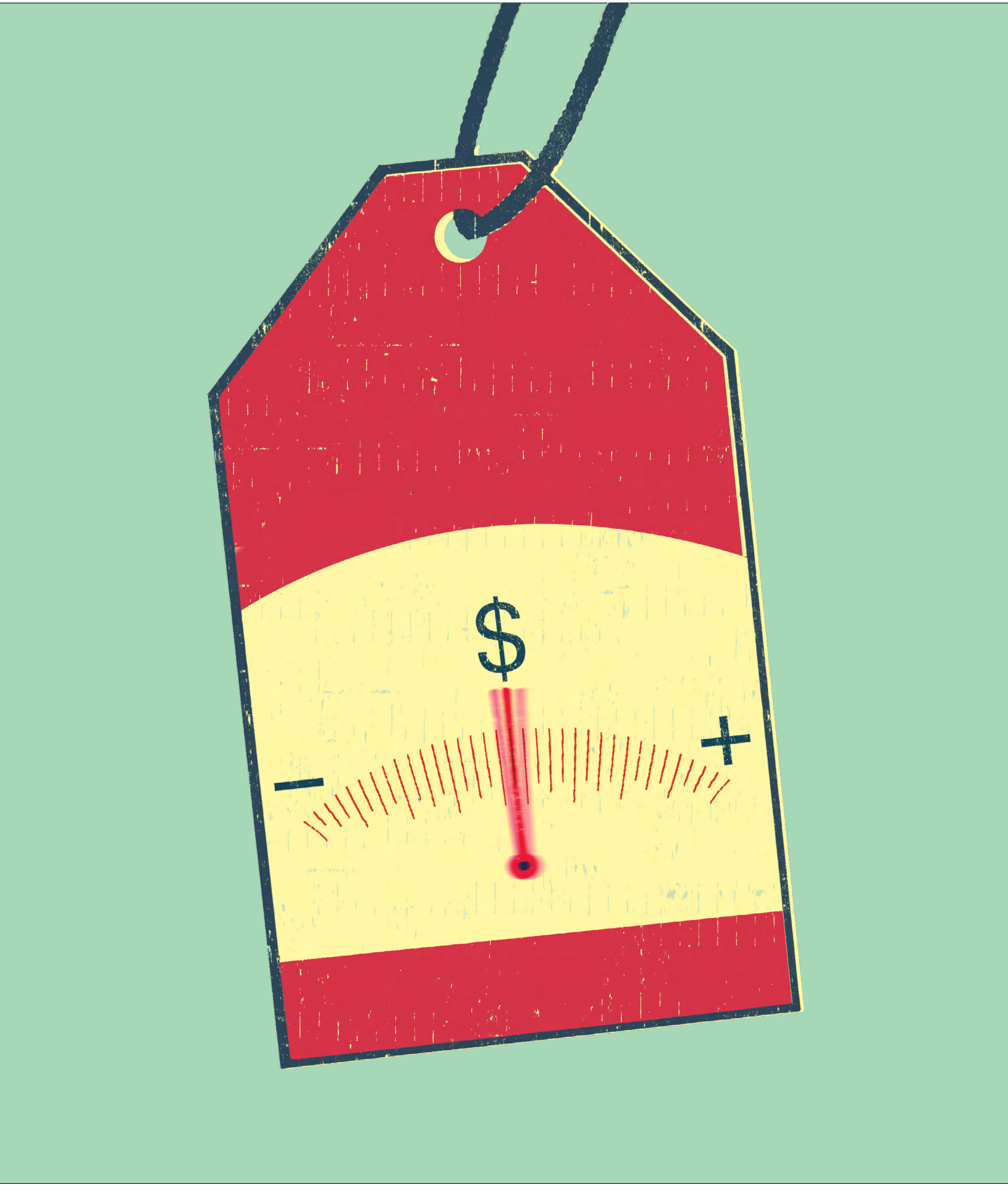


Segmented Pricing for Fines and Fees

Increasing Revenues and Fairness at the Same Time

BY JEAN-PIERRE DUBÉ, BRYAN GLENN AND SHAYNE KAVANAGH

Cities and counties across the U.S. increasingly rely on fines and fees to balance their budgets. For example, an in-depth study of the 39 largest cities in the U.S. showed that charges grew so much from 2003 to 2018 as to equal tax revenue for half the cities.[1] However, fines and fees disproportionally fall on low-income residents who often are strained to pay.[2] This has many ill effects: from causing harm to the most vulnerable communities that government serves to reducing the revenues raised by local government.

