

Cuba's Economic Reforms and the Performance of Organizations

Kislaya Prasad

Robert H. Smith School of Business

University of Maryland

College Park, MD 20742, USA.

Very Preliminary. Please do not cite.

Abstract

This paper examines the organization and performance of Cuba's private and state-run organizations following the economic liberalization that started in 2010-2011. The reforms reduced the constraints faced by private sector organizations and the sector expanded considerably. Additionally, worker cooperatives were newly permitted in the non-agricultural sector. All this while state owned and managed entities continued to operate as before. The reforms present a unique opportunity to study the comparative performance of this variety of organizational forms. Based on field research in Cuba, this paper describes the organization of the new non-agricultural cooperatives. I also conduct a broader analysis of the restaurant business in Havana using online ratings by users and text reviews.

JEL:

Keywords:

1. Introduction

The socialist economic system of Cuba is now almost unique in the world – still dominated by subsidized and inefficient state enterprises, an odd dual currency system, and continuing suspicion of markets. A reform process has been underway since around 2011, with some signs of a transition to a more market-based system. A large number of self-employed individuals and small enterprises are now clearly visible in Havana. There is an active cooperative sector and a good number of joint ventures involving European multinationals. However, the liberalization process has been tightly controlled. Large parts of the planning apparatus remain in place, with activities of private enterprises (approval of joint ventures, for instance) being vetted against the government’s standard of the public interest. The policy is to incentivize people through profits, but on a small scale. And it stops well short of allowing markets to determine how resources will be allocated. For instance, although private restaurants are permitted, there are limits on the number of customers they can serve. While Cuba’s political leadership has reluctantly accepted the idea that without reforms the system will collapse, they are still resistant to a full-fledged free market system. In particular, there seems to be considerable concern in the political class about accumulation of wealth in segments of the population. The worry about an increase in income inequality isn’t just motivated by ideology – such inequality has the potential of creating resentments that could endanger the stability of the political system itself. The stated goal remains “prosperous and sustainable socialism”. Nevertheless, the reform that is going on is clearly very significant.

The Cuban business environment is a throwback to the centrally planned economies of the 1970’s. The economic environments in China, Russia or Vietnam today are much more market-based. The reality of central planning affects all aspects of running a business – finance, marketing, HR, logistics, and operations. Within this ecosystem, multiple organizational forms are currently in existence. The reforms permitted a large increase in self-employment and cooperatives. Cooperatives in agriculture (including urban farms) have been around for many years but are now permitted in other areas (such as restaurants, vehicle restoration, beauty parlors, etc.). Self-employment/small businesses abound (indeed, so much so that the term *Cuentapropistas* has made its way into U.S. news accounts of Cuba as well). Multinational corporations, including European giants such as Nestlé, Suchel, Sol Melia, Accor, etc. have a very visible presence. It is worth noting however that they function in ways that are unique to Cuba.

Tourism and hospitality were already booming in Cuba when former President Obama eased travel restrictions on US nationals (a policy now partially reversed under President Trump). Tourism is a source of much needed hard currency, and so a necessary evil from the government's perspective. In Havana, all major hotels have near "100% occupancy year round," according to hotel executives I spoke with. Many new hotels and resorts have come up but demand far exceeds the available number of hotel rooms. The *casas particulares* (room/home rentals) that have been around in Cuba for a while have become even more popular with the entry of Airbnb. Since Cuba is a very safe country, American visitors find this an attractive alternative to expensive and hard to book hotel rooms. Many high quality (and high priced) restaurants or *paladars* cater to the visitors. After reforms, restaurant owners were allowed to employ workers and constraints on the number of tables became softer (and widely flouted). However, they still find sourcing produce to be a challenge, often having to buy at retail prices – although some owners did tell me that they sourced directly from small family farms where they also had some say in what was produced and its quality. And of course, the iconic restored cars from the 1950's are ubiquitous. The most important sectors for private entrepreneurs is the service sector – primarily *paladares*, *casas particulares*, and transportation (taxis and private drivers. A large proportion of the individuals that visitors to Cuba interact with work in the private sector. Consequently, it is possible to get an exaggerated sense of the transformation in Cuba. Although trending up, private employment is still less than a third of total employment.

Cooperatives have existed in Cuba since the revolution in 1959 (See Alvarez, 2016). Agrarian reforms following the revolution involved transfers of agricultural land from previous owners to those who actually worked the land. These rural families were permitted to organize themselves into cooperatives so as to be able to share inputs.¹ Later, individual farmers were permitted to join together and farm land collectively – something that permitted greater use of mechanization.² The most significant expansion of cooperatives came however in 1993.³ In Cuba, the years after the collapse of the Soviet Union (roughly the decade of the 1990's) is called the "Special Period" and remembered as an especially difficult time. The withdrawal of Soviet subsidies, mainly in the form of oil, threw the economy into a prolonged depression, with GDP declining by almost 35%. Food consumption declined, and persistent hunger was not uncommon. To cope with food scarcity, the government attempted to boost productivity by encouraging agricultural cooperatives. State owned farms were

¹ The Credit and Services Cooperatives (CCS), 1959, 1963.

² The Agricultural Production Cooperatives (CPA), 1976.

³ Basic Units of Cooperatives Production (UBPC), 1993.

turned over to cooperatives of workers. In recognition of the inescapable first principle of economics – *people respond to incentives* – workers were allowed to keep more if they produced more. A particularly interesting form of such cooperatives are urban farms.

In more recent reforms that President Raul Castro’s government enacted following the 2011 Congress of the Communist Party, non-agricultural cooperatives have been permitted to operate as well.⁴ For instance, it is now possible for a workers’ cooperative to operate a restaurant or a beauty parlor. Although there are examples of newly formed cooperatives, the most typical situation is where a previously state run enterprises – e.g. an autobus repair and restoration facility – is converted to a cooperative, with management turned over to workers. For the Cuban government, such cooperatives represent a compromise that preserves the collectivist ideals of the revolution, while acknowledging the need to motivate people with material incentives. Cooperatives provide incentives without creating too large a distance between production and ownership of the means of production. There appears to be a hope among the Cuban elite that workers’ cooperatives will be a key ingredient of a viable Socialistic model distinct from the unfettered Capitalism they are still trying to resist. Stated another way, Cuba has bet its Socialistic dream on the success of the cooperative model. So, it is worth evaluating how cooperatives appear to be functioning, and what their prospects are for the future. I provide an assessment, based on field research in Cuba, of non-agricultural cooperatives. The governance structure of the cooperatives is described, with emphasis on their objectives, the structure of decision-making and the extent of managerial control over the use of assets. It is difficult to assess which aspects of governance are critical to the success of cooperatives. To assess performance, I rely on identifying the extent to which the organization of Cuba’s cooperatives approximate the conditions that economic theory and previous research on worker-managed firms identify as being conducive to efficiency. This serves to identify impediments to efficiency, and points to avenues for further reform.

