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From Juvenile Deliquency to the Child Welfare System

Protecting California's Children

Also in this issue:

VICTIMS NOT CRIMINALS:

Responding to Commercial Sexual Exploitation of Children in Alameda County

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Every night, there are fifty to one hundred commercially sexually exploited children (CSEC) on Oakland's streets, representing a significant, deeply rooted human rights issue in Alameda County. When identified by the police, these girls are arrested, detained, and prosecuted, a punitive move that necessitates closer examination and change. In this paper, I examine CSEC's current pathways through the juvenile justice system and envision a child welfare alternative that represents their unique set of needs. To truly support these girls, it is necessary to radically change legal protocol and respond to the sexual exploitation of children from the child welfare system, rather than the criminal justice system.

INTRODUCTION

The commercial sexual exploitation of children is a pervasive issue in Alameda County. The FBI has designated the Bay Area as one of the nation's thirteen "high intensity" areas for child trafficking, with Alameda County a particular hotspot for sexual exploitation.[1] In Alameda County, 267 cases were identified between January 2011 and December 2012.[2]

Social services and legal responses are administered on the county level. In Alameda County, the Adult Division District Attorney is spearheading efforts to address the issue. While social services are increasingly directed to support commercially sexually exploited children, legal responses fail to address complex accompanying health and psychosocial problems and may even exacerbate these problems. Commercially sexually exploited children (CSEC) are often arrested, detained, and prosecuted for sex crimes. They can be held in detention at the Juvenile Justice Center for days and months upon their arrests, which can add unnecessary trauma upon already severe trauma histories. Most CSEC leave the Juvenile Justice Center with criminal records, starting or continuing long trajectories of involvement with the juvenile delinquency system. Sixty percent of young women arrested for solicitation are at some point re-arrested.[3]

The Alameda County District Attorney's initiative, H.E.A.T. (Human Exploitation and Trafficking) Watch, focuses on aggressive prosecution of pimps, community education, and training of social services and law enforcement.[4] However, discussions that explicitly recognize that CSEC are arrested, detained, and prosecuted are on the periphery of the dominant political discourse in Alameda County. Alameda County should reform the current system so that CSEC do not become enmeshed in the criminal justice system, and instead enter a reworked child welfare system.

Written from the perspective of a social worker, this article traces the current trajectory of girls through the juvenile delinquency system. As 99 percent of all CSEC are girls, policy responses largely focus on addressing their needs.[5] As a critique of current policies, this paper focuses on the issue as it pertains to girls, though future policy work should address the needs of boys as well. The paper details another path through a reworked child dependency system—a path on which girls are not arrested for their abuse and instead, are offered resources to address their specific needs. The goal of this paper is to provide an alternative discourse and begin the process of imagining a system that adequately supports CSEC.

PATHWAYS THROUGH THE JUVENILE DELINQUENCY SYSTEM

The Process of Exploitation

Children are vulnerable to exploitation for a litany of reasons. Victims of trauma are particularly at risk of future trauma and sexual exploitation.[6] In a study of CSEC in Alameda County that draws upon the experiences of 113 girls, the majority (75 percent) have experienced prior, ongoing victimization, including neglect, emotional abuse, sexual abuse, physical abuse, family violence, and community violence, all of which can normalize exploitation.[7] Trauma can lead to risk-taking behavior, struggles with mood regulation, disruption in caregiving relationships, lack of supervision, and social isolation.[8] Poverty and homelessness also play a part—84 percent of CSEC in Alameda County are runaways, many of whom are fleeing abusive or neglectful living situations.[9]

Pimps can seemingly play a role of emotional or economic support that masks exploitation, emotionally manipulating girls to believe they are in caring, supportive relationships. Many CSEC call their pimps "boyfriends," while other CSEC are pimped by their own families or other girls. Pimps actively recruit girls at group homes, at schools in impoverished neighborhoods, through other CSEC, and with the use of drugs.

Sixty percent of CSEC surveyed in one study were recruited before the age of 14.[10] The average age of exploitation is decreasing as pimps increasingly recruit from middle schools and younger populations, with girls as young as 10 recruited.[11]

The Juvenile Delinquency Process

The response to CSEC is currently punitive, beginning with an arrest that draws girls into the juvenile delinquency system. Police officers usually arrest these girls while on patrol, although girls are occasionally arrested on intentional sting operations as well. Throughout the criminal justice process, a variety of officials—including the arresting officer, members of the District Attorney's Office, and the judge—have the discretion to release the girls.

Following a first arrest, many girls get caught in a cycle of probation violations and re-arrests. Often, they are released to a family member with an ankle monitor, only to fall back under the sway of their pimps, run away from home, and cut off their ankle monitor. Police may re-arrest CSEC for prostitution, probation violations, or other charges, like theft or assault.

QUICK FACTS:

DEMOGRAPHICS

99% of all CSEC are girls.[34]

53% have lived in a group home at some point in their lives.[35]

82% are young women of color.[36]

Alameda County is taking some positive steps to address child trafficking, including the formation of Girls Court. Girls Court is designed for the most at-risk young women, including CSEC, with the goal of providing a gender-responsive alternative to the traditional juvenile justice system. Here, the judge frequently lowers the original charges, and the girls are connected with social services. However, even within this configuration, CSEC are still arrested, detained, and prosecuted. In an ideal system, sensitive to the needs of CSEC, these three things would not take place.

Social Services Throughout the Juvenile Delinquency Process

From arrest to post-release, several social services in Alameda County provide support to CSEC. For example, an advocate from BAWAR (Bay Area Women Against Rape) provides on-the-scene support to girls as they are arrested. When in detention, the girls also have access to the Alameda County Behavioral Health Care Services outpost in juvenile hall, the Guidance Clinic. After release, CSEC continue to have services available, including SafetyNet meetings among representatives from the Juvenile Division of the D.A., the Public Defender's office, community-based organizations, hospitals, probation, and the Guidance Clinic. Together, these organizations provide legal and residential aid, as well as access to public assistance, mental health services, and advocacy both within and outside of the courts.[12]

Evaluating the Current System

Treating CSEC as criminals does not help them get off the streets or away from pimps. Both research and anecdotal evidence show that many barriers exist for girls getting off the streets and away from exploiters. The current system does not address these barriers. Some CSEC have not made a commitment to extricate themselves due

to emotional manipulation, shame, need for material resources (e.g., money and shelter), and fear of physical abuse or retaliation by the pimp.[13] Housing instability also contributes to vulnerability and re-exploitation; turmoil at a family or group home often drives girls back into the hands of their exploiters, especially when the pimps are actively seeking them out.[14] These factors also keep CSEC entrapped in the criminal justice system.

QUICK FACTS:

Psychological and health-related needs of Commercially Sexually Exploited Children

More than 8 of 10 are runways.[37] Many of these girls have prior histories of **victimization**, have experiences of **substance abuse**, and are dealing with **mental health** challenges.[38] They have specific reproductive health issues concerning **sexually transmitted infections (STIs)**, **unplanned pregnancy**, and often need treatment for **injuries stemming from physical abuse**.[39] Exploitation involves deep emotional **manipulation and abuse**.[40]

According to the WestCoast Children's Clinic data, one quarter of CSEC display trauma-bonding with their exploiter, and 11 percent actively protect their exploitersfrom legal repercussions.[15] CSEC are often resistant to offer the names of their pimps or press charges once detained in juvenile hall. Girls cycle through levels of commitment to change, where extrication is not a linear process.[16] They may recognize their exploitation and express desire to leave their pimps, only to be re-arrested a month later for alleged prostitution.

Viewed in terms of re-arrest rates, the situation is bleak. As previously mentioned, 60 percent of young women arrested for solicitation are at some point re-arrested,[17] compared to 45 percent of all young people who have received court-ordered probation in Alameda County.[18]

The current system fails to get girls out of the cycle of exploitation and re-arrest. It is imperative to create systems that honor CSEC's emotional and material realities. We should take a closer look at how we can support CSEC through the use of the child dependency system.

CURRENT ALTERNATIVE MODELS

Across the country, socials workers and law enforcement professionals realize that the current system needs fixing. The legal system and child welfare system can both be entry points for considering how to better work with these children, rather than against them.

Alternative Models: Legal Systems

The diversion model connects CSEC who have been arrested and detained with the child welfare system or other similar services before or after adjudication.[19] Several states, including Washington, mandate diversion for first time prostitution-related offenses.[20] While some states will drop charges if a girl is explicitly being coerced,[21] the burden of proof varies as to whether it falls on the prosecution or defense.[22]

Other systems give CSEC immunity from prosecution, though they can still be detained in facilities varying according to the girl's age.[23] In Tennessee, girls are released upon being identified as CSEC and given an emergency hotline.[24] Other states, like Illinois, usually hold CSEC in temporary protective custody, such as foster homes, mental health facilities, or hospitals.[25] Despite the increased sensitivity provided by these methods, CSEC can still be arrested or detained in a locked facility.

The idea of decriminalization is also put forth as an alternative. However, the term is not clearly defined and has been used to represent many permutations of the policies mentioned above. I have intentionally avoided using the term in order to highlight the operative issue: CSEC should not be arrested, detained, or prosecuted.

Alternative Models: Child Welfare System

Advocates have challenged the ban in federal court on Other models focus on collaborations between the child welfare system and juvenile courts. Across the United States, states are increasing funding for services for CSEC and modifying laws to better identify and serve them. Connecticut, Florida, Illinois, and Oregon have made child trafficking an element of mandated reporting guidelines, a departure from the status quo in other states.[26] In Connecticut, child welfare workers screen every child who comes across the system for commercial sexual exploitation.[27] This is a good first step toward a responsive system.

Additionally, some state governments have increased funding for specialized placement options for youth, offering training to transitional-housing staff and foster-care providers to educate them on the specialized needs of CSEC. However, in most cases, state and county systems lack culturally competent and sensitive placement options for these girls.[28]

States and counties are implementing systems to carefully

coordinate service delivery and data tracking, including efforts to collect and share data on CSEC between the juvenile justice system and child welfare system. Alameda County is beginning to use this model at SafetyNet meetings, the multidisciplinary case review meetings organized by the District Attorney. This works toward adequate coordination among the services available to support CSEC, but it is not sufficient.

Changes in Alameda Couinty

Alameda County needs to critically consider other states' experiments with different legal responses and service delivery options for CSEC. In order to truly support these girls, Alameda County should not arrest, detain, or prosecute them. Additionally, these legal changes should be made in tandem with alterations in the child dependency system.

LEGAL RESPONSES TO CSEC IN ALAMEDA COUNTY

As described above, Alameda County's legal response to CSEC is largely punitive, with girls getting drawn into

> *A minor may be subject to juvenile dependency court if the minor is a victim of human trafficking, or was paid to perform sexual acts, or if the minor has solicited, agreed to engage in, or engaged in an act of prostitution.*
>
> *The juvenile dependency court will place the juvenile victim with a specialized program for victims of human trafficking, or if none is available, foster care.*[32]

the juvenile justice system and amassing criminal records. Even if we look to the dominant reform models described above, they still incorporate arrest and punitive elements, causing further trauma.

There are alternatives to arrest and detention on a legal level. Multnomah County, Oregon is pioneering a radical new approach. The police, working closely with child welfare and the Sexual Assault Resource Center, a community-based organization, do not arrest CSEC.[29] Instead, CSEC are connected with clinicians and advocates through referrals from the police, families, CSEC themselves, the Department of Human Services, and community organizations.[30] They provide trauma-informed care and work with girls to create safety plans.[31]

The commitment to collaboration already in place in Alameda County, the District Attorney's H.E.A.T. (Human Exploitation And Trafficking) Watch, is promising for future efforts. Community-based organizations, Social Services, the District Attorney, Public Defender, law enforcement, and Probation are working to coordinate a response sexual exploitation. Taking these steps further to stop arrests of CSEC in Alameda County would require continued collaboration among these players. To encourage them to do so, we must increase public awareness around the current punitive system, combining with political advocacy of front-line providers and supporters within the legal system.

CURRENT MOVES

State Senator Leland Yee has drafted a bill proposing changes to the legal response to CSEC that incorporates the child dependency system. As described by the Coalition to Abolish Slavery and Trafficking, this bill states:

The bill calls for the California Health and Human Services Agency to develop a protocol regarding care in the community, as well as stressing that secure, locked placements like detention should be used as a last resort.

While this bill represents a move away from arresting, detaining, and prosecuting CSEC, it is not sufficiently defined. No language in the bill defines how to identify CSEC, leaving girls to be arrested and detained if a judge or the District Attorney does not quickly identify them.

Additionally, the language on the diversion of CSEC is conditional, leaving room for treating detained girls as criminals. This occurs in several states; diversion and immunity are restricted to those with first-time offenses or those under a certain age. Such exclusions should be eliminated to ensure support for CSEC.

ENVISIONING CSEC IN A NEW CHILD WELFARE SYSTEM

The juvenile justice system is not effectively supporting CSEC, deepening trauma and leading to a cycle of probation violations and re-arrest. Doing so would require implementing child dependency programs to replace the current punitive structure. The current child welfare system is not yet equipped to subsume responsibility for commercial sexual exploitation of children, though with some major changes, it could do so in the future. I describe a new child welfare system that can address these issues in detail below.

Instead of arresting CSEC, police officers should identify

the girl on the scene and call a trained advocate from either a community-based organization or the county to confirm identification. Police involvement should be minimal, as their presence can send the message to CSEC that they have committed a crime.

The trained advocate and first responder should then bring CSEC to the Alameda County Child Assessment Center, a confidential location where advocates can take children who are removed from homes due to abuse or neglect. At the Assessment Center, a trained clinician would assess the CSEC using a Screening, Stabilization, and Transition technique.

This clinician is an important part of the new system. The clinician should be trained in issues facing CSEC and remain culturally competent, nonjudgmental, and supportive. It is important that the clinician develops a positive relationship with the girl that will make her more likely to access social services when needed. The clinician should be familiar with available community resources to introduce them to girls in an accessible way. The clinician should also provide the girls with education on commercial sexual exploitation, discussing potential vulnerabilities, safety plans, and troubleshoot challenges.

Once educated, the Assessment Center should orient and explicitly connect CSECs to available social services. For example, the Assessment Center could assign each a girl to a therapist and case manager to provide direct linkages and support.

To make this system work, Alameda County would need a safe house for CSEC. The safe house would provide a trained staff available to CSEC if they run away from either an exploiter or their foster home. As so many CSEC run away, it is crucial to have a place for them to go so they have another choice besides their exploiters.

This process should be informed by the understanding that it can take CSEC many attempts to leave their exploiters and that progress is not linear. Providers must be nonjudgmental and sensitive to relapses and recidivism, as both will invariably happen. CSEC must know that there are services available and that they can access them on their own terms. As such, there can be no detention during this process. Rather, a girl must take ownership over the process. Supportive environments must encourage her agency and self-determination, both of which are stripped from her during exploitation.

A successful system must hold itself accountable. Ideally, data should be collected on engagement with social services, stability of housing, engagement in risk-taking behavior, any type of re-arrests (for charges other than prostitution), employment status, school engagement, extracurricular involvement, and reported sexual exploitation. This data gives the system the basis for self-assessment.

POTENTIAL CHALLENGES

SB 1029 is not a panacea. It does little to address fundamental issues of poverty, hunger, and criminal justice. It will take a fundamental shift in American attitudes about these issues to even consider policy proposals that change those systems. That sounds perhaps more difficult than it is; half the battle is being able to define the "problems." In the past, the list of urgent problems demanding policy attention included rampant crime, drug use, and welfare dependency. Though those are still salient issues for a portion of the electorate, our idea of what deserves public attention and public resources has changed. Conversations around income inequality and ending the now-50-year War on Drugs have become more common and more nuanced in just the last three years.
The relatively high cost of living in California means many of our neighbors struggle to afford enough food. Yet Californians are often surprised to learn that no other state does worse at ensuring its residents have access to a program designed specifically to alleviate this condition. I argue that the lifetime ban on SNAP for California drug felons represents a missed opportunity to increase food security and invest in our communities economically.

Unexpected allies have come aboard. Elderly soup kitchen volunteers, saddened by seeing the same faces in line for what used to be called "emergency food" for weeks on end, have joined forces with probation officers tired of repeatedly locking up the same people. Uniting their vastly different perspectives can show the public nothing is gained from the ban. In fact, talking and thinking about the ban may help us raise fundamental questions about these broken systems.

It does not serve us, fiscally and morally, to punish children for their parents' crimes. Nor is it fair to punish certain offenders decades after they have passed through a system called "corrections." Should sufficient access to food be considered something less than a human right?

CONCLUSION

Given the current punitive legal response to CSEC in Alameda County, major changes featuring alternatives to arrest and detention are necessary. Crafted from the child welfare system, these alternatives can honor these girls' agency, ending abuse and empowering them to be active advocates for themselves. Respecting CSEC's rights and agency without detainment allows girls to make meaningful changes in their own lives.

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Regulating the Future:
Three Dimensional Printing and the Law

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3D printing— the process of making a three-dimensional solid object from a digital model—holds enormous potential and is an industry that is on rise. There is currently a dearth of policy at the federal level to address many of the concerns that 3D printing raises¬. This paper discusses three concerns in particular: public safety, quality assurance, and intellectual property protection. The author suggests potential policy alternatives that the federal government could consider in response to each of these concerns. The proposed policies could be effective means of regulating the industry without stifling innovation—a key balance to strike in order to allow society as a whole to benefit from the immense potential that 3D printing holds.

