STAR ATLAS

State of the Economy

ATMTA, Inc.
Department of Economics

Q1 2024

Disclaimers

The State of the Economy is an academic publication intended to inform and encourage public discussion by Star Atlas community members about economic trends and activity in the Star Atlas metaverse. The Star Atlas DAO, which in some cases acts through the Star Atlas Foundation, has requested or commissioned this paper for publication. This paper includes work undertaken by researchers, employees, consultants, or service providers of ATMTA, Inc. for the benefit of the Star Atlas DAO.

ATMTA, Inc. has taken reasonable measures to ensure the quality and accuracy of the information available in this paper. However, ATMTA, Inc. makes no warranty, express or implied, nor assumes any legal liability or responsibility for the accuracy, correctness, completeness, or use of any information that is available in this paper nor represents that its use would not infringe on the rights of other parties. ATMTA, Inc. may change, delete, add to, or otherwise amend information contained in this paper without notice. ATMTA, Inc. is not responsible for the content of any other websites or pages linked to or referenced from this paper.

Except for statements of historical fact, the statements included herein are forward-looking statements that are based on the beliefs of ATMTA, Inc.'s management as well as assumptions made by and information currently available to ATMTA, Inc.'s management. Although ATMTA, Inc.'s management believes these forward-looking statements are based on reasonable assumptions, there can be no assurance that forward-looking statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. ATMTA, Inc. undertakes no obligation to update forward-looking statements if circumstances or management's estimates or opinions should change except as required under applicable law. These forward-looking statements are, by their nature, subject to significant risks and uncertainties. These statements are not guarantees of future performance and undue reliance should not be placed on them. No financial, tax, or legal advice is given or implied.

Executive Summary

Many factors influenced the Star Atlas economy throughout the quarter. Continued interest in the broader cryptocurrency market further strengthened the ATLAS/USDC pairing. Beginning the transition from passive to active ATLAS emissions brought forth new incentives for players, contributing to growth across major Star Atlas economic indicators.

The introduction of ATLAS emissions through Council Request for Resource (RFR) redemptions has catalyzed shifts in gameplay preferences among factions. The transition from Faction Fleet (SCORE) to Star Atlas Golden Era (SAGE) is evident, with factions increasingly allocating production towards RFRs, demonstrating an increased willingness to adapt to more involved gameplay loops.

Through DAC platform registration, decentralized autonomous corporations (DACs) cemented themselves into the Star Atlas ecosystem. New visuals highlight their presence within SAGE, showing distinct comparative advantages in the different resource categories.

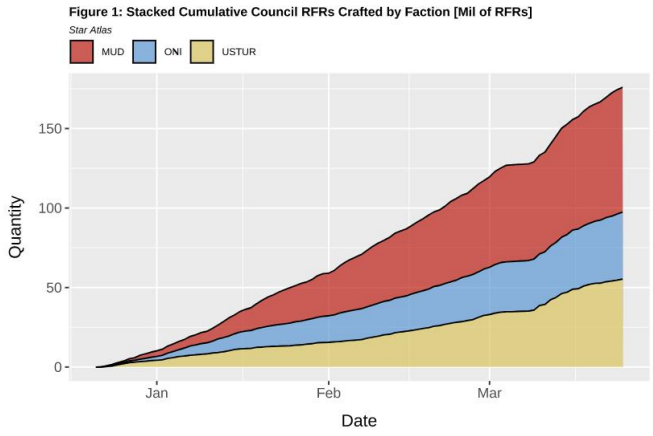
Key Highlights:

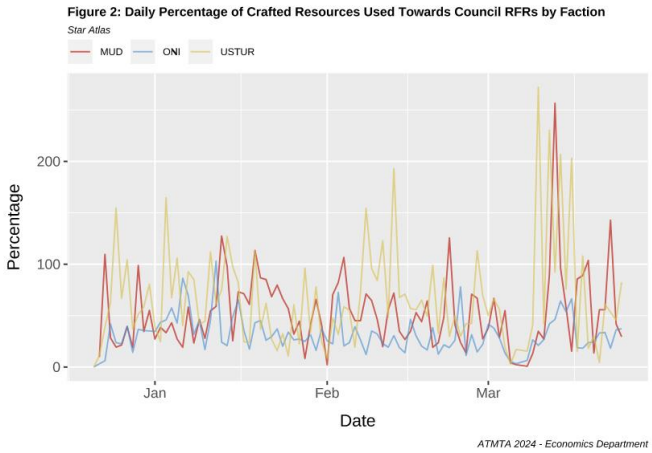
- Council RFRs accounted for 50% of ATLAS emissions throughout the quarter on average
- The remaining SCORE participants re-invest ATLAS earnings into resources, ships, and structures.
- Aggregate census wealth increased by 53.85%, and residents and citizens saw the largest jump in wealth share.
- Daily Star Atlas GDP averaged approximately $88,000 throughout the quarter. Projecting $32,120,000 annual GDP.
- SAGE crafting output increased by over 200% due to a large increase in the SAGE labor force, likely driven by the introduction of council RFRs.
- Wealth across the top five DACs accounts for approximately 7.3% of aggregate Star Atlas ecosystem wealth.