Although I saw several examples of successful private ventures and cooperatives, in the absence of the right kind of data it is difficult to generalize this to the organizational form itself. While Cuban reforms present a unique opportunity for a comparative analysis of the performance of multiple organizational forms in the same industry, it is difficult to come by good data for this. In this paper I analyze the reviews and ratings of Havana restaurants on the American travel and restaurant website *TripAdvisor*. The listings include restaurants that are privately owned, worker cooperatives, as well as

⁴ “Economic and social political guidelines of the Party and the Revolution,” approved by the 6th Congress of the Communist Party, April 2011.

state-owned and managed. While small private restaurants did exist prior to economic reforms, the sector was mostly state-run. A huge expansion of the private sector occurred in 2011-2012, and this trend has continued until recently. My focus is on restaurants that cater primarily to tourists and are reviewed on a site called *TripAdvisor* (because of high prices of tourist-oriented restaurants, the restaurants that cater to Cubans is a largely non-intersecting set). For this analysis, I extract individual ratings of restaurants from 2008-2017. Additionally, using sentiment mining techniques, the text reviews are also scored. In particular, I extract sentences that deal with various aspects of the restaurant experience such as “food,” “drinks,” “staff” and “service.” I then score the sentiments expressed in these sentences. These ratings and scores are used as our primary measure of performance. I then examine how these differ based on ownership mode (whether private or state-run). So far, the cooperatives are clubbed with state-run restaurants. Work is ongoing to distinguish the cooperatives and identify the exact date when the restaurant became a cooperative. I also examine how the difference between private and state firm ratings changed post-reform.

2. Case Studies

The following two examples of cooperatives illustrate the functioning of these organizations and the role they are playing in Cuba these days.

La Casona de 17

La Casona de 17 is a restaurant in the upscale Vedado neighborhood operated by a workers' cooperative. Previously run by the Ministry of Tourism as part of its *Palmares* group, it is a high-end restaurant for foreign tourists. The restaurant was reorganized as a cooperative in 2013 and went through costly renovations, financed by a bank loan of about 3 million Cuban Pesos. A restaurant worker proudly told us that the loan has just been paid off. The cooperative rents the premises from the government but workers have full authority to set compensation (after paying a tax of 10% on sales). They make most significant operation decisions. The workers, as a group, make decisions about menus, procurement of materials, entertainment, etc. One worker mentioned that they have the opportunity to observe what people like and adjust their menu accordingly; they can shop for the best deal; and they can reorganize their processes to be more efficient. The pay scale takes into account the responsibilities of a worker. As cooperative members, all workers have to contribute some capital and earn some dividend in turn. Some part of the earnings must also be used for projects that benefit

workers and members of the local community. The cooperative member we spoke with very clearly demonstrated a sense of ownership of the place and took pride in how well the restaurant was doing.

Cooperativa Reconstructora de Vehículos (CRV)

CRV is also a previously state-run business reorganized as a workers' cooperative in 2013. Its focus is on bodywork, painting, and upholstery for vehicles that range from scooters to large trucks. Cuba does not produce any automobiles itself, so that new vehicles need to be imported using hard currency. Since hard currency is scarce, and permits to import vehicles difficult to obtain, vehicles that may be condemned in the US tend to be restored in Cuba. As a result, CRV is a thriving business which has just expanded to its third location.

CRV has approximately one hundred members, who have all contributed some capital. The minimum required contribution is 1000 CUP. Members are allowed to contribute more, but their rights would remain the same. The space is rented from the government, but all movable assets belong to the cooperative. The membership elects the president and a board (which decides upon the organization of CRV). Numerous committees (finance, operations, employee assistance, education and training, etc.) manage specific functions for the cooperative. All workers engage in profit-sharing. About 30% of the profits are retained as reserves, and the rest is distributed among members. We were told that in the past (when this was a state run facility) workers made about 100 CUC per month but now could take home “500, 700, and even 1000 CUC.” The cooperative is apparently much more productive than the previous state-owned enterprise by a variety of metrics. Members of this cooperative need to have a basic level of skill and initially join on a probationary basis, with the possibility of later being permitted to become full members. Members can be expelled from the cooperative as well, but this requires a unanimous decision by the membership of CRV.

Governance

The key features of cooperatives are (1) voluntary participation; (2) democratic management; (3) economic participation of its members; (4) autonomous and independent entity; (5) education, training and information sharing; (6) cooperation with other cooperatives; and (7) commitment to the community.

Aspects of governance pertinent to performance include the fact that the land or building made available by the government comes with conditions attached – cooperative members are

permitted to use the land/premises and enjoy its fruits but cannot alter/deplete it or put it to other uses. A cooperative cannot merge with other cooperatives or create franchises or enter other lines of businesses.

As discussed above, a key rationale for cooperatives is to provide incentives. The exact compensation structure varies a little, but retains profit-sharing as its defining feature. This can be through a (seniority adjusted) variable bonus based on the organization's performance as at OVA; or a more complex system that makes bonuses contingent on individual performance as well, as at CRV. At CRV, the supervisor inspects the work of subordinates for both quantity and quality, and this information is used as a basis for determining incentive payments. Incentives could also be provided by the threat of dismissal, since cooperatives have procedures for expelling members (involving a vote of the membership). It appears however, that this punishment is reserved for misbehavior such as theft or misuse of resources.

Management at cooperatives is democratic. Cooperatives have the authority to determine their own governance structure. All cooperatives that we visited have an elected management to make day-to-day decisions. The management structure was relatively simpler at La Casona de 17 or OVA, and much more complex at CRV. This was necessitated, in part, by the greater complexity of the production operation in the latter case. Considerable authority was however retained by the overall membership, which meets at regular intervals (in particular, admission and termination of members appears to be a retained authority of the general assembly). In addition to the task of running the enterprise efficiently, management is entrusted with the specific goal of serving worker and, separately from this, community interests. The latter consists of services provided by the cooperatives to the community. The most important service that the cooperative provides for workers is training, but OVA even provides manicures!