INTRODUCTION

In his 2013 State of the Union Address, President Barack Obama stated that 3D printing technology "has the potential to revolutionize the way we make almost everything."[1] The number of people who have purchased 3D printers—although still relatively small—has skyrocketed. Fewer than 4,000 units were sold in 2009 and by 2011 almost 24,000 were sold.[2] 3D printing has the potential to give individuals the ability to quickly and inexpensively manufacture products, but current federal policy in the area is scarce. With some hailing 3D printing as a potential third industrial revolution,[3] the federal government must look to the future and create effective policies to regulate this new technology.

Some of the most pressing issues surrounding 3D printing include the creation of dangerous and illegal items, quality assurance, and intellectual property protection. This paper will outline alternatives that the federal government could utilize to mitigate these issues. First, the government could modify legislation to ban the possession of dangerous objects created by a 3D printer. Second, the Consumer Product Safety Commission could create a set of standards that ensure consumers receive safe, high-quality items, and certify websites according to these standards. Finally, another option is for the federal government to establish an online database of designs to protect intellectual property rights. Effective regulation could mitigate potential issues and solve impending policy problems while still promoting innovation in the advanced manufacturing industry.

HISTORY OF 3D PRINTING

To 3D printing has enormous potential for consumers and manufacturers. Through a technique called "additive manufacturing" a printer uses a computer-aided design (CAD) file to add layers of material until it creates the finished product.[4] Presently, printers utilize a wide variety of materials including plastic, metal, and sugar to create finished products including novelty items, cups, and toys. Modern 3D printing technology is also capable of creating more advanced products such as titanium airplane parts, which will greatly impact the advanced manufacturing industry. As manufacturers continue to experiment with products and materials, 3D printing will expand into new realms.[5]

This new technology could initiate a third industrial revolution in the manufacturing industry. It is less wasteful than traditional "subtractive" manufacturing, like sawing or milling, in which material is taken away from a larger piece of material.[6] For instance, printing parts for the aerospace industry saves 90 percent of the titanium that would ordinarily be cut away.[7] 3D printing is also used to create inexpensive, individualized products, enabling inventors to create prototypes cheaply and easily, while allowing for fast, easy changes to the prototype before finishing the design.[8]

The growth of 3D printing raises policy concerns similar to those previously raised by new technologies. Printers, VCRs, and other copying technologies each spurred their own industry and policy concerns. The film industry, for example, speculated that individuals would no longer purchase movies if they could record them at home. The general conclusion at the government level regarding legislation has been to not impede the technology itself.[9] In spite of some concerns, 3D printing can still be enormously useful and innovation should be encouraged.[10]

PROBLEMS AND POLICY SOLUTIONS

A potential solution to addressing some of the challenges brought about by the rise of 3D printing is to regulate at the item and information levels, which could mitigate some of the above concerns. Government should enact policies now to address these issues rather than wait until 3D printing has become more widespread, when regulating may prove more difficult.

DANGEROUS MATERIALS

3D printing makes dangerous objects easier to obtain. Recently, the balance between public safety and Second Amendment rights has spurred controversy surrounding the 3D printing of guns. My suggestions on regulating certain items will utilize this issue as a case study of how dangerous items should be regulated. We should remember that laws regarding these items are still in place. For instance, it is still illegal in most places to carry a concealed gun without a license, regardless of whether a 3D printer or a gunsmith created it. The major issues surrounding 3D printing are the barriers that can be evaded in obtaining a dangerous item and the material from which it is made.[11]

The federal government should remain aware of the capabilities of 3D printing and extend current policy to meet this new regulatory need. On December 9, 2013, the U.S. Senate extended the Undetectable Firearms Act for 10 years in order to curb the creation of guns that cannot be traced by an X-ray machine or metal detector.[12] This occurred in response to the rise of 3D printed plastic guns, which are manufactured with an amount of metal small enough that the guns are undetectable. While the Undetectable Firearms Act has existed since 1988, it became necessary to extend the legislation given present-day concerns about terrorism and public safety.[13] Similarly, modification of other existing legislation may prove sufficient in heightening safety regulations around this new technology as opposed to new legislation directed specifically at 3D printing.

If customers can easily manufacture their own dangerous items, other problems may arise. For instance, gun control measures such as serial numbers, licenses, and registration can be evaded through 3D printing.[14] Thus, while adapting current policies to 3D printed objects may be effective in some cases, in other cases, entirely new policies may be necessary to address the new problems. Stricter regulation, rather than a complete ban, is most feasible in the case of potentially dangerous 3D-printed objects. We may not need to completely ban 3D-printed guns as long as gun manufacturers adhere to the industry's existing legal standards. Federal and state governments should consider new standards mandating the registration of weapons created by a 3D printer. Enforcement could still be problematic. Growing small amounts of marijuana at home, for instance, is illegal in most states and is difficult to enforce. Restricting what people print in their homes may prove just as difficult. Nonetheless, making items like undetectable guns illegal may assist in deterring individuals from experimenting in making or buying these products.[15]

SOLUTION

The government should require dangerous materials to have a tamper-proof serial number embedded into their CAD files, which would ease the burden of unregistered weapons. The serial number would be a series of digits, with one section programmed to be randomized to ensure the same file does not result in the same serial number printed multiple times. The government could mandate that manufacturers print serial numbers directly onto the guns. 3D-printed gun owners would register guns in the National Firearm Registration, just as with traditionally manufactured firearms. Gun operators could remove the numbers, but just as it is currently illegal to scratch off the serial number on guns, it would be illegal to do so with 3D printed guns.

As technology advances, new objects could threaten society. Policy makers must remain aware of the objects that 3D printing makes available and remain mindful that these new objects may require legislation in order to protect the public. Regulation of individual objects may be an effective way of protecting people without stifling the industry or innovation, but policymakers must handle these products on a case-by-case basis rather than create broad policies that may stifle innovation.

QUALITY ASSURANCE

Another possible undesired outcome from 3D printing would be consumers printing from files with flawed designs. In a test performed by the Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF) on 3D printed guns, one gun successfully shot while the other immediately exploded.[16] Quality assurance is important for any 3D-printed product. If the product causes injuries, for instance, current laws are unclear on the liabilities of both the file's creator and the person who printed the object.[17]

Regulating CAD files on the information level could ease the issue of product liability if people can determine which products are engineered well and which are not. When consumers receive assurance that they are printing high quality files, liability issues may arise less frequently.

Today, a similar issue already exists. Downloading music from a file-sharing website puts users at risk for downloading viruses or poor quality music. As a result, people are often willing to pay a small fee for quality assurance through iTunes and Amazon. Similarly, people might be willing to pay a low fee for high quality CAD files.[18]

SOLUTION

The government could work with leaders from the 3D printing industry to create regulations on CAD files that would ensure the creation of high-quality products. The Consumer Product Safety Commission can post these regulations on the website Regulations.gov to ensure that they are accessible to creators in the 3D printing industry. More than thirty partner agencies, including the Consumer Product Safety Commission, support this website, which encourages transparency by providing easy access to federal regulations. Accessibility on Regulations.gov encourages public participation in shaping these rules to ensure that they are feasible and do not stifle industry growth. The Consumer Product Safety Commission could also create a new division focused exclusively on certifying 3D printing file-sharing websites. The division could review content on file-sharing websites, including CAD files, to determine whether sites maintain quality assurance. Websites will likely attempt to meet government regulations in order to gain credibility and attract business.

A small fee charged by the official websites could fund the division, and the websites themselves could receive a percentage of the profits for the purpose of funding experts to conduct file review. Requiring the websites themselves to review CAD files will distribute responsibility rather than placing a heavy burden on one government organization. The fee could be similar to the price paid for high-quality music files. Reasonable prices would not stifle innovation and would encourage people to purchase high quality product files. This is especially important for potentially hazardous products, such as furniture or firearms.

INTELLECTUAL PROPERTY

As people upload and print product design files, the risk of intellectual property infringement may become a major concern. In order to protect intellectual property, we need policies that address both file uploading and downloading.[19] 3D printing file-sharing websites could develop protections similar to the standards that presently exist for file-sharing sites such as YouTube. The 1998 Digital Millennium Copyright Act made illegal technological devices that allowed users to avoid copyright, and increased penalties for copyright infringement. A critical part of the Act is Section 512, which removes the website's infringement liability if it removes the infringing material after being notified, such as through a notice-and-takedown policy.[20] The Digital Millennium Copyright Act provided the framework for such a policy protecting digital content. Most websites that allow users to upload content, like YouTube, have clear takedown policies so users and creators can protect themselves from legal disputes. Copyright holders send cease-and-desist letters, raising awareness about the copyright infringement. Users are then expected to take down the infringing content.[21] Copyright owners have already successfully and legally forced file-sharing sites such as Thingiverse and Shapeways to remove user content.

Intellectual property protection stands to harm three parties as it relates to 3D printing. First, file-sharing websites may find themselves unable to cope with excessive legal issues. Second, copyright holders might lose revenue or control over their product if it becomes especially popular. Third, people creating CAD files for file-sharing sites might be discouraged to upload their designs for fear of intellectual property infringement.[22]

SOLUTION

One possible way of mitigating potential intellectual property infringement would be to create a nonprofit organization that manages the available information through a database. This organization could work in partnership with the United States Patent and Trade Office through a public-private partnership.[23] The database would preserve public information and make it easier to identify which organizations have patented their files. A portion of the revenue from users downloading files from certified websites could go toward funding the nonprofit.

CONCLUSION

It is important to create federal policies to prepare for the rise of 3D printing technology before it raises large-scale policy issues. The United States can prepare for this third industrial revolution by tackling the major issues that have already begun to materialize. The federal government needs to take the lead in regulating this industry, as it will likely include cross-state and transnational commerce, and since other governments are likely to follow the precedent set by the United States. Government must protect citizens from dangerous items by updating current legislation and creating new regulations. It should also set standards in order to protect consumers and legitimize websites and design files. Finally, government should create a database to help prevent a potential swarm of intellectual property infringement cases. By preparing suitable policies pertaining to the advanced manufacturing revolution of 3D printing, the United States will prepare itself to capitalize on this new technology and position itself as a leader in the field.

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Regulating U.S. Electric Utilities to Improve Energy Efficiency

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To make meaningful cuts in carbon emissions, the United States electric power sector must improve its energy efficiency. One opportunity to slash emissions is by reducing "upstream" energy losses that occur in transit between generators and customers. Utilities can use existing infrastructure to help minimize these network losses. Utilities could, for example, invest in capital equipment that saves energy and ratepayer funds while fortifying grid stability. However, traditional utility regulations do not provide utilities with the necessary incentives to achieve this end. This report examines regulatory alternatives for electric utilities in the United States and finds that traditional rate-of-return regulation discourages energy efficiency. Incentive regulation, on the other hand, may motivate network modernization and improve energy efficiency by rewarding firms for desired performance, rather than for past costs. Based on lessons learned from initial evidence of incentive regulation for U.S. utilities, the author recommends a performance-based incentive regulation mechanism that combines a revenue cap based on statistical benchmarking with targeted incentives for quality of service and network energy losses. There are economic and environmental opportunities associated with improving upstream energy efficiency, and incentive regulation can provide regulators with the tools they need to seize it.

INTRODUCTION

The electric power sector has produced nearly 40 percent of total carbon dioxide emissions in the United States since 1990, a larger contribution than any other single sector. In light of the deep carbon reductions considered necessary to avert disastrous impacts of climate change, we must use the electric power sector to achieve a corresponding proportion of emissions cuts.

The U.S. power sector now faces a markedly more demanding environment than it has encountered at any time in its history. When electric utilities came into existence, they owned and operated all aspects of power systems—large centralized power plants as well as the equipment to transport and deliver the energy they produced to often-remote cities and towns. Regulations that governed these early utilities aimed to ensure reliability, i.e., that supply exactly equals demand for all those who wish to use power at any moment, and to prevent price gouging.

Utilities now face new challenges. In order to help reduce carbon emissions and stave off the worst effects of climate change, utilities now must also reduce the greenhouse gas emissions associated with energy services. To meet this challenge, the power sector must incorporate decentralized renewable resources into their operations. They must invest in energy efficiency improvements while ensuring the power stays on and customers do not face exorbitant rates. The way utilities are regulated can shape a new business model for the industry that takes into account these newer objectives of energy services.

This energy transition would entail significant economic and technological demands. Alternative energy production technologies, for example wind and solar, are a potential solution to this challenge, particularly as they continue to become more efficient and less expensive. However, because storage technologies that would cost-effectively deploy this power are not market-ready, it is unlikely that alternative energy production technologies can sufficiently reduce emissions on their own.

On the other hand, energy efficiency is already a cost-effective means of reducing the electric power sector's carbon emissions. Utilities have successfully employed this tactic since the 1970s to reduce carbon emissions. In short, energy efficiency reduces the amount of electricity

needed to deliver a service, "getting more performance from less electricity."

Demand-side management (DSM) provides the most visible examples of energy efficiency. DSM usually includes measures that reduce demand for electricity at the point of consumption, such as building weatherization and incentives for more energy-efficient appliances. Similar opportunities for energy efficiency exist further upstream, before electricity reaches the point of consumption. These opportunities include modernized electric power systems that use advanced technologies to reduce losses of electricity occuring during the course of transmission and distribution (T&D) as electricity courses through wires and poles. These technologies can reduce the amount of generation, and associated carbon emissions, required to supply a unit of electricity.

Energy is inevitably lost in transit from generators to end-users, typically as a result of resistance along the poles and wires (see Figure 1). These losses represent units of energy that today's investor-owned utilities (IOUs) purchase from generators but cannot sell to customers. T&D losses currently comprise about 6 percent of delivered power in the United States, on par with loss rates in high-income member nations of the Organization for Economic Cooperation and Development (OECD)). The average global T&D loss rate is much higher, likely owing to prevalent power theft in much of the developing world.

However, even in countries without the threat of power theft, more efficient T&D equipment can still significantly reduce energy losses. For example, a 2007 assessment of more efficient distribution transformers by the U.S. Department of Energy (DOE) projected that more efficient T&D equipment could reduce the amount of energy production needed from the nation's power plants each year by up to 2 percent. The DOE determined that several higher-efficiency distribution transformers could offset the up-front costs with lower operating costs—i.e., lower energy losses—in less than ten years, and, in some cases, less than three years. Despite these potential energy and cost savings, the DOE estimated that 25 percent of purchasing decisions for this equipment do not factor in the costs associated with energy losses.

Figure 2. Transmission and distribution losses in the U.S. relative to OECD high-income and world averages, 1962-2010 (percentage of delivered electricity, five-year centered moving average; data source: World Bank—World Development Indicators)

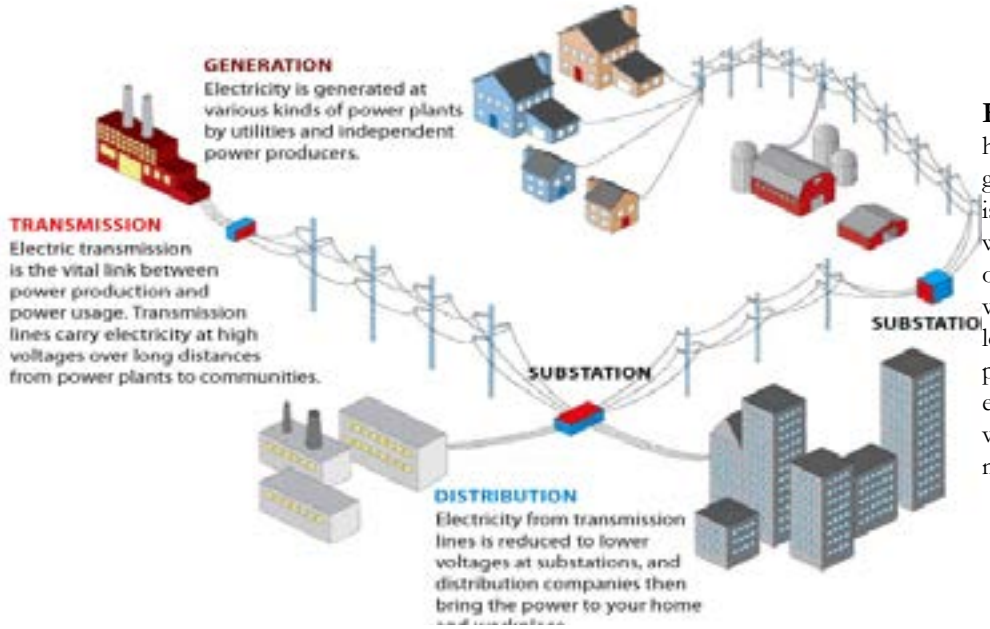

Figure 1. Power systems have three main components: generation, where power is produced, transmission, where power is transported over large distances at high voltage to reduce resistive losses, and distribution, where power is delivered to end-users at lower ("utilization") voltage (source: U.S. Department of Energy).

Utilities are likely to purchase more energy-efficient equipment if they determine it is in their financial interest to do so. However, the above example illustrates that an appreciable number of utilities use only purchase price to make these decisions, rather than some method of weighing future benefits against incremental upfront costs. This constitutes a formidable barrier to utilities adopting more advanced T&D equipment.[5]

The U.S. government recently tightened federal energy efficiency standards for distribution transformers as more efficient designs have become technologically feasible, but these new standards leave considerable potential energy and cost savings on the ground. Current regulatory incentives are simply insufficient to compel utilities to prioritize upstream energy efficiency.

This report reviews how the profit opportunities historically permitted by utility regulators have generally discouraged efforts to address upstream energy efficiency and explores whether newer regulatory approaches may offer improved incentives for utilities to modernize and reduce energy losses.

