so-called premium economy product. Both moves have however, reduced the availability of some of the most attractive redemption opportunities, both with respect to award tickets and to upgrades. Another devaluation is the result of applying price unbundling also to award ticket. While in the 'inflationary' years, award tickets came with all taxes, fees and services charges included – their price was identical with the due number of award miles that needed to be spent – all these extra costs (which often include nontransparent carrier-imposed surcharges such as 'fuel surcharges' or 'international surcharges') must now be borne by the customers in addition to the required award miles. As a result, award tickets in economy class come often at a higher price than discounted regular air fares.
- The reduction of accrual opportunities also affected customers' ability to qualify and requalify for higher status levels and to harness the corresponding 'elite'

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benefits. On a positive note, this development has released some of the stress on overused facilities such as lounges and somewhat improved the redemption options for some other status benefits, in particular updates and award tickets in the higher service classes. However, the deflation of status benefits also continues to have a (not just potentially) negative impact on the loyalty of those 'elite' customers who feel 'unfairly' disentitled of their status and the privileges and benefits it had previously entailed.

In parallel, the increasing commercialization of FFP – i.e. the sale of frequent flyer miles to non-airline businesses for them to reward their customers with mileage accrual opportunities had an ambivalent impact on loyalty. On the one hand, as most of these outside partners only permit the accrual of award miles, FFP members are in the position to more quickly accumulate them than ever before – and in larger quantities compared to the very much reduced (or even eliminated) earnings for (deeply) discounted fares. Moreover, new redemption options outside the traditional award ticket and upgrade options were opened up (e.g. hotel stays, car rentals, travel accessories, newspaper and magazine subscriptions). On the other hand, the number of 'elite' members was inflated by opening up FFP as some of the outside partners – in particular credit card companies – also offer status miles accrual for every purchase.

2.2 The increasing importance of 'big data' in customer relationship and revenue management

Never before in history did airlines have access to more and more precise data to create individual traveler profiles. Accordingly, a strong trend towards individualized offerings, including one-on-one pricing and customized offers for ancillary for-pay services, exists.

A few decades ago, when passengers booked most of their tickets through travel agencies, aside from corporate contracts for their key accounts, only FFP provided airlines with more detailed information on a customer's past travel pattern and willingness to pay- with limited predictive power beyond those few city pairs, which were booked on a regular basis. However, this information was (and remains) patchy in the sense, that only actual travel with the respective airline (and its codeshare and alliance partners), including the service class which was selected and the fare which was paid, was recorded. All other travels with competing airlines or other modes of transport remain invisible to the airline. The same limitations applied for ticket inquiries with travel agencies which did not result on firm bookings (e.g. due to an unacceptably high price quote from the airline.

Following the lead of LCC and massive advance in online technology, traditional airlines were able, however, to tap a large number of new sources of customer intelligence, both in-house and though cooperation with specialized service providers:

- (Most) LCC have historically bypassed travel agencies, thus avoiding both commissions and, last not least, the transfer of commercially sensitive passenger data to the operators of the large computer reservation systems like SABRE and AMADEUS – some of which remain close (ownership) ties to some of the largest legacy carriers. Meanwhile, all airlines run their own portal which allow

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passengers not only to search for and book flights, but also to purchase ancillary services to enhance their inflight experience and to bundle non-airline services such as travel insurance, accommodation and rental cars into their booking. If a flight search does not result in a booking immediately, and the customer resumes the booking later, the airline my quote a higher fare aware that the inquirer was unable to find a better alternative elsewhere. The same holds for repeat customers – whether or not they are members of the airline's FFP – as this clientele attempts to reduce search costs and accepts (knowingly or unknowingly) a slightly higher fare quote. In fact, all airlines, and also online travel agencies like Expedia and Opodo use complex algorithms to track and record all searches and bookings to improve one-on-one pricing and service offerings.

- The close cooperation of FFP with non-airline businesses allows airlines to tap additional valuable source of customer-related information (within the legal framework of a country's data protection legislation). In particular, access to data on credit card spending for flights with competing airlines, hotel stays and rental cars, as well as social media interaction with (potential) customers[13] are not only conducive to enhance the respective FFP member's travel profile. It also helps the airline to optimize the selection of non-airline partners of its FFP for the mutual benefit of both companies.
- Specialized (travel-related) search engines such as Swoodoo and Skyscanner, but also generic ones like Google (through Google flights) do not only act as platforms top connect (potential) airline customers with online travel agencies and airline booking portals to consummate the transaction. Each search – whether or not it results in a firm booking - creates additional data on that (potential) customers' airline preferences and willingness to pay. Moreover, these search data also allow the identification of underserved, or even unserved, routes, which may be profitably added to an airline's network, if the airline is willing to purchase and harness this information.