For these reasons, local governments must become savvier about how they manage fines and fees. A good start would be to define fines and fees and the purpose they serve. A user fee attaches a price to a public service. This raises revenue by allocating part of the cost of the service to the person who receives the service. User fees also limit demand for a service. A fine is meant to punish transgressors of regulations and deter potential transgressors. The contention of this article is that a pricing strategy called "segmented pricing" can serve these purposes while reducing the hardships that fines and fees can place on low-income citizens. The essence of segmented pricing is to charge the citizen the price they can afford—no more, no less.

Most fee and fine structures are flat, with little or no differentiation in the price for people of different abilities to pay. Citizens pay fines and fees from their discretionary income, which is the income remaining after essentials are paid for, like housing and food. Customer segmentation recognizes that different people have different abilities to pay, and people are, therefore, treated differently based on their ability to pay. Segmentation is common in the private sector. Any time a sales representative is authorized to provide a discount to convince you to buy, the company is engaging in segmented pricing. Insurance companies segment by the risk posed by the insured. Airlines provide seating options at different price points. Universities segment by offering scholarships to low-income students.

Local governments commonly engage in segmentation too, perhaps without realizing it. The best example can be found in the most important local tax: the property tax. Senior citizen tax exemptions assume that seniors are on a fixed income and have less ability to pay the tax, so the exemption reduces the tax owed. This is not so different from senior citizen discounts provided by private firms. In the public and private sector, segmentation of seniors makes it more likely that seniors will pay because the price does not exceed their willingness or ability to pay. A more widespread example is segmentation by wealth. Property tax

RETHINKING REVENUE

The **Rethinking Revenue** initiative is a joint project of many organizations that have an enduring interest in creating thriving local communities and making sure that those communities are served by capable and ethical local governments. Rethinking Revenue is about providing local governments with the ability to raise enough revenues for the services their communities need—and to raise those revenues fairly and in a way that is consistent with community values.

rates mean that taxpayers are charged according to property wealth—a proxy for their ability to pay. Income taxes also segment by the ability to pay, and the segmentation is even more obvious.

Segmentation can be applied to fines and fees. But, before we go further, it is important to address a question that some readers may have: If fines or fees are lowered for some people, might that encourage overconsumption of services or even scofflaws? This is a valid concern. For example, one study of day care services showed that charging parents a *small* fine for picking up their children late came to be seen by parents as a fee they could pay for the privilege of picking up their children later.[3] In another example, anyone who lives in a big city has heard stories of well-off people who park their cars when and where they please and regard parking tickets as a cost worth paying. These examples show that fines can be ineffective deterrents if set too low. However, the approach we advocate for in this article is not to *undercharge* anyone but rather to find the *right charge* for everyone—a charge that fits people's financial circumstances more precisely so that they will be able to pay the charge and the charge still fulfills its function for limiting demand or creating deterrence. Even in the case of a user fee that is intended to generate revenue, we will show that a segmented pricing strategy has the potential to *increase* total revenue, even if applied only to low-income individuals.

In addition to creating financial benefits for governments, segmented pricing can support more ethical government. The ethics of public service commits public officials to treat people fairly and produce good results for the community.[4] For example, the typical one-size-fits-all structure of fines means that low-income people pay proportionately more. That means the punishment is greater for low-income people. This is not fair.[5] Furthermore, excessive fines and fees can further imperil the financial health of vulnerable citizens. For example, most low-income people don't have much, if any, discretionary income.[6] A financial shock, in the form of an excessive fine, makes it harder for these people to afford essentials. This might cause them to accumulate debt with the local government. Aggressive collection practices could worsen the situation.[7] For example, suspending a driver's license makes it harder to get a job, or a collection agency might damage a person's credit score. These situations can lead to a poverty trap.[8] Further, people struggling to pay their other bills tend to become less compliant with other regulations, like laws, building safety, etc.[9] None of this is a good result for the community.