Each addition to SAGE gameplay stimulates new and intriguing transformations within the Star Atlas economy. The report commences by diving into a comprehensive overview of SAGE ATLAS emissions. Faction-specific analyses further illustrate the evolving preferences between the passive emissions within SCORE and the more dynamic and engaging Council RFR crafting loop.

Council RFRs

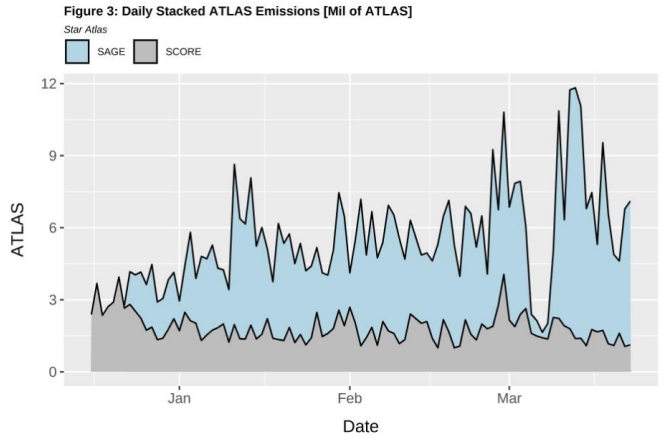
The introduction of ATLAS emissions through RFR redemptions highlighted various gameplay dynamics between the factions. Cumulative RFRs crafted over the period exceeded 150 million, as seen in Figure 1, with the MUD faction leading production and USTUR following closely behind.

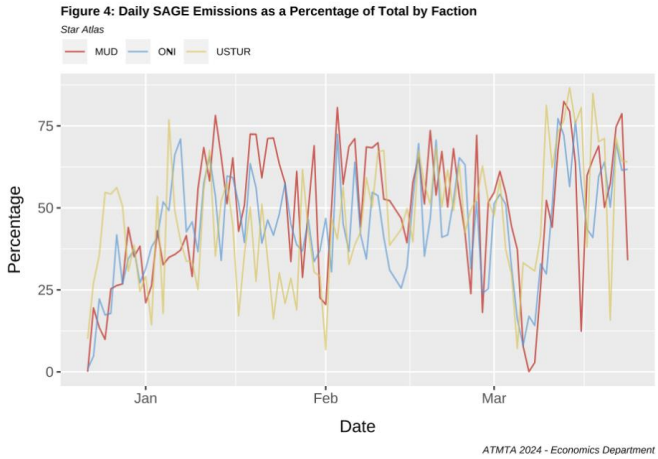




The 33.33% reduction in SCORE emissions and the addition of RFRs further incentivized the transition to the SAGE program. As noted in Figure 2, on average, the MUD faction allocated 52.4% of production to RFRs, while USTUR allocated 68.2% and ONI allocated 31.5%. The USTUR faction consistently demonstrated a high demand for resources essential in crafting RFRs, often exceeding their production capacity, as indicated by frequent spikes in resource allocation exceeding 100%, as seen in Figure 2.

Figure 3 provides further evidence of the transition from SCORE to SAGE. It illustrates a clear change in preference as players sought to increase SAGE output through ATLAS emissions. Despite total emissions steadily increasing over the period, the marginal impact on the ATLAS-USDC pairing has remained low.

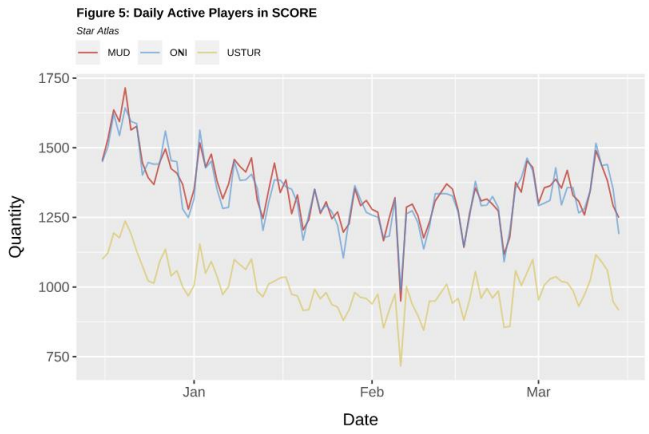




The faction-specific decomposition indicates that all three factions have embraced the Council RFR system, with its share of total ATLAS emissions consistently hovering around 50% for each faction – the other 50% coming from SCORE ATLAS emissions. This shift underscores a transition in player preferences from passive to active gameplay, highlighting a collective inclination towards more engaging and interactive gaming experiences within Star Atlas

Faction Fleet

Despite the increased emissions potential in SAGE, players still exhibited some interest in the reduced SCORE program. Participation remained relatively steady across each faction, as showcased in Figure 5. However, referencing Figure 6, aggregate VWAP across factions declined by approximately 85,000 per day.[1] Approximately 14% of the VWAP leaving SCORE re-enters SAGE on the same day, supporting the gradual transition to active ATLAS emissions.