The remainder of this report is structured as follows: Section two details the traditional regulation of utilities and some of the issues associated with this arrangement; Section three reviews regulatory innovations that have attempted to address these historical shortcomings, namely decoupling and incentive regulation; Section four discusses how regulators in the United States can improve the effectiveness—in terms of energy efficiency—of incentive regulation for electric utilities; Section five concludes.

BACKGROUND: STRUCTURES & REGULATIONS OF THE U.S. ELECTRICITY INDUSTRY

Restructuring Electricity Services into Competitive and Regulated Segments

Vertically integrated power companies that control all aspects of service—including generation, transmission, distribution, and sales—have traditionally purveyed electricity services in the United States. These companies were regarded as natural monopolies, since it is more efficient for a single firm to make the large investments required to provide the service in a given area. To prevent these large monopolies from charging exorbitant prices for electricity services, independent utility regulators in each state regulated the rates they were able to charge in accordance with what constitutes a "fair" return on their investments.

In recent years regulators have realized that competition can improve the efficiency of the service in certain segments of the industry. Accordingly, regulatory bodies have restructured electricity markets in the United States through a series of reforms that consist of:

- Unbundling vertically integrated utilities into separately owned and operated component business;

-Introducing compeititon in the generation component (wholesale market); and

-Introducing competition in the supply component (retail market).

The literature offers no consensus on the effectiveness of introducing competition in wholesale and retail markets for electricity. Markiewicz et al. (2004) find that the introduction of market-based structures improved the economic efficiency of generation plants. However, competitive wholesale markets may be vulnerable to market power, which was suspected to have precipitated California's energy crisis of 2000-2001 (Borenstein and Bushnell, 2000; Friedman, 2009). At the opposite end of the value chain, a number of states introduced retail choice to varying levels of success; in most states, relatively few customers switched from incumbent power providers to new market entrants, which limited the realization of economic benefits (Joskow, 2006).

However, both the wholesale and retail components of the electric industry still depend on physical T&D infrastructure—power lines, poles, transformers—that retain natural monopoly properties. As such, T&D networks continue to be tightly regulated segments of the electricity sector, even where competition thrives in both wholesale and retail markets. Though traditional rate-of-return regulation is the predominant form of regulation for T&D utilities, the regulatory theory literature has suggested that incentive regulation may offer improved efficiencies. I discuss both of these regulatory approaches in greater detail in coming sections.

Regulating the Natural Monopoly: Rate-of-Return Regulation

Without regulation, natural monopolies are likely to ration their services in order to charge higher prices and maximize profits, resulting in potentially large economic inefficiency. To reduce this inefficiency, regulators have traditionally restricted the returns that natural monopolies can earn. Rate-of-return regulation (henceforth "RORR") ensures that utility profits are "just sufficient to compensate the firm for its investment in plant and equipment," with periodic rate adjustments.[11*]

However, RORR uses firm-reported costs as the basis of returns, creating incentives that are inconsistent with efficient performance. Some of these inefficiencies arise from the limited information regulators have about firm costs. For example, if true firm costs are below reported costs, approved rates, and profits, are too high. On the other hand, the guarantee of returns on approved costs gives firms with high costs little incentive to operate more efficiently.

Other inefficiencies of RORR result from regulatory lag. Rates are only renegotiated during rate cases, which occur once every few years. As a result, rates cannot continuously adjust in response to changes in realized costs. This allows even inefficient firms to profit from technological improvements that reduce costs below rates until regulators realign them.

For electric utilities operating under RORR, regulatory lags create especially perverse incentives. RORR sets average rates equal to the ratio of approved income to forecasted sales, and then fixes those rates until the next rate case. Between rate cases, however, a utility can collect in excess of the revenue requirement by surpassing the sales forecast. This means that regulatory lag presents a formidable disincentive to conserve energy. As long as utility revenues are directly tied to sales of electricity, energy efficiency programs that reduce sales are unlikely to flourish.

Another possible inefficiency of RORR is that firms may overinvest in capital infrastructure because their capital stock forms the basis of their returns. Though this tendency ostensibly favors expensive investments such as advanced network equipment, regulators have the discretion to deem expenditures "imprudent" if they consider them unnecessary or excessively costly. Regulators may avoid approving efficient but expensive technologies that would cause short-term rate increases, even if they reduce average rates in the long term. The regulator may even review past expenditures and revise the approved rate of return downward if it deems past practice to be imprudent. This uncertainty may discourage regulated utilities from making occasionally large capital investments, such as more advanced network equipment.

In sum, although RORR emerged as a viable way to manage natural monopolies in the interest of society, it creates perverse incentives that inflate expenses and boost sales, but discourage utilities from investing in new technology.

Regulatory Alternatives: Decoupling and Incentive Regulation

Revenue Decoupling: Unlinking Utility Revenues from Sales

As outlined above, electric utilities under RORR have an incentive to maximize sales, regardless of whether additional energy can be supplied more cheaply through energy efficiency. Recognizing these misaligned incentives, regulators in many states have introduced "decoupling" mechanisms that unlink utility revenues from sales. These mechanisms continually adjust to keep utility revenues at precisely the authorized amount, thereby removing the utility's incentive to maximize sales since it can no longer keep the excess profits. Decoupling also insulates the regulated utility from risk associated with unfavorable sales fluctuations, making it more attractive to the utility. Furthermore, ongoing rate adjustments between rate cases can remove some of the price inefficiencies associated with regulatory lag.

In many instances these utility-sponsored efficiency campaigns are cost-effective. For example, Eto et al. find in a study of 20 large-scale utility programs for commercial lighting improvements that all programs were achieved at lower cost than the power they conserved. By dissolving the link between revenues and sales, decoupling removes disincentives to utility programs that improve energy efficiency at the point of use.

Incentive Regulation: Encouraging Economic Efficiency

While decoupling represents a critical step toward encouraging more efficient electricity end-use technologies, it has had little direct implication for the efficiency of electricity network components. Specifically, decoupling reduces a utility's incentive to boost sales to earn a better return, but does not address inefficiencies "upstream" or before the point of energy use. As outlined in Section two, RORR also poses structural impediments to network modernization investments that keep system losses greater than necessary.

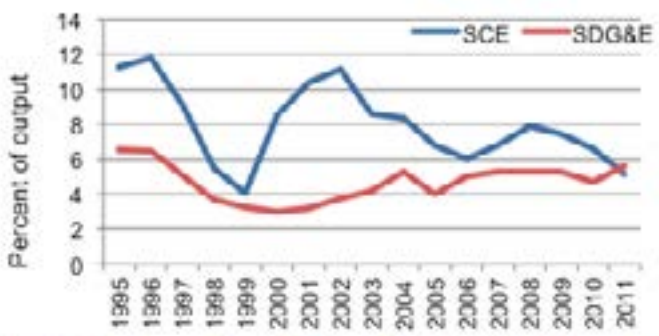

Figure 1. Network energy losses for SCE and SDG&E, 1995-2011 (percentage of total output, three-year centered moving average; data source: FERC).

Incentive regulation provides one solution to this problem. Incentive regulation may be an efficient alternative to RORR that simulates competitive market outcomes. The telecommunications industry, and to a lesser extent the electricity industry, have already used this type of regulation throughout the world.

Price caps that are invariant to firm behavior and firm-specific costs commonly characterize incentive regulation. Rather than regulating profits, incentive regulation promotes firm efficiency by letting firms keep the difference between their costs and the price cap. This encourages greater managerial effort toward low-cost operation.

However, incentive regulation has its own imperfections. First, it may encourage reductions in service quality, since it is a convenient way to cut costs. This concern is particularly relevant for regulated monopolies, since they are not under threat of losing dissatisfied customers. Second, the effectiveness of price cap regulation depends on the price level that regulators set. For example, to allow for the possibility that regulated firms are truly high-cost operations, regulators may set relatively high price caps that would allow firms to profit handsomely without providing strong incentives for lean operation. Third, price caps may discourage utilities from sponsoring DSM programs if the cost of such programs pushes costs closer to the price cap and erodes profits. Finally, price caps may penalize utilities for implementing successful DSM programs that reduce sales.

However, other forms of incentive regulation exist that lie somewhere between pure price caps, as described above, and RORR. In fact, Joskow (2008) notes that the most efficient regulatory form "will lie somewhere between these two extremes." These alternative incentive schemes include:

-Profit sharing mechanisms, in which utilities and their customers split revenue surpluses or shortfalls;

-Banded rate-of-return regulation, in which the regulator sets a range through which a utility's returns may vary;

-Benchmark (yardstick) regulation, whereby the regulator sets targets for utility rates on performance based on an analysis of comparable firms; and

-Sliding-scale contracts, in which utilities choose from a menu of contracts that trade off stricter performance targets with greater approvals for capital expenditures.

Some of these incentive regulations have been employed for utilities, primarily in Europe. Jamasb and Pollitt and Giannakis et al. detail the data and methods European regulators use to determine the relative efficiency of individual firms' operating costs, quality of service, and system losses relative to a comparable peer group of firms. These benchmarking exercises help to determine price caps that encourage inefficient firms to approach maximum efficiency. However, Jamasb and Pollitt and Giannakis et al. find that benchmarking results are highly sensitive to the particular data and methods employed, which makes it difficult to rely on benchmarking.

The United Kingdom has realized similar efficiency improvements from incentive regulation. The United Kingdom's Office of Gas and Electricity Markets (OFGEM) initiated a series of incentive measures to target reductions in operating and capital expenditures and improve network energy losses for its electricity distribution network operators. Subsequent distribution rates reflected deviations from targets in expenditures rates, while deviations from network energy loss targets resulted in specific rewards or penalties. In addition, OFGEM has offered a sliding-scale menu of contracts that effectively allows distribution network operators to trade greater capital expenditures for lesser rewards, along with an explicit allowance for investments aimed at network modernization. Over the period of reform, distribution rates dropped by roughly 50 percent for nonresidential consumers and total national distribution energy losses declined from above 7.5 percent of delivered electricity to roughly 6 percent, without increasing service interruptions.

These results clearly show the success of incentive regulation of British distribution network operators. In large part, we should credit this success to the policy's design. By instituting a set of multi-faceted incentive measures, the OFGEM regulations made comprehensive reform possible. As Joskow and Schmalensee point out, "a regulated firm will act in its own self-interest and try to improve only the performance measure on which it is graded, at the expense of other dimensions of performance." By targeting not only operating expenditures, but also capital expenditures, quality of service, and network losses, OFGEM ensured that improvements in any one of those dimensions were not achieved to the detriment of the others.

Performance-based regulation in the United States

Despite its successes abroad, incentive regulation has not fully spread to the electric industry in the United States. Evidence from the U.S. telecommunications industry shows that various forms of incentive regulation have reduced operating costs and customer rates and sped network modernization.

If incentive regulation has led to success for electric utilities

abroad and for domestic telecommunications providers, why have electricity regulators been slow to adopt it? Two convincing arguments exist to answer this question. The first possibility is that the investment profiles of the telecommunications industry and the electric industry are inherently different. While capital investments for telecoms are roughly continuous and ongoing, investments in new equipment or capacity for electric utilities are discrete and "lumpy." In these cases, periodic spikes in capital costs may have large, if temporary, effects on rates. This means that RORR may be better suited to creating predictable and stable rates in industries with discrete capital decisions. The second possibility is that the complexities of the capital stock in the electricity sector cause regulators to know far less than firms about true capital costs and investment opportunities.

Despite these barriers, in recent decades, regulators have conducted isolated experiments to test whether incentive regulation is applicable to U.S. utilities. In the United States, regulators have implemented incentive regulation under an alias of "performance-based regulation (PBR)," though there is no important distinction in its approach or objectives. To date, PBR schemes have been used for electric utilities in at least twelve states, most of which have at least partially restructured electricity markets.

In recent decades, California made a substantial attempt to formalize PBR as a fixture in the electric industry structure. In December 1995, with restructuring of California's electricity markets underway, the California Public Utilities Commission (CPUC) released a decision that indicated a shift away from cost-of-service regulation and toward PBR. Two of California's three principal utilities implemented PBR in the 1990s—San Diego Gas & Electric (SDG&E) in 1994 and Southern California Edison (SCE) in 1997. The SCE program was better conceived and run than that of SDG&E, which could explain why it was associated with greater improvements in network energy efficiency. It is difficult to assert causality in this case, since energy efficiency was not explicitly targeted by either PBR scheme.

SDG&E applied for a PBR scheme under the premise that market forces would reduce the regulatory inefficiency that arises from traditional regulation. The scheme they proposed consisted of a revenue baseline requirement, a profit-sharing mechanism, a quality control mechanism, specific pass-throughs, and targets for DSM programs. From 1994-1996, SDG&E reduced operations and maintenance costs by $15-19 million below the authorized level, accounting for more than 50 percent of excess returns. Over the same period, SDG&E also surpassed targets for quality control and increased DSM expenditures by 50 percent. However, this scheme was wildly profitable for SDG&E without encouraging significant cost reductions, and accordingly, regulators terminated the program at the end of 1998.

SCE's PBR program began toward the end of the initial review period of SDG&E's program. SCE's scheme incorporated a price cap and other incentive mechanisms, such as an incentive for service quality. Regulators set SCE's initial price using 1996 rates and built in a graduated schedule of price reduction. Significant cost savings in the first year of the program saved ratepayers $40 million in 1997. The regulation also benchmarked incentives for service quality and customer satisfaction using targets, and deviations from these targets resulted in corresponding rewards or penalties.

In contrast to the SDG&E PBR program, which retained cost-of-service characteristics, the SCE program implemented a price cap to improve efficiency without concern for excess profits. The SCE program also set a fairly large number of targeted incentives for desired outcomes and thus does not sacrifice quality of service as a means of reducing costs. The SCE PBR program still appears to be in effect today.

REGULATING NETWORK LOSSES FOR DISTRIBUTION UTILITIES

While the above case studies of PBR in the United States cover a standard set of incentive types—cost reduction, profit sharing, and several measures of service quality—they did not specifically aim to address network energy losses. Even without explicitly targeting them, however, it is worth examining whether or not these PBR reforms had a noticeable effect on energy losses.

Figure 3 presents annual energy loss data submitted by SCE and SDG&E to the Federal Energy Regulatory Commission (FERC) on the Electric Energy Account schedule of its Electric Utility Annual Report. To adjust for volatility, Figure 3 presents three-year moving averages of network energy losses as a percentage of total output (delivered electricity).While network losses for SDG&E remained relatively constant over the period, SCE losses declined from nearly 12 percent in the mid-1990s to meet SDG&E at less than 6 percent by 2011. One interpretation is that SDG&E was already at or near some efficiency frontier before California introduced PBR, and as a result, we would not expect to see further reductions in network losses. Another possibility is that the more comprehensive and effective PBR for SCE brought about network-wide efficiency improvements that reduced its

network losses. By contrast, SDG&E sustained a several-year period with losses below 4 percent of output, but that figure has been on the rise since about 2000.

While this sample size is too small to draw firm conclusions about a trend, California's experience may indicate that better incentive design leaves room for greater network energy efficiency. Without specifically targeting energy losses as an area of interest, however, we may prioritize other criteria at the expense of network energy efficiency. For instance, if the only incentives are a price cap and a profit-sharing arrangement, then a firm may choose to contain costs by deferring retirement of relatively inefficient equipment.

Regulators have discretion over incentive schemes' criteria. The first component of regulation for improved upstream energy efficiency is to improve regulatory awareness of the opportunities that currently exist for modernized T&D networks. The regulator can then apply pressure to regulated firms to respond to performance incentives in the areas of emphasis.

An example of a potentially effective incentive scheme is a revenue cap. Regulators would set these caps using statistical benchmarking and pair them with targeted incentives, not only for quality of service, but also system losses—similar to what OFGEM has implemented in the United Kingdom.

There are three advantages of revenue caps. First, a revenue cap, rather than a price cap, would align a utility's incentives with DSM programs that cut energy demand in buildings and thereby decrease the amount of network energy losses. Second, a revenue cap may also retain the properties of price caps that are conducive to network modernization and more timely replacement of outdated equipment, which could encourage faster uptake of more efficient technologies. Finally, targeted incentives would provide a concrete incentive to achieve desired service quality and energy loss targets while introducing more information into the marketplaces by identifying the best network configurations for both service quality and energy efficiency. This information can set into motion a virtuous cycle in which faster adoption of advanced technologies fuels technological innovation.

CONCLUSION

In order to meet ambitious, but important, emissions reduction goals, the United States must rely heavily on its most culpable sector—the electricity industry—to introduce sweeping reforms that substantially reduce the carbon intensity of electricity generation and provision. While the general consensus is that renewable sources of generation and energy efficiency are two promising resources that we should aggressively pursue in order to meet environmental targets, the electricity sector has been slow to seize these opportunities.

Network energy efficiency presents another possible opportunity for significant emissions reductions. In this report, I have discussed the possible structural causes of electric utilities' slow uptake of network energy efficiency. I attribute this slow uptake, in part, to lagging regulations. Although the structure of the utility industry has changed greatly in most states in recent decades, regulation has not kept pace. In most states, rate-of-return regulation still governs the profit opportunities for electric utilities, but provides them with inadequate incentives for energy conservation and network modernization—both of which are essential to the development of low-carbon power systems.

Incentive regulation is generally a preferable, if imperfect, alternative to RORR for utilities. Incentive regulation attempts to minimize the efficiency problems associated with RORR by allowing firm-specific performance to determine profits.

While variants of incentive regulation have precipitated successful reforms in electricity sectors abroad, and even in the U.S. telecommunications sector, the electricity sector in the United States has been slow to adopt substantial incentive regulation schemes. Now that there has been more trial-and-error with performance-based regulation for numerous utilities in the United States, however, regulators are beginning to learn how to structure incentive mechanisms that help them capture the advantages associated with incentive regulation.