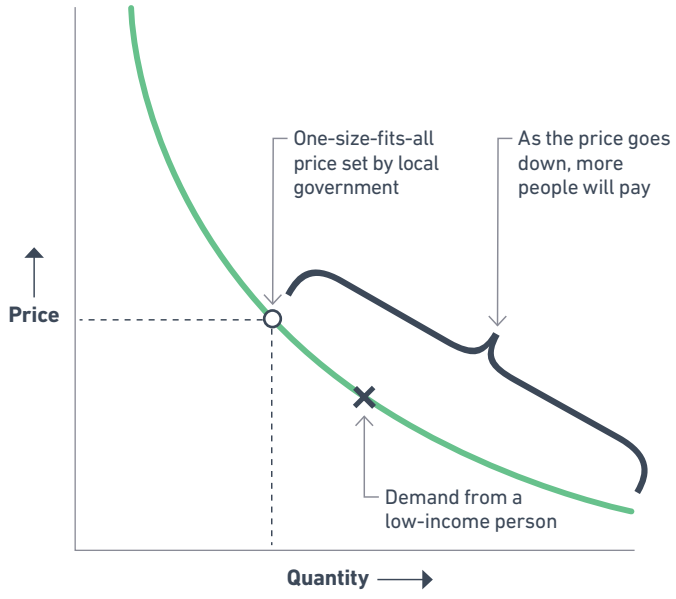
In addition to creating financial benefits for governments, segmented pricing can support more ethical government.

Customer segmentation: the key to a better approach

In economics, a person's willingness/ability to pay is represented by a demand curve, which we depict in Exhibit 1. It shows that different quantities of any good or service will be purchased at different prices. Local governments typically set a single, one-size-fits-all price for everyone (e.g., a water rate, a set fine for a given infraction). At the given price, a given quantity will be purchased.[10] This is where the two dotted red lines intersect the blue demand curve in Exhibit 1. A greater quantity will be purchased as the price decreases. However, it could be financially unsound for local government to simply lower its one-size-fits-all price because the new price multiplied by the new quantity might be less than the old price multiplied by the old quantity.

This is where segmentation comes in. Every person's willingness/ability to pay can be understood to fall along some point on the demand curve. To illustrate, the "X" on Exhibit 1 represents a hypothetical willingness/