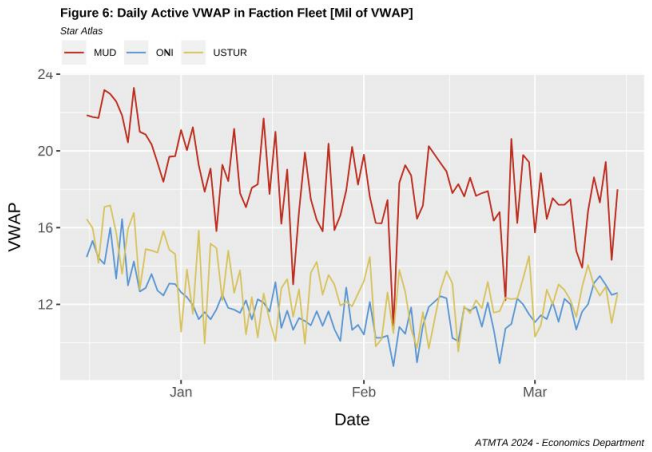
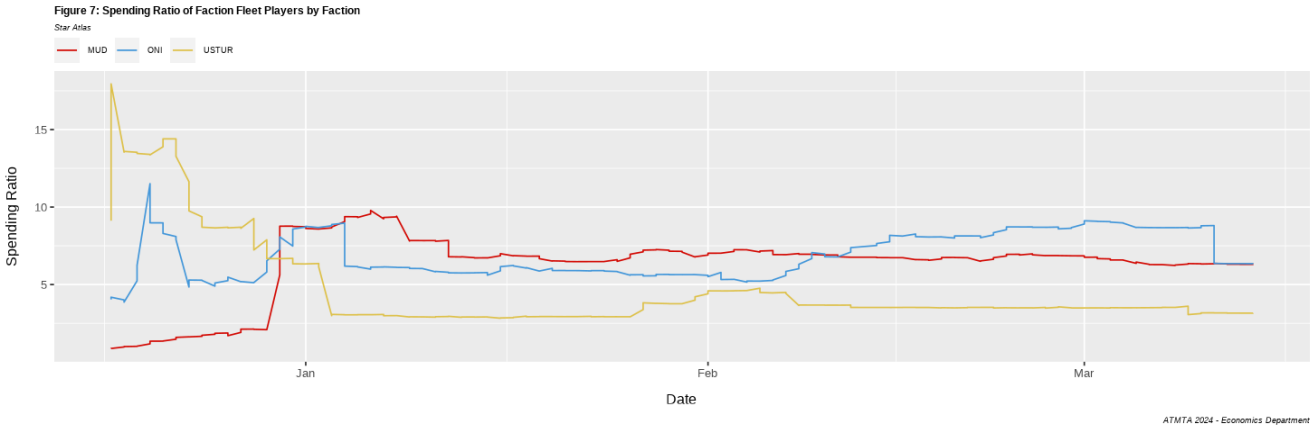


Figure 7, which shows the ratio of ATLAS spending to ATLAS earnings, can provide insight into players' motivations for remaining in the Faction Fleet Program. This measure determines if specific factions have consistently re-deposited ATLAS into the ecosystem or if any savings behavior has occurred across the period. In this case, the ONI, USTUR, and MUD factions exhibited increased spending behavior relative to SCORE income at the beginning of the period, only slightly tapering off at the end of the quarter.



This figure shows consistent spending greater than 100% of SCORE earnings, reaching a peak of 1500% at the start of the period by the USTUR faction. The lack of SCORE ATLAS savings amongst the three factions, as seen in Figure 7, prompts further investigation into SCORE ATLAS spending. Figures 8 through 10 highlight diverse spending preferences between the three factions.

[1]VWAP is short for volume-weighted average price.

Figure 8: Resource Spend
Star Atlas

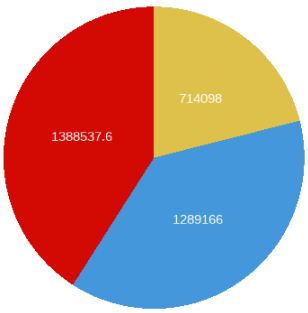


Figure 9: Ship Spend
Star Atlas

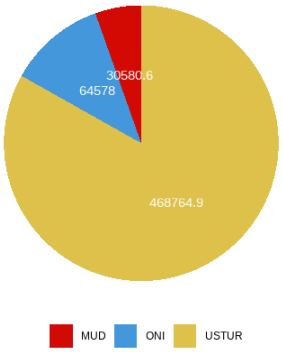
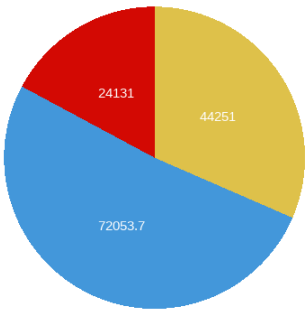


Figure 10: Structure Spend
Star Atlas



ATMTA 2024 - Economics Department

The MUD faction leaned heavily into resource deposits, subsidizing their SAGE operations with SCORE rewards, while USTUR and ONI sought to increase their production capabilities through ship and structure purchases. All three factions increased ownership in each asset class. However, non-resource spending was scarce, accounting for only a handful of distinct transactions across the period. This further emphasizes the motivation behind remaining in SCORE, which is to subsidize SAGE production activity.