The cooperative is a separate legal entity which means, for instance, that it can obtain loans or enter into contracts with other entities (including the government). In most cases, the cooperative has the freedom to set prices. It gets favored tax treatment relative to the self-employed. Cooperatives have in many cases been acquiring inputs at retail prices, but there appears to be an emerging trend towards favored terms for purchases from wholesale markets and other cooperatives. It appears that the cooperatives are starting to become free to run operations as they see fit and gave no evidence of attempts by the relevant government ministries to interfere (within the very limited scope of autonomy that cooperatives have).

It was hard for us to get a clear picture of what would happen if a cooperative were not economically successful. By the voluntary participation principle, it would appear that workers could just leave. However, this may be problematic if there are outstanding loans (for instance, at one point La Casona de 17 had taken out a loan of 3m CUP). The restaurant worker we spoke to understood all workers to be standing behind the loan, but it wasn't clear if this was in a legal sense (attaching their personal assets) or a moral sense. Bankruptcy appears to be something of gray area.

Performance and Prospects

The three cooperatives we visited appear to be prospering and functioning well. In each case, comparisons were made with the situation before the formation of the cooperative, when the enterprise was being run by the government. Workers are both more productive and earn much more money than before, and the enterprises are much more profitable. Nevertheless, it is very difficult to reach a judgment about the success (or future promise) of the cooperative model based on this fact alone. The obvious problem of course is that we have a small and highly selected sample of cooperatives. At best, they serve to establish that cooperatives *could* work successfully. Note that the criterion of success that is implicitly or explicitly being applied is a comparison with being run by the state, which may be a low bar. What follows in the rest of this section are some observations relevant to the evaluation of performance and prospects. My perspective is that of neoclassical economic theory.

1. Is workplace democracy desirable? I begin with the observation that cooperatives (and closely related organizational forms) exist within modern Western capitalism. Well known examples include plywood mills in the Pacific Northwest, doctors' and lawyers' practices, etc. In industries where both cooperatives and conventional firms exist (plywood mills being a prime example) an interesting topic of research has been – where is productivity greatest? After a careful study of plywood mills, Craig and Pencavel (1992, 1995) found that productivity was greater at cooperatives. However, these cooperatives are some of the oldest in US industry and one may wonder whether the absence of cooperatives in other industries is not somehow related to the fact that greater worker participation in decision-making there would be a handicap. For instance, workers might resist labor-saving innovations and in some industries this might put a cooperative at a disadvantage. There are examples of business leaders like Jeff Bezos and Elon Musk who place extreme demands on their workers and guide them towards their singular vision, and one wonders

how such entities might have fared under workplace democracy. The bottom line here is that there are circumstances in which workplace democracies function better than traditional firms, and reason to believe that at other times they do not. A clearer understanding of when and why cooperatives do or do not function well would be critical for determining whether a Socialistic model based on cooperatives is viable.

2. The cooperative model involves a devolution of management authority to workers while retaining ownership of the most valuable assets with the state (typically the land and building in which the enterprise functions). All the cooperatives we visited use extremely labor intensive techniques and there are few movable assets. The workers have a stake in the success of the enterprise, and this appears to be providing motivation – both for worker engagement as well as what limited operations optimization is possible. Being closer to the customer, workers are better able to judge preferences and modify their product mix appropriately.
3. The cooperative pays rent for the land/building, but it is difficult to tell whether this rent represents a market price for use of this asset. Alternatively stated, the cost of the land/building to the cooperative may not accurately represent the opportunity cost of the asset – the government may be charging too high or too low a price relative to the most valuable use of the asset. If the rental price involves an implicit subsidy then the enterprise may appear profitable without being so. To understand this point, suppose that the cooperative were given title to the land or building that they occupy. Is the best decision for them to continue operating the cooperative, or would it be more profitable to sell or lease the land to the highest bidder? If the latter then the enterprise is not profitable. Note that this logic disregards any social or community benefits that the cooperative may generate.
4. To elaborate on (2), the devolution of managerial control to workers does have benefits but does not amount to full privatization. This is, of course, by design (since the reform goal here is not a transition to capitalism, but to a more productive form of socialism). However it would be useful, as a benchmark, to imagine how full privatization might function. By the famous economic insight known as Coase's theorem full property rights to the enterprise could be assigned to workers (or sold to anyone else) with beneficial effects. *In the presence of an efficient and competitive market in which these rights can be traded*, the rights should end up with those who value them most highly (are able to use them most productively). As the Soviet experience demonstrated, privatization does not always proceed in this ideal way. The more important point I want to make is that just devolving

managerial control will not by itself ensure that society's resources find themselves used in the most productive manner.

5. Growth with the cooperative model. All the examples of cooperatives that we saw were relatively small scale enterprises, workers were engaged highly labor intensive production, and were using relatively old technology. It is an open question whether the model scales up as the enterprise grows.

3. Methodology

In addition to visiting organizations and interviewing both managers and workers, I analyzed the reviews and ratings of restaurants on *TripAdvisor*. The listings include restaurants that are privately owned, worker cooperatives, as well as state-owned and managed. While small private restaurants did exist prior to economic reforms, the sector was mostly state-run. A huge expansion of the private sector occurred in 2011-2012, and this trend has continued until recently. My focus is on restaurants that cater primarily to tourists and are reviewed on a site called *TripAdvisor*. This is an American travel and restaurant website which contains user-generated content. The site has each restaurant's aggregate rating on a scale of 1 to 5 (with 5 being the best). Additionally, the site contains a rating on a scale of 1 to 5 of its prices, as well as more specific ratings of a number of features of the restaurant (service, value, food and atmosphere). Finally, people can submit text reviews of their experience at the venue. The dated text reviews are accompanied by a numerical rating on the 1-5 scale. All of this data (including the text reviews) was scraped from the *TripAdvisor* site.

Using the dates of reviews, I construct annual and monthly averages of ratings and then examine trends and relationships. These will be discussed in the next section. The text provides a much richer data source. First, using text data mining techniques the sentiments expressed in the text are rated on a scale from -1 to +1 (with +1 being the best). The score is based on a comparison of texts (the reviews) to positive and negative word list. The presence of positive words increases the score, whereas the presence of negative words decreases the score. For instance, the review:

“Best restaurant we went to in Havana. Fun drinks, amazing garlic fries, tacos etc. Don't forget to try their salsa and plantain chips. Highly recommend.”

received a score of 0.9216. At the other extreme,

“It’s a scam. That’s it. A tourist scam with terrible food. People try to hustle you in while out in the streets. Once they get you the restaurant is out of everything so the waitress picks your food for you. Terrible, terrible, terrible.”

received a score of -0.9628. The following review, with a balanced mix of positive and negative words, received a score of 0.