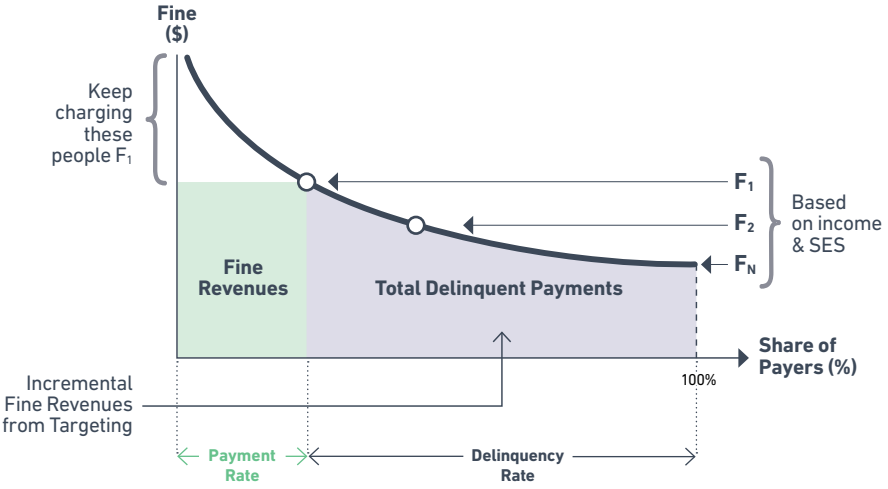
EXHIBIT 1 | DEMAND CURVE



ability to pay for a low-income person. Because the set price is above their willingness/ability to pay, they will likely not pay, either because they don't have the money or because they are likely to spend the money on other things (e.g., food, housing, etc.). Hence, the local government can realize greater revenue by charging our hypothetical low-income person the price that person is willing/able to pay. The math is simple. If the government maintains the price for the low-income person at 100% of its one-size-fits-all price, then the government will get $0. One hundred percent of zero is still zero. If the government adjusts the price to 80% or 70% of the one-size-fits-all price or whatever meets the demand of the low-income person, then the government will get 100% of that amount—an amount greater than zero. This also speaks to why it would not be financially savvy to reduce the one-size-fits-all price. Everyone who was willing/able to pay at a price above the new, lower, one-size-fits-all price is now being undercharged (and perhaps undeterred from undesirable behavior or encouraged to overuse public services). It is important that people who are not financially challenged continue to pay the original rate to avoid revenue cannibalization with a lower price.

Exhibit 2 elaborates on Exhibit 1 by making the general demand curve directly applicable to fines. Point "F1" is the standard fine amount. The green shaded area is the revenue raised from price multiplied by quantity at F1. The purple shaded area is revenue not collected when the price is set at F1. Segmented pricing would offer lower, but different, prices to different people in order to collect the amounts represented by the purple area. F2 represents one such hypothetical price, and FN is the lowest price that would need to be offered to anyone. Recall that FN is not the price that would be offered to everyone unable to pay F1. It would just be offered to people who were

EXHIBIT 2 | DEMAND CURVE FOR FINES AND SEGMENTED PRICING



PRICING AT BOTH ENDS OF THE INCOME SCALE?

In this paper, we will only consider the potential effects on low-income individuals. However, segmentation can be applied to the other end of the income scale. For example, some countries, like Switzerland, have begun to charge fines based on income, resulting in higher fines for higher-income people.[11]

COULD SEGMENTATION BE APPLIED TO TAXES?

As discussed, local governments already apply segmentation to the property tax. It might also be possible to segment other types of taxes, but we are focusing on fines and fees. Fines and fees have become more important in recent years and are ripe for savvier pricing strategies. Debt from unpaid fines and fees can be harmful to low-income individuals. Also, in the case of fines, the financial shock of a fine can be particularly damaging to low-income individuals.

unable to afford any other price (like F2, for example). Thus, more total revenue would be generated because compliance with the charge would improve at the lower price points.

It is worth noting that Exhibit 2 does not contemplate charging anyone a price higher than F1. This leaves the white area under the demand curve as unrealized revenue. Theoretically, people with greater ability to pay could be charged an amount higher than F1 to capture the white area as well. However, in this article, we will focus on the lower end of the demand curve because we believe this is a more pressing concern for most local governments.

The potential available from savvier pricing is a conclusion reached not just by our hypothetical demand curves. The White House Council of Economic Advisors determined that the low compliance from lower-income groups can sometimes cause cities to lose more revenue than they would otherwise collect due to the high direct costs of collecting debt and the low rate of collection.[12] Direct costs of administering delinquent payment collections can be substantial, including staffing collectors, locating offenders, and administrating collections. The persistent low collection rates among local governments have led to reliance on third-party debt collection agencies. However, these agencies might use harsh methods that might not represent the government well to its citizens (thus, reducing trust) and harm citizens' ability to thrive (by harming credit scores).

Exhibits 1 and 2 also address the ethical and compliance concerns we raised in the introduction. With respect to ethics, because the price does not exceed the willingness/ability to pay, it is fair and will not drive the low-income person further into poverty. Also, because the price *is not less than* the low-income person's willingness/ability to pay, the price would still be an effective deterrent or limit on that person's demand.

Advantages of Segmented Pricing

- One-size-fits-all pricing will predictably generate unpaid accounts because the price will exceed many people's willingness/ability to pay.
- More aggressive collection of unpaid accounts has disadvantages. It can further imperil the financial health of vulnerable citizens. It also requires the government to incur collection costs. In extreme cases, these costs might even exceed the revenues collected.[13]
- Local governments can realize more revenue and have more ethical outcomes with segmented pricing. Segmented pricing does not let low-income people "off the hook" for fines or fees. They are still paying an amount that causes them a proportional burden to the average citizen.