The Star Atlas Census

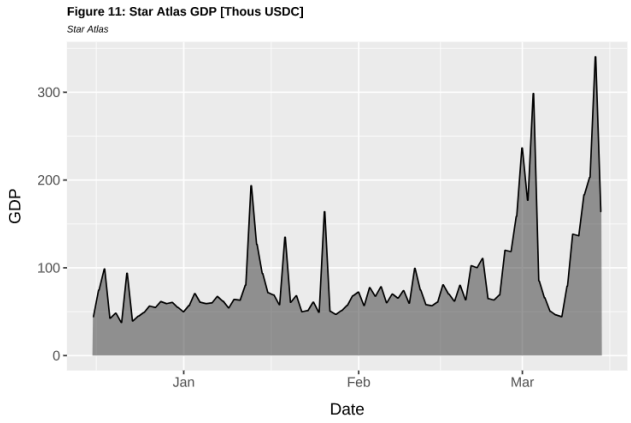
This quarter's census showcases significant achievements among residents and citizens, marked by notable advancements in wealth and participation. As the SAGE economy matures, the operational efficiency of the player base also evolves, which is evident in the findings of this census.

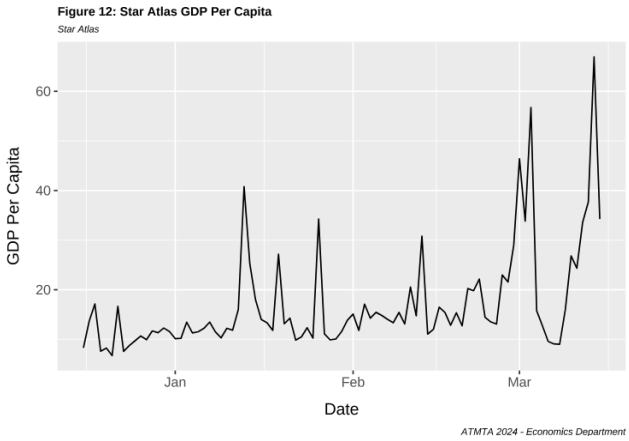
Table 1: Star Atlas Census (03-15-2024)

Category	Currency	NFT Owner	Voter	Employed	Freq	Frac	Wealth	WShare
Nonresident Currency	Y				99753	55.5	75.60	36.63
Nonresident NFT	Y	Y			9991	5.6	4.14	2.01
		Y			26191	14.6	19.74	9.57
Nonresident Locked POLIS	Y		Y		2767	1.5	16.48	7.99
	Y	Y	Y		826	0.5	5.03	2.44
Residents		Y		Y	6295	3.5	4.28	2.08
	Y	Y		Y	28821	16.0	34.36	16.65
Citizens	Y	Y	Y	Y	5094	2.8	46.76	22.65
Total					179738	100.0	206.39	100.00

[1] Exclude wallets with <100 R4 and/or R20 holdings

Contrary to the previous quarter, Table 1 indicates that the wealth share amongst non-resident currency holders remained relatively stagnant at only a 5% increase, whereas residents saw a 26% increase in wealth share across groups, and citizens saw a 106% increase in wealth share. Total wealth grew across all groups, with the most significant being the increase in citizen wealth, which grew by 217% largely due to the increase in new participants, which equated to 3,547, alongside the increase in ATLAS-USD. Aggregate wealth increased by 54% from the previous quarter, and the census population grew by 4% marking 7,038 new participants.

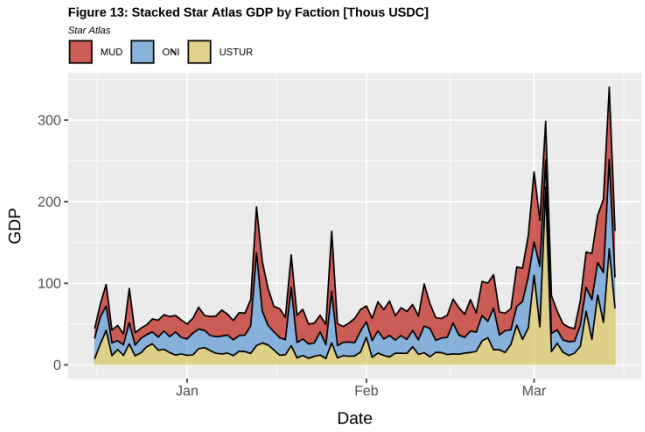


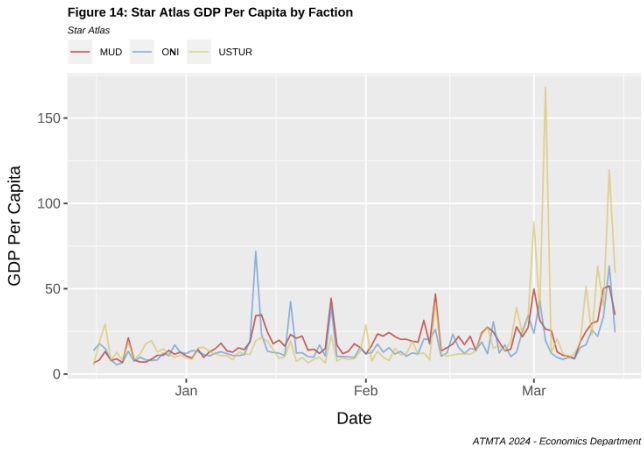


The increasing maturity of the Star Atlas economy allowed further exploration of more familiar and widely accepted economic measures. The Star Atlas GDP is a long-awaited metric that captures spending through asset burn, highlighted in the equation below:

$$GDP = Resource\ Burn\ MV + GM\ Fees\ MV + Crafting\ Fees\ MV + Primary\ Sales\ MV - DAO\ Spending$$

This future-proof model provides an encompassing view of value generated within the Star Atlas economy. Figure 11 highlights aggregate GDP, which averages approximately $88,000 per day across the period. Expanding this average onto a yearly timeframe, the Star Atlas annual GDP is approximately $32,120,000. Per capita GPD fluctuated alongside the aggregate figure, averaging $17.63 daily, per Figure 12.





Looking at Figures 13 and 14, GDP between factions is relatively uniform, with USTUR taking responsibility for larger spikes later in the period, compared to MUD and ONI outperforming earlier in the period. MUD's average daily GDP of $33,129 slightly exceeded that of ONI and USTUR with $28,444 and $26,490, respectively.

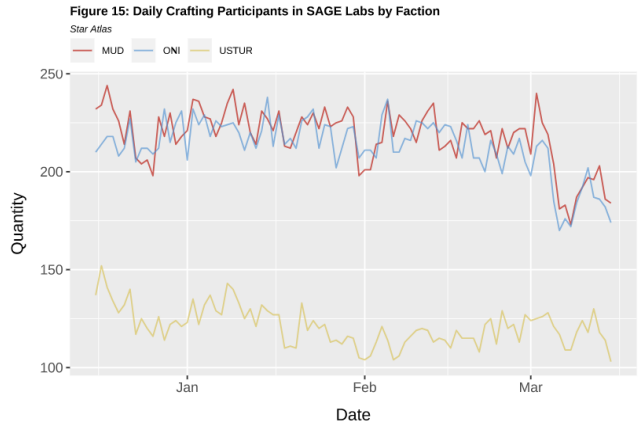
Broader Solana ecosystem incentives led to a multitude of reward airdrops that triggered a wealth effect within the Star Atlas ecosystem during the latter half of the quarter.[2] Smaller players with <10,000 USDC in total wealth were most affected by this increase in wealth and were responsible for

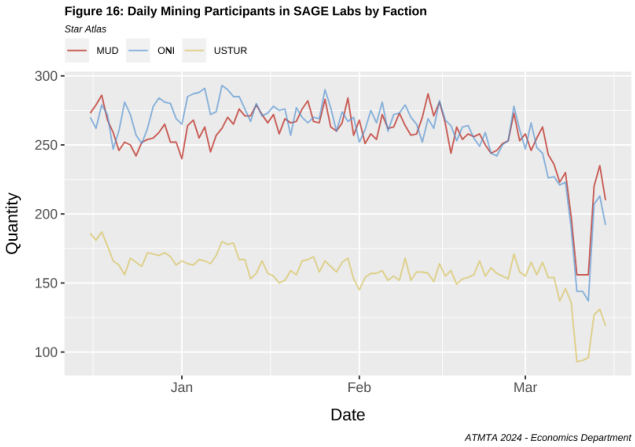
[2] An 'airdrop' is often used to refer to a token/NFT given to early adopters of a specific program, or members of a specific community simply for being early or participating in a special event.

90% of the new volume attributed to the wealth shock. Players with >10,000 USDC in total wealth saw little change in spending behavior, suggesting a more subdued response among wealthier participants to the influx of rewards.