Still, regulators seem unaware of the large potential to improve upstream energy efficiency by modernizing capital equipment. If regulators awaken to this opportunity to address emissions reduction goals while saving energy and money, incentive regulation can provide the tools they will need to seize it.

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GLOSSARY

CPUC	California Public Utilities Commission	*independent utility regulator for the state of California*
DNO	distribution network operator	*electric distribution utilities in the U.K.*
DSM	demand-side management	*consists of measures or programs that reduce demand for energy*
FERC	Federal Energy Regulatory Commission	*federal agency that sets rates for transmission and receives regulatory data from investor-owned utilities*
IOU	investor-owned utility	*private utilities, owned by shareholders and subject to regulation by public utilities commissions (PUCs)*
OFGEM	Office of Gas and Electricity Markets	*nationwide utility and energy market regulator in the U.K.*
PBR	performance-based regulation	*a form of incentive regulation that offers rewards or penalties according to designated performance metrics*
PUC	public utilities commission (public service commission)	*independent state agencies that provide oversight and regulation of utility services including those of electric utilities*
RORR	rate-of-return regulation (also known as rate base regulation)	*method of regulating natural monopolies by allowing a fair rate of return on approved capital investments*
SCE	Southern California Edison	*one of three major investor-owned utilities in California, servicing parts of Southern California including Los Angeles*
SDG&E	San Diego Gas & Electric	*one of three major investor-owned utilities in California, servicing the greater San Diego area*
T&D	transmission and distribution	*components of electricity networks that transport and deliver electricity from generators to end-users*

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Should UC Berkeley and Other Universities Divest From Fossil Fuels?:

A Conversation with Dr. Lee Friedman and Dr. Dan Kammen

MODERATED AND EDITED BY ANN HOLLINGSHEAD, ALLISON DOMICONE, JONATHAN BRECK PETERSON, SUZANNE MERKELSON, AND WYATT DONNELLY-LANDOLT

A growing number of students at universities around the United States are calling for their schools to divest—that is, to pull their stock holdings—from companies that profit from using fossil fuels. This debate is particularly active at the University of California, Berkeley where students have launched the Fossil Free Cal movement to encourage UC Berkeley and the University of California System to divest their commingled and direct holdings in the top 200 fossil fuel companies with the largest reserves of carbon.

To better understand the various perspectives on this often contentious issue, *PolicyMatters Journal* (PMJ) sat down with Dr. Lee Friedman and Dr. Daniel Kammen, two of the leading minds at the University of California, Berkeley advocating for a swifter transition to clean energy. While Dr. Kammen is a strong supporter of divestment, Dr. Friedman questions whether divestment is the an effective strategy for the clean energy transition. Below are lightly edited excerpts from the discussion.

PMJ: Dr. Kammen, can you start by sharing your view on the issue of divestment from fossil fuels as a means of addressing climate change?

Dr. Dan Kammen: The science of climate change is clear. We need to reduce emissions by roughly 90 percent between now and 2050. This is a rough estimate of what it will take to get below the 2 degree threshold—equivalent to a world of 450 ppm of C02 in the atmosphere. Today we are already over 400 ppm. We need to focus now on making a transition to clean energy. Every single thing we do now to keep the emissions lower will lower the catastrophic risk in the long-term. That's the motivation we need in order to act.

We need to use dramatic measures like divestment in order to get fossil fuels out of our energy mix—out of electricity, transportation fuels, and goods and services. If we don't send strong messages to industries that we must make this transition to clean energy, it will soon be too late. Divestment in a thoughtful, orderly way—a discussion rather than a club--to send those strong messages. We have thirty-six years until 2050. That's not a lot of time, but we also don't have to do this overnight. We can apply policies and pressure, and using financial resources is critical to that effort. Divestment is not the only tool, but it is a powerful one to encourage the transition to clean energy.

Dr. Lee Friedman: I am in complete agreement with Dan that the most important public policy action we need to take right now is to reduce our greenhouse gas emissions and start using more sustainable practices. I am in favor of every legal and democratic action that will help us do that. I am skeptical, however, of whether divestment will help us accomplish that end.

PMJ: Dr. Kammen, can you talk specifically about how you believe divestment will help the world transition to clean energy?

Dr. Kammen: We are kidding ourselves if we say we will green our energy mix while doing nothing to reduce the amount of carbon in transportation fuels, manufacturing, or in goods and services industries. We need to apply financial pressure on companies in order to speed up this process. The first industrial revolution took roughly 150 years: from 1850 to 2000. The next industrial revolution—the green industrial revolution—must happen in only about three decades. We need to help companies make wise choices and use their fossil fuel assets in a way that enables renewables

Dr. Lee Friedman and Dr. Dan Kammen
Photo by Alex Lin

rather than blocking them. We need companies to keep most of their current fossil fuel assets in the ground, or commit to not burning them and using them to make machinery or other goods instead.

Dr. Friedman: There is so much that I agree with in terms of everything we have to do. My questions is: Does divestment target the real enemy? If the solution we seek is to limit greenhouse gas emissions, emitting greenhouse gas emissions should be the target—not ownership of fossil fuel resources. The divestment strategy targets and penalizes companies that we rely on for our everyday needs. We rely on them in winter to heat people's houses and to run our air conditioners in the summer. We need to use these fossil fuels less and less every year, but we also still need those companies to function in an orderly way in the supply chain, even while we are phasing them out. My target would be on the greenhouse gas emissions themselves, rather than creating a scapegoat of companies because they are the large owners of fossil fuel resources.

PMJ: Dr. Friedman, that's a great point about what enemy we are trying to target. Dr. Kammen, what is your response? Does divestment target emissions or the companies that own the fossil fuel assets?

Dr. Kammen: Lee is interpreting divestment incorrectly. Divestment is not about weakening companies with significant fossil fuel assets. Divestment is about pressuring companies to make a transition to cleaner energy. We want companies to increase their revenue from renewable energy generation and to use their fossil fuel assets in other ways besides burning them. Divestment is about pressuring companies to make that switch to a longer-term perspective in ways that make sense for them and for the environment.

British Petroleum is a recent example, although they ultimately tried to do too much too soon. BP announced that they were changing their name to Beyond Petroleum and would become 50 percent fossil fuels and 50 percent renewable energy by 2050. They even funded a half a billion dollar research institute here at UC Berkeley. They ultimately backed out of that strategy, but they started a trend nonetheless. Other companies, like Shell, are now exploring how to create high value products with their fossil fuel holdings that will not include burning them.

An interesting parallel—though not a full parallel—is divestment during Apartheid. Nelson Mandela told the United States that it was critical that we put an embargo on South Africa. He acknowledged that his people would suffer, but it was the only way to pressure South Africa to transition out of its intolerable political situation. Today, we are not saying that we have to put a full lockdown on these fossil fuel companies in two years; we are saying decades.

PMJ: How do you think divestment is different now than during Apartheid?

"Does divestment target the real enemy? If the solution we seek is to limit greenhouse gas emissions, emitting greenhouse gas emissions should be the target—not ownership of fossil fuel resources."

Dr. Friedman: Divestment differs from apartheid in some important ways. Apartheid was an unusual political practice located in one relatively small part of the globe. In that case,

we asked people around the world to show their support for stopping this practice. Greenhouse gas emissions, on the other hand, are caused by people all over the world as they drive their cars, heat their houses, and go about their lives. You cannot tell them all to stop. Policy must be focused in the right place: setting limits on greenhouse gas emissions.

I really like some of the things Dan mentioned in terms of encouraging changes in corporate behavior. However, I don't think universities removing their stock holdings from corporations will induce that change.

Dr. Kammen: I have to disagree on this point. Cornell's divestment policy, for example, explicitly encourages companies to commit to a transition strategy. It's not the act of holding the assets, but rather committing to a transition that is the key.

The bigger story here is political. Many key social movements—like the free speech and anti-nuclear movements—resulted in sound policy. Through social movements, we can generate public outcry that will hopefully capture policymakers' attention. That's what we hope to achieve with divestment. We are going nowhere fast on climate change issues, and the clock is ticking fast. We are not looking to disrupt business models, but rather to help companies green their business model.

PMJ: That's a great segway into the question about UC Berkeley's role, in particular, in divestment. Can you talk about how you see UC Berkeley's role fitting into the larger political picture?

Dr. Kammen: California and UC Berkeley have been huge thought-leaders in energy efficiency and renewable energy. Over the past ten years, California's clean energy economy has grown faster than its overall economy, and Berkeley has been central to that progress.

Berkeley divesting alone will not change the global equation, but high profile actions can have an important ripple effect. During Apartheid, Berkeley and Cornell divested from South Africa. Harvard did not, fearing that divestment would create a "pariah" state, which would not achieve the right political ends. History tells us that Harvard made the wrong choice.

We're in a similar situation now.

PMJ: Dr. Friedman, do you see any disadvantages to divestment, from UC Berkeley's perspective?

Dr. Friedman: There wouldn't be any particular financial cost to the university; there are plenty of good companies in which Berkeley could invest.

I think the biggest disadvantage from Berkeley's perspective is the opportunity cost of the time and energy spent advocating for divestment. Universities ought to do what they do best, which is to educate. An alternative strategy to divestment is to put a lot more emphasis on political communication. Consider how many people in the United States don't believe that climate change is even an issue. That is an absolute disgrace for science education. It's a disgrace to universities; they have failed to educate people on these facts.

Dr. Kammen: I agree with Lee that education is critical, but I view education as complementary to divestment, these are not mutually exclusive. We do need to educate around science, around climate, and around developing innovation.

Universities, however, do much more than advance intellectual understanding. They also play a key role in spurring social movements. We have to use the divestment tool in addition to education, because ultimately it is the financial story that is going to carry the day.

Divestment also increases the effective internal price of carbon, so even if it is symbolic at a certain level, it still has an effect. It encourages companies to generate a strategy for transitioning to the green economy, and it throws a red flag at companies that aren't moving in that direction.

PMJ: One of the key differences here is on the issue of opportunity cost. Dr. Friedman believes that UC Berkeley has limited resources in terms of time and energy that can be spent on climate change. Dr. Kammen, it sounds like you place less importance on opportunity costs. Why is that?

Dr. Kammen: I don't think there are any opportunity costs. I think this is simply a decision cost. University of California President Napolitano announced that the University of California will be carbon neutral by 2025. That is policy that is already set in place, and Berkeley is ahead of schedule on that transition. I expect that President Napolitano's next move in this area will be to address the issue of divestment.

Divestment effectively says to companies, "We're in a partnership and we all have to ween ourselves off these dangerous materials so we can find other productive uses for your company's human and natural capital." That's a strategy that makes them and us better off. Opportunity costs are not an object.

Dr. Friedman: My view is based, in part, on the opportunity cost of students' time. Student time includes rallying and lobbying and convincing the administration to divest. I agree that's a small cost, but it is connected to the low probability that divestment will achieve anything. Ultimately, I don't

think these companies are going to seriously change their behavior until there is a cap on emissions that forces them to do so. As long as people continue to have the same furnaces in their houses, they are going to keep refueling them and the companies are going to keep restocking them. Without caps on emissions, none of this will change. That's what's needed to change behavior and that's where I keep my focus.

Dr. Kammen: Yes, we absolutely have to take that policy step, and the United States has unfortunately been unwilling to do it. A carbon cap, through whatever mechanism necessary, is absolutely critical, but it's not the only tool we can use. California, for example, has a robust multi-sector carbon reduction strategy. We have reduction strategies in electricity, transportation, goods and services, and in water management. We need big innovations on the education side, the legal side, as well as on the technical side. That story is not yet written.

PMJ: Can UC Berkeley play a policy role in the United States to encourage caps on carbon?

Dr. Kammen: Absolutely. Almost every policy that has gone up to the federal level has started in one state or in some combination of states. California is often the lynchpin—from efficiency standards to vehicle standards--to clean energy policies. UC Berkeley, in particular, and California in general have been key for over four decades in driving greener policies.

Dr. Friedman: I completely agree with that. I have spent a lot of time in the last year talking with Mary Nichols [the Chairman of the Air Resources Board] and the Governor's office about the importance of California establishing support systems with other places that are willing to consider adopting similar caps to what we have here. We have sent people to China to share our knowledge about how we do our inventories, how we keep track of emissions, and to provide training in those areas as well. We are talking with Washington and Oregon about setting emissions systems in place. There will soon be federal standards for greenhouse gas emissions for stationary plants; California has the opportunity to share its knowledge since we have already been thinking about this and setting systems in place.

Dr. Kammen: We now have an opportunity to combine good policy with incentives and ways to alert industry. This is such a big transition that we need an approach that considers the whole picture. To leave such an obvious piece of the equation—divestment—unused, we are tying our hands behind our back and we're doing a disservice to companies as well. By divesting we can make it clear to them that we want to work collectively, that we want to co-invest in our economy in order to see an orderly transition to cleaner energy.

Dr. Lee Friedman is an economist and Professor of Public Policy at the Richard & Rhoda Goldman School of Public Policy at the University of California at Berkeley. His work strives to improve the effectiveness of microeconomic policy analysis on actual public policies and practices. He is a recipient of the David N. Kershaw Award for distinguished public policy research, and of the University of California's Distinguished Teaching Award. Dr. Friedman is former Editor of the Journal of Policy Analysis and Management, and has served as President of the Association for Public Policy Analysis and Management.

Dr. Dan Kammen is the Class of 1935 Distinguished Professor of Energy at the University of California, Berkeley, with parallel appointments in the Energy and Resources Group, the Goldman School of Public Policy, and the department of Nuclear Engineering. He was appointed the first Environment and Climate Partnership for the Americas (ECPA) Fellow by Secretary of State Hillary R. Clinton in April 2010. Dr. Kammen is the founding director of the Renewable and Appropriate Energy Laboratory (RAEL), Co-Director of the Berkeley Institute of the Environment, and Director of the Transportation Sustainability Research Center.

Doing Your Laundry at 10 p.m.:
How Time-Variant Pricing Can Improve California's Energy System

KATE DANIEL AND RACHEL GOLDEN
EDITED BY JESS BOX AND ANN HOLLINGSHEAD

How does California's energy pricing system impact consumer behavior, grid reliability, and the environment? This paper addresses the criticisms of the current system: pricing inefficiencies, blackouts, and negative environmental impacts. Although demand is highest during certain times—noon to six pm on weekdays—consumers pay a rate based on total electricity generated, regardless of demand fluctuations. Much like a plane ticket costing more on Thanksgiving, time variant pricing is used to alter consumer behavior and can encourage electricity consumers to modify their habits. Decreased reliance on "peaker plants," the fossil fuel heavy backup plants needed to meet high demands, will subsequently decrease greenhouse gas emissions. Other advantages of time variant pricing include more reliable electric grids and increased investment in green technologies. Time variant pricing raises concerns including skepticism of overall consumer behavior response and impacts on low-income families. These concerns are addressed, with successive policy solutions recommended by the authors. This paper concludes that time variant pricing will lower overall electricity costs to both consumers and producers, improve grid reliability, and ultimately cut greenhouse gas pollution by reducing the use of fossil-based generation.

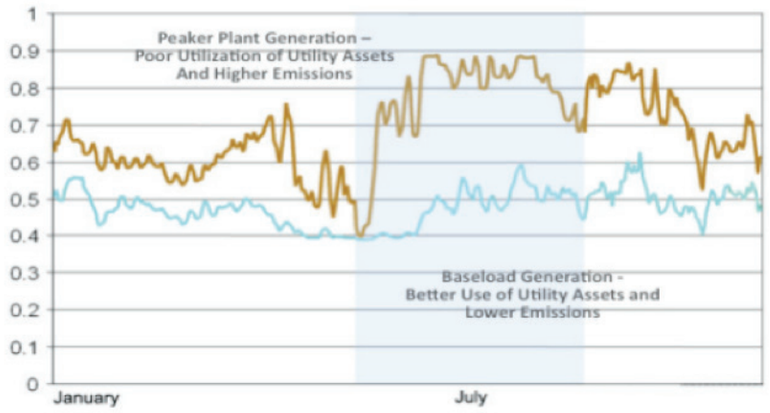
When you book a flight for Thanksgiving, are you prepared to pay more than you would in January for the same flight? If you vacation during off-season, do you expect a discount on your hotel and to bargain for cheaper souvenirs? Ever notice that movie matinees are cheaper than the evening shows, bridge tolls go up for rush hour, and the price for parking is based not only on how long you park, but when you park? These are examples of time-variant pricing, when market-based prices are free to respond to changing demand for goods and services over the course of a day or year. If these examples make sense to you, time-variant electricity rates should not seem strange either.

Electricity demand fluctuates throughout the day and over the course of the year. Most people use very little electricity in the middle of the night, but at 4:00 p.m. on a hot summer day, our air conditioners, refrigerators, lights, computers, and other devices demand a lot from the grid. The difference is important, and problematic.

The timing and size of our electricity demand has significant implications for the design of the electric system, and the climate. The electricity system is built so that it has the capacity to supply the highest daily level of demand. To accommodate the especially high peaks in electricity demand, usually from 12:00 to 6:00 p.m. on weekdays, California relies on "peaker" plants. Most of these sources are gas-fired power plants that operate for a small portion of the year when demand is very high. These plants are built at a low capital cost and designed to be able to come online quickly to produce electricity. In order to achieve these qualities, the plants use technologies that burn fuel less efficiently than baseload power plants. Therefore, peaker plants generate more emissions and have higher marginal costs of operation than baseload sources, which run nearly constantly.[1] If California moved some of its electricity use from difficult-to-fulfill peak demand periods to easy-to-fulfill off-peak periods, it would streamline its electric system, requiring fewer peaker plants.