“Was stunned on first visit ... excellent food and drinks and wonderful decor. Disappointed on second visit a few days later when there seemed to be kitchen problems and half the ingredients promised in our salads never materialized.”

In addition to scoring the full review, I also extract sentences that deal with various aspects of the review. For instance, extracting sentences with the words “staff” or “service”, and then scoring the sentence based on the presence of positive and negative words allows for a rating of the reviewer’s opinion about the staff or service. This score could be very different from the overall score – such might be the case if the service was slow, but the food was delicious. The sentiment scores and ratings are the principal measure of performance in the analysis.

The principal explanatory variable of the model is ownership – whether private or state owned. Additionally, as discussed above, it should be possible to identify whether a restaurant is a cooperative. There are relatively few newly formed cooperatives – most are former state run restaurants that were turned over to employees. In our data, they are clubbed together with state-run restaurants.⁵ Additionally, since dates of reviews are observed, one can analyze review both pre- and post-reform. I employ a difference in difference approach.

4. Results

Over the period from January 2008 to November 2017, the average *TripAdvisor* rating for private restaurants is 4.37 while the average rating of state-owned restaurants is 3.99. The distribution of ratings for public and private restaurants is depicted in the bar charts in Figure 1. We observe that a much larger proportion of private restaurants get a rating of 5. In general, state-run restaurants do not perform very poorly - there are many with a rating of 4. The average (and distribution) are for r

⁵ I intend to distinguish the cooperatives, as well as the date they became cooperatives, by contacting all the restaurants here. For now, they are clubbed together with state-run restaurants in the analysis. For the dozen or so confirmed cooperatives, some general remarks on ratings are included.

almost a decade, and so I disaggregate the ratings. In Figure 2, the ratings of private and public restaurants are averaged by year and plotted from January 2008 until November 2017. Around 2008-2009 the ratings for public and private restaurants are relatively similar. Both show some improvement in 2010 (with private restaurants now doing somewhat better). The gap between the two widens in 2011 with private restaurants improving faster. State-run restaurants make up some of the gap in 2012, with private restaurants showing an improvement again 2013. After that, the state-run restaurants stay steady at a lower level than private restaurants, but private restaurants show a small decline. Figure 3 shows monthly averages, confirming essentially the same story. Recalling that the most significant economic reforms occur in 2011, we may conclude that private restaurants became better than state-owned restaurants post-reform. However, state-owned restaurants also improve in quality. There could be multiple explanations for this. First, both state-run and private firms are competing with each other and the improvement of private firms provides an impetus for public firms to improve. Second, both types of firms likely had better access to raw materials in the improved economic circumstances of post-reform Cuba. This would have allowed both to improve in quality.

Figures 4 and 5 show the average sentiment score of private and state-run restaurants computed from an analysis of the text. In this instance, the sentiment scores measure imperfectly what reviewers have directly reported. The intent is to see if the analysis of the texts tells roughly the same story – and indeed it does. Both improve, and private restaurants establish themselves as better. By 2013, both level off and show possibly a slight decline in average ratings. Figure 6 shows the increase in the number of ratings over the time period under consideration. The corresponding cross-tabulation is as follows:

Crosstab of Ratings

Ownership	Date									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Private	13	23	92	471	1,309	1,924	2,572	5,185	6,970	7,090
State	19	38	103	299	654	958	1,058	2,130	2,868	2,757

Count of Rating broken down by Date Year vs. Ownership. The data is filtered on Date, which ranges from 1/1/2008 to 11/30/2017.

We see that the count is quite small in 2008 and 2009, accounting for the large variability in the ratings then. The growth in ratings also mirror the increase in tourism to Cuba over this time frame. We see possibly the “Obama effect” in 2015 and the “Trump effect” in 2017.

Since the text-based sentiment ratings appear to be quite reliable, I proceed with an analysis of the rating of various features of reviewers' restaurant experience. Figure 7 shows the rating (on the same +1 to -1 scale) based on sentences that reference "location", "money", "parking", and "staff". An example of a sentence that references "money" is: "Only yards from the Floridita but much better value for money". While there is little difference in attractiveness of the location, sentences regarding parking are a little more favorable for state-run restaurants. Sentences with the words "money", "restaurant" and "staff" are all more favorable when it comes to private restaurants. The difference in statements about "staff" is particularly striking – the sentiment rating is 0.60 for private restaurants, and only 0.49 for state-run restaurants. Examples of sentences about staff are "the views are quite amazing from here and the staff are very friendly" and "staff seemed indifferent." Quite clearly, a major differentiator of the dining experience is the quality of the staff.

In Figure 8, I examine the dynamic evolution of the sentiment scores about the various aspects of the experience. For reference, the first graph depicts the average of all such statements (i.e. all the aspects extracted). There is little difference between the scores (although perhaps state-run restaurants perform marginally worse). This provides an interesting contrast with the overall ratings, and even the overall sentiments. In terms of the positive and negative things that people say about the restaurants, there is not much difference. This contrasts with the overall rating and sentiment – but note that in constructing this average we may be extracting more than one sentence from the same review (additionally, this average is over a subset of all sentences in the reviews). Interestingly, the average sentiment score of statements about food and drinks is better for state-run restaurants, with a noticeable decline in the private restaurants' scores starting in 2013. As noted above, the staff sentiment score of state-run restaurants is much lower after 2011 and, in particular, starts to decline after 2013. The gap here becomes larger after 2015. Sentiments about money are similar for both types of restaurants – the only noticeable thing here is that sentiments for both have been declining since 2015. This is likely because of the rise in tourism (and prices) since the Obama administration's normalization initiatives in 2015.

Our regression results confirm that, on average, state-run restaurants have lower ratings. The magnitude is 0.389 (significant at the 0.1% level). The effects of reforms are evident in the second column.