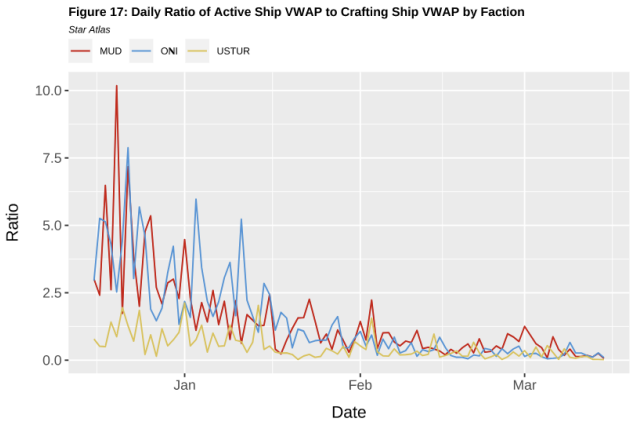
Star Atlas Golden Era

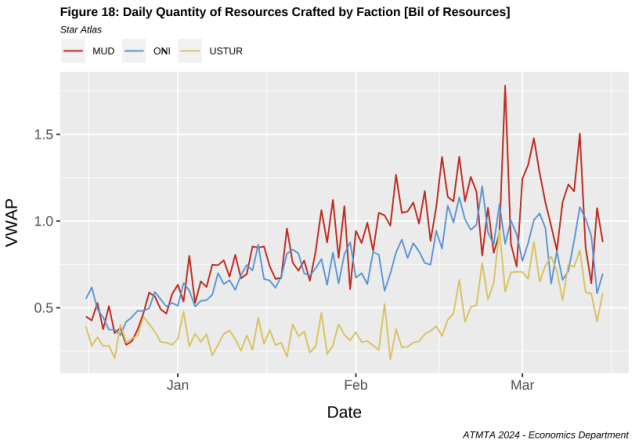
Labor force participation remained mostly unchanged throughout the quarter despite introducing Council RFR ATLAS emissions, as seen in crafting and mining participation below. Downward swings at the head of Figures 15 and 16 are largely due to game outages and instability at the end of the period, resulting in an exaggerated shift in the trend.





Changes to production behavior were much more noticeable. Figure 17 illustrates a shift in prioritization towards accelerating crafting operations by visualizing the total VWAP of active ships over crafting ships by faction.[3] The 11,850 VWAP entering SAGE from SCORE daily contributed to this uptick in the starbase crafting ships. Figure 18 also supports this by highlighting a substantial increase in daily crafted resources. MUD and ONI ramped up crafting production early on, while USTUR waited to scale up their crafting production.

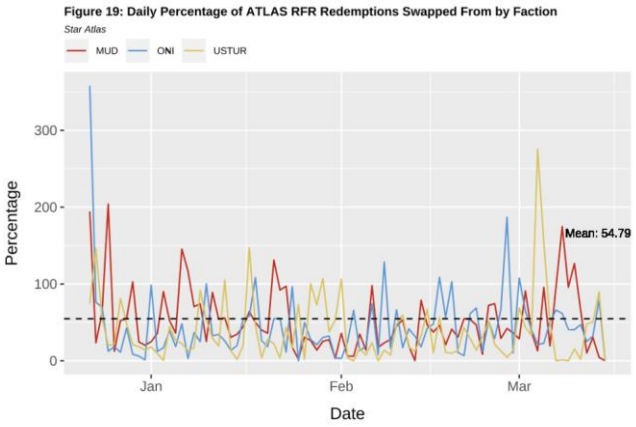




The major changes to player behavior have been due to the introduction of RFRs, but where is this ATLAS going? Figure 19 captures the swapping behavior of redeemers each day, where a percentage >100 indicates that all redeemed ATLAS were swapped into another currency, and <100 indicates that redeemed ATLAS were saved. Each faction had its fair share of selling days. However, the USTUR

[3] Active ships include scanning, mining, and warping ships operating outside of a starbase.

faction was the most reserved in its selling behavior. The mean across factions suggests that 54.79% of ATLAS emissions in SAGE are swapped on the open market.



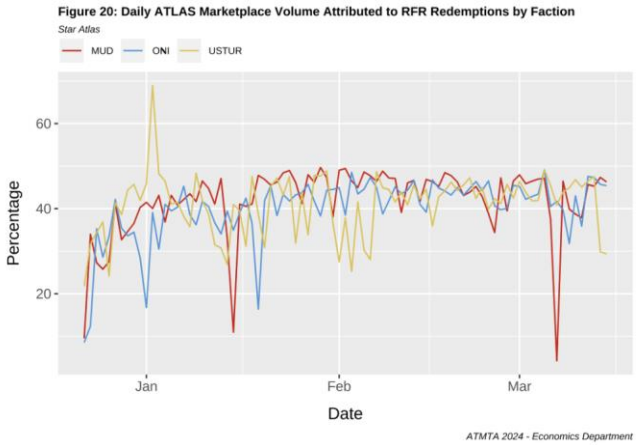
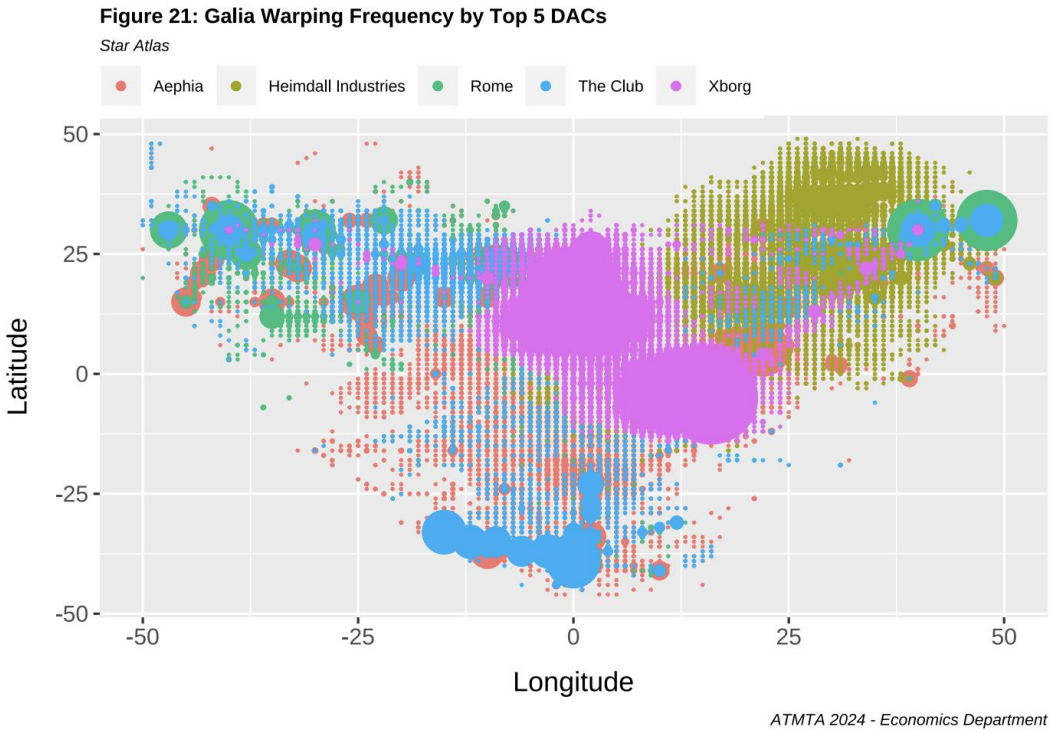