3. ASSESSMENT

3.1 Customer relationship management vs revenue management

Creating lasting loyalty among customers is a key element of any customer relationship management (CRM) strategy. It is based on the empirically valid premise that the retention of the existing customer base is substantially less costly than the acquisition of new customers. Loyalty programs including FFP have therefore become crucial CRM tools in many consumer good and b2c service industries. However, a close correlation exists between customer satisfaction and customer loyalty. According to the so-called chain of customer experience, the producer-customer relationships is characterized by five stages of interaction.[14] If switching costs are low or inexistent and customers are aware of or even familiar with potential alternatives, permanent loyalty can only be built

[13] See, for example, Wahyono, MohKhoiruddin and Andhi Wijayanto (2017).
[14] See, for many, the contributions published in Bruhn/Homburg (2017).

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and maintained if the customer experience normally matches or exceeds customer expectations.

This simple insight may however, be at odds with the profit-maximization imperative every corporation faces, which is subject to a hard budget constraint in a competitive environment. Revenue management data proves that not every customer is of the same commercial value to a company. By contrast, a Pareto distribution – i.e. a power law probability distribution – typically applies. Often referred to as 'Pareto principle' or '80:20 rule', it describes the fact that a small percentage of customers provides a very large percentage share of a corporation's total sales and, most of all, profits. For instance, in 2009, 1.64 per cent of all passengers travelling on American Airlines represented 26.4 per cent of the airline's total revenues.[15] This observation explains the shift towards revenue-based FFP, with the corresponding segmentation of the customer base into those groups who contribute more to a company's revenues and profits than it costs the company to serve them and maintain their loyalty. Against this backdrop, a company acts rationally whenever it does not actively seek the loyalty of underperforming customer segments, i.e. the most price sensitive clientele (e.g. low-yielding VFR – '<u>v</u>isits to <u>f</u>riends and <u>r</u>elatives' - and leisure travelers).

3.2 Are FFP true loyalty programs?

As demonstrated above, never in the history of commercial aviation did airlines have access to more and better data for customer profiling - including but not limited to their own FFP data. Accordingly, the commercial value of air travel-related FFP data of individual passengers has relatively decreased for all, but the most profitable customers segments; the same is true for the individual relevance of status benefits as the serial accrual reductions and redemption limitations of recent years have made it increasingly difficult for most customer groups to attain the highest levels of 'elite' status or to save for more attractive redemption options; unsurprisingly, a substantial portion of all accumulated mile expire unused.[16]

3.2.1 Two alternative concepts of loyalty

Two different concepts with respect to loyalty programs exist[17]: One school of thought considers loyal customers looming liabilities as the provision of accrued loyalty benefits – i.e. a seat upgrade or an award ticket. This prevents the airline from selling either to another paying customer. Given the aforementioned widespread redemption restrictions, this opportunity cost argument only holds water during peak travel periods with the correspondingly very high load factors. Moreover, as 'free' award tickets no longer exist due to a plethora of airline-created fees and surcharges, even award tickets now generate a meaningful revenue stream for airlines. The downside to this approach, from a CRM perspective, is the strongly reduced incentive to enroll in or to uphold active membership

[15] See IdeaWorks (2011), p. 2.

[16] Lufthansa's Miles & More program records twenty to thirty per cent expired miles. See https://de.wikipedia.org/wiki/Miles_%26_More.

[17] For the following see Shugan (2005).

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in a loyalty scheme, which – for most customer segments – offers little in the way of lasting benefits when better-suited and/or cheaper alternative exist or arise.

The other approach to loyalty programs is to consider customers as assets which are worthy of a mutually beneficial long-term business relationship. Accordingly, the main function of CRM in general and loyalty programs in particular is to increase a customer's utility from his/her transactions with the company over time. This includes increasing switching costs, actively promoting habitual behavior – e.g. by allowing highly selective access to dedicated lounges for the commercially most important customers - and transaction cost-reducing customization/bundling and the development of good personal relationships with the most relevant frontline and back office employees (e.g. customer service representatives, lounge attendants, hotline staff to assist in making award bookings and securing updates etc. At least for the higher 'elite' levels which, increasingly represent 'big spenders' rather than frequent (economy class) flyers, FFP routinely offer this type of dedicated service. As a downside, the 'disinflationary' approach to awarding FFP benefits more selectively may negatively impact on the loyalty those members who lost their high-level 'elite' status as a result and may not be able to requalify.