Charging people what they can afford—no more, no less

Segmented pricing *for fines and fees* is not a wholly unprecedented approach for local governments. In this section, we will review practices related to segmented pricing (payment plans and amnesty periods) that local governments commonly use. We'll also discuss the National League of Cities "LIFT-UP" program—a framework used by a small number of local governments that is related to segmented pricing. This will help ground us in: what local government has done before; how segmented pricing builds on what local governments already know; and where segmented pricing introduces something new and different. We will then go into how a government might pursue a segmented pricing system.

Two local government practices related to segmented pricing are payment plans and amnesty periods. Some governments offer payment plans or other accommodations for people who experience financial difficulty. This approach is limited, and citizens often fall behind in their payments before assistance becomes available. Segmented pricing aims to prevent citizens from falling behind in the first place. Payment plans and similar mechanisms often rely on staff discretion to administer them (e.g., determine the length of the plan, size of payments). This limits how widely the approach can be scaled. Even the most well-meaning staff will likely produce inconsistency in how discretion is applied across citizens in similar circumstances. To illustrate, research demonstrates that even judges show remarkable inconsistency in how they apply the law,[14] so it is reasonable to expect that payment discounts based on staff discretion are likely to be applied inconsistently. Segmented pricing aims to create a systematic approach that can be widely and consistently applied.

Amnesty programs are where late fees or penalties are waived for a certain period with the hope that people with outstanding debts will take advantage of the waiver to pay off the charges they originally incurred. Though avoiding the problems of inconsistent treatment of citizens previously described, amnesty programs still only do good after citizens have gotten into financial difficulty. Also, "best practices" for amnesty programs call for offering amnesties infrequently so that people don't deliberately incur debt in anticipation of a later amnesty. Similarly, untargeted debt reduction plans may lead to some people only paying their bills when there is a shutoff notice or termination of services. Segmented pricing is meant to be a permanent, not intermittent, solution to unaffordable fines and fees.

Let's move on to a program that gets closer to segmented pricing: the Local Interventions for Financial Empowerment through Utility Payments (LIFT-UP) program, developed by the National League of Cities (NLC).[15] LIFT-UP has five core components:

- **Identify and refer.** Utility data is used to identify customers who are struggling financially and contact them for intervention. Examples of data used include a history of service terminations, high delinquent balances, or prior receipt of assistance with delinquent balances. Segmented pricing works best when informed by data about the customer's ability to pay.
- **Restructured utility debt.** Long-term and more lenient repayment arrangements are made available.
- **Individualized financial counseling.** This includes a personal budget review, a plan to address financial needs, and referrals to appropriate support services.
- **Financial incentives.** Customers are given incentives to complete tasks, like attending a financial counseling session or consistently making payments on time. This is somewhat like moving the price point on the demand curve closer to the customer's ability to pay, like segmented pricing.
- **Ongoing participant contact.** Participants are reminded to maintain their commitment to the program through various mediums (text messages, phone calls, etc.).

HOW IMPORTANT IS THE STICK RELATIVE TO THE CARROT?

Not as important as we might think. In 2015, the San Francisco Superior Court stopped suspending people's driver's licenses when they could not pay their traffic tickets. Did this inhibit the court's ability to collect the debt? An analysis conducted by the San Francisco Treasurer's office showed no negative impact on revenue collection. In fact, collections on delinquent debt per filing have increased since eliminating the penalty. And across California, on-time collections went up in the year following the end of driver's license suspensions statewide. The increase in collections, without the use of driver's license suspensions, suggests that suspending driver's licenses was not necessary to ensure on-time payments.

In 2016, NLC evaluated the implementation of LIFT-UP in five cities, ranging in size from 465,000 residential accounts (Houston) to 281,052 residential accounts (Newark). The evaluation found "evidence of a positive impact of LIFT-UP on the outcomes that are most relevant to the city and customer behaviors within that city" for three of the four cities examined.[16] For example, in two cities, the relevant metric was whether customers avoided water shutoffs. In St. Petersburg, LIFT-UP participants were about 50% less likely to experience a shutoff after enrolling, though in Savannah, there was no significant improvement. In two other cities, reducing outstanding balances was the most relevant.[17] In Houston and Newark, outstanding balances were reduced by about 25%. The evaluation also examined the cost-effectiveness of the program for a single city (St. Petersburg) and found that the program was highly cost-effective for that city.