5. Conclusion

Cuban leadership appears to have come to understand that the model of Socialism they have been embarked upon since the revolution does not work. The government, under Raul Castro, seems to be hoping to find a new model of socialism, short of a free market system and cooperatives appear to be a key ingredient of this model. As part of my field research, I saw several successful cooperatives in Havana – success which is consistent with findings of research on worker managed firms in the US. The way cooperatives function in Cuba is that the government continues to own the land and buildings, which are leased for a specific purpose. Thus resource allocation in society is still guided by the planning process and most prices are set by the government. In this setting, it is hard to imagine how the Cuban economy can end up utilizing its resources in the most productive way possible. Although this system may provide better motivation, many of the benefits of a market-based system come from the free exchange of property rights whereby resources end up in uses where they create greatest value. Restrictions here will limit what cooperatives, as they currently function, can accomplish.

The analysis of user rating data presents a picture where, post reform, private sector restaurants quickly established themselves as creating greater satisfaction among users. However, the ratings of state run restaurants also improved post-reform. The primary source of dissatisfaction with state run restaurants appears to be staff and service. Ratings of both types of restaurants have shown a slight decline lately, and this could be because of dissatisfaction with prices of “value for money”. Pre-reform, there is no significant difference between private and state-run firms. The post-reform ratings of private firms are higher than pre-reform ratings by an average of 0.492, and the post-reform ratings of state-owned firms are lower than those of private firms by 0.307. I conduct a similar analysis of change in US policy in 2015. Here state-run firm ratings are lower in the pre-reform period by about 0.42. Private firm ratings decline after the policy change, but state-run firms show a smaller decline.

References (In progress)

Alvarez, J. (2016). Cuba's basic units of cooperative production. UF/IFAS Extension, FE487, University of Florida. Retrieved from <http://edis.ifas.ufl.edu/pdffiles/FE/FE48700.pdf>.

Craig, B. & Pencavel, J. (1992). The behavior of worker cooperatives: The plywood companies of the Pacific Northwest. *American Economic Review* 82, 1083-1105.

Craig, B. & Pencavel, J. (1995). Participation and productivity: A comparison of worker cooperatives and conventional firms in the plywood industry. *Brookings Papers on Microeconomic Activity: Microeconomics*, 121-174.

“Guidelines of the Economic and Social Policy of the Party and of the Revolution.” (2011). Approved by the 6th Congress of the Communist Party, April 2011. Retrieved from <http://www.cuba.cu/gobierno/documentos/2011/ing/1160711i.html>

Hutto, C.J. & Gilbert, E. (2014) VADER: A Parsimonious Rule-based Model for Sentiment Analysis of Social Media Text, *Association for the Advancement of Artificial Intelligence*.

Figures and Tables

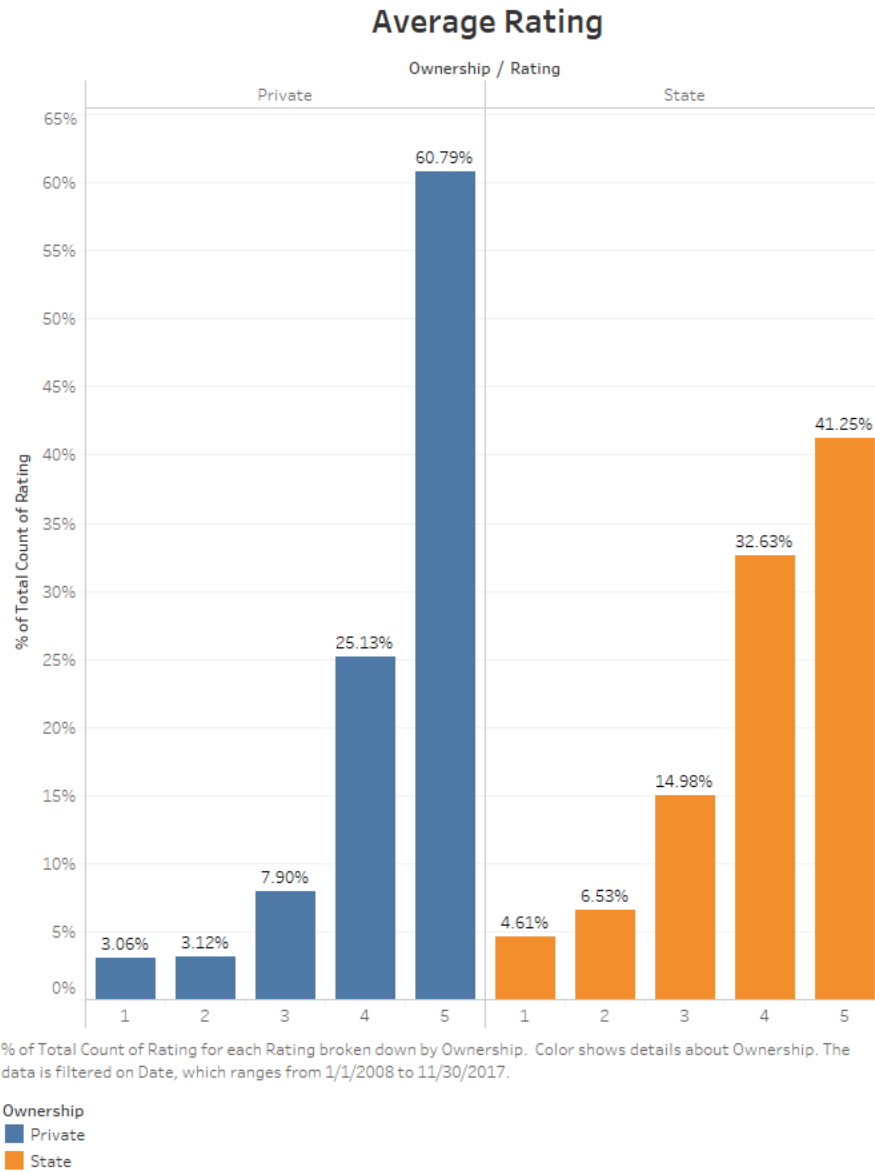


Figure 1. Distribution of ratings (by ownership)