An effective way to shift this demand is through electricity pricing reform. Currently, default residential rates in California are static across time, but with recent legislation there is an opportunity to improve this pricing structure to encourage more efficient energy use.[2] Policies such as time-variant pricing that encourage consumers to shift energy use from peak to off-peak periods have the potential to lower overall electricity costs to both consumers and producers, improve grid reliability (i.e., fewer blackouts), support clean tech innovation, and ultimately cut greenhouse gas pollution by reducing the use of fossil-based generation. The California Public Utilities Commission (CPUC) should approve default time of use rates and encourage additional voluntary dynamic

Figure 1. Peaker plant vs. baseload generation CO2 emission rate (tons/MWh)



Source: Comments to the California Energy Commission from the California Energy Storage Alliance, March 3, 2011.

pricing programs. For these rates to be most effective and equitable, thorough education and awareness efforts, the ability to opt-out, and economically efficient peak to non-peak price ratios should accompany rates.

HOW CAN POLICY SHIFT DEMAND AND CHANGE BEHAVIOR?

Getting consumers to change their energy habits is difficult; however, policy can influence how much electricity they demand throughout the day.

Opponents of time-variant electricity pricing are concerned that consumers will be unable to change electricity usage during peak periods, thus facing higher electricity bills.[3] Consumer advocates are particularly concerned about the impact on at-risk populations such as the elderly, those living in inland parts of the State with hotter climates, and low-income customers, who may have a harder time adapting to the price changes.

However, much of residential electricity use is discretionary. It currently costs consumers the same amount to run energy intensive appliances, such as a clothes dryer or dishwasher, at 4 pm as at 10 pm, even though the true costs of generating that power are quite different (i.e., more expensive in the afternoon than in late evening). If there was a significant difference in cost to the consumer at these time periods that reflected the actual cost of producing electricity and if consumers were well informed of this cost difference, they would be far more likely to wait until bedtime to hit start. Designing electricity pricing to reflect true production costs can create an incentive for residents to shift electricity use to off-peak times. Under this policy, California would need to build and maintain fewer "peaker" plants, which would save money for both consumers and utilities and be beneficial to the environment.

Efficient and cost-based electricity pricing, paired with education and deployment of smart, user-friendly technology, is an important way to shift demand to times when electricity is cheap and cleaner and also to reduce demand when it is expensive and more polluting. The default residential rate tariffs in place in California today do not provide a financial incentive for individuals to shift their power use to lower demand times of the day. Programmable thermostats, auto-delays on dishwashers, batteries, and other readily available household technologies can expand consumers' ability to control the timing of their energy use.[4] Furthermore, the major California utilities have deployed smart meters to nearly all their customers, and accompanying devices like in-home displays and remote applications give consumers even more information and control over their energy use. However, without price incentives these technologies are likely to remain as niche and optional gadgets rather than widespread cost saving devices.

Time-variant pricing in California

California, a pioneer in clean tech development and clean energy policy, is now leading the adoption of time-variant pricing. Recent state legislation provides the CPUC the legal authority to overhaul the current inefficient tier structure for residential rates[5] and to adopt time of use pricing as default rates for the State's investor owned utilities (IOUs).[6] Time of use rates are a specific type of time-variant pricing in which there are daily peak, off-peak, and possibly intermediate prices, but these prices are the same each day over the entire season. Other types of time-variant pricing in which rates change in response to real-time supply and demand may be offered as voluntary, opt-in programs, but cannot be the default rate structure for residents.[7] While moving to time of use rates will be a significant change for California's residents, the IOUs already use time of use pricing for commercial, industrial, and agricultural consumers, and the utilities offer voluntary residential programs on an "opt-in" basis.

WHY DOES TIME-VARIANT PRICING MATTER?

Time-variant pricing has the potential to lower overall electricity costs to both consumers and producers, improve grid reliability (i.e., fewer blackouts), support clean tech innovation, and ultimately cut greenhouse gas pollution by reducing use of fossil-based generation, particularly through reducing use of peaker plants. Below we summarize a few of the main benefits.

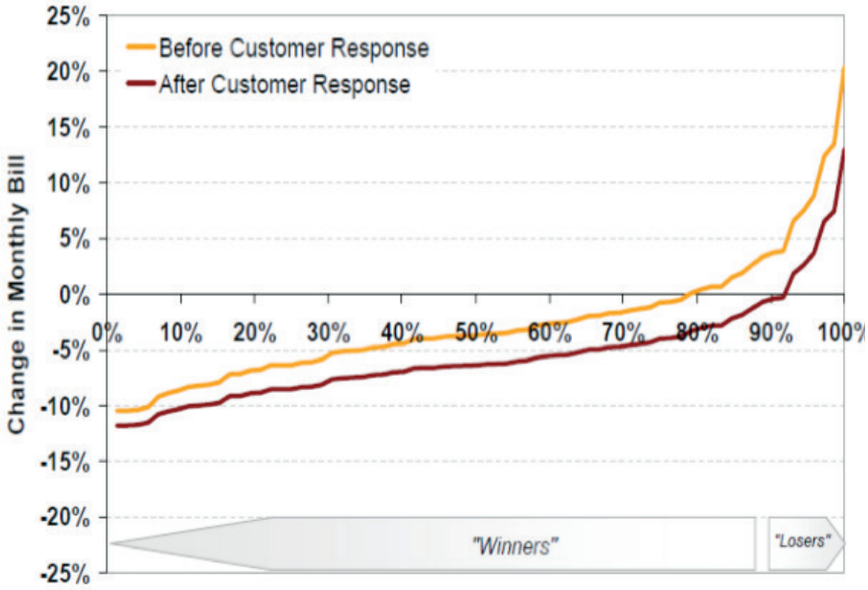
Time-variant pricing that encourages residents to shift energy use to off-peak hours and reduce peak electricity

demand will lower greenhouse gas pollution. Figure 1, showing generation sources in the Southern California Edison (SCE) territory, demonstrates that using peaker plants causes significant increases in carbon dioxide and other forms of hazardous air pollution. The brown line shows actual emissions of peaker plants, and the blue line shows actual emissions of baseload generation plants. Simply switching any single given use of electricity from peak to off-peak in July would reduce emissions by 35 – 40 percent on average.

Time variant pricing will also help to drive demand for clean energy technologies and support technological innovation. Take electric vehicles as an example. The number of electric cars in California today (approximately 24,000) is remarkable given the higher than necessary electric-charging rates that drivers face. People ideally charge their cars overnight when demand for electricity is lowest. However, rather than realizing price savings due to the low cost of generating electricity in the late night, they pay rates that are far above this cost, many paying approximately $0.30 per kilowatt-hour (six times the cost of service at that time of the day).[8] This means that electric vehicle drivers in California who stick with their standard electricity contract could save approximately $1,350 annually if rates reflect the time of usage, amounting to over $32 million in annual savings for all owners.[9] Many electric vehicle drivers, however, do opt into a new rate plan that has lower costs during off peak hours, charging vehicles $0.10 per kWh at night.[10] But even these rates are far above marginal costs because they are still tiered and because they roll-in fixed costs. Time variant rates would improve the economics for electric vehicles and help California meet its target of 1.5 million electric vehicles by 2025.[11]

Changing electricity rate structures to reflect the time of use will also create an added incentive for innovation in energy storage technologies, which are critical for managing increased use of intermittent renewable generation. Time-based pricing would make energy storage more valuable to consumers.[12] Batteries and other forms of storage could be charged during off peak periods when the prices are low (with low or no greenhouse gas pollution, i.e., wind at night in California), and can be used later during peak hours to substitute for more costly energy from higher polluting fossil-fuel plants. In this sense, dynamic pricing and energy storage innovation will help to not only lower peak electricity costs, but will also reduce greenhouse gas pollution.[13]

Figure 2. Distribution of dynamic pricing bill impacts for low-income customers



Source: EDF Residential Rate Proposal with data from Brattle Group report.

This same logic applies to the use of distributed generation like rooftop solar and technologies to help us be smarter (more timely) with energy use. If regulators in California allow electricity prices to increase when there is a surge in demand, then the incentives of rooftop solar will be improved. Peak energy demand periods generally occur when there is still electricity being generated from rooftop solar systems, so people will see greater returns on their investment.[14] Economist Lee Friedman confirms that "marginal-cost based time-variant rates would align incentives, and customers knowing that they will receive fair value are more likely to purchase such installations."[15] Time-variant pricing will also accelerate demand-response technologies, as people will have a price signal and incentive to use energy more wisely.

ADDRESSING POTENTIAL PROBLEMS

Despite the promising environmental and economic benefits of time-variant pricing, many people remain skeptical of its positive impacts. Electricity is billed in magnitudes of pennies per kilowatt hour, and most people barely ever think about their electricity bills. Skeptics doubt that time of use will do anything but result in increased bills for consumers. However, pilot programs that test time-variant rates show that consumers do respond to the price signals by reducing peak-time energy use. Well-designed time of use experiments dating back to the 1970s demonstrate that consumers respond

as expected to price incentives.[16] As proven in over seventy pilots, residents reduced electricity use during peak periods up to 58 percent and on average around 20 percent.[17] Education, outreach, and smart technologies are necessary for consumer responses, but even minimal efforts in these areas can have significant effects. Furthermore, these rate programs have been well received. In follow up surveys to these pilot programs in the United States, 80 percent of customers reported that they prefer the new dynamic prices to their old rates, and 90 percent would recommend it to family and friends.[18]

The second related concern is how time-variant pricing will impact household energy bills, particularly for low-income residents. Overall, ratepayers will be better off as they take advantage of the improved incentives. Low-income households are actually likely to save the most due to their relatively even electricity use throughout the day and demonstrated ability to shift load to lower-priced off-peak periods. As Figure 2 demonstrates, over 90 percent of low-income customers are expected to save money under time-variant rates. The figure shows the results of a simulation of bill impacts of changing to a time-variant rate for a large urban utility. Assuming low-income customers do not shift their usage at all, almost 80 percent are still likely to realize savings because they already use a greater proportion of their electricity during low-cost periods. If one assumes they can reduce their peak usage by 10 percent, over 90 percent of customers classified as low-income realize savings.[19]

However, changing rate designs can lead to redistributions of income that reflect the wide variations in consumption patterns across households. Models of customer behavioral responses to dynamic pricing show that the benefits outweigh the costs for all categories of consumers, even across differing levels of awareness of and responsiveness to prices and variant uses for electricity. Nonetheless, a large share of the benefits does accrue to a small number of ratepayers who are very responsive to the time of use rates.[20] There's no escaping from the fact that some people will end up with higher bills if they do not adjust consumption patterns away from times when prices are the highest. Education, outreach, and enabling technologies can go a long way in helping consumers better manage their energy use and realize savings from the rates.[21] It is also important that users who are legitimately unable to shift consumption, especially those with high-electricity use medical devices, can easily opt-out of the time-variant rate.

A third concern is how expensive this electric rate reform will be for California. The main cost of time-variant rates is the cost of smart metering infrastructure, which includes the cost of meters as well as the cost of associated software and billing systems and communications equipment. Smart meter deployments by the Pacific Gas and Electric Company (PG&E), Southern California Edison, and San Diego Gas &Electric, under the direction of the CPUC, are nearly complete, and the costs have already been accounted for in CPUC rate proceedings.[22] The major benefits from this investment include the avoided cost of capacity (generation, transmission and distribution) and energy, plus other monetizable benefits like reduced outage times due to faster pinpointing of problem locations.[23]

In addition to the cost of smart meters, some people have concerns that the equipment emits electromagnetic radiation that can be harmful to human health. In addressing the comments of advocacy groups dedicated to this issue, the CPUC cited a study by the California Council on Science and Technology, which found that the levels of radiation from properly installed smart meters are lower than common household devices such as cell phones and microwave ovens.[24] The CPUC also issued rules to protect customers' privacy and data security, while still ensuring customers and utilities can access the data to make improvements.[25] For those whose concerns still linger, utilities are required to allow customers to opt-out of smart meter installation.

Similarly, electric utilities will not face a large implementation cost and are even expected to see cost savings. As customers respond to peak prices by shifting energy use, the operation of the electric system will become more efficient and the utilities' cost per kilowatt-hour will fall. This decreases the need for investment in reserve peaker generation capacity whose capital costs and high maintenance costs must be paid regardless of how infrequently it is used. Lower peak demand will mean that utilities run fewer expensive and inefficient peaker power plants and will save at least 3 – 5 percent of electricity generation costs.[26]

IMPORTANT COMPONENTS TO MAKE THE POLICY WORK

There are five components that are critical to make time-variant electricity pricing work efficiently and in a way that is fair for ratepayers.

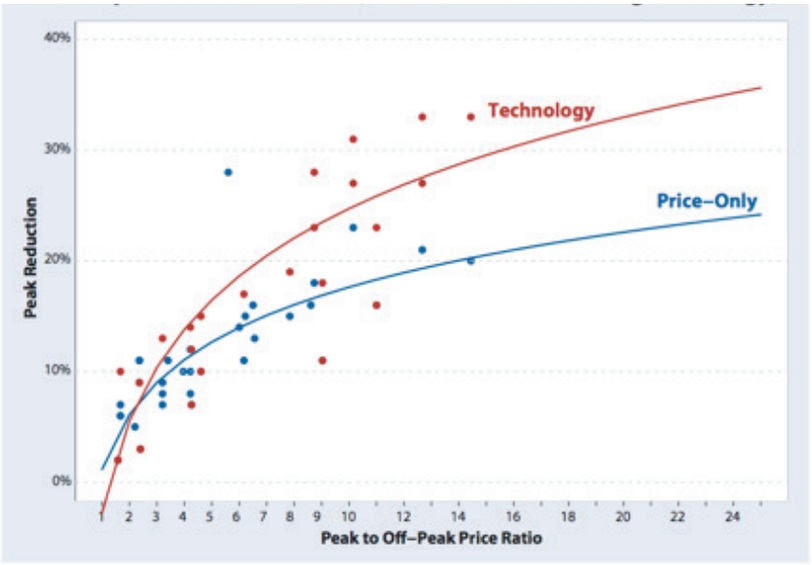
(1) Educate and empower consumers

To maximize the benefits of the rate reform, ratepayers need to know how to use available technologies to optimize energy use and save money. A thorough research-based marketing and education effort will help residents understand the benefits and opportunities of time-variant rates. Offering ratepayers information about their electricity consumption patterns could provide customers with easy ways to shift load and lower their bills. Utilities should use "shadow billing" to show customers how their electric bill would be different with new time of use pricing compared to default rates, and should introduce these comparisons before default time of use rates go into effect.[27]

Utility bills should also include tips for ratepayers on how to shift use from peak to off-peak periods, including information on available devices and technologies that can help customers

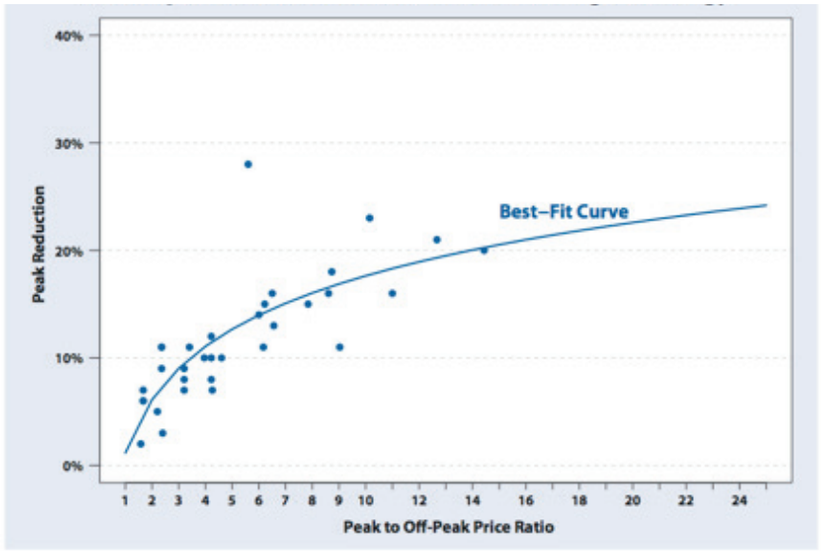
manage their energy usage. Home area networks give consumers the ability to monitor real time energy usage and prices, and some also include devices that help customers automatically adjust their appliances and heating and cooling in response to those prices. Currently, the IOUs are required to provide an online list of at least five home area networks that are compatible with the smart meters they have installed and have a target of connecting 5,000 of these devices by the end of this initial period.[28] However, progress on deploying these devices has been slow, and utilities and stakeholders must become more engaged in enabling these energy management tools.[29] Even simple devices like programmable thermostats can make a big difference to customers. Utilities should consider expanding energy efficiency rebate programs to include programmable thermostats, smart thermostats, and home energy management systems. Figure 3 shows that increased use of these technologies is associated with larger reductions in electricity use during peak hours.