Figure 20 showcases the re-distribution of redeemed ATLAS into the Galactic Marketplace. Approximately 40% of faction-specific ATLAS volume in the GM was attributed to RFR redemptions throughout the quarter.

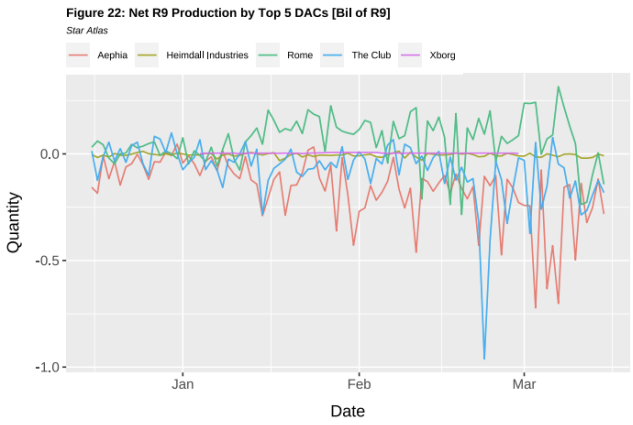
Decentralized Autonomous Corporations

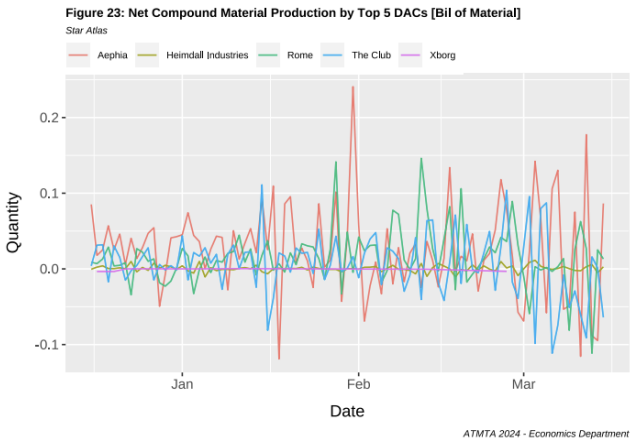
Launching the decentralized autonomous corporation (DAC) platform gave insight into dac-specific activity in the Star Atlas ecosystem. The top five DACs are highlighted below and were selected based on aggregate SAGE participation throughout the quarter.[4]



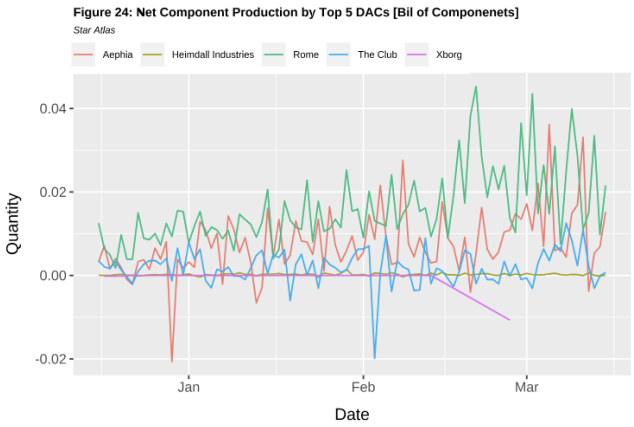
[4] DAC members not registered to the DAC platform before 2024-03-15 are not captured in Figure 21-27.