We've seen that a program like LIFT-UP has potential, but could segmented pricing offer further opportunities?

- Segmented pricing is a preventative strategy, where the goal is to avoid delinquency and encourage payment from the beginning. Thus, we might think of segmented pricing like credit scoring. Credit scoring uses data about the borrower to prevent the lender from making a loan that the borrower is unlikely to repay. Segmented pricing is used to avoid charging customers a price they are unable to pay.
- Under segmented pricing, 100% of eligible people could participate automatically. It can be a formidable challenge and cost to recruit people into special programs for delinquent accounts. Segmented pricing can use data to determine who is eligible, and they automatically get a price that is better aligned with their ability to pay. Automatic or default enrollment has proven a powerful tool for achieving public policy goals in many applications, not just pricing.[18]
- Segmented pricing provides a direct reduction in the rate charged to financially struggling customers. Thus, the price of the basic water charge is brought down to a level of what the customer can afford. Without a rate reduction, there might be continuing struggles to avoid shutoffs, reduce balances, etc.

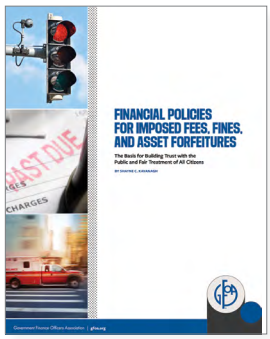
The successes of LIFT-UP show that the concepts underlying segmented pricing have potential, like using data to determine who participates and giving people financial incentives.

We saw that a true segmented pricing system may present new opportunities for local governments to better serve low-income individuals.

What are the next steps to bringing a segmented pricing system to local government?

First, the local government must reach an agreement among its decision-makers to pursue segmented pricing and/or payment plan restructuring. Some or all of the following could be important for reaching an agreement:

- **Understanding the seeming paradox at the heart of segmented pricing:** Lowering the price for some customers could result in higher total revenues and greater compliance with regulations.
- **Recognition that local government can and should help low-income citizens thrive** by easing the burden imposed by fines and fees (while also recognizing that segmented pricing still results in low-income citizens "paying their fair share"). A related point to recognize is that most low-income citizens want to pay their fair share to support public services* but simply may not have enough money to pay the standard one-size-fits-all price and also pay for other important things in their life.
- **A willingness to try new ideas and experiment.** Though segmented pricing is in use in the private sector, it is still an advanced pricing strategy and one that has not been widely used by local governments for most revenue sources. This means that it will probably be necessary to work with outside experts on segmented pricing to get the best results.



FEES AND FINANCIAL FOUNDATIONS FOR THRIVING COMMUNITIES

GFOA has published the paper "Financial Policies for Imposed Fees, Fines, and Asset Forfeitures," which shows how you can create a policy for these revenue sources. The paper provides the rationale for a policy and the elements of such a policy. It complements the information provided in this paper by helping to define when fines and fees are appropriate, acceptable collection practices, and limitations on how revenues should be used. Find the report at **gfoa.org/materials/fees-fines-forfeitures**.

*For example, according to Vanessa Williamson of Brookings in her book "Read My Lips: Why Americans are Proud to Pay Taxes," surveys have consistently found that "over 90 percent of Americans agree with the statement, 'It is every American's civic duty to pay their fair share of taxes.'"

After an internal agreement has been reached to try segmented pricing, pick a revenue stream to start with. The best candidates will be large collection streams, where there is considerable uncollected debt and where low-income people are especially burdened by the charge. This might be a revenue stream where the local government is losing money on collections, on net. Revenues that often meet these criteria are utility bills, parking citations, and court fines.

Next, determine the data that can be used to identify eligibility for segmented pricing. The goal is to identify eligibility automatically, without any input required by citizens. Also, it is best to use publicly available data so that the government does not have to collect additional personal information about its ratepayers, which could create new cybersecurity risks. Examples of data that could be used for segmented pricing include:

- The person's existing debt with the local government.
- The median income of the neighborhood in which they live.
- Their participation in other government assistance programs, like WIC, Medicaid, or unemployment.