Figure 3. Impact of technology on electricity consumption



Source: Regulatory Assistance Project and the Brattle Group

Figure 4. Impact of price on electricity consumption



Source: Regulatory Assistance Project and the Brattle Group

(2) Offer bill protection

Bill protection means that consumers on new time-variant prices are guaranteed not to have a higher electricity bill for the first year. This safeguard is needed to help ratepayers adjust to the new policy and new energy-smart technologies.[30] Temporary bill protection offers customers the ability to gain experience with the new time-variant rates without being exposed to the risk of higher bills. Participants may also opt for technical assistance to help them better take advantage of the program.[31]

(3) Make time-variant rates be the default, but also offer "opt-out" option

It is too early to make time-based pricing mandatory, yet California will lose many ratepayers with an opt-in program due to consumer inertia. The previous California Statewide Pricing Pilot demonstrated that participation in an opt-out rate could be as high as 80 percent of the eligible population, while participation in an opt-in rate might be closer to 20 percent.[32] This opt-out provision will also alleviate concerned constituencies, as it allows residents who do not see savings after their first year on the program (with bill protection) to go back to the current standard tiered rates. It is also important that the tiered rates reflect the actual average costs produced by users in that rate structure, so that across usage periods and without accounting for behavior changes, they are no more or less expensive time of use rates.[33]

(4) Get the prices "right"

The peak-to-off-peak price ratio is a key driver of customer response. A large price differential provides greater savings

opportunities and more incentive for ratepayers to shift when they use electricity.[34] The appropriate price differential should be based on the cost difference of providing electricity during the different periods. Figure 4 shows that with a bigger difference in peak and off-peak electricity prices (horizontal axis), that there will be larger reductions in electricity use during peak hours (vertical axis).

TIME-VARIANT PRICING IN THE SCHEME OF THINGS: THE BIG PICTURE

It only takes a brief power outage to realize how reliant we are as a society on electric power for our work, comfort, safety, and entertainment. And it is no overstatement to say that our energy systems are incredibly complex and present some of the greatest challenges of our society today. The "energy challenge" is not one singular issue. We must contend with several challenges: natural resource scarcity, reliance on foreign oil, grid reliability, high costs, local air pollution, depletion of water resources and water pollution, and yes, climate change.

Time-variant pricing is by no means a panacea for this energy challenge, and in fact, there is no single fix for addressing all of these concerns. While time-variant pricing is an important next step, it requires careful planning. Rate design will likely be an iterative process to address issues of equity and consumer responses to electricity prices. Rate reform must also be addressed in a much broader policy context; dynamic pricing is most compelling when seen as a way of thinking strategically and holistically about our energy use. To that extent, California should implement time-variant rates in tandem with increased investment in energy efficiency and distributed renewables. Pricing will then not only be effective in causing direct market responses, but also will present the opportunity for a cultural change in consumers' thinking, behavior, and attitudes regarding energy use.

For many of us, climate change alone is reason enough to enact energy policies that decrease greenhouse gas emissions while also reducing energy costs. Dynamic pricing will almost certainly decrease emissions from peaker plants, and perhaps even more importantly, will be crucial for encouraging innovation in clean energy technology that can reduce emissions even further. Again, the benefits of appropriate pricing are not only the direct reductions in peak power demand, but also the improvements we will see from being more aware of the true costs of our energy and taking steps to pay the proper price for these costs. We know the technology for a modern, clean grid exists – we already have smart meters, rooftop solar, energy storage systems, and electric vehicles. Time-variant pricing is a key link that will accelerate demand for these technologies, maximize their capabilities, and synergistically coordinate our energy needs with our resources.

As California implements other policies to address climate change, particularly bringing more time-sensitive renewable energy such as wind and solar online, it is even more important to think critically about how to match the timing of daily supply and demand of our energy in order to ensure there is a reliable, affordable, and ideally clean source of electricity at all hours of the day.

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[2] California AB 327, signed into law in October 2013, allows for structural changes to residential rates. CA AB327. 2013-2014 Regular Session. (2013, October 07). LegiScan. Retrieved March 24, 2014, from *http://legiscan.com/CA/bill/AB327/2013*

[3] David Baker, "Sweeping Changes Sought for Electricity Bills." San Francisco Chronicle, January 10, 2014.

[4] The Edison Foundation, "Utility Scale Smart Meter Deployments: A Foundation for Expanded Grid Benefits," August 2013, *http://www.edisonfoundation.net/iee/.../IEE_SmartMeterUpdate_0813.pdf*

[5] Currently, default residential rates are based on four tiers, with the price of electricity increasing dramatically the more you use. While this system was designed to encourage energy efficiency and conservation, past legislation blocked rate increases in the lower two tiers, so that all increased costs have been borne by customers in the higher tiers. Today, consumers who use a substantial amount of energy pay far more than the cost of generating the electricity, and thereby subsidize the cost for other consumers. The result is a significant distortion in incentives across the tiers. AB 327, passed in October, removes the caps on Tiers 1 and 2 and allows rates to gradually move to fewer tiers. Whether or not time of use rates are implemented, therefore, electricity bills for low-use customers will almost certainly increase.

[6] The CPUC has jurisdiction over the IOUs in the State, but not publicly owned utilities. The three main IOUs are Southern California Edison, San Diego Gas and Electric, and Pacific Gas and Electric.

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[8] Lee Friedman, Electricity Pricing and Electrification for Efficient Greenhouse Gas Reductions, Next 10 and UC Berkeley, July 2013

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[15] Friedman

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[26] Severin Borenstein, "Effective and Equitable Adoption of Opt-In Residential Dynamic Electricity Pricing," Energy Institute at Haas, April 2012.

[27] *Ibid.*

[28] Home area networks connect with the smart meter to provide a user real time information on their energy consumption. The devices may also include additional features that communicate with appliances or heating and cooling systems, and allow for automated response to high rates or peak events.

[29] Smart Energy Universe. "California Home Area Network Implementation Plan." Accessed March 23, 2014. Available: *http://smartenergyuniverse.com/14-home-area-networks/6564-california-home-area-network-implementation-plan*

[30] Paul L. Joskow and Catherine D. Wolfram, "Dynamic Pricing Of Electricity," Alfred P. Sloan Foundation and Massachusetts Institute of Technology, Haas School of Business, University of California, Berkeley and NBER, December 2011.

[31] *http://www.neuralenergy.info/2013/10/time-varying-rates.html* (December 1, 2013)

[32] Regulatory Assistance Project and The Brattle Group

[33] The flat rate should be an average of the prices of off-peak, mid-peak, and peak electricity, weighted by the proportion of the energy consumed in each period by the entire group of users. The rates across the two programs would still reflect the same underlying, time-variant cost structure, but those on the flat rate will pay the same price per kilowatt hour at any time. This design ensures that customers pay the same costs, but protects those on the flat rate from volatility of time-varying rates. These users, however, would not be able to reduce their total monthly bill amount by changing their consumption patterns. See Severin Borenstein, Effective and Equitable Adoption of Opt-In Residential Dynamic Electricity Pricing, Energy Institute at Haas, April 2012

[34] *Ibid.*

Shock Waves from the Great Recession:
Rental Prices and Food Stamp Enrollment in California, 2009-2012

PETER RADU
EDITED BY EMILY VAUGHN, WYATT DONNELLY-LANDOLT, DANIEL BAKER

This article examines indices of rental housing affordability on a county-by-county basis in California during the years 2009-2012, a period of rising rents and falling incomes across the state and nation as a whole. I report a correlation between increases in gross rent as a percentage of income and increases in food stamp enrollment rates, arguing that this outcome supports existing calls to better integrate government safety net programs. I contend that Californians, finding governmental rental assistance programs inaccessible, are increasingly turning to food stamps to increase their incomes to cope with high housing costs. On the basis of this observation, I offer two suggestions for policy makers: (1) shift away from a national standard (30 percent of income) of housing affordability and towards greater regional sensitivity; and (2) partially integrate the federal food stamp and Section 8 programs.

INTRODUCTION

The years 2009 to 2012 represented a period of particular economic hardship for California households. As a result of the Great Recession, California's unemployment rate was among the highest in the nation, and incomes dropped for those who remained in the workforce. Nevertheless, the rental housing market experienced a period of robust recovery and growth, with increases in rental prices and record low vacancy rates across the state. This economic one-two punch—rising rents and falling incomes—fueled a growing need for governmental housing assistance. Federal rental vouchers, however, have become an increasingly underfunded and unrealistic recourse, even for those who qualify.

This article suggests an alternative policy approach for assisting those households who qualify for housing assistance, but for who direct housing programs are inaccessible. Employing data from the 2009 and 2012 American Community Surveys, I examine changes in gross rent as a percentage of income in California between these years. I demonstrate that, by 2012, the average household in thirty-seven of forty sample California counties spent more than 30 percent of its income on rent—the federal standard for housing affordability.[1] Critically, this index of housing affordability predicts a significant increase in Supplemental Nutritional Assistance Program (SNAP, formerly known as food stamps) enrollment rates over the same period. Since housing and food expenditures are household necessities that take primacy over other commodities, governmental transfers in these domains may be sufficiently fungible to relieve high rental cost burdens. With this in mind, I conclude with two suggestions for policy makers: (i) a shift away from a uniform, national standard of 30 percent of income as an index of housing affordability, and (ii) an administratively palatable (and potentially more cost-effective) partial integration of SNAP and the Housing Choice Voucher program (Section 8). Together, these changes would increase the number of rent-burdened households receiving housing support, by (i) providing government officials with a more accurate, regionally specific quantification of housing assistance need, and (ii) lowering the average total cost of benefit provision for a sector of the eligible population.

RISING RENTS, INSUFFICIENT AID

The Great Recession (2007-2009) was the nation's worst economic downturn since the Great Depression. California was hit particularly hard by the crisis. By 2009, unemployment rates were higher than they had been at any time since the 1970s,[2] and middle- and lower-class households experienced declines in income in nearly every region of the state. Though the recession technically ended in 2009, most Californians continued to suffer from a struggling economy: California's unemployment rate stood at a bleak 12.3 percent in 2010, compared to a national average of 9.5 percent; the state's employment-population ratio between 2010 and 2011 was eleventh-worst in the nation, averaging 56.2 percent, compared to a national average of 58.5 percent.[3] Of those who remained partially or fully employed, median family income dropped 5 percent between 2009 and 2010: the same percentage decline experienced during the two years of the official recession.[4] Middle and lower-income brackets, which bore the brunt of the economic hardship, experienced particularly extended declines statewide.[5]

Nevertheless, the rental housing market underwent a nationwide revival from 2009-2012.[6] After 2008, a wave of home foreclosures brought about by subprime mortgage lending led to sharp declines in home values, credit freezes, and¬ a de-

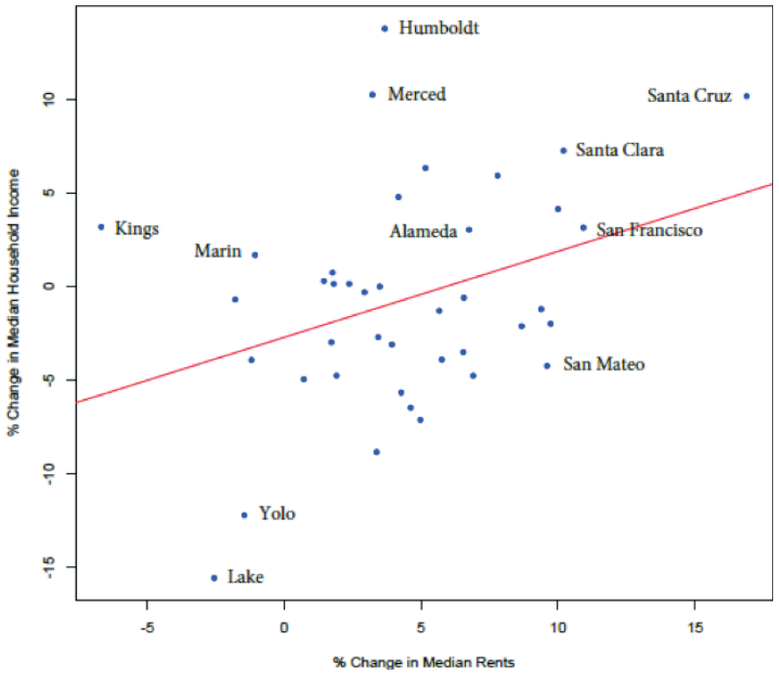
crease in the number of homeowners. Accordingly, by the fourth quarter of 2011, the national homeownership rate dropped to 66 percent, the lowest since 1998.[7] The corresponding number of renter households grew by one million—the largest annual increase since the early 1980s—and rental prices increased in thirty-eight of sixty-four large U.S. metro areas.[8]

California's market was no exception. By 2011, the surge in rental demand in California raised the statewide average fair market rent (FMR) for a two-bedroom apartment to $1,353, behind only Hawaii and the District of Columbia.[9] Spurred by growth in the tech sector, Bay Area rental markets led the way: San Francisco and San Jose rental prices rose 11 percent and 8.8 percent, respectively, from fourth quarter 2010 to fourth quarter 2011.[10] In 2011 and 2012, rents for a variety of units, studios to three-bedroom apartments, jumped a staggering 15-20 percent across Santa Clara, Alameda, Contra Costa, and San Mateo Counties.[11] Though not as dramatic as the Bay Area, Southern California counties also experienced growth. In 2011, rents rose in thirty-nine of the forty sub-markets; Los Angeles County posted the highest average increase of all the South California counties at 6.2 percent and saw net apartment move-ins quadruple from 2010.[12] San Diego County (4.3 percent), San Bernardino and Riverside Counties (3.4 percent), and Orange County (3.2 percent) logged smaller but steady increases as well.[13] Indeed, the rental recovery was widespread and robust during this time.[14]

This combination—rising rents coupled with ongoing unemployment and economic hardship—raises the question of how households across the state coped. When faced with limited and shrinking resources, households must confront trade-offs in consumption, pitting housing costs against spending on other needs. As an extreme and troubling example of this trade-off, some families are forced into homelessness when income is unable to cover housing expenses. Analyzing national census data and shelter bed counts, Quigley, Raphael, and Smolensky demonstrated that rental market variables contribute to homelessness. Specifically, in both California and the United States, the availability and corresponding costs of rental units robustly predict homelessness rates: in metropolitan areas, lower vacancy rates and higher median rental prices are associated with higher rates of homelessness. These findings challenge the notion that individual deficiencies primarily cause homelessness and have important public policy implications; if the economic principles of supply and demand govern who is housed and who is not, then affordable housing policy can effectively decrease homelessness.[15]

Figure 1. Correlation Between Changes in Housing Costs and Median Incomes for 40 California Counties, 2009-2012

r = .35, p =0.03



Unfortunately, rental assistance through the federal Housing Choice Vouchers (Section 8) is declining. Between 2007 and 2011, the number of low-income, subsidy-eligible renters rose by 3.3 million. However, despite an increase in federal outlays for the Section 8 program during this period, rising rental and utility costs increased existing participants' per-voucher expenditures and left the number of assisted renters essentially unchanged.[16] Consequently, the share of income-eligible households receiving rental subsidies shrank from 27.4 percent to 23.8 percent.[17] In California, this lack of availability translated into overcrowded waitlists for subsidy programs. The San Francisco Housing Authority's Section 8 waitlist, for example, has been closed for more than five years.[18] Santa Clara County has a waitlist of 25,000 that has seen little movement since 2006.[19] The average wait for a voucher in San Diego County is 8 to 10 years,[20] and Marin County's Section 8 voucher program's waitlist was 8,000 people long in 2013.[21] Moreover, those households who are able to obtain a subsidy are often unable to utilize it because landlords frequently refuse to accept Section 8,[22] and those that do have few available units that fall below the government-mandated maximum permissible rent, or Fair Market Rent.[23] Indeed, more than 50 percent of voucher recipients in some metropolitan areas fail to find a suitable unit before the voucher expires (generally within 60-120 days).[24] Because formal rental assistance is unattainable, households may turn to other government transfer

programs to free up income for unsubsidized housing costs. One alternate program is the Supplemental Nutritional Assistance Program (SNAP).

HOUSING COSTS AND HOUSEHOLD EXPENDITURES

Researchers and government officials alike have long known that government provisions in one domain affect recipients' economic behaviors in others. Because housing costs are generally a household's first expenditure, low-income households have little remaining disposable income.[25] To this point, housing subsidy expenditures lead to a 10 to 20 percent rise in non-housing spending, which suggests rental subsidies free up income to purchase other goods.[26, 27, 28] Along these lines, the Section 8 program has been described as a "poorly disguised income support program."[29] Despite the program's original goal of improving renters' housing quality,[30] up to one-fifth of recipients apply the voucher to the units they are currently occupying.[31] This suggests that many program recipients treat the housing voucher as supplemental income to cover their existing expenditures. Simply put, high rent-to-income ratios directly affect consumption of other necessities.

Such observations have motivated academics to call for better integration of federal housing assistance programs with other welfare provisions. If Section 8 vouchers primarily reduce the rent-to-income ratio rather than improve access to higher-quality housing,[32] then the program should be reformed to coordinate efforts with other benefits programs that accomplish the same goal.[33] Under the integrated arrangement, Section 8 would become a government entitlement program similar to those for other basic necessities, such as SNAP, thus providing greater coordination in the safety net for basic material needs.

However, despite the intuitive appeal, little evidence exists to support a link between housing and food stamp participation. For example, Carlson and colleagues, who analyzed Wisconsin data, attribute a small 4 percent increase in likelihood of food stamp enrollment to Section 8 voucher receipt, but their data did not allow for a direct enrollment estimate.[34] Harkness and Newman found no link between increases in food stamp enrollment and overall food spending among housing voucher recipients. They attribute this finding to administrative factors within the SNAP program; when households move into subsidized housing, their allowable shelter cost deductions (part of the income calculation) decrease, translating into smaller SNAP grants.[35]

Importantly, no studies of which I am aware examine a more fundamental, behavioral question (and one that circumvents the administrative confounds suggested by Harkness and Newman): do sudden decreases in housing affordability push households to enroll in food stamps, given the waitlists for federal housing vouchers? I test this relationship and explore its implications for policy reform below.

Figure 2. Median Gross Rent as a Percentage of Income (GRAPI) for 40 California Counties, 2012.