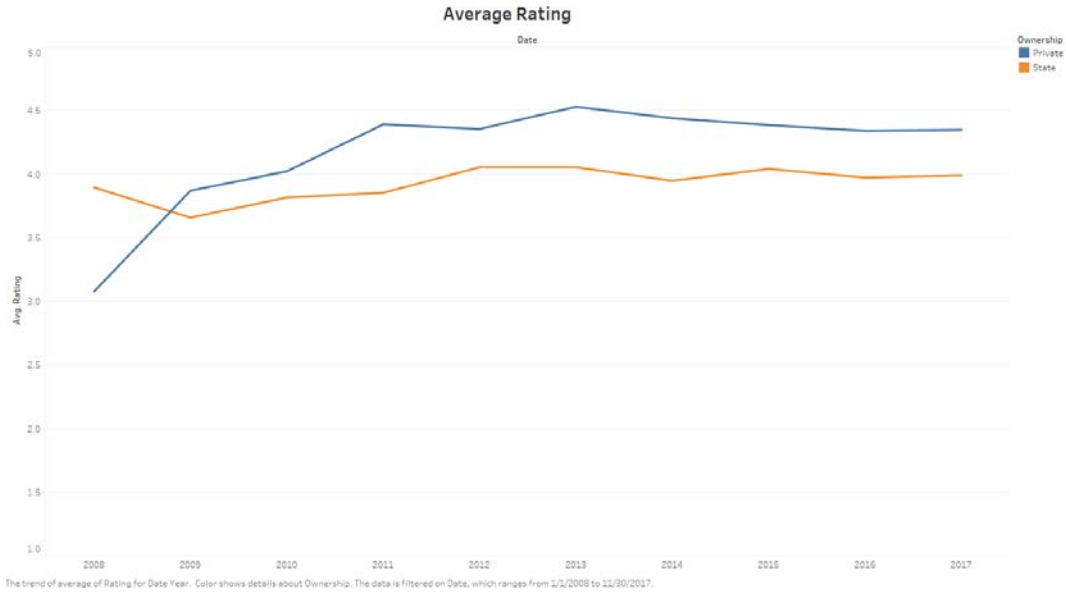


Figure 2. Average yearly ratings of Cuba’s restaurants (by ownership)

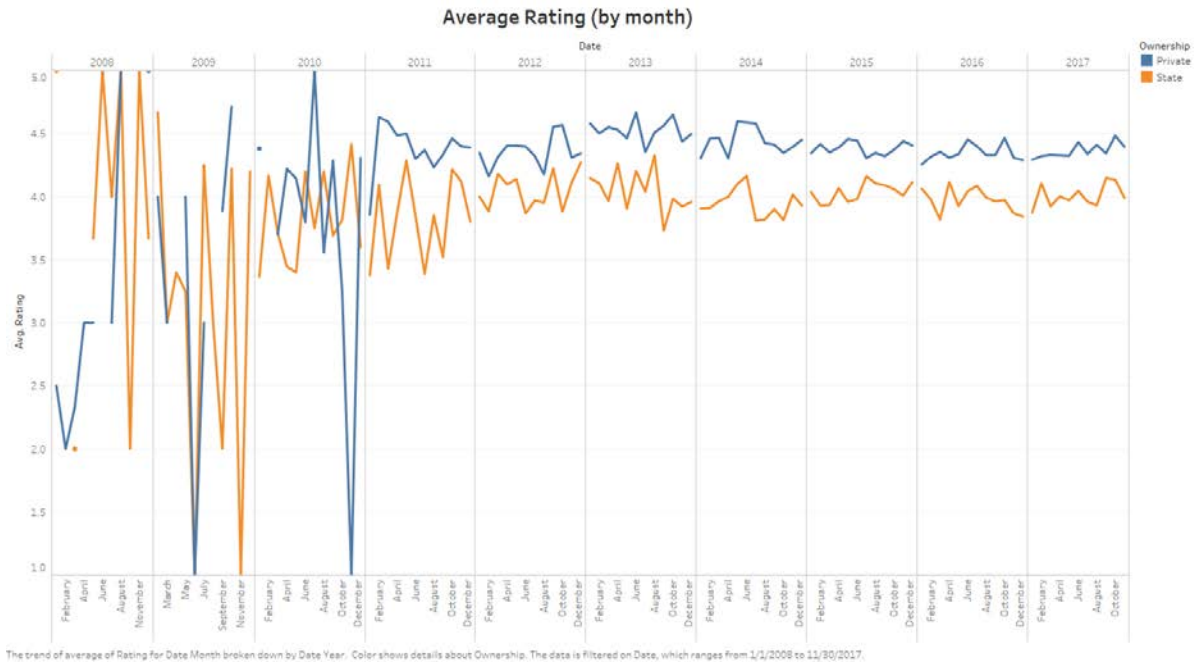


Figure 3. Average monthly ratings of Cuba’s restaurants (by ownership)

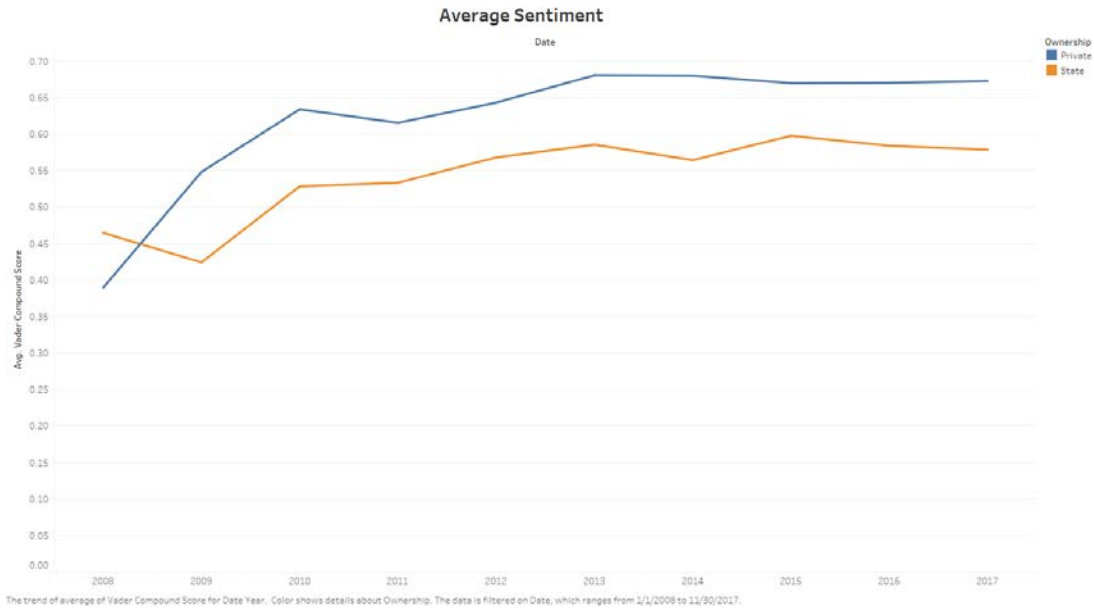


Figure 4. Average annual sentiment score in reviews of Cuba’s restaurants (by ownership)