Using this data, a "pricing experiment" is conducted. The accounts are divided into segments using data like that shown above. Then people within those segments are offered a discount (10%, 30%, 50% off, etc.). Different people are offered different discounts (e.g., one might be offered 10% and another 15%). You can then count how often a given discount led to a payment. For a given segment, let's imagine that 0% of customers paid with a 10% discount, 75% of customers paid with a 15% discount, and 80% of customers paid with a 25% discount. We might then conclude that a 15% discount is the right amount. Ten percent made no difference at all, and the difference in uptake between 15% and 25% might not be large enough to justify the additional discount. Artificial intelligence and machine learning techniques can be used to run the experiment on a large scale and use the results to develop an algorithm that categorizes individual customers into segments accurately and consistently. It should be noted that an algorithm that uses publicly available data for large groups of people will not perfectly segment all individual ratepayers into "just right" prices. Some people might be undercharged compared to their true willingness/ability to pay, while others might be overcharged. Still, the price should be closer to the true willingness/ability to pay of most people and generate the benefits of segmented pricing that we have described in this article.

After the results of the experiment are in, prices can be adjusted accordingly for people in each segment. As with the LIFT-UP program, you will need to determine how to handle existing debt. A new, lower price going forward may not do much to resolve a large accumulated debt. A payment plan that restructures or amortizes the debt over a series of affordable monthly payments (that includes current charges) could be a solution to this problem. Similar to the logic of segmented pricing more generally, the longer time period it would take to recoup the debt (and the associated costs of capital) may be preferable to not collecting the debt at all.

SEGMENTED PRICING IS NOT A SILVER BULLET SOLUTION

Segmented pricing will not solve every problem related to fines, fees, and low-income individuals. For example, it will not do much to resolve existing debts. Some people may face greater financial hardships than the information available to a local government might suggest. Hence, there will still be a need for payment plans or other ways to address accumulated debt.

Where to next?

Readers who want to put the ideas in this article into practice have options for what to do next.

First, you can visit the NLC to learn more about municipal financial empowerment strategies, like LIFT-UP, to increase the financial stability of low-income families. These strategies link vulnerable households to financial services and public benefits, and they provide them with tools to build assets and manage money more effectively. The NLC provides a guide to LIFT-UP as a strategy to reduce utility debt and resident financial insecurity. The LIFT-UP program includes many of the basic concepts of segmented pricing, and there have been several successful applications of LIFT-UP.

Second, the Government Finance Officers Association (GFOA), NLC, and the University of Chicago are working on feasibility studies for segmented pricing relating to different revenue streams. We will publish the results, and if you have an interest in getting involved, email research@gfoa.org.

Characteristics of organizations that would be a good fit for a feasibility study include:[19]

- Possess a large revenue stream with significant problems with delinquency/nonpayment.
- At least 5,000 active accounts for the fine/fee that will be segmented.
- A willingness to waive or at least restructure debts. This is part of moving the price on the demand curve to a point where people are able to pay. Of course, you must also be willing to offer different price reductions to people.
- An ability to pass historical account data via an API or a downloaded CSV file; and an ability to add a hyperlink to your current website or configure your DNS (Domain Name Server) management.

Conclusion

Price is inextricably linked to affordability. And affordability fluctuates by the socioeconomic status of the customer. Local governments may have an important opportunity to:

- Raise more revenue through some fines and fees while at the same time…
- Administering those fees more ethically…
- All while not compromising the ability of the fine/fee to deter unwanted behaviors or limit demand.

This opportunity is segmented pricing. Segmented pricing accomplishes all of this by finding the price point that is closest to people's true willingness/ability to pay. When offered this price, more people will agree to pay, bringing more revenue to the government, reducing the need for costly (and possibly harsh) collection practices, and reducing the risk that local government fines and fees will exacerbate an at-risk individual's precarious financial position into crisis.

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[1] Ahern, Kenneth R. (May 2021). *The business of city hall.* Working Paper 28805. National Bureau of Economic Research.