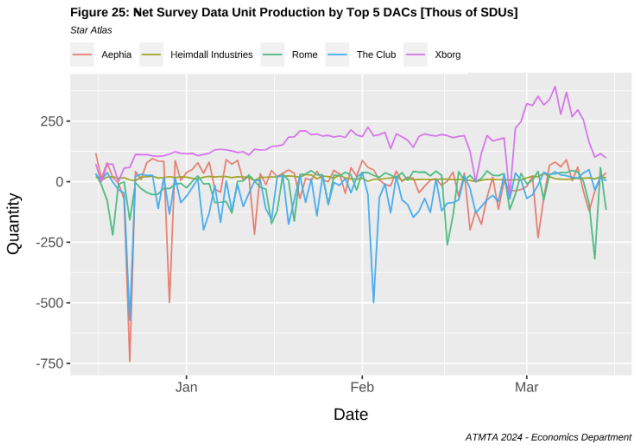
Figure 21 maps warping behavior amongst the top five DACs, showing border-like zoning between the most powerful ecosystem participants. The Club, the wealthiest and most diverse DAC within the top five, appears small in comparison to the automation powerhouse of the Xborg data-running DAC. Heimdall Industries and Aephia are also notable clusters that branch across Galia. Larger circles at coordinates indicate higher warping frequency.





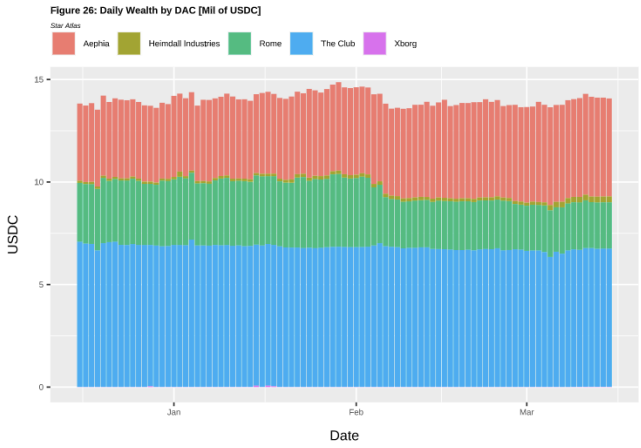
Net R9 production amongst the top five DACs in Figure 22 shows Rome as predominantly net sellers and the remaining DACs as net buyers. This indicates the potential for a significant transfer of wealth if Rome continues to scale their mining operations. The increased volatility of compound material net production shows a lack of specialization amongst the top five DACs, as shown in Figure 23. However, Aephia produced the greatest surplus throughout the period.

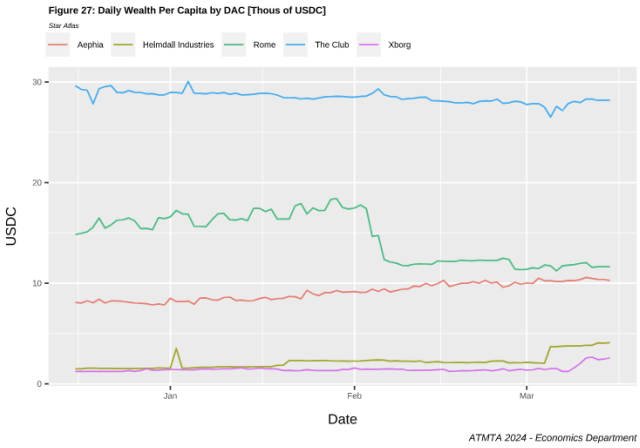




The countdown to the release of SAGE Starbased brought with it large surpluses in component production across the SAGE player base.[5] The net production of these components amongst DACs in Figure 24 emphasizes the anticipation of sector control. Rome produced the largest surplus of components, likely due to their successful mining operations in Figure 22, discussed previously. The uptick in component production paved the way for Xborg to monopolize SDU production at scale, as seen in Figure 25.

[5] SAGE Starbased is the next gameplay update coming to the SAGE program.





Wealth amongst the top five DACs was staggering. Figures 26 and 27 show The Club, the wealthiest on the list, harbored over six million USDC worth of ship and currency wealth, resulting in an average wealth per capita of $28,493, skewed heavily by the larger participants in the DAC. With less wealth than Aephia, Rome maintained a larger per-capita measure, indicating that, on average, its members are generally wealthier. Heimdall Industries and Xborg, barely visible in Figure 26, still average impressive per-capita wealth at $2,194 and $1,456, respectively.

Conclusion

This quarter marked a significant evolution in the Star Atlas economy, with a clear shift away from passive ATLAS emissions towards active SAGE gameplay. Despite the allure of SAGE, SCORE participants continued to maintain their presence, albeit with reduced emissions. Notably, all factions demonstrated distinct spending patterns, indicating varied strategic approaches toward output maximization.

Census data revealed significant progress among residents and citizens, reflecting advancements in wealth and participation. The introduction of the Star Atlas GDP provided valuable insights into the economy's value generation. Incentives from the broader Solana ecosystem triggered a wealth effect within Star Atlas in the latter half of the quarter.

Observations of SAGE production behavior and DAC-specific activities further underscored the dynamic nature of the Star Atlas ecosystem, specifically in the face of new and upcoming features. Overarching trends, such as Council RFR redemptions, create a compounding effect in economic participation unique to the Star Atlas ecosystem, promoting engagement, economic sustainability, and equitable opportunity for all participants. Moving forward, SAGE will continue to be the standard for sustainable digital economies, and with future updates on the horizon, the standard will only continue to rise.