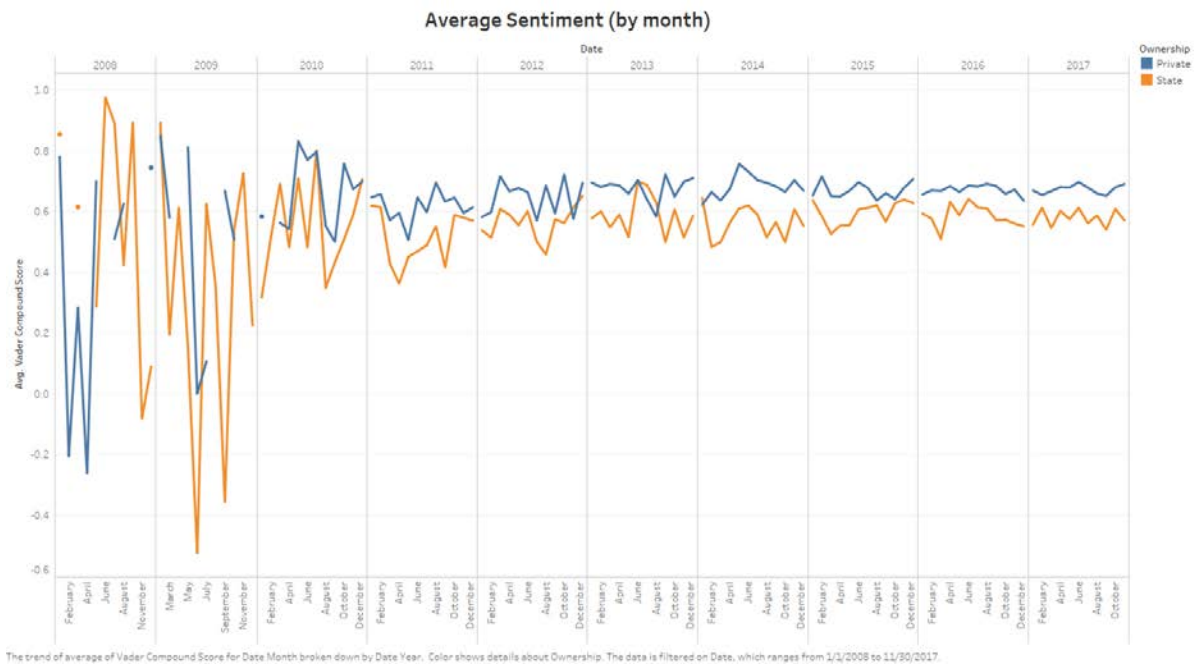


Figure 5. Average monthly sentiment score in reviews of Cuba’s restaurants (by ownership)

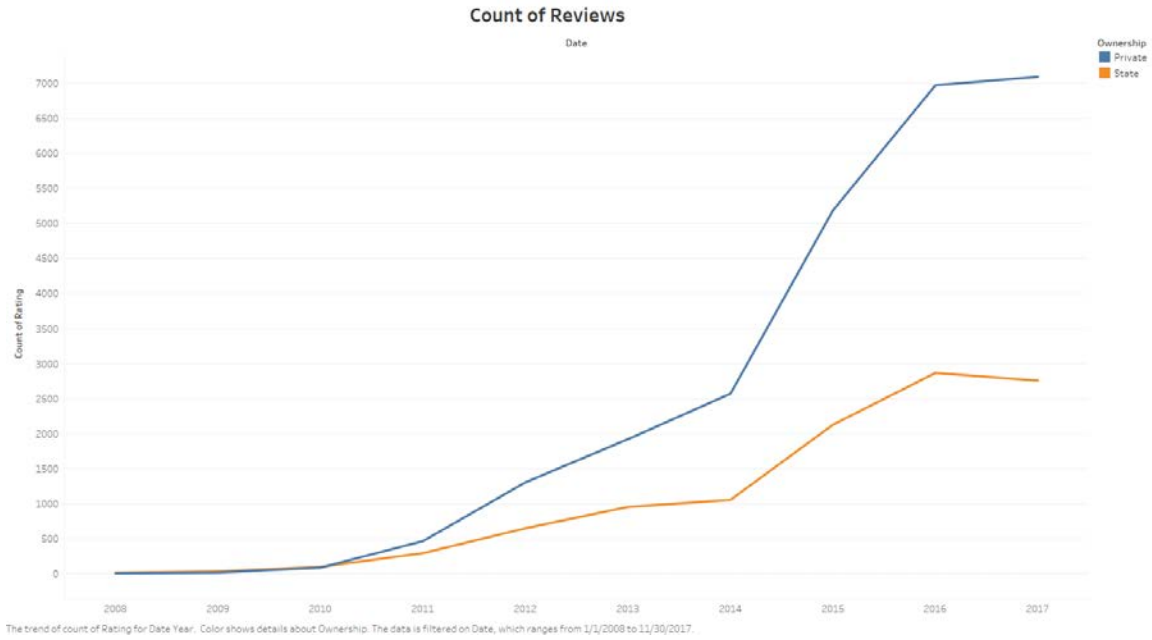


Figure 6. Count of reviews of Cuba’s restaurants (by ownership)