27 of 40 counties had median GRAPI > 30%

METHODS

I employed data from the 2009 and 2012 American Community Survey (ACS).[36, 37] Administered by the U.S. Census Bureau, the ACS is a nationwide survey that collects information on demographic, social, economic, and housing characteristics. The ACS is administered on a yearly basis to local jurisdictions whose populations exceed 65,000; data from those areas whose populations fall below 65,000 are tracked on three- and five-year cycles.[38] I opted to use the yearly estimates because their time sensitivity captures data about local economic phenomena that unfolded more rapidly than would have been measurable with three- or five-year estimates. Accordingly, only forty of California's fifty-eight counties are represented in this sample.[39] All rental prices tracked by the ACS are for currently occupied units and adjusted for yearly inflation. I analyzed gross median rent prices (as opposed to contract rental prices) because they include the price of utilities in the estimate and therefore more accurately reflect total out-of-pocket cost to consumers.

Importantly, overall participation in SNAP increased greatly across the nation during the time period corresponding to this analysis. This can be partly attributed to the American Recov-

Table 1. Linear Regression Predicting SNAP Enrollment Changes with Changes in GRAPI

Variable	Coefficient	S.E.	F
Intercept	0.03*	0.004	3.207 (4, 35)***
Percent change in unemployment rate	0.27	0.15	
Percent change in median income	0.02	0.05	
Percent change in poverty rates	-0.15	0.17	
Percent change in GRAPI	0.50**	0.15	

*Notes: $R^2 = 0.27$, *$p < 0.001$, **$p = 0.002$, ***$p = 0.02$*

ery and Reinvestment Act of 2009 (ARRA), which authorized a large increase in food stamp expenditures nationwide.[40] However, since food stamp eligibility is determined by factors such as income and poverty, I assumed that the bigger driver of program enrollment were the large household economic challenges between 2009 and 2012. Accordingly, I controlled for these factors by including the percent changes in each county's unemployment rates, poverty rates, and median incomes over this period as covariates in the regression analyses. I performed an arcsine transformation on all percentage data to approximate a normal distribution before submitting them to parametric analysis.

RESULTS

INCREASES IN HOUSING PRICES

In order to examine relative changes in affordability in the California rental housing market, I first examined changes in the total number of renters and in gross median rental prices from 2009 to 2012. As expected, there was a large increase in the total number of renters for each county. Excluding the counties of Marin and Nevada, which lack 2009 survey data, the total number of renters increased from roughly 5.2 million to 12.2 million, a 135 percent increase. Predictably, this increase in rental demand accompanied an increase in median gross rental prices: on average, median rents increased 4.4 percent across all forty counties in the dataset, from an average of $1,069 per month in 2009 to an average of $1,117 per month in 2012. This translates to a $48 per month average increase in statewide median gross rent.

Rent prices and changes in rents varied greatly by geography. The counties with the largest percent increases in median rents from 2009 to 2012 were all located near the greater Bay Area region. Santa Cruz County saw the largest jump ($1261 per month to $1474 per month, a 16.9 percent increase), followed by San Francisco (10.9 percent) and Santa Clara (10.2 percent). Six relatively rural counties (Kings, Lake, El Dorado, Yolo, San Joaquin, and Marin) actually saw decreases in median rental prices, with rents in Kings County in the Central Valley falling 6.7 percent from $852 per month in 2009 to $795 per month in 2012.

Rising rental prices are not a policy concern if household income keeps pace with rent. Though the years 2009 to 2012 witnessed double-digit rent increases in some Bay Area counties, the surging tech economy also created new jobs and new wealth. Predictably, I found a positive correlation between the percent change in median rental prices from 2009 to 2012 and median household income over the same period ($r = .35$, $p = .03$; see Figure 1).

Nevertheless, upon closer inspection, the statewide rental market still showed signs of decreasing affordability overall. From 2009 to 2012, median annual household incomes dropped by an average of $385, or 0.68 percent, which translates into a statewide average decrease of $32 per month. Coupling this loss with the $48 per month average increase in median gross rent, Californians' monthly disposable income dropped $80 net over this three-year period. Increased rent expenditures accounted for more than half of this change in disposable income. This claim is corroborated by a 0.77 percent increase in gross rent as a percentage of income (GRAPI) across this three-year period: California counties saw a statistically significant increase in GRAPI between 2009 ($M = 33.42$, $SD = 3.09$) and 2012 ($M = 34.19$, $SD = 2.50$); $t(39) = 2.23$, $p = .03$. By 2012, the average household in thirty-seven of the forty counties represented in the survey spent more than 30 percent of its income on housing costs, the federal standard for housing affordability (see Figure 2).

BENEFITS ENROLLMENT RATES

Having determined that housing became less affordable statewide during this period, I examined whether the percentage of individuals with SNAP, Supplemental Security Income (SSI), and general assistance (GA, a county-funded program in California) rose alongside increases in GRAPI. SNAP enrollment rates increased significantly over this 3-year period ($t(39) = 11.15$, $p < 0.001$). Similar results were found for increases in SSI rates ($t(39) = 10.17$, $p < 0.001$) and GA recipient rates ($t(39) = 2.82$, $p = 0.008$).

I next examined the predictive relationship between rising housing costs and increases in SNAP participation. Using a linear regression model that controlled for the percent change in unemployment rates, median incomes, and county poverty rates, I found that a percentage change in GRAPI between

Table 2. Linear Regression Predicting SSI Enrollment Changes with Changes in GRAPI

Variable	Coefficient	S.E.	F
Intercept	0.01*	0.002	3.891 (2,37)**
Percent change in poverty rates	0.14	0.09	
Percent change in GRAPI	0.09	0.08	

*Notes: $R^2 = 0.17$, *p = 0.0001, **p = 0.03*

2009 and 2012 significantly predicted SNAP enrollment increases (see Table 1).

The model explained 27 percent of the variance ($F(4,35) = 3.207$, $p = 0.02$). Importantly, the model intercept emerged as statistically significant, revealing that SNAP enrollment increased independent of housing and other economic factors. This is to be expected, given the large increase in SNAP spending under ARRA, which coincided with the beginning of the time period in this analysis. Nonetheless, a positive correlation between housing costs and food stamp participation rates still emerges (see Figure 3).

I performed similar linear regression analyses of the percent change in SSI rates and GA rates on the percent change in GRAPI. GRAPI significantly predicted the change in SSI rates by county, but this effect disappeared after controlling for poverty rates ($B = 0.093$, $t(37) = 1.17$, $p = 0.245$; results are presented in Table 2). Because SSI eligibility is partly determined by extreme poverty and lack of assets, this result is not surprising.

Finally, controlling for poverty rates and unemployment, a linear regression of the percent change in GA enrollment on the percent change in GRAPI found no significant correlations. Results from this analysis are presented in Table 3.

DISCUSSION

The years 2009-2012, while not a technical economic recession, sent shock waves through the California economy. Unemployment remained stubbornly high and household incomes continued to decline. During the same period, newspapers commonly reported soaring rents and record-low vacancy rates in California's major metropolitan regions. This report sought to quantify household economic hardship across the state by measuring county-level changes in median income, median rent, and gross rent as a percentage of income (GRAPI). As a result of these economic changes, Californians lost $80 per month in net disposable income, a decline largely driven by increases in gross rent. GRAPHI, an index of housing affordability, correlates with increased enrollment in SNAP, even after accounting for income, poverty, and unemployment rates. Despite the fact that recipient rates for both SSI and GA also grew significantly during this period, GRAPI did not significantly predict enrollment increases in these programs. This suggests that households, whether disabled (SSI) or not (GA), were not merely attempting to supplement or replace monthly incomes with government benefits. Rather, they seem to be responding rationally to economic trade-offs between critical household necessities—i.e., food and shelter.

LIMITATIONS

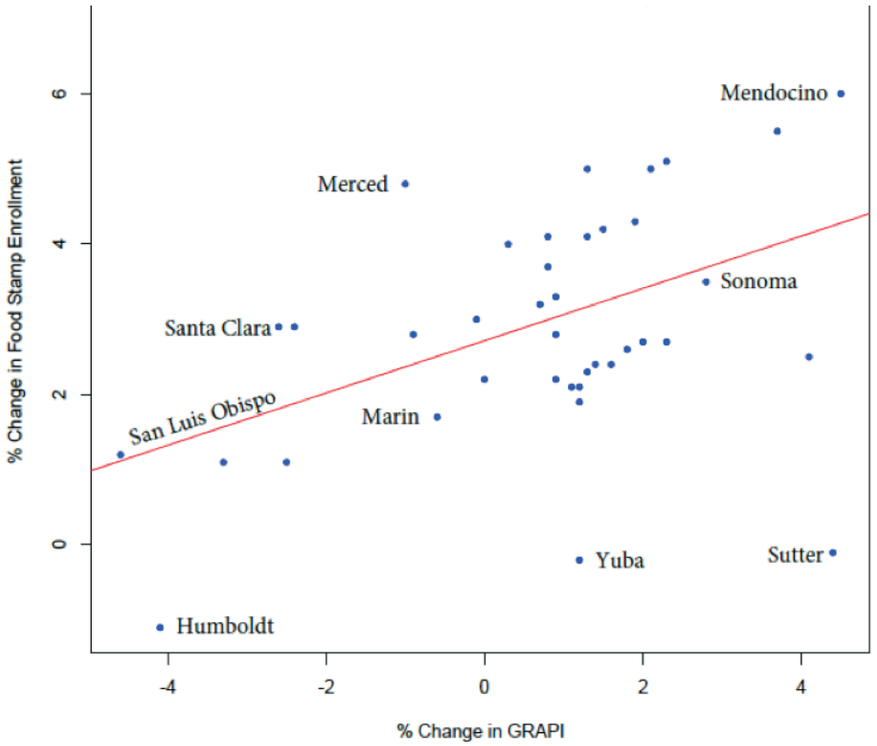
Before further discussion, it is important to point out a number of shortcomings in this study. First, data on the number of households receiving rental subsidy assistance in each California county would need to be included in the analysis to make sound conclusions about behavioral trade-offs between food and rent. Unfortunately, the ACS does not provide this specific data. This remains an important area for future research. However, as discussed earlier, the years-long waitlists and relative scarcity of landlords amenable to federal vouchers suggest that a statistically trivial number of households would have been able to apply, qualify for, and begin renting with vouchers over this brief, three-year period. Due to the difficulty of receiving housing assistance, households seem to be turning to other forms of assistance, mainly SNAP, to cope with the economic difficulties of the Great Recession. This effect will need to be replicated with future research to tease apart the effect of increased SNAP funding under ARRA, since SNAP enrollment rates increased independently over this period. Nevertheless, changes in gross rent as a percentage of income still emerge as a significant predictor of the trend.

Second, the data analyzed here do not include rates of homeownership, which represents a very different sector of the housing market. It is unknown, for example, whether GRAPI rose across the state because wealthier income households left the rental market to purchase homes at more affordable prices after the housing bust. This would decrease the overall income distribution in the rental sector, inflating the GRAPI statistic with no change in purchasing power to those still in the market.[41] This cannot be determined from the current data set. Given the 135 percent increase in the number of renters between 2009 and 2012 and the similar increases in number of renters nationwide, it seems unlikely that this would be the case, but further research is needed to delineate trends in purchasing versus renting.

Lastly, these data do not specify household size, an important determinant of housing affordability standards. Smaller households with the same after-tax incomes as larger households can afford to devote more of their income to rent

because they incur fewer additional expenses. This aspect complicates the nationwide 30 percent-of-income housing affordability standard.[42] Some measure of disposable income would be required to account for this, but the ACS does not allow such a level of sensitivity.

Figure 3. Percent Change in Food Stamp Enrollment as a Function of Changes in Gross Rent as a Percentage of Income (GRAPI) for 40 California counties, 2009-2012.



POLICY IMPLICATIONS

Nevertheless, these analyses still point to a few significant conclusions regarding housing affordability and social welfare benefits. First, it seems unreasonable to continue adhering to a uniform, nationwide standard that 30 percent or less of one's household income constitutes an affordable, sustainable rental expense. By 2012, the average renter in thirty-seven of the forty California counties included in this study dedicated more than 30 percent of her income to housing, with a statewide average of 34.2 percent. These data corroborate similar findings nationwide; Quigley and Raphael demonstrated that the proportion of rental units priced at 30 percent or less of median income fell from 0.83 to 0.62 between 1960 and 2000.[43] Either the nation is experiencing a serious (and growing) crisis in housing affordability, or the metrics of defining housing affordability need to be updated. This study supports the "residual income" approach to defining housing affordability, in which housing should be considered affordable only if households have enough income remaining to cover non-housing needs at a minimum level of adequacy.[44] Moving to this standard of determination or creating regional indices of affordability (much as HUD determines the Fair Market Rent index on a county-by-county basis) would provide state and national policy makers with a more accurate measure of need in local jurisdictions. It may also lead to outcome improvements in the Section 8 and Shelter Plus Care programs, both of which use 30 percent income standards nationwide to determine client rental contributions.[45]

Second, and more ambitiously, policy makers and legislators should change their perceptions of housing assistance vis-à-vis the American welfare state. Given a limited amount of monthly income, rational consumers must make tradeoffs regarding their consumptive behavior. While it is reasonable to expect that discretionary or frivolous expenses will be sacrificed, there are necessities that ensure some basic minimum standard of physical and psychological well-being and cannot be cut without dire problems. Of all goods, food and shelter stand out as perhaps the most universal and primary of human needs. Indeed, data from the present study suggest a close link between these two sectors of the economy. Why, then, do federal housing and food assistance programs remain so disjointed, even antagonistic to one another? While food stamps are considered a federal entitlement for eligible households, housing vouchers are not, partly underlying the very low number of applications that are actually granted vouchers—and corresponding years-long waitlists.[46] Moreover, receipt of a housing voucher has a negative effect on SNAP grant amounts, since housing expenditure deductions often drop precipitously once a voucher reduces one's monthly rental expenses. If the goal of the welfare state is to ensure some minimum standard of material well-being, policy makers are certainly adhering to the "minimum" aspect of this call by ensuring that as soon as one hand giveth, the other taketh away.

I suggest policymakers seriously consider integrating federal housing assistance with other welfare programs.[47] Given the linkage found here, it seems reasonable to explore whether eligibility determinations for SNAP and federal voucher programs, such as Section 8, might be coordinated. One proposal

would be to alter the eligibility criteria for Section 8, such that renters currently at the margins of program eligibility would be ineligible for formal housing assistance and instead automatically enrolled to receive a SNAP supplement. For these marginal applicants, the supplemental food stamp benefits could be used to free up money for rent, and thus achieve the larger goal of housing maintenance. This humanitarian goal could likely be accomplished with substantial administrative cost-savings as well. The Section 8 program currently incurs large administrative costs because of the requirement that all units be inspected prior to move-in and again during annual reviews.[48] Eliminating this requirement by switching the provision to food subsidies circumvents the administrative cost altogether, creating the potential for achieving greater economies of scale.

It seems important to clarify that this policy proposal does not bill itself as a surrogate solution to the growing problem of housing unaffordability. Studies have shown that high housing costs and low vacancy rates—both supply-side variables—are a significant predictor of homelessness rates,[49] so truly solving the problem requires increasing the supply of affordable, low-income housing. However, housing supply is inelastic in the short-run; increasing it is not a strategy for immediate relief during sudden economic downturns. Instead, the targeted provision of SNAP to individuals on the margins of the housing market offers a short-term and easily implementable tool to prevent homelessness and other deleterious consequences of sudden increases in rents.

Another consideration is the extent to which this proposal would benefit those households in need of housing assistance who already receive SNAP benefits. The marginal utility of additional food grants as a supplement to total income asymptotes as the amount of the grant approaches maximum household food consumption. Therefore, the proposal may achieve its intended purpose of freeing up sufficient income for rent only up to a certain amount, depending on the household's rent-to-food expenditure ratio. However, research suggests that current SNAP provisions are unable to prevent end-of-the-month food shortages among those who receive the benefit,[50] nor are they able to address food insecurity.[51, 52] Given that SNAP supplements are already insufficient to cover food needs, this concern seems unfounded, especially amongst those on the margins of the housing market for whom relatively small increases in income assistance will make critical differences.

Finally, it is worth noting that the targeted use of a food benefit as a rental-assistance device may appear bizarre to those individuals who would qualify for it. Though the implementation of this proposal is beyond the scope of this article, the administrative and political challenges associated with presenting it to the public are not trivial. Nevertheless, I contend that the benefits it would create would render the effort worthwhile—both for the administrative efficiency and downstream cost savings associated with homelessness prevention.

At present, "housing authority staff has little incentive to encourage continuous enrollment or reenrollment in the Food Stamp Program."[53] On the basis of this study, and given the unrealistic demand that Housing Authority administrators continue to face throughout California, it may be time to give more than a passing thought to altering this arrangement.

Peter Radu is pursuing concurrent Master of Social Welfare and Master of Public Policy degrees from the University of California, Berkeley. He is interested in homelessness and affordable housing policies, particularly among the seriously mentally ill.

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Missed Meals and Missed Opportunities:
Restoring CalFresh Eligibility to Former Drug Felons

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California has the highest poverty rate and the lowest rate of Supplemental Nutrition Assistance Program (SNAP) participation in the nation. In this article the author analyzes California's law banning people who have been convicted of certain drug felonies from participating in CalFresh for life as well as legislative efforts to repeal the ban. The lifetime ban for drug felons fails to significantly reduce program costs and has not been shown to deter drug crime. In addition, the law creates confusion around who is eligible for CalFresh and adds additional strain to the social safety net that supports those excluded from government programs. The article concludes that the lifetime ban is ineffective at achieving its stated goals, and California Senate Bill 1029, which provides that conviction for a drug felony does not make an individual ineligible to receive CalFresh benefits if otherwise eligible, would help dispel a source of safety-net confusion, help families vulnerable to food insecurity, induce spending in local economies, and reduce recidivism among former drug felons.