[2] Financial health can be ascertained by signs of increased vulnerability, poverty indicators, or delinquent bills. Brockland, Beth; Garon, Thea; Dunn, Andrew; Wilson, Eric; Celik, Necati (2019). Financial Health Network: U.S. Financial Health Pulse. *2019 Trends Report.* https://s3.amazonaws.com/cfsi-innovation-files-2018/wp-content/uploads/2019/11/13204428/US-Financial-Health-Pulse-2019.pdf

[3] Gneezy, Uri; Rustichini, Aldo (January 2000). A fine is a price. *Journal of Legal Studies*, 29(1). SSRN: https://ssrn.com/abstract=180117

[4] See the GFOA Code of Ethics at https://www.gfoa.org/ethics.

[5] The principle of fairness at work here is called "proportionality." Psychological research shows it to be one of the most important ways that people judge fairness. See: Harward, Brian; Taylor, Alison; Kavanagh, Shayne (August 2021). What's fair? Equity, equality, and fairness. Government Finance Officers Association. https://www.gfoa.org/materials/whats-fair-3

[6] The Pew Charitable Trusts (March 30, 2016). Household expenditures and income. https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2016/03/household-expenditures-and-income

[7] Cite NLC's CAFFE project Why Cities Should Find Equitable Ways to Impose and Collect Fines and Fees—CitiesSpeak, Helping Cities Find Equitable Ways to Assess and Reform Fines and Fees, How Cities are Transforming Fines and Fees to Advance Equity and Financial Security – National League of Cities

[8] Mello, Steven (November 14, 2018). Speed trap or poverty trap? Fines, fees, and financial wellbeing. https://mello.github.io/files/jmp.pdf; Kessler, Ryan E. (May 1, 2020). Do fines cause financial distress? Evidence from Chicago. SSRN: https://ssrn.com/abstract=3592985 or http://dx.doi.org/10.2139/ssrn.3592985

[9] Chambers, Dustin; Thomas, Diana; McLaughlin, Patrick A.; Waldron, Kathryn (January 2019). The effect of regulation on low-income households. https://www.mercatus.org/system/files/mclaughlin_thomas_chambers_and_waldron_-_policy_brief_-_the_regressive_effects_of_regulation_a_primer_-_v1.pdf

[10] Though it may be unconventional to think of a fine as a "purchase," when an individual pays a fine, they are essentially purchasing a form of forgiveness for their transgression.

[11] BBC (August 12, 2010). Swede faces world-record $1m speeding penalty. https://www.bbc.com/news/world-europe-10960230

[12] Council of Economic Advisors (December 2015). Fines, fees, and bail: Payments in the criminal justice system that disproportionately impact the poor. Executive Office of the President of the United States, Council of Economic Advisors. Washington, D.C. https://obamawhitehouse.archives.gov/sites/default/files/page/files/1215_cea_fine_fee_bail_issue_brief.pdf

[13] CEA. loc. cit.

[14] Kahneman, Daniel; Sibony, Olivier; Sunstein, Cass R. (May 18, 2021). *Noise: A flaw in human judgment.* Daniel Kahneman, et al reviews a large body of research demonstrating the considerable inconsistency in judgments made in the court system. It is unlikely that payment plans would be much different. Publisher: Random House Audio. Narrator: Jonathan Todd Ross.

[15] Collins, J. Michael; Moulton, Stephanie (May 2016). Implementation and impact evaluation of local interventions for financial empowerment through utility payments (LIFT-UP). University of Wisconsin-Madison Center for Financial Security. https://cfs.wisc.edu/2016/09/08/study-shows-national-league-of-cities-lift-up-program-helps-cities-recoup-lost-revenue-families-build-financial-security/

[16] The fifth city could not provide the necessary data due to a utility billing system conversion.

[17] Cities with more aggressive shutoff policies did not have customers with larger balances but did experience a cycle wherein customers would not pay until shutoff, pay to have the water turned on, and then not pay again until the next shutoff. Clearly, not an ideal situation.

[18] Halpern, David; Sanders, Michael (2016). Nudging by government: Progress, impact and lessons learned. *Behavioral Science & Policy,* 2(2): 53–65. https://behavioralpolicy.org/wp-content/uploads/2017/06/Sanders-web.pdf

[19] In addition, reaching agreement among relevant decision-makers that segmented pricing and new payment plan guidance is something worth implementing.