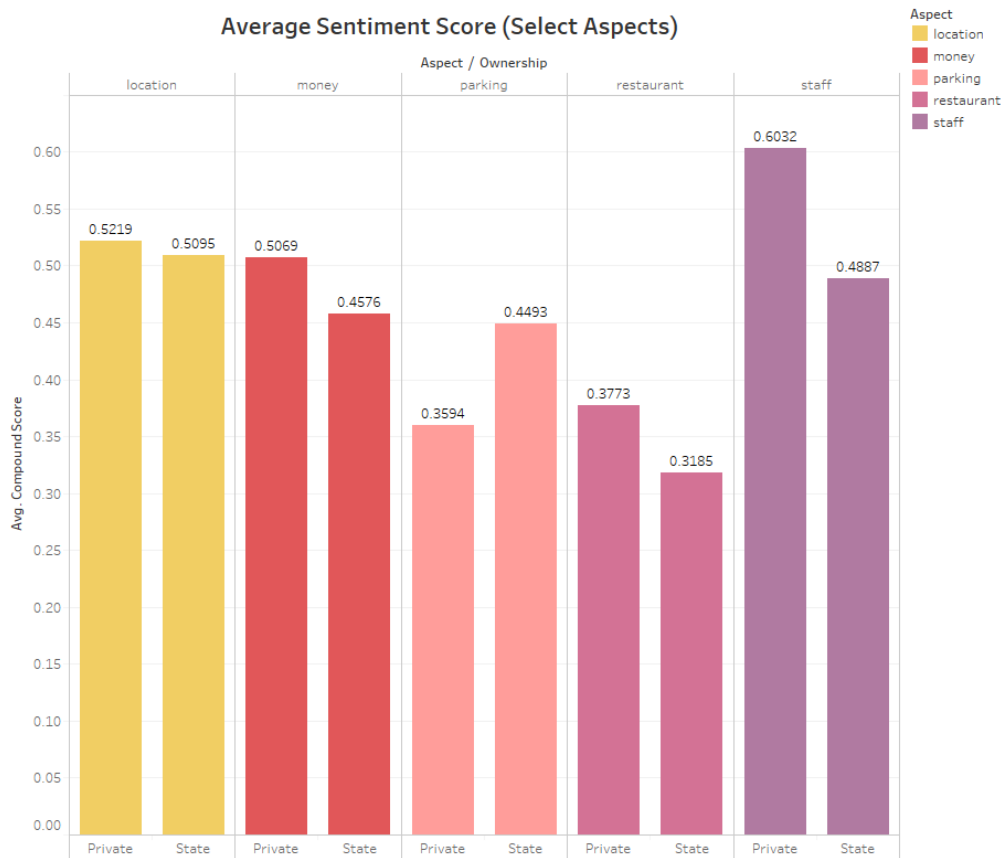


Figure 7. Sentiments about various aspects of restaurants (by ownership)

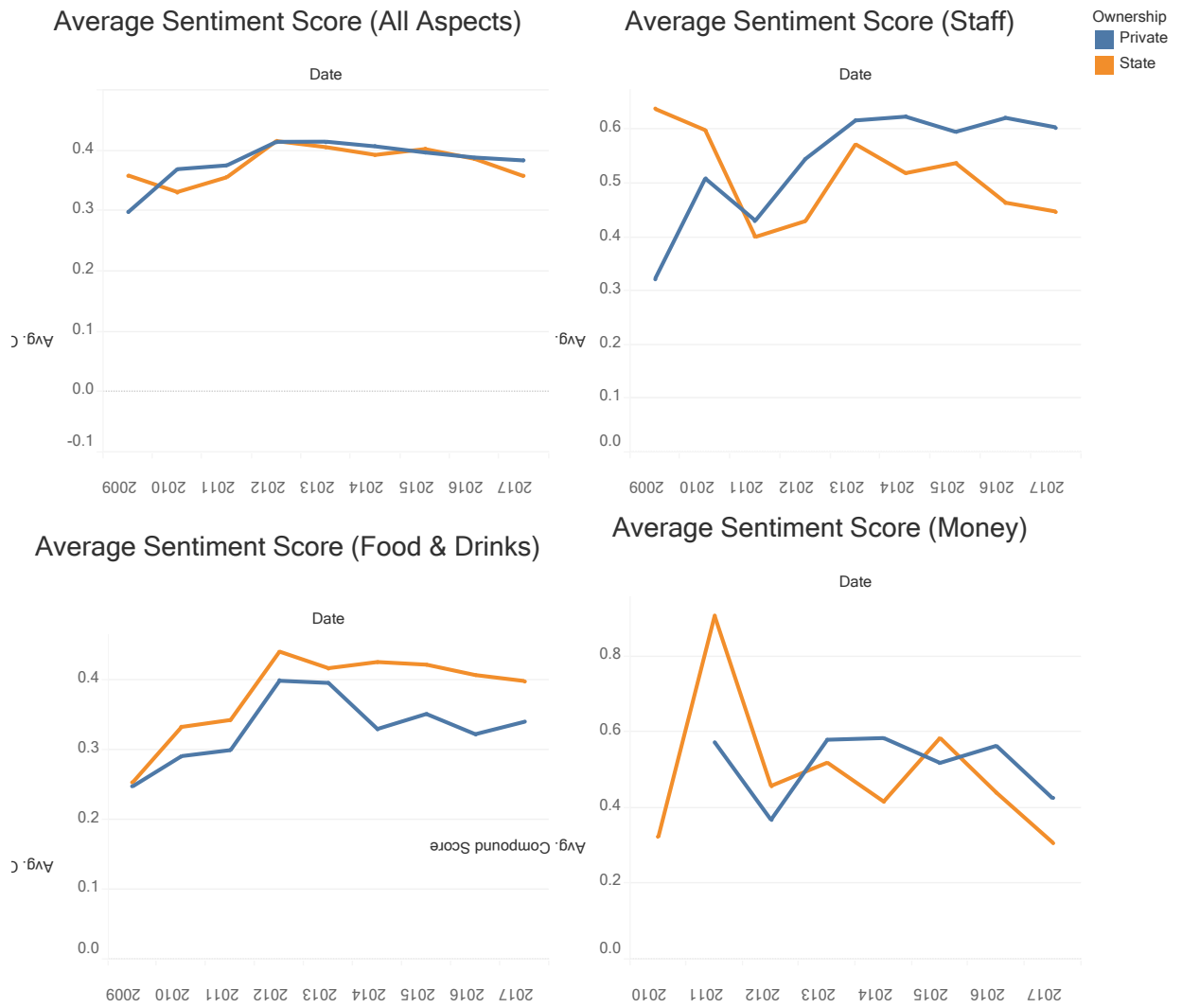


Figure 8. Sentiments about various aspects over time (by ownership)

VARIABLES	(1) Rating	(2) Rating	(3) Rating
Constant	4.416*** (0.006)	3.925*** (0.087)	4.457*** (0.008)
Ownership	-0.389*** (0.009)	-0.082 (0.107)	-0.418*** (0.014)
Post 2010		0.492*** (0.087)	
Ownership × Post 2010		-0.307*** (0.107)	
Post 2015			-0.075*** (0.011)
Ownership × Post 2010			0.050** (0.019)
Observations	50,431	50,431	50,431
R-squared	0.033	0.034	0.034

Standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.1

Table 1. Effect of Liberalization and of change in U.S. policy (Ownership = 1 if State Owned)