3.2.2 Gradual erosion of loyalty enhancing market imperfections

As for FFP in particular, analyses of customer's booking behavior during the 'inflationary' years clearly demonstrated the existence of monopolistic competition. Ample evidence existed that so-called threshold effects and a resulting willingness to pay higher ticket prices on those airlines (including codeshare and alliance partners) where the client was a FFP member, even if a competing airline without or with a less attractive FFP would offer lower prices and/or better quality (frequency, nonstop vs. connecting services etc.). As a result, airlines with a (more attractive) FFP used to enjoy a major competitive advantage over their competitors who do not; this observation also led to several antitrust investigations because of their potentially anticompetitive effects (in Sweden, antitrust authorities even ordered the dominant airline SAS to cease dispensing miles and offering frequent flyer benefits on those domestic city-pairs where SAS competed with smaller airlines. In Norway, the ban covered all domestic city-pairs[18]).

The underlying economics, which are conducive to promote loyalty through FFP are simple. The threshold effect is due to the combination of sunk costs – in the form of previously accumulated miles and/or obtained 'elite' status - and the FFP member's loss aversion regarding both. In addition, for those travelers who do not have to pay for their own tickets – e.g. most business travelers (except for the self-employed) -, another loyalty-enhancing distortion may unfold if the earned miles and status benefits may be used for private travel and the traveler has substantial leeway in his/her selection of airlines. The resulting informational asymmetry may tempt the traveler to book a more expensive airline for private gain. In recent years, however, most companies and public sector employers have introduced internal regulations to the contrary; as a result, typically the cheapest available option must be booked and the accrued miles must be spend on

[18] See European Competition Authorities (undated).

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future business-related travel. Accordingly, loyalty incentives were somewhat reduced as a result.[19]

Finally, airlines are in the process of making an increasing number of previously exclusive 'elite' status benefits – most of which are included in the fares for higher service classes anyway, in particular first class, business class as well as, at least partly, premium economy class - available for purchase for all customers, including their own 'elite' members. The most important areas are lounge access, advance seat selection including emergency seats and seats with extra legroom, an empty neighbor seat etc., thus blurring the previously stricter customer segmentation. What is more, a major 'elite' benefit – lounge access - is also offered at a large number of airports by independent operators on a 'pay-as-you-go' basis (within or outside lounge access networks like Priority Pass), regardless of the chosen airline. Finally, at the most important international hub airports, financial institutions, in particular credit card companies, are opening VIP lounges for their own 'elite' customers (e.g. American Express' Centurion lounges and the Diner's Club lounge network). The increasing availability of for-pay options without FFP membership enables customers to create their own bundles (e.g. by combining a cheap LCC flight with lounge access) which may strongly resemble the offerings of FFP to their most loyal customers without the need to invest in FFP status.

4. CONCLUSION

FFP may be analyzed from very different angles. From a monetary policy perspective, they may be classified as a specific form of a virtual currency scheme. In this paper, we discussed the impact of new data sources ('big data') on the effectiveness of FFP as a customer loyalty tool. We found the even before the advent of these additional data sources, airlines had begun to fundamentally transform and fine-tune their FFP. While CRM objectives clearly prevailed during their 'inflationary' years, i.e. the immediate post-deregulation era, the emergence of LCC – which focused on the previously largely untapped segment of price-sensitive customers, while relinquishing to establish their own FFP[20], forced traditional airlines to use their FFP increasingly to generate ancillary revenues and thus maximize profits. For many long-time low-yielding members this radical change of tack translated into a massive reduction of loyalty benefits. From an antitrust perspective, given the not insignificant anticompetitive potential of loyalty schemes (of dominant or near dominant companies or groups of companies, which are quite common in the airline sector in most countries) this development may be a positive, welfare increasing outcome, however.

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[19] For a detailed discussion of the most virulent past and current antitrust and consumer protection issues see Fritzsche, Jörg (1999); Office of the Inspector General (2016).

[20] With the exception of the largest US-based LCC Southwest Airlines and jetBlue.

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