INTRODUCTION

California has the highest poverty rate and the lowest rate of Supplemental Nutrition Assistance Program (SNAP) participation in the nation.[1] Just over half of eligible Californians receive the nutrition assistance benefits to which they are legally entitled. This not only means millions of missed meals for our most vulnerable neighbors, but also a missed opportunity for economic investment in our communities.

SNAP is the United States' most effective and efficient anti-poverty program; studies have shown SNAP decreases food insecurity, increases economic mobility[2] and improves health outcomes, especially for children.[3] It also has a strong economic multiplier effect—$1 spent on SNAP generates $1.79 in economic activity.[4]

Though individual states administer SNAP, the federal government funds the program. This structure allows states to experiment with some eligibility rules to increase participation with only small increases in state budgets, e.g., the cost of printing a new manual for social service workers. According to people who are food insecure and their advocates, states should do everything they can to ensure that 100 percent of those eligible for help get it. In fact, only five states have take-up rates of 100 percent.[5]

Many eligible Californians face formidable barriers to participation in CalFresh, California's name for SNAP, including fear of deportation for parents of citizen children. In this paper I discuss one other important barrier to participation: a California law that bans people who have been convicted of certain drug felonies from CalFresh for life.

State legislators have introduced legislation aimed at removing this barrier nearly every year for a decade. The most recent iteration of this legislation, Senate Bill 1029, provides that conviction for a drug felony does not make an individual ineligible to receive CalFresh benefits, if otherwise eligible. The bill would directly and indirectly increase the CalFresh take-up rate, and put California in line with other states' sensible social policies. In one stroke, legislators could help dispel a source of safety-net confusion, provide groceries to families vulnerable to food insecurity, induce spending in local economies, remedy a racial inequity, and help save the state money by reducing recidivism.

BACKGROUND

The Personal Responsibility and Work Opportunity Act (PRWORA) of 1996 remade the American welfare state. Conservative reformers like House Speaker Newt Gingrich promised that the new regime would encourage

work, stabilize families, and curtail fraud and abuse. The substance of the law turned on judgments of who "deserved" public benefits: children, the elderly, and people with disabilities that prevented them from being employed.[6] Reform re-engineered programs providing material benefit to the poor to encourage work for wages. In this frame, people convicted of drug felonies likely also used drugs. Society viewed them as unlikely to be ready or willing to work, and therefore undeserving of government aid and, in fact, draining resources from those in the "deserving" categories.[7] Policymakers also worried these individuals were more likely to sell their benefits in exchange for drugs.

Twenty years into the War on Drugs, elected officials still believed a "tough on crime" reputation would help their reelection chances. The sponsor of the amendment, Phil Gramm (R-Texas) argued: "If we are serious about our drug laws, we ought not to give people welfare benefits who are violating the Nation's drug laws."[8] His amendment to PRWORA permanently disqualified people "convicted of a state or federal felony offense involving the possession, use or distribution of a controlled substance" from Temporary Assistance to Needy Families (TANF) and the Supplemental Nutrition Assistance Program (SNAP). The Act also required people applying for benefits to state in writing that no one in their household has been convicted of a drug felony.[9] The Gramm Amendment passed easily, with just one minute of floor testimony against it by Senator Ted Kennedy before a bipartisan vote for passage.[10] It became Section 115 of PRWORA.

Since the passage of PRWORA, at least twenty-nine states have chosen to implement some form of drug-test screening for all public aid recipients,[11] reinforcing the false notion that people who depend on public benefits are more likely to use drugs than the general population.[12]

However, because states administer the program, the law allows them to modify or eliminate Section 115. Twenty-

Figure 1. State SNAP eligibility policies for former drug felons, pursuant to PRWORA § 115

LIFETIME BAN	MODIFIED BAN	NO BAN
Alabama	California*	Delaware
Alaska	Colorado	District of Columbia
Arizona	Connecticut	Illinois
Arkansas	Florida*	Iowa
Georgia	Hawaii †	Kansas
Guam	Idaho †	Maine
Mississippi	Indiana †	Massachusetts
Missouri	Kentucky †	New Hampshire
North Dakota	Louisiana ‡	New Jersey
South Carolina	Maryland §	New Mexico
Texas	Michigan ||	New York
Virgin Islands	Minnesota §	Ohio
West Virginia	Montana †	Oklahoma
	Nebraska ||	Oregon
	Nevada †	Pennsylvania
	North Carolina ‡	Rhode Island
	Tennessee †	South Dakota
	Virginia*	Utah
	Wisconsin §	Vermont
		Washington
		Wyoming

*** Lifetime ban only for drug trafficking convictions, or if felony was not personal possession.**
† Regain benefits if in drug treatment, or complying with parole or probation.
‡ Ineligible for the first six months to 1 year after sentence.
§ Drug testing required.
|| Lifetime ban after second or third conviction.

one states have completely eliminated the ban and now allow people with a drug felony conviction to receive nutrition assistance.[13] Thirteen states have chosen not to modify or eliminate the rule, banning drug felons from receiving SNAP for life.

California is among nineteen states with a "modified ban." Modified bans include bans for a period of several months or years rather than for life, or making benefits contingent on successful drug treatment or regular drug testing (see Figure 1 for a list of states' policies). California excludes from the lifetime ban drug felons who were convicted only of possession for personal use, once they have completed drug treatment and stopped using drugs.[14.]

IMPACT

Impact on felons' families

The lifetime ban impacts many thousands more than the estimated 3,000 former drug felons who would become eligible for assistance immediately.[15] Most directly, it impacts their families. When they come home, formerly incarcerated individuals increase the strain on their family's budget. Without nutrition assistance, there are suddenly more mouths to feed with the same amount of money to go around.[16]

Impact on all eligible families

California's modified ban sows confusion among families considering whether or not to apply for food assistance. Few inmates choose to apply for benefits even though their children or other household members may be eligible.[17] Many Californians have reported that they thought they were ineligible because of a misdemeanor drug charge, or for a nondrug felony, or even that their entire household was ineligible because of the presence of a former drug felon. Still others report they heard welfare offices drug test all recipients, and object to that breach of privacy and dignity.

In pre-release workshops with inmates, benefit counselors report "the air is just sucked out of the room" when they explain the lifetime ban.—The lines between "eligible" and "banned for life" become more difficult to untangle as more marijuana-related offenses are removed from the felony category. This confusion impacts many more people than the ban actually affects. Of the ten states with SNAP participation rates above 90 percent, only one maintains its lifetime ban for drug felons.

Impact on the private safety net

California's ban also affects community-based organizations. Every family not using CalFresh, or getting fewer dollars than they need, increases demand for private charity at a time when hunger-relief organizations are already over-stretched.[18] Food banks across the country report that families depend on their services for years at a time, subsidizing low wages and blunting the impact of increased costs of living.[19] Lowering barriers to effectively and efficiently delivered government aid allows private charities to refocus on their original emergency-food mission. As a result, food banks, soup kitchens, and food pantries have lined up in support of the repeal for more than a decade (see Figure 2 for a partial list of supporters).

Figure 2: Selected supporters of lifetime ban repeal bills in California

Supporters of Lifetime Ban Reap Bills in California

- County Welfare Directors Association *
- Western Center on Law and Poverty *
- Drug Policy Alliance *
- American Civil Liberties Union CA
- California Association of Food Banks
- California Catholic Conference
- California Food Policy Advocates
- California Immigrant Policy Center
- California Public Defenders Association
- California State Association of Counties
- Community Food and Justice Coalition
- Hunger Action Los Angeles
- Lawyers' Committee for Civil Rights
- Legal Services for Prisoners with Children
- National Association of Social Workers, California Chapter
- Policy Link
- Second Harvest Food Bank of Santa Cruz County
- Urban Counties Caucus
- Youth Justice Coalition

Most recently, anti-hunger organizations have begun

advocating for clearer state SNAP rules as part of their "shortening the line" strategy.

Impact on local and state budgets

The lifetime ban on SNAP for certain drug felons saves the state very little money. With about 3,000 eligible households, California faces negligible added administrative costs under Senate Bill 1029: about $250,000 by the Assembly Committee on Appropriations' estimate, or 0.0001 percent of the total 2013 California budget. That cost comes mainly from a provision that would require counties to pre-screen inmates for nutrition benefits, in order to enroll them immediately upon release. This provision could save counties money by screening many potential enrollees in one place: jail. The federal government pays 100 percent of the benefit amount.

Meanwhile, 97 percent of SNAP recipient households use up their entire benefit by the end of the month and a majority, or 53 percent, have spent more than 90 percent of their allotment halfway through the month.[20] Since few recipients leave their benefits unspent, and because grocery stores cannot outsource most of their jobs, SNAP spending quickly and effectively stimulates the local economy and creates jobs.[21] Making it easier for people to begin receiving benefits not only brings money directly to families of former drug felons, but also simplifies the program for those who might wrongly believe they are ineligible.

Impact on the criminal justice system

TStrong evidence indicates that providing material resources, including food assistance, to people re-entering their communities after a period of incarceration can increase economic security and reduce recidivism.[22] Legislative analyses of similar bills emphasized California's high recidivism rate and discussed the potential impact of social services that make it easier for those returning to their communities to find work. While lifting the ban would only impact an estimated 3,000 former drug felons, it would be a step in the right direction toward reducing California's prison population.

California is now under federal oversight for prison conditions so poor that they violate inmates' constitutional right not to suffer "cruel and unusual punishment." Reducing the share of people who return to prison can reduce overcrowding and help bring California into compliance with this federal court order. Corrections have also eaten up larger and larger shares of the state budget. California plans to spend 7 percent of its 2013-14 budget on prisons,[23] while the average state spent just 4.5 percent last year.[24]

Fairness

Advocates have challenged the ban in federal court on equal protection, due process, and double jeopardy grounds.[25] However, the ban met the judges' standard that a policy be rationally related to the government's interest in deterring drug use and reducing fraud, it remains constitutional. Though case law is settled, we can still question the conclusion within the very frame the case was decided.

In fact, it is difficult to argue that the lifetime ban has effectively reduced fraud. Innovations in SNAP distribution such as the Electronic Benefits Transfer (debit-type) card have lowered fraud rates to 3.8 percent.[26] Moreover, compared to other income-eligibility-based public programs, which have fraud rates as high as 10 percent, SNAP already has low rates of fraud.

The argument that the government's stated interest in Section 115 is deterring illegal activity is also far from persuasive, given that former inmates report engaging in other illegal behavior, such as prostitution, in order to feed themselves or their families after release.[27] Little evidence exists that the ban from SNAP discourages drug crime.

The argument that the possibility of not receiving public assistance in the future would dissuade someone willing to risk jail time for a crime assumes a ridiculous level of knowledge of administration of the safety net and the causal chain leading to that outcome. In fact, research has shown that people who commit crimes act while underestimating the severity of future punishment.[28]

Equity

An estimated 12 percent of the U.S. population of drug users is African-American, but 32 percent of those arrested for drug offenses and nearly 60 percent of those incarcerated for a drug conviction are black.[29] The collateral consequences of arrest and conviction fall hardest on African-Americans, who also already face high food insecurity rates. One in four black families experienced food insecurity in 2011, compared with one in seven overall.[30] Even if we preferred a policy that excluded drug users from SNAP, a policy that depends on arrest and conviction to identify users will fall disproportionately on African-American families. Every

stage of the criminal justice system, from racial profiling in arrests[31] to disparities in sentencing,[32] reflects racial inequity disadvantaging minorities.

Because it lasts a lifetime, this policy also seems to completely discount the possibility that a drug user will stop using. Anti-hunger advocates call the lifetime ban "a second sentence of hunger."

LEGISLATIVE HISTORY

It has been nearly twenty years since the welfare reform changed safety net eligibility so that people with specific types of criminal pasts were no longer eligible for some kinds of benefits. Since then, dozens of states have acted to remove those barriers. After more than a decade of attempts to end the lifetime ban on CalFresh for drug felons, the time for reform is overdue. (See Figure 3 for a timeline of past attempts at Section 115 elimination and modification in California.)

Bills like this one have made it to the governor's desk in the past, only to receive the Governor's veto, once by Republican Governor Arnold Schwarzenegger and once by Democratic Governor Gray Davis. Since Governor Jerry Brown won election in 2009, bills like this one have languished in the appropriations committee after passing both houses.

Other states have succeeded where California has not. Maine and Ohio's opt-out laws carefully avoid language that may lead legislators or voters to presume they are granting felons some brand-new entitlement. California's most recently introduced bill, SB 1029, matches that language, including another careful provision that people on parole or probation must be in compliance to receive the benefits. However, this provision has no practical effect, since those in violation of parole or probation must go back to jail, making them ineligible for benefits.

SB 1029 stalled in appropriations committees. California's budget process requires reform efforts with a cost above $250,000 to overcome an extra hurdle of approval by the appropriations committee. The bill rates just at the level of earning the extra scrutiny. Even if decision-makers restrict their analysis to budget impact, this relatively small cost is more than outweighed by CalFresh's power as an economic multiplier.

Advocates have worked to frame the issue carefully as one of cost savings and administrative streamlining, and California advocates should continue to do the same.

Figure 3: Timeline of California attempts to modify or eliminate PRWORA § 115

YEAR	BILL LANGUAGE	OUTCOME
2002	Bill to eliminate ban for individuals enrolled in drug treatment.	Vetoed by Gov. Gray Davis
2004	Bill to modify ban; simple drug possession convictions no longer affect eligibility.	Passed and enacted.
2007	Complete repeal of ban.	Vetoed by Gov. Arnold Schwarzenegger.
2011	Complete repeal of ban.	Died in Senate Appropriations committee.
2012	Bill to eliminate ban for individuals enrolled in drug treatment. Would also have eliminated ban for CalWORKs recipients, increasing cost to the state.	Died in Senate Appropriations committee.
2013	Repeals ban for individuals compliant with parole or probation.	Died in Assembly Appropriations committee.
2014	Repeals ban for individuals compliant with parole or probation. Requires counties to pre-enroll eligible individuals before release.	Referred to Senate Committee on Human Services (as of March 1, 2014).

Unfortunately, the policy change has not yet won passage, despite the fiscal benefits, economic stimulus, and value to communities.

OPPOSITION ARGUMENTS

Most commonly, the opposition argues former drug felons will sell their food stamps for drugs. With changes to the administration of the program, e.g., EBT cards, those objections are largely irrelevant at the state level.

A decade ago, the list of opposition groups included law enforcement and prosecutor groups across the state. Today, the only formal opposition cited by the Legislative Analyst's Office comes from the California Narcotics Officers Association and the California District Attorneys Association (CDAA). The District Attorneys' Association writes that it is "concerned that these benefits will be used to assist in the sale and procurement of controlled substances." CDAA also states that "expanding the availability of these benefits to persons convicted of trafficking and manufacturing offenses increases the risk that public resources will be used to facilitate criminal activity."[33] The California Narcotics Officers Association has not publicly stated its reasons for opposition, although they are likely similar to the concerns voiced by the CDAA.

Opposition from Los Angeles County, once predictably strong, has also shrunk as nonprofits have lobbied interest groups there. Most recently, the chief threat to SB 1029's passage is behind the scenes: dying in appropriations committee. The fate of the bill, reintroduced in the 2014 legislative session, remains to be seen.

It also seems that public opinion on this topic has shifted. While the ban did not attract much attention in the 1990s and early 2000s, major California and national[34] newspapers ran sympathetic stories and opinion pieces in support of reform in 2011,[36] 2012[37] and 2013.[38]

Even as formal, state-level obstacles have evaporated, concern over the link between crime and public benefits has re-emerged at the federal level. Threats to state control over this policy emerged last year in a federal Farm Bill amendment that would have given states the option to test all SNAP recipients for drug use, and "the Vitter amendment," which would have remedied the disparity among types of felonies by broadening the Section 115 ban to include people convicted of murder, pedophilia, or violent sexual assault.[39]These amendments passed the Republican-controlled House and even the Democratic Senate, although they did not make it into the Farm Bill that President Barack Obama signed.

IMPLICATIONS FOR BROADER POLICY CHANGE

SB 1029 is not a panacea. It does little to address fundamental issues of poverty, hunger, and criminal justice. It will take a fundamental shift in American attitudes about these issues to even consider policy proposals that change those systems. That sounds perhaps more difficult than it is; half the battle is being able to define the "problems." In the past, the list of urgent problems demanding policy attention included rampant crime, drug use, and welfare dependency. Though those are still salient issues for a portion of the electorate, our idea of what deserves public attention and public resources has changed. Conversations around income inequality and ending the now-50-year War on Drugs have become more common and more nuanced in just the last three years.

The relatively high cost of living in California means many of our neighbors struggle to afford enough food. Yet Californians are often surprised to learn that no other state does worse at ensuring its residents have access to a program designed specifically to alleviate this condition. I argue that the lifetime ban on SNAP for California drug felons represents a missed opportunity to increase food security and invest in our communities economically.

Unexpected allies have come aboard. Elderly soup kitchen volunteers, saddened by seeing the same faces in line for what used to be called "emergency food" for weeks on end, have joined forces with probation officers tired of repeatedly locking up the same people. Uniting their vastly different perspectives can show the public nothing is gained from the ban. In fact, talking and thinking about the ban may help us raise fundamental questions about these broken systems.

It does not serve us, fiscally and morally, to punish children for their parents' crimes. Nor is it fair to punish certain offenders decades after they have passed through a system called "corrections." Should sufficient access to food be considered something less than a human right?

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ENDNOTES

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